



Income growth, urbanization and globalization are driving diversification of West African diets. These changes offer new market opportunities for West African producers but also greater competition from overseas suppliers.



Time-poor urban consumers are seeking more convenient meals, spurring demand for processed food products and various forms of fast food.



But growing concerns about food safety and nutritional quality are driving the demand for imported food products, which many consumers consider safer.





# Part II

## Demand and Consumption Trends in West Africa

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Growing incomes, urbanization, changing lifestyles and access to a broader range of foods act as powerful drivers of change. Around the globe, with growing incomes, consumers tend shift from traditional cereals and starchy roots towards rice and wheat. Moreover, demand for fruits and vegetables, animal proteins and processed foods increases. As incomes increase and food choices enlarge, consumers become more concerned about quality and safety of food products. Time-poor consumers in urban areas, both rich and poor, increasingly demand more convenient forms of food. These trends drive changes in types of food demanded, its nutritional composition, and the food retailing and processing systems that supply it.

Part II looks at how these changes in food demand are playing out in West Africa. Although the transformation of demand patterns for food in response to the forces discussed above has been well-documented for many other parts of the world, it is a topic that has been under-researched in West Africa. Existing work on food consumption in West Africa is mainly concerned with macro-nutrient availability from the perspective of food and nutrition security, whereas relatively few studies have analysed how changing patterns of demand affect market opportunities facing West African producers. As shown in Chapter 2, urban populations, especially those above the poverty line, account for growing shares of domestic and regional food markets. Understanding the factors conditioning their demand, as well as the demand of the three-quarters of the population that remains below the poverty line, is key to enabling domestic producers to increase their share of the growing and rapidly changing West African food market and compete more successfully with food imports. Otherwise, there is a risk that domestic producers will be squeezed out of the most profitable segments of the market, losing opportunities for domestic value-addition and its potential strong backward linkages to the farm sector.

The three chapters in Part II analyse how the demands facing West African agrifood systems are changing in response to the dramatic population growth, urbanization, income growth, changes in income distribution and globalization described in Part I. The primary focus is on demand in national and sub-regional markets, although similar forces are also at work in export markets.

In documenting these trends, Chapter 5 analyses data from national food balance sheets over the past 30 years to identify trends in per capita availability of calories, protein and fat as well as apparent average per capita consumption of different types of food in each of the 15 countries of West Africa. While the food balance sheet analysis reveals how average per capita availability of different foods has evolved in the ECOWAS countries over the past 30 years, it says nothing about how food consumption has varied between urban and rural residents and among different income groups among the population.

To address these issues, Chapter 6 turns to more in-depth quantitative analysis of budget-consumption surveys. These delve below the national averages in order to understand how income growth and urbanization have affected, and are likely to affect

in the future, demand for key food items among different population groups. Chapter 7 complements the quantitative analyses of the preceding two chapters with qualitative information from focus-group discussions with consumers and retailers in Accra and Lagos. It provides further information on key factors, including lifestyle changes

in urban areas that are driving the demand for different types of food in West Africa's burgeoning cities. Part II sets the stage for the chapters in Part III, which analyse in more detail how West Africa's retail distribution systems, agroprocessing industries and Agricultural value chains are responding to this rapidly changing demand.





# Chapter 5

## Trends in Apparent Per Capita Food Consumption

Every year the FAO compiles food balance sheets (FBS) for each of the 15 member states of ECOWAS. The chapter analyses data from these FBS over a 30 year period (1980 - 2009) to identify broad trends in apparent average per capita availability of calories, protein, and fat in these countries, as well as changes in the contribution of major food groups to diets in the region. These food groups include cereals, roots and tubers, animal products, pulses fruits and vegetables, vegetable oils, sugar and sweeteners, and alcoholic beverages. The analysis of these broad trends in per capita food availability sets the stage for more detailed analysis of food consumption by income group and urban/rural residence in Chapters 6 and 7.

