



CHAPTER 2

The Rise of Africa's Processing Sector and Commercialization of Smallholder Agriculture

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Introduction

Across many parts of Africa, commendable progress has been made in recent years to increase agricultural productivity; reduce hunger, malnutrition, and poverty; create new employment opportunities; and improve the livelihoods of rural communities. Yet, demographic change, urbanization, shifting diets, and climate change mean that pressure is growing on food systems to make more varied and nutritious food available and accessible. Coupled with continued population growth, the significant economic growth experienced over the past two decades has accelerated food demand, leading to rapid increases in food imports despite strong agricultural sector growth (Christiaensen 2020; Seleshi 2021).

Africa must accelerate its transition from mainly producing and exporting raw materials and importing processed foods to develop a thriving and competitive agro-processing sector that delivers on the African Union's Agenda 2063 targets of economic growth, wealth generation, and employment (Aspiration 1) (AUC 2015). Failure to do so will mean continued food import dependencies, heightened vulnerability to global supply shocks, and lost opportunities for significant incremental wealth generation among rural and urban populations.

Sustaining past progress and responding to emerging pressures will require innovative means of resolving—faster and at scale—the institutional, infrastructural, and technological obstacles to future competitiveness in Africa's food value chains and thus reducing the continent's dependency on other regions for food. A host of recent developments—ranging from faster economic growth, rapid urbanization, advances in biotechnologies, digitalization, and deepening globalization—are already having a considerable impact on how food is produced, processed, marketed, traded, and consumed across the continent. The same developments are transforming the environment for smallholder agriculture, the nature of its links with the rest of the economy, and ultimately the extent to which smallholder farmers and rural economies share in current and further growth opportunities. At its core, this new environment raises the question of how to continue the unfinished business of commercializing smallholder agriculture.

The key issue remains the same: how can the demand constraint facing smallholders be addressed, so that they are connected to new markets in order to raise sales and incomes and increase incentives to invest in boosting

agricultural production and growth in rural areas? The rapid transformation of staples value chains, fueled by rising urban demand for processed foods, has fundamentally transformed the nature of demand constraints. Traditionally, the barriers to demand were linked to the geographic distance between growing areas and major consumption centers, and required solutions to the infrastructural and institutional obstacles to moving produce. In the current context, the demand constraints faced by smallholders arise from the difference between the simple, raw produce they supply and the processed, more sophisticated products that consumers in major urban markets demand. In this chapter, we argue that the distance separating smallholders and rural areas from new markets is no longer primarily physical but is increasingly related to processing and degree of sophistication. Rather than the quality of the road network and performance of local traders, it is the domestic processing sector's capacity to capture a growing share of the emerging urban demand that will determine smallholders' access to new markets. In other words, the demand facing smallholders is derived from the demand facing the processing sector, and thus, the constraints to commercializing smallholder agriculture come from the constraints faced by the emerging processing sector.

This chapter discusses opportunities and challenges related to enhancing the agro-processing sector's role as a bridge between smallholders and markets. The next section of the chapter discusses the objectives and strategic importance of smallholder commercialization, including its role in catalyzing broader economic growth. The third section discusses traditional approaches to commercialization, which have largely focused on overcoming the policy, institutional, and infrastructural barriers preventing the movement of agricultural produce from rural production areas to urban consumption areas. The fourth section assesses major trends that are transforming the composition of food demand and the nature of the commercialization problem. The chapter then discusses commercialization in the context of modern value chains, which requires a focus not on physical distance but on the distance between what is produced and what is demanded in terms of product sophistication. The chapter concludes with a discussion of policy recommendations to enable the development of competitive processing sectors, which would allow Africa's smallholders to better tap into the opportunities presented by growing demand.

Strategic Importance of Commercialization of Smallholder Agriculture

Agriculture remains the main economic activity and driver of livelihoods in rural areas of Africa. It is a main channel for transmitting broader economic growth and wealth creation in rural communities. In the current context of rapidly transforming value chains, it is crucial to find new ways of expanding and fostering access by smallholder farmers to the growing demand in urban markets. In essence, this is the same traditional challenge of commercialization, which, at its core, is a challenge of alleviating demand constraints faced by subsistence and other smallholder farmers. If a farmer has no access to markets outside his or her immediate area, then any surplus produced will go to waste or cause prices to collapse if it cannot be consumed. Farming households also will not be able to benefit from opportunities to earn revenue by supplying domestic markets. Demand constraints and barriers to markets therefore limit incentives for producers to expand production or make investments in increasing productivity.¹ Commercialization efforts seek to alleviate demand constraints by creating or expanding access to markets. The additional demand presented by these markets enables smallholders to generate and sell increasing surplus quantities more widely, sustaining prices and increasing incomes.

The welfare impact associated with smallholder farmers' move from subsistence agriculture to commercialization has been an issue of debate in the literature. Von Braun and Kennedy (1986) reviewed several studies from the 1970s and 1980s that assessed the effect of commercialization on household income and nutrition. The review challenged the conclusion made by earlier works that commercialization negatively affects the welfare status of poor farmers. Von Braun and Kennedy (1986) argued that the previous studies suffered from very small and biased samples and conceptual limitations, and failed to consider confounding factors. In support of this argument, von Braun (1995) conducted a summary of comparative studies undertaken by IFPRI and other institutions in selected countries in Africa and Asia. The findings showed that in the majority of cases, commercialization benefited smallholder farmers

through improved employment, agricultural labor productivity, better income, and better household nutrition. A more recent review by Saha, Sabates-Wheeler, and Thompson (2021) corroborated these findings on increases in employment, income, and productivity, and Ogutu, Gödecke, and Qaim (2020) noted that increased incomes resulting from commercialization allow farmers to improve their consumption of purchased food. However, not all studies show the same results. Carletto, Corral, and Guelfi (2017) conclude, based on data from Malawi, Tanzania, and Uganda, that the impact of increased commercialization on improving the nutritional outcomes of smallholder farmers is weak. The authors argue that smallholders sell small quantities of the food they produce despite there being a high level of commercialization.

Evidence has shown that commercialized agriculture produces a host of benefits at multiple levels, not just for rural production areas but also for the economy as a whole. At the farm level, commercialization is a way for small farmers to raise their incomes and improve resilience. The income earned by farmers from selling produce outside their immediate area has the potential to stimulate additional production and income, which, when spent on local goods and services, boosts activities in the off-farm sector and stimulates growth in the broader rural economy, widely benefiting the rural population. At the national level, agricultural commercialization is a key catalyst for wider economic transformation and growth, as revenues generated in the agricultural sector and rural areas fuel demand for goods in the rest of the economy and help generate financial resources to invest in public goods and services. The commercialization and growth of smallholder agriculture, therefore, contribute to broader development goals including employment creation, poverty reduction, and nutrition, as shown by Hazell and Roell (1983).

The growth multipliers described above measure the additional income that results from re-spending income earned from the sale of tradable goods—in this case, smallholder producers spending income from selling agricultural crops on local goods and services that would not otherwise have been produced and sold (Delgado, Hopkins, and Kelly 1998). There is a wide consensus in the 1980s and 1990s literature that agriculture has a notable growth linkage in the rural

¹ The experience of Ethiopia's maize sector in the early 2000s starkly demonstrated the damaging effects of lack of market access on incentives to raise productivity. Investments in production technology coupled with good weather led to large harvests in 2000/2001 and 2001/2002, but farmers were unable to sell all of their surplus production, leading to an 80 percent decline in the price of maize and crops going to waste. In the following year, producers reduced their input use; this, together with late rains, resulted in a drastically lower harvest (Rashid, Getnet, and Lemma 2010).

economy. That is, findings show that the increase in agricultural income from the sale of agricultural goods results in positive growth effects in the local nonfarm sector. Hazell and Haggblade (1991) emphasize that agricultural growth is the primary driving force for the rural nonfarm sector, since the increase in farm income leads to an increase in household expenditure on the consumption of goods and services.

Agricultural commercialization and growth influence nonfarm activities and generate multiplier effects through three channels: (1) consumption linkages emanating from the effect of additional farm income spent on goods and services, (2) production linkages resulting from the increased supply of such goods and services, and (3) labor market linkages due to increased demand for employment in and outside of the agricultural sector. Evidence suggests that in comparison to production linkages, the proportion of agriculture's growth multiplier effect that is attributed to consumption linkages is greater. For instance, Hazell and Haggblade (1991) and Delgado (1995) suggest that about 80 percent of induced income gains from agricultural multipliers were due to consumption linkages.

Haggblade, Hazell, and Brown (1988) have reviewed estimations of the magnitude of rural growth multiplier effects in Asian and African countries. They concluded that multiplier effects were about 40 percent lower among African than Asian countries, with average values estimated at 1.5 and 1.8, respectively. In other words, a US\$1.00 increase in farmer incomes, say from the sale of agricultural products, creates an additional US\$0.50 and US\$0.80, respectively, in off-farm incomes. Weaker production linkages and less spending on nonfood rural consumer durables in Africa were identified as the main reason behind the lower level of the growth multiplier.

In contrast, the analysis by Hopkins, Kelly, and Delgado (1994) based on household survey data for Niger and Senegal found the presence of a higher level of multipliers in both countries, namely 1.77 in Niger and 1.83 in Senegal. The authors argued that the multiplier magnitudes obtained in the study are stronger when compared to findings in previous studies for Africa. The authors further argued that the functional characterization of all rural commodities in earlier studies resulted in a less accurate picture of the linkage between the farm and nonfarm sectors. That is, previous studies classify rural commodities into food and nonfood only, and later interpret the result as farm and nonfarm. This is argued to be the reason behind the lower level of multiplier reported in the earlier studies.

Finally, Hazell and Haggblade (1991) have shown that better infrastructure and agricultural income are associated with a stronger agricultural growth multiplier effect. The authors argued for government investments in rural infrastructure such as roads and electrification to amplify growth multiplier effects.

Haggblade, Hazell, and Dorosh (2007) questioned earlier studies that showed the presence of a higher agricultural growth multiplier effect. The authors criticized the underlying assumptions of fixed prices and perfectly elastic supply that were incorporated in several of the earlier studies. With a review of empirical estimates from more than 50 studies, they showed multiplier estimates that assumed fixed prices and unconstrained supply responses led to overly optimistic growth multipliers over price endogenous models that relaxed those assumptions. Similarly, Nseera (2014) pointed out that agricultural household income under the constrained supply elasticity model led to a lower increase (and hence lower income multiplier) when compared to the unconstrained model. However, it is important to note from Haggblade, Hazell, and Dorosh (2007) and Nseera (2014) that the agricultural income multiplier effect still exists with the constrained supply models.

Traditional Commercialization Policy Objectives and Strategies

Traditional commercialization strategies ultimately aimed to trigger the multiplier effects described above by expanding market opportunities to raise demand for and incomes from crops produced by smallholder farmers. In the context of traditional value chains, commercialization strategies dealt with simple products that underwent minimum transformation as they were moved from the field to consumer households; often this involved nothing more than threshing, cleaning, and bagging. There was not much difference between the products that left the farm and those marketed to consumers. For example, prior to the rise of the processing sector in Senegal, the millet sold in urban centers was the same millet harvested from the field and obtained in rural production areas. In this context, the commercialization problem was primarily one of expanding the market catchment area—that is, increasing the distance the product can travel to reach a wider set of consumers.

Traditional commercialization policies aimed to solve the demand constraint resulting mainly from physical distance by facilitating the movement of goods across space, gradually from production areas to village districts, rural towns,

secondary towns, and finally major urban consumption centers (Figure 2.1). The success of these commercialization policies was reflected in the extent and reach of the catchment area boundaries and the associated level of efficiency in moving goods from rural production areas to urban centers and eventually into foreign markets. Policies dealt with key supply chain functions that facilitate commodity movement over physical distances at the lowest cost possible, starting with product collection, assembly, cleaning, sorting, bagging, transport, and storage. Key priority policy and investment areas included the promotion of farmer cooperatives, construction and operation of market infrastructure, development

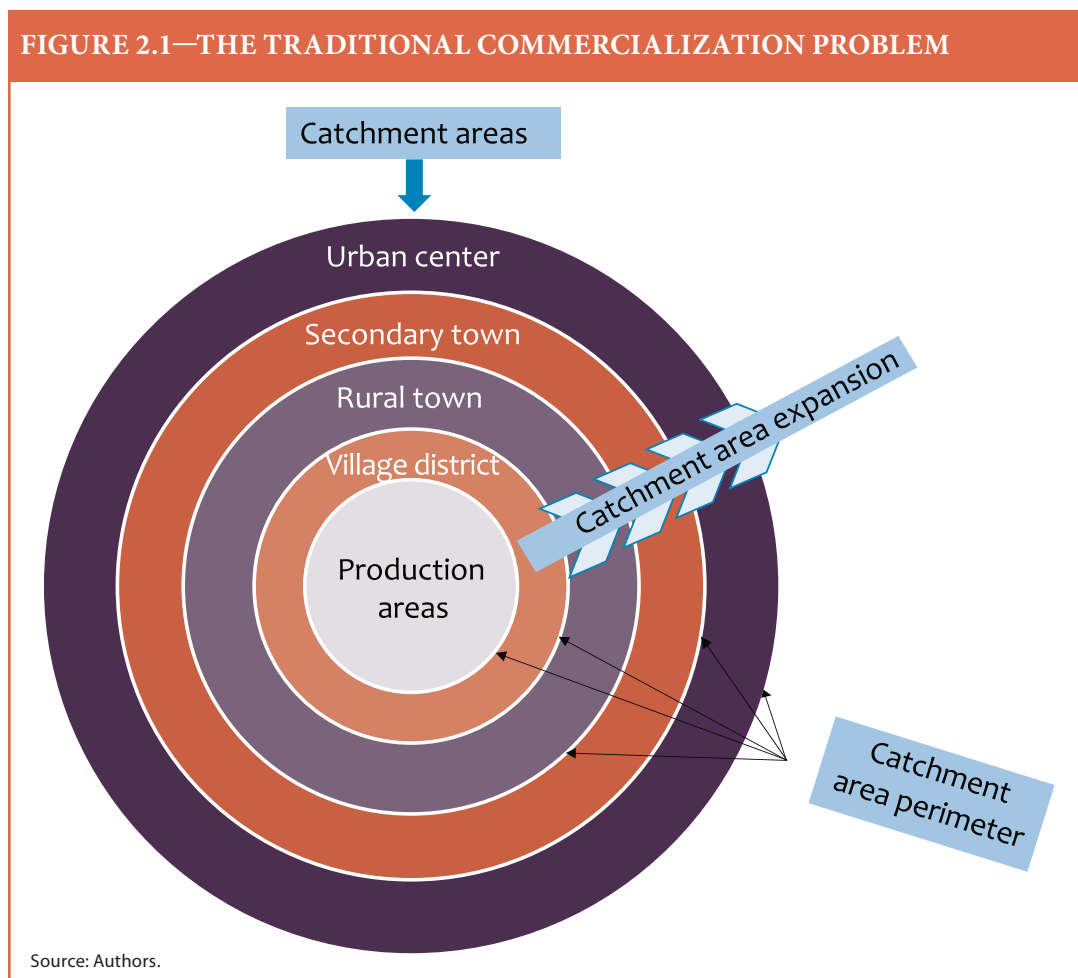
of road and other transport infrastructure, building and management of storage infrastructure, facilitation of access to financing, market regulation, and price information. The rapid urbanization of the last two decades, along with rising incomes and a growing middle class, has induced profound changes in demand and distribution patterns for traditional food staples. The simple products marketed traditionally from smallholder farmers to consumers are no longer demanded by urban households. Urban households want to consume the same traditional crops, but they are also asking for more convenience, safety, and diversity. They seek better-packaged food that is easier to prepare and consume. The

emerging processing sector is therefore the main bridge between smallholder farmers and domestic markets. The distance between farmers and consumers is no longer primarily a physical distance but one of production sophistication. The next section examines the changes taking place in the processing sector, before turning to implications for modern commercialization policies in the subsequent section.

Drivers of Food Demand and the Changing Nature of Food Markets

New developments are transforming Africa's food systems, and with them, the challenges of smallholder commercialization. The changing nature of food demand, driven by demographic and income changes, has altered the nature of the constraints to commercialization and changed the focus of the problem to one of overcoming not physical distance, but the distance between the types of products produced by farmers and those demanded by consumers.

In this section, we discuss several major internal drivers of change in African food systems and the nature of food demand, including population growth, urbanization, and increasing incomes. These developments have increased the role of processed foods in Africa's food systems and led to a new set of challenges for smallholder commercialization.



Population Growth and Urbanization

Africa is experiencing the fastest population growth of all world regions, with an annual increase of 2.5 percent during the 2015–2020 period, as compared to 1.1 percent for the world as a whole (UN DESA Population Division 2019). Urban populations in Africa are increasing even more rapidly, with annual population growth rates of 3.6 percent in urban areas during 2015–2020 (UN DESA Population Division 2018). Africa is still the least urbanized of major world regions, with 43.5 percent of the continent’s population living in urban areas as of 2020, compared with 56.2 percent for the world as a whole. The share of the urban population experienced an upward trend throughout the last four decades for Africa as a whole, as well as for its different geographic regions (Figure 2.2).