### *5.1 Performance in terms of increasing macronutrient availability*

Food balance sheets (FBS) provide estimates of the amount of food available for human consumption at the retail level, not actual consumption. In this chapter, the figures derived from the FBS are referred to interchangeably as “per capita availability” and “apparent per capita consumption”. Comparing FAO FBS for the 15 ECOWAS countries over the period 1980–2009 provides information on how well the West African food system has performed in terms of supplying macronutrients (calories, fat, and protein) to the population in these countries, as well as the changing contribution of different major food groups to the diet in the various countries.

The FBS estimates, however, need to be interpreted cautiously, as they are highly dependent on the quality of the data used in constructing the food balance sheets. Specifically, FBS estimates of per capita availability are derived by taking estimates of national production of various food products, adjusting them for imports and exports, changes in stocks, non-food use (such as animal feed and industrial uses), and wastage between harvest and the retail level (including processing losses). The net food availability at the retail level thus calculated is then divided by the estimated population, and then converted into various nutrients using a food composition table. Thus, the accuracy of the estimated national average per

capita availability of various food items (and the nutrients derived from them) is a function of the accuracy of the data for each of the components that goes into the calculation. Given the weakness in many countries of the underlying data on several of these elements (e.g. regarding changes in stocks and population levels), one should at best use FBS data to identify broad patterns and trends in per capita food availability. Furthermore, as production statistics on non-cereal crops in West Africa have generally improved over the past 30 years, one needs to be cautious in interpreting FBS data that show apparent increases in the per capita availability of these products. It is not always apparent whether the figures reflect real increases in availability or more complete statistical enumeration of national production over time.<sup>40</sup>

Bearing these caveats in mind, analysis of per capita availability of calories, protein, and fat, based on data from FAO food balance sheets for the period 1980–2009 show general improvement in macronutrient availability over the period and some upgrading of dietary quality, but with significant variation across countries (Me-Nsope and Staatz, 2013). As shown in Appendix table A5.1 (p.142), four countries – Burkina Faso, Mali, Ghana and Nigeria – increased apparent per capita calorie availability by 50% or more between 1980–85, a period of drought and severe food shortage in the Sahel, and 2007–09. If true, this is a remarkable achievement

<sup>40</sup> For more details on these caveats, see Farnsworth, 1961; and Me-Nsope and Staatz, 2013.

given the rapid population growth in these countries. These are also the four countries that, according to the FBS, had the lowest per capita calorie availability at the beginning of the period; by the end of the period, the FBS for Ghana, Nigeria, and Burkina Faso recorded the highest per capita calorie availability of any countries in the region, and Mali was above the regional mean.

All the remaining countries, except Benin, Côte d'Ivoire and Liberia, increased their estimated per capita calorie availabilities on the order of 6 to 15%. Benin experienced a 29% increase in calculated per capita calorie availability. In Côte d'Ivoire, estimated per capita calorie availability fell by 7% over the 30-year period, while in Liberia it fell by 11%, although it has begun to recover during the post-war period starting in 2004. Ironically, according to the FBS, Côte d'Ivoire and Liberia had the highest estimated per capita calorie availability of all countries in the ECOWAS region at the beginning of the period (1980-82).

Turning to estimated per capita protein availability (Appendix Tables A5.2 through A5.4), a slightly more complex story emerges when one takes into account not only total per capita protein availability but also its source. In general, proteins from animal sources have a more complete mix of the essential amino acids required by human beings; thus, the percentage of total protein coming from animal sources is a rough indicator of protein quality.<sup>41</sup> In terms of changes in estimated per capita availability of total protein between 1980-85 and 2004-2009, the same four countries – Burkina Faso, Mali, Ghana and Nigeria – showed the greatest increases, on the order of 40 to 50%. Yet the bulk of the increase came from vegetal sources. Given that basic staples such as cereals contain 10 to 12% protein, it follows that a 40 to 50% increase in calorie availability (the bulk of it from such staples) would lead to a proportionate increase in total protein availability. In Mali and Burkina Faso, only 11 to 12% of the increase in total per capita protein availability came from animal sources. For Ghana,

the figure was 20%, indicating some upgrading of diet quality, while in Nigeria, the estimated per capita availability of animal protein actually fell by 10%, with all the increase in total per capita protein availability attributable to plant sources. For Nigeria, however, part of the increase came from higher per capita availability of pulses – particularly cowpeas – which are a high-quality source of protein. The picture that emerges for Burkina, Mali, and Nigeria is thus one of, on average, people eating more food as incomes increased, but giving first priority to increasing total calorie intake, with little upgrading in terms of increasing animal protein consumption.