Despite all regions recording an upward trend, the pace of urbanization remained different across geographic regions. Northern and southern Africa stand out as the most urbanized part of the continent, while eastern Africa is the least urbanized, with the share of urban population at 29.3 percent in 2021—less than half of the share recorded by Africa as a whole for the same period.

However, the continent is urbanizing at a fast rate. The United Nations estimates that the share of the urban population will increase by 11.3 percent over the 2020–2030 period to reach 48.4 percent, the largest increase in the world (UN DESA Population Division 2018). Other estimates that use remote sensing data to identify urban areas suggest that Africa’s urban population share is increasing at an even faster rate and has already surpassed 50 percent (OECD and SWAC 2020; Tschirley et al. 2020). Either way, Africa’s urbanization is uniquely characterized by growth in smaller cities and towns as well as large urban centers, and by increasing population density in rural areas (Tschirley et al. 2020).

Africa’s population is becoming more affluent as well as more urban. While not sufficient to rapidly decrease poverty, strong economic growth in the 2000s and 2010s nonetheless raised incomes and expanded the size of the continent’s middle class. For example, GDP per capita increased by almost 30 percent between early 2000 and 2021 for Africa as a whole (Figure 2.3). Northern and southern African countries consistently recorded per capita income higher than the continent’s average.

FIGURE 2.2—SHARE OF URBAN POPULATION IN TOTAL POPULATION IN AFRICA (IN %)

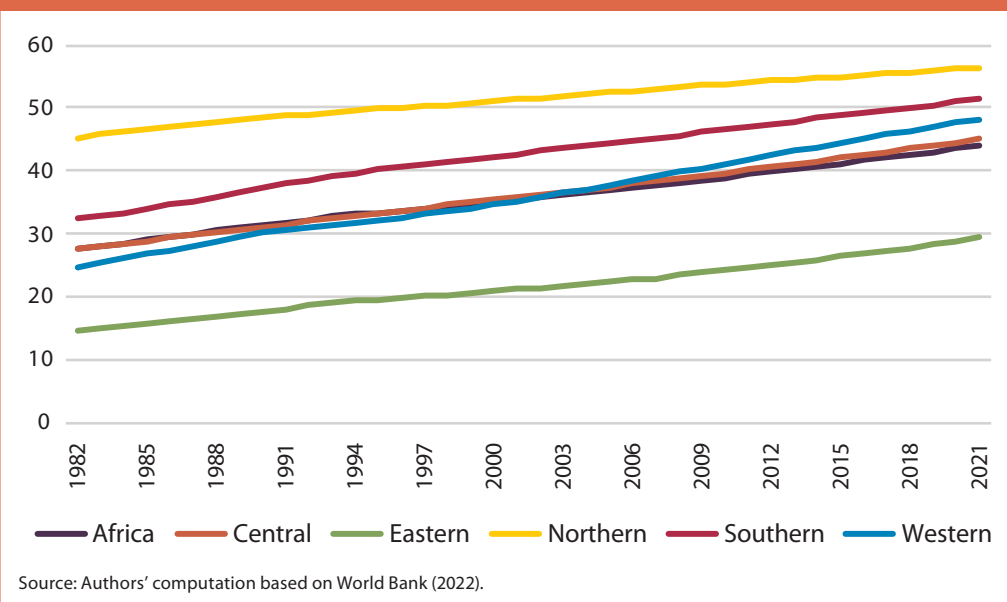
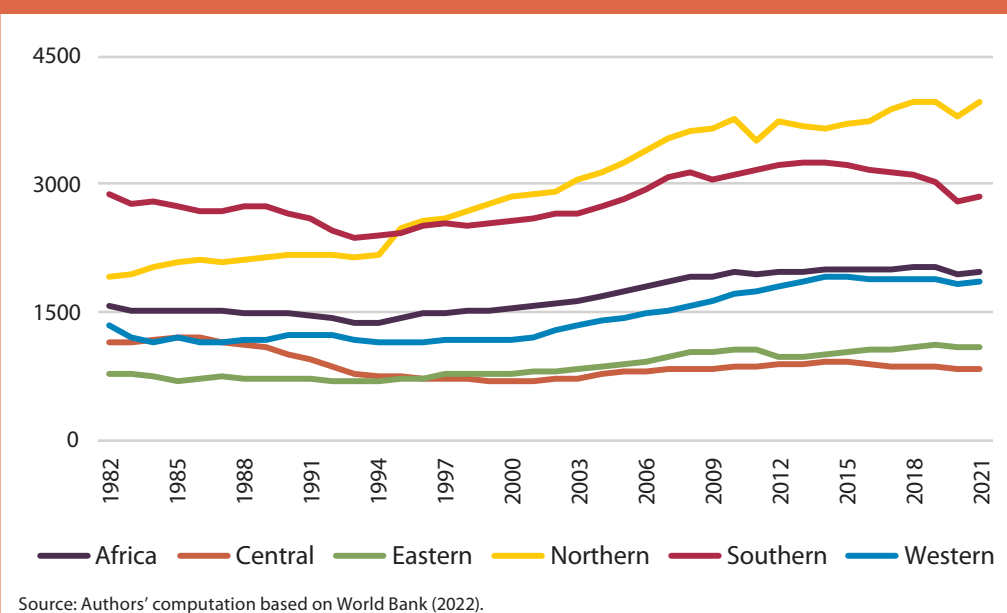


FIGURE 2.3—TRENDS IN GDP PER CAPITA



In contrast, per capita income was lower than the African average for the other regions, particularly for eastern and central Africa.

A 2011 African Development Bank study (Ncube, Lufumpa, and Kayizzi-Mugerwa 2011) found that Africa’s middle class—defined as the population with per capita consumption ranging from US\$2–20 (2005 purchasing power parity [PPP] USD) per day—increased from 204 million in 2000 to 327 million in 2010, or from around 27 percent of the continent’s population in 2000 to 34 percent in 2010. However, more than half of that group were considered to be “floating middle class,” meaning that they were situated just above the poverty line and vulnerable to reentering poverty.

Analyses that attempt to include only populations with greater levels of security have resulted in smaller estimates of the size of the middle class; for example, a Brookings study with a higher income threshold estimated that the size of the middle class in Africa south of the Sahara was around 114 million people in 2015 (Kharas 2017). An Ipsos study using criteria related to disposable income, education, and employment finds that around 60 percent of urban residents in 10 surveyed cities in western, eastern, and southern Africa are members of the middle class (van Blerk 2018). Despite differences in definitions as well as uneven income distribution across the continent, many studies agree that Africa has a growing population with more assets and disposable income, which is in turn driving the demand for more varied nutritious and processed foods (Deloitte 2013; Signé 2020; van Blerk 2018).

Finally, the growth of the agro-processing sector is likely to be stimulated by the continent’s youth bulge, with its rapidly changing diet patterns. The continent’s youth population is expected to continue growing throughout the remainder of the century and to more than double from its current levels by 2055. In 2015, 226 million youth ages 15–24 were living in Africa, accounting for 19 percent of the global youth population. By 2030, it is projected that the number of youth in Africa will have increased by 42 percent (UN DESA Population Division 2015). Between 10 and 12 million young people are expected to enter the African labor market each year over the next decade (AfDB 2016). Agro-industries are also likely to benefit from a more educated, younger population that meets their skill needs.

The Increased Role of Processed Foods

Growing populations, urbanization, and rising incomes are leading to strong increases in overall food demand. The World Bank has estimated that Africa’s combined food and beverage markets will triple in value from US\$313 billion in 2013 to US\$1 trillion by 2030 (World Bank 2013). The demand for staple foods is estimated to be increasing by nearly 5 percent annually due to increases in the number of urban dwellers (Tasamba 2020).

In addition to increases in the volume of food demanded, these developments are also leading to profound changes in the composition of demand. Diets in Africa, particularly among higher-income and urban residents, are shifting away from staples and toward higher-value foods, including animal products, fruits and vegetables, and sugars. In addition, the time pressures associated with urban lifestyles have led to increased demand for faster-to-prepare processed foods that often contain high amounts of sugar, salt, or fat (Hollinger and Staatz 2015).

These changes are taking place across a broad spectrum of consumers. A study in eastern and southern Africa found that purchased and processed food shares rise with income, but that these foods are commonly consumed, even among the poor (Tschirley et al. 2015a). In Ethiopia, the share of processed cereals in food expenditures increased over time and from lower- to higher-income groups (Hassen et al. 2016). These trends are expected to continue: Tschirley and colleagues (2015a) estimate that the share of processed foods will increase to constitute 79 percent of diets by 2040 (Table 2.1). The high value-added processed food category, which includes vegetable oils, dairy, ready-to-eat products such as bread, and food away from home, is expected to show the largest increase in consumption, accounting for nearly half of diets by 2040.

TABLE 2.1—ESTIMATED DIETARY SHARES OF PROCESSED FOOD CATEGORIES, EAST AND SOUTHERN AFRICA (PERCENT)

	Unprocessed	Processed low value-added	Processed high value-added
2010	29.9	32.7	37.4
2040	21.4	30.0	48.6

Source: Based on Tschirley et al. 2015a.

Growth in demand for perishable, high-value, and processed foods is leading to changes within food value chains, including increased length and complexity of value chains, sharp increases in the volume of food handled, and rapid growth in the number of firms investing in midstream segments, including processing and packaging (Reardon et al. 2015). Figure 2.4 shows the extent of the transformation of staples value chains, based on the example of the millet value chain in Senegal. Until recently, the chain hardly went beyond the first stage, where millet grown on the farm was milled in a neighborhood mill and the flour was processed in the household into various products for home consumption or sales in the same neighborhood. The chain was so short that most of these products were hardly ever found outside of the main millet production areas, leading to a continuous decline in millet consumption, not just in the capital city of Dakar,

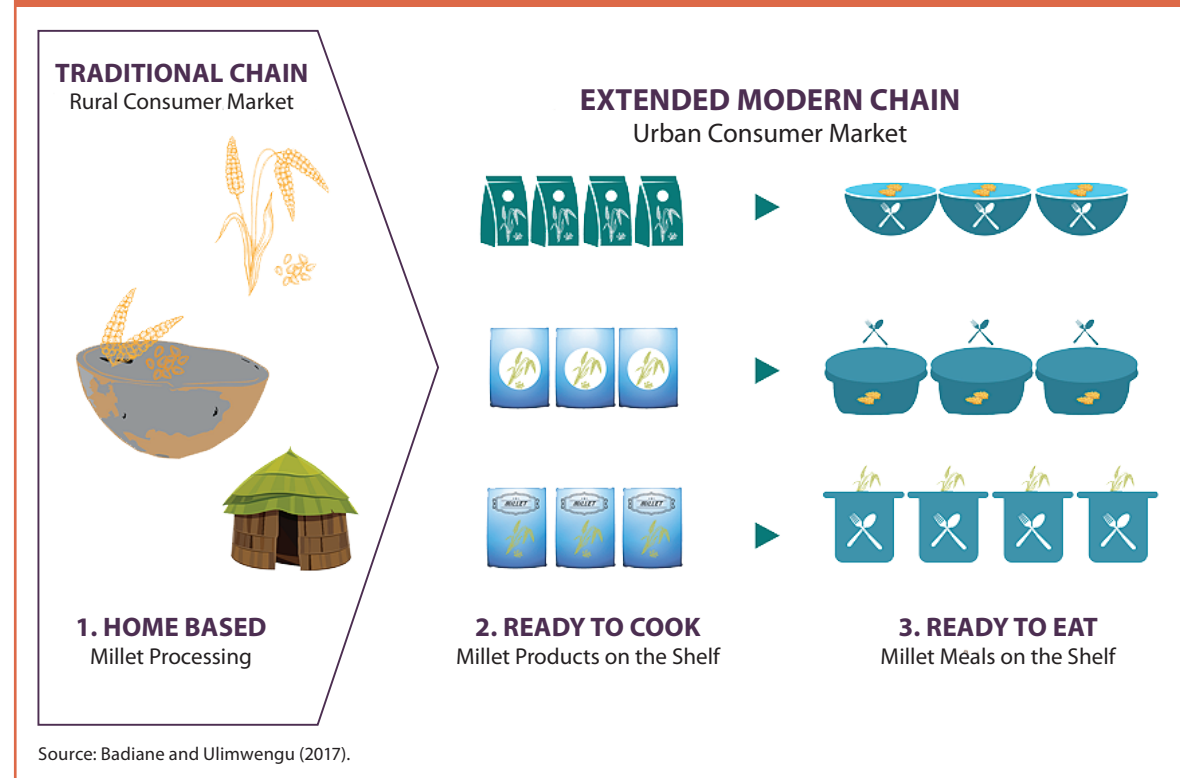
but also in other larger cities, including some near or inside the main production areas. In the 1980s and 1990s, several projects and other efforts at the National Institute of Food Technologies developed and extended new processing and conservation technologies, laying the foundation for the emergence of a millet processing industry. The second stage of the chain, which consists of bringing branded flour and other ready-to-cook derivatives to urban markets, started in the early 2000s. The third stage, with a range of ready-to-eat meals, is currently in the middle of a rapid expansion (Badiane and Ulimwengu 2017).

Similar changes in the length and complexity of value chains are occurring across the continent, as local foods, including traditional staples, become increasingly available in processed forms in urban markets. Urban retail inventories carried out in Mali, Ghana, and Tanzania have documented the presence of

domestic and regional processed products based on local staples (for example, fermented milk products, fufu flour, maize flour, and plantain chips) alongside processed products imported from outside the continent (Andam et al. 2015; Snyder et al. 2015; Thériault et al. 2017).

The lack of disaggregated data on economic activities in many countries makes it difficult to quantify growth in the agro-processing sector, but observers have noted the proliferation of small and medium enterprises processing local staples and other crops across the continent in recent years (Hollinger and Staatz 2015; Reardon et al. 2015). While manufacturing plays a relatively small role in African economies, as much as half of total manufacturing is likely constituted by the agro-industrial sector, which handles the transformation of farm outputs into food and nonfood products (ECOSOC 2017). In turn, food and beverages account for at least half of agro-industry in many African countries (Woldemichael et al. 2017). Analyses of UNIDO data presented in later chapters of this volume suggest that employment, output, and labor productivity in the food and beverage manufacturing sector are growing in most countries with

FIGURE 2.4—LENGTHENING OF THE MODERN MILLET VALUE CHAIN IN SENEGAL



available data (see chapter 5) and that the sector's share in total manufacturing output is increasing significantly in many countries (see Table 6A.2 in chapter 6).

Recent analyses of employment data also suggest that the agro-processing sector is expanding. A study of recent employment changes in nine African countries found that employment in agro-processing and other nonfarm agrifood system segments is growing rapidly, although from a low base (Yeboah and Jayne 2016). Tschirley and colleagues (2015b) project sectoral employment changes to 2040, based on expected changes in food demand, for a group of six eastern and southern African countries. They predict rapid growth in employment in off-farm segments of the agrifood system, with an employment share rising from 8.0 percent in 2010 to 11.2 percent in 2025 and 13.5 percent in 2040. Food away from home will show the strongest growth among off-farm agrifood sectors, followed by food manufacturing.

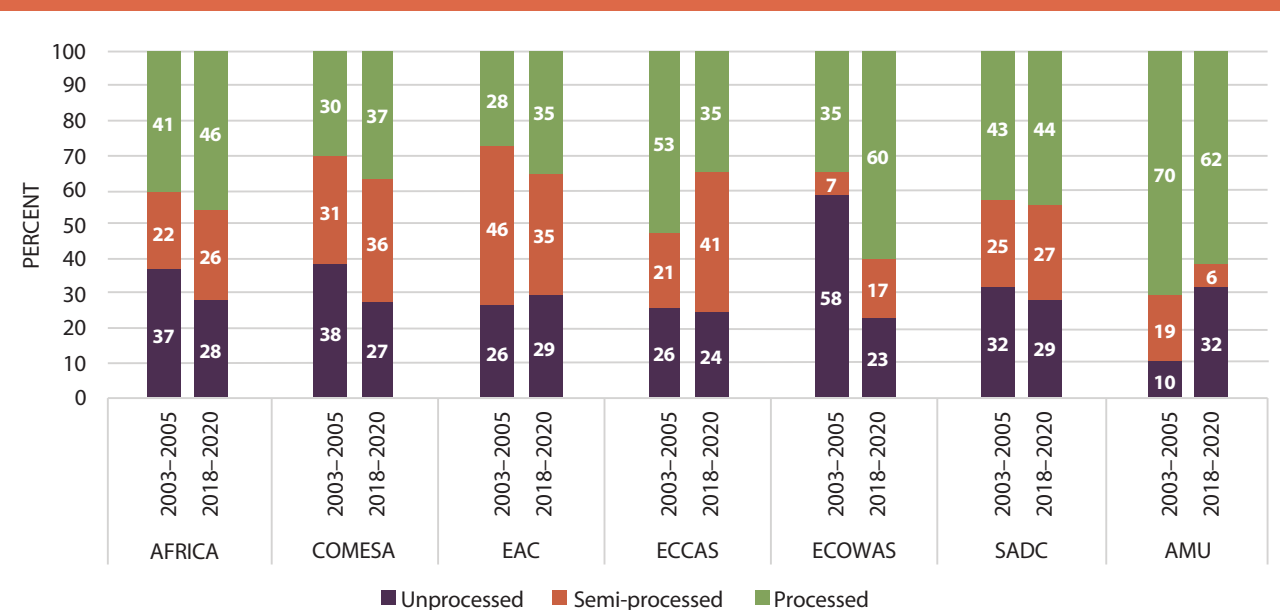
In their study of youth employment opportunities in three countries, Allen and colleagues (2017) estimate that over the next five years, off-farm agrifood jobs will account for 18–22 percent of new jobs in Tanzania, 18 percent in Nigeria, and 11 percent in Rwanda. The number of food manufacturing jobs is expected to grow between 12 and 20 percent in these three countries.