A very different picture emerges for Cape Verde, the ECOWAS country with the highest per capita income. While total per capita protein availability increased by only 6% between 1980-85 and 2004-09, there was a large substitution of animal protein, whose per capita availability increased by 54%, for protein from vegetal sources, which saw a decline of 14%. In Cape Verde, diets became more animal-based as incomes rose.

For the remaining ten countries in the region, estimated total per capita protein availability increased in six countries (Niger, The Gambia, Benin, Guinea, Sierra Leone and Togo) by proportions ranging from 5% to 29%, with relatively little or no increase in per capita availability of animal proteins. In the remaining four countries (Guinea Bissau, Senegal, Côte d'Ivoire and Liberia), total estimated per capita protein availability fell by between 1% (in Guinea Bissau) and 25% (in Liberia). In Senegal, however, there was a modest increase in per capita animal protein availability, indicating some modest upgrading of protein quality in the context of falling overall per capita availability.

## 5.2 Starchy staples

The trade data reviewed in Chapter 4 pointed to the increased consumption of rice and wheat in the region, resulting in burgeoning imports of these two cereals. While consumption of these two internationally traded staples has certainly increased, when one examines FBS data that also

<sup>41</sup> It is only a very rough indicator, however. The quality of protein (in terms of amino acid mix) from plant (and to a lesser degree, animal) sources varies widely, and by combining certain plant sources of food (for example rice and beans), one can obtain protein quality rivaling that from animal sources. Most protein coming solely from cereals, however, is more limited in one or more essential amino acids than are most animal proteins; the bulk of proteins in the diets of many West Africans come from cereals.

includes domestically produced starchy staples, a more complex picture emerges of how average per capita apparent consumption is changing. The patterns vary across countries (Table 5.1), but key elements of this evolution include rice, wheat, millet and sorghum, and maize.<sup>42</sup>

### 5.2.2 Rice

Concerns about growing rice consumption and imports have been at the centre of food policy debates in West Africa for the past 20 years. Historically, rice has been the most important staple in Guinea Bissau, Senegal, Sierra Leone, and Guinea and the second most important staple (after cassava) in Liberia. Rice's appeal as a "fast food" that is easier to prepare in urban settings, along with expansion of production in a few countries like Mali, have led to increases since the 1980s in apparent per capita consumption of rice in all the ECOWAS countries where it is not the dominant staple, with the exception of Côte d'Ivoire and The Gambia, where per capita availability stagnated.<sup>43</sup> The most dramatic increases were in Cape Verde, where apparent annual per capita consumption increased by 31 kg between 1980-85 and 2004-09; Mali (also a 31 kg increase), Guinea (25 kg increase), Benin (23 kg increase), and Ghana (19 kg increase). In Nigeria, annual per capita availability increased by 5 kg/capita over the period.<sup>44</sup> Thus, rice's relative importance as a starchy staple has been increasing in many countries, and, since much of it is imported, the value of rice imports has swelled by almost 10% (Chapter 4). Table 5.1 shows that significant differences remain in apparent per capita rice consumption across the region, ranging from 96 kg in Guinea to only 16 kg in Niger.

### 5.2.2 Wheat

Per capita apparent consumption of wheat (which is largely consumed in the forms of bread, pasta, and noodles) increased in 10 of the 15 ECOWAS countries over the period 1980-85 to 2004-09, stagnating or slightly falling in Benin, Cape Verde,

Côte d'Ivoire, Niger and Togo. Despite annual growth rates around 2% in many countries, the absolute increases in per capita terms were modest – for example, an increase of 5 kg over 30 years for Nigeria – given the relatively low initial consumption levels. The largest per capita increases were in Senegal (12 kg), Ghana (10 kg), and The Gambia (8 kg). Yet, as in case of rice, uneven apparent per capita consumption levels across the region suggest scope for significant growth, especially in view of the popularity of wheat-based products as convenience foods in urban areas (see Chapter 7).