Regional trade patterns reflect the increased levels of production and consumption of processed foods. Although processed agricultural products exported outside of the continent remain low, the share of processed products in intra-African agricultural trade is significant and has risen markedly in the past two decades. During the 2003–2005 period, processed and semi-processed products accounted for 63 percent of intra-African agricultural exports; this share rose to 72 percent in the 2018–2020 period (Figure 2.5). Of Africa's major regional economic communities,

the Economic Community of West African States (ECOWAS) showed the largest share of processed and semi-processed intra-African exports in 2018–2020, as well as the largest increase in the share of processed exports between the two periods. It appears that African markets provide more attractive destinations for locally processed products than for unprocessed products: in 2019, 53 percent of Africa's total exports of processed agricultural products were traded within the continent, while less than 10 percent of unprocessed agricultural exports were (Goundan et al. 2022; Goundan and Tadesse 2021).

Despite the increased role of domestic and regional processed products in African markets, much untapped potential remains for local producers and processors to reach expanding urban markets. Imports from outside of the continent supply large shares of the demand for processed food. For example, in Bamako, Mali, imported milk powder represents more than two-thirds of dairy consumption, despite consumer preferences for fresh and local milk

FIGURE 2.5—COMPOSITION OF AGRICULTURAL EXPORTS TO AFRICA BY PROCESSING STAGE



Source: Goundan et al. (2022)

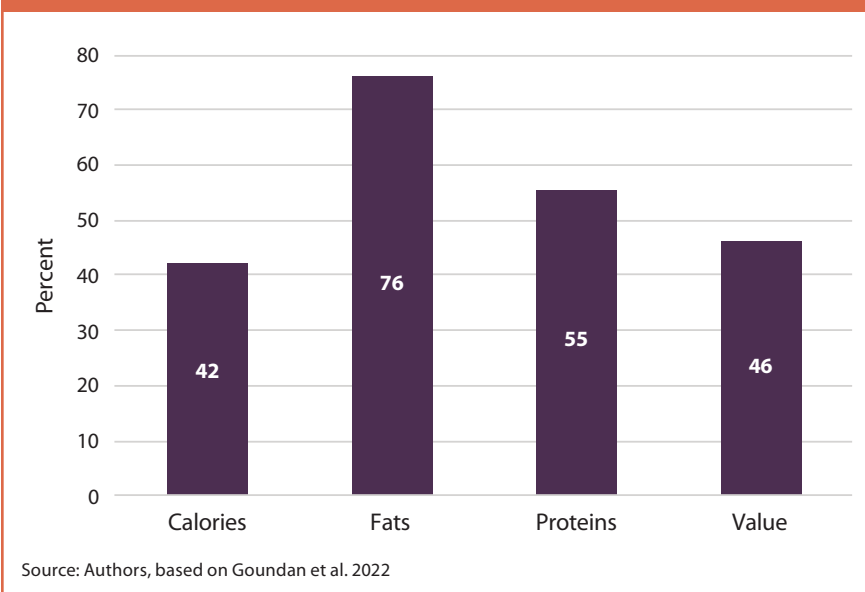
Note: COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; SADC = Southern African Development Community; AMU = Arab Maghreb Union.

(Vroegindewey et al. 2021). Focus groups in Lagos, Nigeria and Accra, Ghana revealed that urban consumers prefer local foods, but often choose imported products due to the need for quicker and more convenient foods. As stated by a student participant in Accra, “Time is the main factor in deciding what to eat, price is next” (Hollinger and Staatz 2015, 179). In many cases, issues with the packaging and presentation of locally processed food items, as well as concerns over food safety and quality, led consumers to purchase imported products.

The increased availability and consumption of processed foods is associated with impacts on nutrition that are complex and require attention to craft future growth strategies for the agrifood industries. Changing diets can both mitigate undernutrition and exacerbate growing issues of overnutrition. For example, Demmler and Qaim (2020) found that greater consumption of processed foods associated with supermarket shopping in Kenya led to higher rates of obesity and overweight in adults, but reduced undernourishment in children. Casari and colleagues (2022) found that urban diets in Burkina Faso were associated with higher rates of overweight and obesity but lower rates of undernutrition and child malnutrition. In some cases, processing can expand the availability of healthy foods. The time constraints associated with urban lifestyles mean that many consumers cannot carry out the time-consuming traditional home processing of local staples. Combined with a reduced physical workload from increasingly deskbound economic activities, this means that obesity levels have increased at a much faster rate than reductions in undernutrition (WHO 2016). Processed ready-to-cook or ready-to-eat products based on local staples and without excessive added levels of sugar, salt, or fat can allow consumers to incorporate nutritious choices that would not otherwise be available.

Processed foods comprise a wide range of products with greatly varying nutritional content. Further research will be required to characterize the health implications of processed foods and differentiate between types of processed foods produced in Africa, based on their ability to contribute to healthy diets. At the aggregate level, initial analysis by Goundan and colleagues (2022) suggests that processed agricultural products traded within Africa differ in nutritional content from unprocessed products. As shown in Figure 2.6, while processed products account for 46 percent of the total value of intra-African agricultural exports and a similar share of total calories, they are relatively rich in protein and particularly in fats, representing 76 percent of total fats traded with Africa. The high fat content of processed foods presents increased risks of overweight,

FIGURE 2.6—SHARE OF PROCESSED PRODUCTS IN INTRA-AFRICAN AGRICULTURAL TRADE, 2018–2020 (MEASURED IN NUTRIENT CONTENT AND VALUE)



obesity, and noncommunicable diseases. As the dietary transition continues, attention needs to be paid to strategies that harness the potential of processing to increase the availability of healthy foods while addressing the significant risks of contributing to growing health issues.

The nutritional content of processed products depends on product composition, processing technology, and the food system regulatory environment. Africa is still near the beginning of a surge in the growth of its processing sector. As the sector matures and formalizes, norms and standards can be developed—and firms can be supported to acquire the capacities to adhere to them—to mitigate the health risks of processed foods and maximize the sector’s contribution to healthy diets.

Diets across the continent have changed markedly and are continuing to do so. Unprocessed produce will feature less prominently in diets, particularly in the more affluent urban areas and among the growing middle class. It is only through competitive and well-performing processing sectors that African smallholders will be positioned to capture larger shares of the fast-growing urban demand.

Future commercialization strategies must be based on this recognition—how to do so successfully is the focus of the next section.

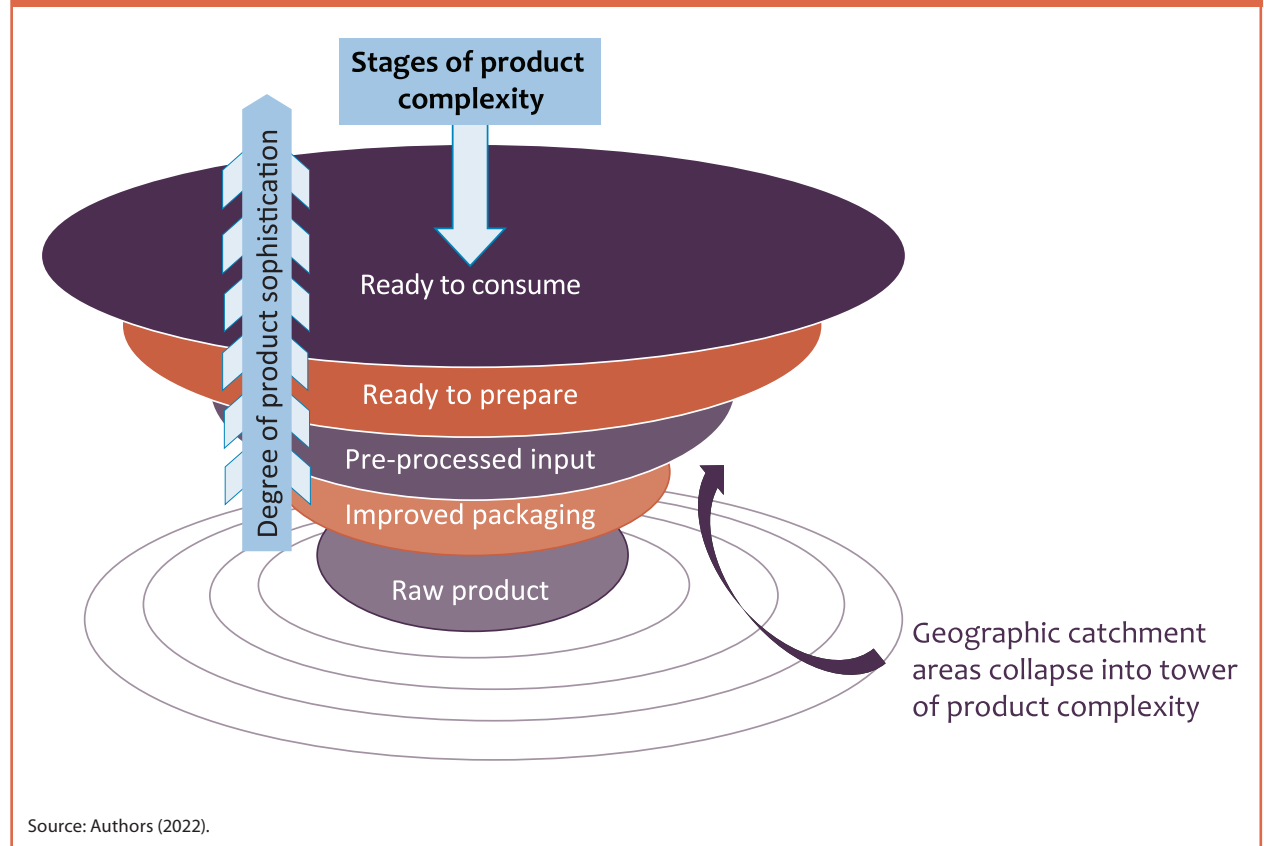
Commercialization Strategies in the Context of Transforming Value Chains

The transformation of African staples value chains has triggered a profound change in the type of demand facing Africa's producers. There is increasingly less of a place in diets, and in urban markets, for the unprocessed agricultural products supplied by smallholder farmers. Yet, as in the past, development ambitions require countries to sustain efforts to raise rural incomes and generate the same local multiplier effects by overcoming the new types of demand constraints facing smallholder farmers. The solutions to these demand constraints no longer involve expanding the geographic catchment area (see Figure 2.1). Rather, to capture larger shares of rapidly growing domestic markets, they call for increasing the processing of produce supplied by smallholder farmers to generate the more sophisticated products demanded by urban consumers.

Figure 2.7 illustrates how, in the context of transforming value chains and shifting demand to higher-value products, geographic catchment areas collapse into product complexity stages. Rather than moving products to more extended geographic areas further from the farm, products must be moved from their original forms to those that are ready to consume: preprocessed for input, ready to prepare, or ready to eat. Each stage of product sophistication depicted in the figure brings the produce from rural production areas closer to the form in which it is finally purchased and consumed in urban markets.

In this new context, the degree of product sophistication determines the new supply chain boundaries. Market expansion happens not just by reaching distant consumers, but by entering new markets through incremental transitions to more sophisticated products. The demand constraint is less a matter of spatial distance and more a matter of product sophistication. The volume of smallholder output that can ultimately reach urban markets is now determined by the processing sector's capacity to competitively produce and supply products with higher degrees of sophistication. Thus, policies to promote innovative and competitive processing sectors are central to modern strategies to commercialize smallholder agriculture.

FIGURE 2.7—COMMERCIALIZATION IN THE CONTEXT OF TRANSFORMING VALUE CHAINS



The evolution of millet consumption in Senegal demonstrates the processing sector's key role in enabling producers' access to urban markets. From the 1990s until 2010, millet consumption experienced a sharp decline, both in terms of absolute consumption per capita as well as share of cereals consumption. The millet value chain then embarked on a process of rapid transformation by introducing a variety of new ready-to-cook and ready-to-eat millet products (see Figure 2.4). These advances in product sophistication led to increased consumption of millet, especially among higher-income urban residents (Box 2.1). Although traditional commercialization strategies, including improved transport and market infrastructure, have played important roles in enabling value chain expansion, the expansion of millet into urban markets was only possible through the intervention of the processing sector and the creation of new value-added products to meet the needs of urban consumers.

The rise of the millet processing sector has reversed declining trends in millet consumption, not just in urban areas but, more strikingly, among richer urban households. As Table 2.2 shows, the per capita consumption (49.5 kilograms) of processed millet alone in 2018 is slightly higher than the national average of millet consumption (48.9 kilograms) in 2009. More importantly, per capita consumption of unprocessed millet, a traditional staple formerly consumed predominantly in rural areas, is currently higher among the upper two quintiles than among the bottom two. The share of millet consumption among high-income earners (upper two quintiles) is now close to 30 percent, compared to 32 percent for imported rice. The introduction of more sophisticated millet products has opened up urban markets to smallholder producers, raising demand for millet and boosting prices in local markets, with expected associated changes in incomes.

Across Africa, there are similar stories of how the development of the processing sector has expanded consumption of local

crops. For example, processing teff into ready-to-eat versions is associated with increased consumption in Ethiopia. Teff is a key crop for farm income and food security in Ethiopia; it was estimated to constitute 20 percent of all cultivated areas in Ethiopia in 2011/12, generating almost US\$500 million in income per year for Ethiopian farmers. Teff is primarily used for producing injera, a traditional staple pancake (Minten et al. 2016a). A study by Minten and colleagues (2016b) found that while many households continue to prepare their injera at home, commercial injera markets are growing quickly in Ethiopia. As a share of total expenditure on teff, expenditures on injera spiked between 1996 and 2011, from 6.8 percent to 34 percent, respectively. During the same period, the amount of teff consumed also increased from 25kg per capita per year to 29kg, with the share of injera rising from 8 to 24 percent. Minten and colleagues also found that the wealthier urban population is primarily buying and consuming injera in a ready-to-eat form. This indicates that as Ethiopia's cities and middle class continue to grow and the food service industry develops (including hotels and restaurants), the ready-to-eat injera market is set to continue expanding. Formal export markets for injera are also expanding, accounting for US\$10 million in

TABLE 2.2—ANNUAL CEREAL CONSUMPTION BY INCOME QUINTILE, SENEGAL (2017/2018)

	Income (in CFA francs/capita)									
	1st quintile [15,834–176,935]		2nd quintile [176,947–267,369]		3rd quintile [267,385–382,103]		4th quintile [382,110–579,781]		5th quintile [580,307–9,729,004]	
(in kg/capita)	kg	share	kg	share	kg	share	kg	share	kg	share
All cereals	119.0	100%	156.7	100%	177.1	100%	205.8	100%	290.4	100%
Millet (unprocessed)	25.5	21%	25.3	16%	28.4	16%	26.1	13%	33.3	11%
Millet (processed)	12.0	10%	22.3	14%	25.8	15%	40.0	19%	49.5	17%
Maize (unprocessed)	9.4	8%	11.8	8%	12.5	7%	13.0	6%	16.8	6%
Maize (processed)	5.9	5%	7.6	5%	9.2	5%	12.0	6%	14.9	5%
Sorghum (unprocessed)	3.2	3%	2.4	2%	2.1	1%	2.1	1%	4.4	2%
Sorghum (processed)	1.9	2%	1.4	1%	1.6	1%	1.5	1%	0.8	0%
Fonio	0.2	0%	0.2	0%	0.2	0%	0.2	0%	0.5	0%
Local rice	26.5	22%	41.5	26%	43.8	25%	53.0	26%	78.1	27%
Imported rice	34.1	29%	43.7	28%	53.3	30%	58.0	28%	92.2	32%

Source: Ulimwengu et al. 2020.

BOX 2.1—THE ROLE OF MILLET PROCESSING IN SENEGAL

Millet is one of the main cereals grown under rainfed agriculture in Senegal, in addition to sorghum and maize. It is the major agricultural staple in Senegal and covers 42.9 percent of total harvested areas. Millet and sorghum represent 69 percent of the area planted with cereals. They are grown either in continuous pure cultivation in box fields, in rotation with groundnuts, or as a mixed crop with cowpea. The main production regions are in the center (Groundnut Basin) and the south of the country (Casamance, Tambacounda). Millet holds a prominent place in Senegal's food security strategies. It has long been the daily food staple for rural populations, despite a notable breakthrough of rice in dietary habits. However, millet consumption had been in decline, falling from 78.0 kilograms per capita in 1990 to 48.9 kilograms per capita in 2009. The share of millet in cereal consumption thus dropped from 42 percent in 1990 to 25 percent in 2008. However, this share remained above 70 percent in the Groundnut Basin area and in the southeast region of Tambacounda. Despite this downward trend, the introduction of mills and equipment to process small quantities of millet greatly facilitated the preparation of millet-based foods in rural areas and fueled consumption in urban areas, among both wealthier segments of the population and in food-deficit rural towns (Faye and Gueye 2010). Expanded supply and greater accessibility of processed products, both ready-to-cook as well as ready-to-eat, has reversed declining trends in millet consumption.

La Société d'Exploitation des Céréales Africaines du Sénégal (SECAS) (formally La Vivrière) is a Senegalese microprocessing company created in 1992 by a female farmer. All its products, which are marketed under the brand name WIIW ("Bravo" in Wolof), are based on millet, maize, and cowpea, the most widely grown and consumed crops in Senegal and across West Africa. In 1996, due to growing demand for its products, SECAS started mechanizing the processing segment to increase its daily production capacity. In replacing small-scale artisanal milling, which used domestic cooking utensils, family labor, and manual millet processing, 80 percent of the most strenuous tasks were gradually mechanized through the use of dryers and mills. Furthermore, the packaging and labeling of manufactured products were changed significantly, moving from unprinted polyethylene bags to printed, and then multilayered, packaging and product-specific cardboard cases that use barcodes and other commercial information to comply with international trade standards. Initially, products were sold door to door, but now they can be found in supermarkets and at wholesalers and retailers across the country. Some products are also exported to Europe, the United States, and Asia (Malabo Montpellier Panel 2018).

Source: Badiane et al. 2020

exports per year in 2016 (Minten et al. 2016b), suggesting additional opportunities to expand the teff processing sector beyond the domestic market.

Fonio, another traditional staple in West Africa, is also becoming increasingly accessible due to processing technologies. As a reserve crop consumed during hungry seasons, fonio plays an important role in contributing to food security (Vall et al. 2011). It is also a highly nutritious food rich in protein, calcium, and iron, and it does well in low-input conditions and with limited water (Fanou-Fogny et al. 2011). However, fonio is very time consuming to prepare, which limits its consumption. In Burkina Faso and Guinea, urban households interviewed in 1999 were found to eat relatively little fonio; a large majority of households stated that they wished to consume fonio more often but were limited both by its high monetary cost and preparation time (Konkobo-Yaméogo et al. 2004). Although recent quantitative studies on fonio consumption are scarce, anecdotal evidence suggests that fonio consumption in West Africa is rising as processed ready-to-cook forms become more available (Djigo 2019; Sandali 2022).

In addition to traditional supply chain functions that expanded geographic catchment areas and advanced commercialization, a host of new, more complex functions are needed to promote market expansion and facilitate commercialization amid transforming value chains. These new functions are necessary not to bring farm products physically closer to consumers, but rather to bring them closer to the form demanded by consumers. These new functions include a series of operations ranging from cleaning and grading to the various stages of processing, from preprocessed inputs to ready-to-cook and ready-to-consume products. They also include packaging, branding, distribution, and finally, adherence to food safety requirements and other norms and standards demanded by consumers.

The additional demands on supply chains and their expanded functions call for concerted efforts, through policy and investments, to build the capacity of the agro-processing sector and other midstream value chain segments to handle greater volumes and

thus increase smallholder producers' access to consumer markets. Traditional commercialization policy areas, such as transport and market infrastructure, remain essential, but interventions to facilitate the maturation and growth of processing enterprises have increased in importance, in areas including technology acquisition, innovation capacity, access to capital, technical and managerial skills development, norms and standards, intellectual property, and competition policies. Success in developing these areas will determine the processing sector's capacity to serve as a bridge between smallholders and growing consumer markets—and thus its ability to contribute to increased incomes and better livelihoods. The next section looks more closely at strategies to boost the ability of processing firms to play this role.

Agro-industrial Policies and Smallholder Commercialization

The processing sector has become an essential link between producers and consumers, alleviating demand constraints and enabling smallholders' access to markets. Increasingly, urban food demand can only be transmitted to smallholders through the intervention of the processing sector. The processing sector's capacity to acquire and transform agricultural outputs is thus a key bottleneck in advancing commercialization. In this section, we discuss major policy and investment areas to promote the growth and development of processing firms and to strengthen their contribution to smallholder commercialization.

Like the manufacturing sector overall, Africa's food processing sector is characterized by a small number of large firms with relatively high labor productivity and a profusion of lower-productivity informal micro and small firms (Hollinger and Staatz 2015; Snyder et al. 2015; Soderbom 2011). Small firms face significant barriers to formalizing and growing, including a lack of skills, high costs, and limited

access to land and capital (Hollinger and Staatz 2015). Despite these challenges, small and medium enterprises (SMEs) often account for the largest market shares of processed products (Tadesse and Badiane 2020). The dominance of SMEs, as well as their important role as a source of employment and income, calls for a strong policy focus on their needs to boost the capacity of processing sectors and contribute to overall growth.

The main strategic challenge is ensuring that the emerging processing sector successfully transitions from a situation with a large and increasing number of small enterprises that produce low-quality goods with low and declining profits to a situation in which enterprises can improve product quality, expand operations, raise profitability, and become more competitive in and capture a larger share of urban markets. SMEs in developing countries have been observed to pass through the phases shown in Table 2.3 (Badiane and McMillan 2015; Sonobe and Otsuka 2011). In the first phase (initiation), local enterprises produce products for domestic markets by using primarily adopted foreign technologies. In the case of the emerging agribusiness enterprise sector, this typically involves introducing new processes, sometimes mechanized, to produce and distribute traditional foods outside of the household setting through specialized enterprises.

TABLE 2.3—PHASES OF INDUSTRIAL DEVELOPMENT AND POLICY PRIORITIES

Phase	Innovation, imitation, and productivity growth	Institutions	Policy priorities and actions
Initiation	Imitation of foreign technology and production of low-quality products	Internal production of parts, components, and final products	<ol style="list-style-type: none"> 1. Incubation hubs to facilitate early-stage experimentation and connection to the private sector and investors 2. Markets to lower transaction costs 3. Vocational training to improve management practices 4. Infrastructure: roads, communication, and electricity to lower operating costs
Quantity expansion	Entry of numerous followers, imitation of imitated technologies, and stagnant productivity	Gradual development of market transactions and formation of industrial cluster	
Quality improvement	Multifaceted innovations, exit of noninnovative enterprises, and increasing productivity and exports	Reputation and brand names, direct sales, subcontracts or vertical integration, and emergence of large enterprises	<ol style="list-style-type: none"> 5. Knowledge transfer from abroad, industrial zones, access to credit, and intellectual property

Source: Based on Sonobe and Otsuka (2011), Badiane and McMillan (2015), and Malabo Montpellier Panel (2019).

Once a new product or business successfully appears in local markets, a large and rapidly growing number of imitators and new entrants copy it, applying the same technology and producing the same goods for these local markets.

Most, if not all, staple food processing value chains are currently in the initiation phase or are about to enter the next phase of quantitative expansion. In quantitative expansion, the number of enterprises and supply of products rapidly increases, leading to a progressive decline in profitability. Without innovation in production technology and improved business practices, the number of enterprises continues to rise and profits decline. This inevitably leads to a large concentration of low-productivity, persistently small enterprises, with no capacity to grow or create well-paying jobs.

If countries fail to escape the trap of the quantity expansion phase and enter the quality improvement phase, the process of successful industrialization—in which some enterprises consistently succeed in improving product quality, raising profitability, and growing in size—grinds to a halt. In this third and last phase of quality improvement, a critical mass of enterprises acquire the required capabilities for multifaceted innovations through adequate investment in capital and human resources. These capabilities involve innovation in product quality, production methods, internal management, sales, and marketing. During the transition to this phase, enterprises that are incapable of innovating will be forced to exit, leading to a reduction in the proliferation of firms, an increase in average firm size, and increased profitability. These are all conditions for sustained enterprise growth, employment generation, wealth creation, and poverty reduction.

As shown in the last column of Table 2.3, key short- and medium-term interventions to promote the growth of processing enterprises include policy and institutional innovations and related investments. These will: (1) help entrepreneurs acquire the required skills and tools to improve product marketing and capture a large share of the urban food demand, and (2) create learning opportunities to improve technical and management practices, particularly including ready access to vocational training. These interventions can help soften the downward pressures on sales, prices, and profits during the quantity expansion phase.

A successful transition into the quality improvement phase will require more targeted policy and regulatory interventions to promote and enforce quality norms and standards, and property rights protections to encourage in-firm innovations. Countries will also have to invest in vocational training infrastructure to

mainstream the upgrading and development of skills along the agribusiness value chains, including advanced training in quality control, marketing, accounting, labor management, and basic engineering theory and practice. At the beginning of the quality improvement phase, efforts to facilitate learning from abroad are particularly important, as well as importing and adapting foreign technologies through research and training from more advanced economies (particularly recently industrialized ones). At this stage of the enterprise development process, emerging constraints will include access to credit to finance growth, property rights to stimulate innovation, and access to reliable and cost-effective power supplies.

Strategies to promote enterprise growth and maturation at different stages of industrial development should be tailored to the particular needs of agrifood processing firms in order to strengthen the competitiveness and capacity of the processing sector. Firms operating in emerging domestic or regional food value chains, such as millet, teff, or cassava, are confronted by high marketing costs, rapidly changing diet preferences, and relatively unstructured markets. Policy interventions should seek to increase the capacities of firms to navigate these challenges through skills development and support for collective action. In addition, greater policy attention should be paid to as-yet undeveloped value chains that could potentially grow if efforts were made to create, harness, and transmit demand to producers. Table 2.4 details specific policy priorities for local and regional value chains in Africa at the nascent, emerging, and developed stages.

To empirically verify the effectiveness of proposed policy interventions (Table 2.4), Tadesse and Badiane (2020) assess the impact of these interventions on the performance of secondary processors in Senegal's millet value chain. To do so, they estimate the average treatment effects of several interventions on the level and growth of installed processing capacity. They find that start-up and on-the-job training, as well as participation in collective action, positively affects processors' capacity. However, incentive interventions related to financial support, including commercial and noncommercial loans and gifts, do not show any significant impact. This suggests that for emerging value chains such as millet, institutional interventions are more important and effective than incentive-based interventions.

In terms of impacts on growth, start-up training appears to be more important in boosting capacity and accelerating growth than any other intervention,

TABLE 2.4—POLICY PRIORITIES FOR REGIONAL AGRIFOOD INDUSTRY DEVELOPMENT

Value chain groups	Value chain characteristics	Agro-industrial strategies	Priority policy interventions
Yet-to-develop regional value chains	Value chains that have high potential regional demand, but the demand has not yet been created <i>Examples: orphaned food staples, traditional beverage crops</i>	Enhancing upstream production and downstream demand creation through support for small and medium-sized traders	Technical support to producers, incentives for business start-ups, and infrastructure to create demand
Emerging regional value chains	Value chains with regionally and locally specific demand; increasing production/producer price trends; expanding processing and distribution sectors; a growing supply of ready-to-cook and ready-to-eat food products; and increasing exports to expatriate communities <i>Examples: teff, millet, cassava</i>	Supporting small and medium-sized midstream processors to help them add value, innovate, and differentiate their products to meet rapidly changing diet preferences and capture a higher share of growing urban demand	Training for product and firm-level process innovation, collective action for market and technology access, and development of safety and quality standards
Developed regional value chains	Regional value chains that are well developed and industrialized, with large, formal cross-border transactions Value chains of this type are still emerging in Africa. <i>Example: regional dairy value chains in southern Africa</i>	Supporting integration of the regional value chain through elimination of cross-border barriers, demand creation, and branding	Institutional support for collective action by chain actors, competition policies, and access to regional private service providers

Source: Based on Tadesse and Badiane (2020) and Sonobe and Otsuka (2011).

with more significant impacts from vocational training than training in marketing, product development, or business strategy. This suggests that at the start-up level, vocational training is more effective than other types of skills development interventions. These findings confirm the importance of prioritizing policy interventions according to the value chain transformation trajectory, as well as by the characteristics and growth stages of enterprises in individual value chains. This is because the performance and needs of processing firms vary as these conditions change between value chains.

Efforts to strengthen the competitiveness of processing firms through vocational training, technical support, and other interventions will enable them to be more effective conduits between producers and consumers, thus helping to alleviate the demand constraints limiting smallholder commercialization. Although greater attention to the processing sector is essential, traditional

approaches to connecting smallholders to markets through better infrastructure and institutional arrangements remain important, as do efforts to address the supply and productivity constraints that hamper smallholders' ability to engage with markets. While smallholders need the processing sector for their outputs to reach consumers, processing firms also need a consistent and reliable supply from farmers to operate efficiently, profitably, and sustainably.

Policy action is required to increase smallholder productivity through access to inputs, information, and technology; enhance the stability of production through climate-smart varieties; strengthen smallholders' ability to meet product quality standards demanded by consumers or required by retailers; and provide a conducive institutional environment to link smallholders with processors through vertical integration, contract farming, producer cooperatives, or other arrange-

ments. For example, the dominance of smallholder producers in Kenya's dairy industry has been partly enabled by collective action through cooperatives that provide marketing services and facilitate access to inputs, as well as publicly supported initiatives to increase productivity through high-yielding breeds (Njagi 2022). Throughout the continent, efforts to enable smallholders to provide a reliable, sufficient, and high-quality supply will increase the competitiveness of processing firms, which in turn will protect their ability to sustain demand for smallholder produce.

Conclusion

Despite improved economic growth in the 2000s and 2010s, Africa still faces challenges in addressing persistently high rates of poverty and hunger, especially in rural areas. Agricultural commercialization, which increases the participation

of farmers in markets and value chains, provides benefits that include expanded employment opportunities and livelihoods. In turn, this creates incentives to invest in technology and raise productivity, boosts economywide growth, and reduces poverty and hunger. Farmers' incomes are limited by the extent of demand for their produce, and the challenge of commercialization lies in overcoming demand constraints to allow farmers' output to reach consumers.

Traditionally, the demand for smallholder produce has been constrained by the physical distance between producers and consumers. The problem of commercialization was thus largely a matter of removing institutional and infrastructural barriers to moving produce from rural production areas to urban consumption centers. The remoteness of many producers, the distance between production and consumption areas, and the insufficiency of transport infrastructure meant that there was a strong correlation between geography and barriers to markets. Thus, commercialization efforts focused on strategies to overcome geographic limitations and expand market catchment areas.

In recent years, Africa's food systems have begun a transformation that presents new challenges for commercialization. New developments including rapid urbanization, accelerated economic growth, and an expanding middle class have caused fundamental changes in demand patterns, with significant implications for smallholder commercialization strategies. Physical distance is no longer the main barrier separating smallholder producers from urban consumption centers. Rather, the main source of the demand constraint is the difference in the nature of the products produced by smallholders—unprocessed agricultural outputs—and those demanded by a growing share of consumers—more sophisticated, processed, ready-to-cook, or ready-to-eat products. The challenge of commercializing smallholder agriculture has therefore become less about transferring produce from rural production areas to urban consumption markets and more about transforming it into the very products being demanded by urban consumers.

In the past, commercialization policies mainly focused on the performance and competitiveness of the domestic marketing sector, including transport and market infrastructure as well as market information, due to the sector's role in overcoming the constraints presented by physical distance. Today, commercialization policies need to overcome demand constraints differently, by increasing the processing sector's capacity to transform farm produce into the types of products demanded by consumers.

The demand for smallholder produce now derives from the processing sector, and the level of this demand is determined by the processing sector's capacity to meet the needs of urban consumers and capture a growing share of urban food demand. Successful commercialization in this new context depends on the performance and competitiveness of the processing sector. Amid rapidly transforming value chains, agricultural commercialization strategies thus require a paradigm shift in policy design and implementation: policies and strategies to facilitate the growth of processing firms should not be seen as merely beneficial to the processing sector, but rather as essential to enabling smallholder commercialization in the context of transforming food systems. In this chapter, we have highlighted the cases of millet, folio, and teff, though other smallholder sectors face similar commercialization opportunities and challenges. Examples include the pigeon pea sectors in Malawi and Mozambique or the cashew nut sectors in Mozambique and Tanzania.

In order to strengthen the processing sector's capacity to meet its potential as a conduit between smallholders and consumers, policymakers should focus on enabling SMEs to increase innovation and productivity. Strategies should be designed according to stages of sectoral enterprise development and should consider the challenges and needs of individual value chains. In particular, skills development interventions to help managers engage in process and product innovation and support for collective action can help firms in emerging food value chains to overcome growth constraints. In turn, productive and competitive processing sectors with the capacity to fully transmit growing consumer demand will offer increased income and growth opportunities for smallholders.