Because virtually all of West Africa's wheat is imported, these increases in apparent per capita consumption, combined with strong population growth, translated into burgeoning wheat imports over the period. Yet the relative contribution of wheat in the diet, compared to other starchy staples, remained very modest.

### 5.2.3 Millet and sorghum

Apparent per capita consumption of millet and sorghum has been stable or declining from the early 1980s through 2009 in almost all countries in the region where these cereals are important staples. Since total apparent per capita consumption of starchy staples has been increasing in almost all countries, the relative importance of millet and sorghum as staples has declined in the region. They remain overwhelmingly dominant only in Niger. Even though they are still very important sources of calories in Mali, Burkina Faso, Senegal and The Gambia, they are losing ground relative to other starchy staples.

### 5.2.4 Maize

For maize, the picture is more diverse. Apparent per capita consumption of maize increased markedly over the period 1980-85 to 2004-09 in 6 of the 15 ECOWAS states (Burkina Faso, Mali, Senegal, Nigeria, Ghana, and Togo). In Burkina Faso, Senegal, Nigeria and Togo, the increases were greater than the per capita increases in rice availability. Togo, Benin, Burkina Faso and Ghana had the highest per capita apparent consumption levels during 2005-09, between 35 and 66 kg. Maize is

42 More detailed information by country is available in Me-Nsope and Staatz, 2013.

43 Per capita availability of rice also fell in Liberia during the period, with imported wheat increasingly substituting for rice during the years of civil war.

44 Given the importance of unrecorded trade between Benin and Nigeria, it is possible that some of the increase in recorded per capita availability in Benin actually represented rice transhipped to Nigeria.

Table 5.1 Per capita apparent consumption of cereals<sup>a</sup> and CAGR<sup>b</sup>

Country	Rice		Wheat		Maize		Millet		Sorghum	
	kg/year	CAGR	kg/year	CAGR	kg/year	CAGR	kg/year	CAGR	kg/year	CAGR
Benin	32	5.2%	7	-2.0%	58	0.2%	3	3.3%	15	-0.4%
Burkina Faso	19	2.3%	7	2.3%	47	4.5%	69	1.3%	88	1.0%
Cape Verde	50	3.9%	41	-0.2%	34	-4.0%	0	n.c.	0	n.c.
Côte d'Ivoire	59	-0.1%	16	-1.2%	20	-1.5%	1	0.0%	1	-0.5%
The Gambia	49	-2.1%	24	2.0%	11	0.6%	58	2.6%	15	1.1%
Ghana	26	5.6%	17	2.6%	35	0.7%	6	-0.6%	10	0.7%
Guinea	96	1.3%	13	1.1%	10	-1.9%	1	-8.3%	1	-8.3%
Guinea Bissau	85	0.1%	13	3.1%	18	1.0%	18	1.2%	10	-2.9%
Liberia	73	-2.0%	27	4.9%	1	n.c.	0	n.c.	0	n.c.
Mali	55	3.4%	9	1.3%	29	3.5%	63	0.7%	44	0.3%
Niger	16	2.0%	5	-1.0%	3	1.2%	139	0.0%	41	0.0%
Nigeria	22	1.5%	20	1.1%	25	4.7%	36	1.3%	41	0.6%
Senegal	72	0.3%	32	1.9%	28	2.6%	27	-2.8%	9	-3.8%
Sierra Leone	89	-0.3%	13	2.1%	4	0.6%	4	-0.5%	3	0.8%
Togo	22	3.6%	10	-0.6%	66	1.8%	6	-2.9%	22	-0.4%

Source: Calculated from FAOSTAT, food balance sheet data

<sup>a</sup> Per capita cereal consumption average of 2005–2009

<sup>b</sup> CAGR = compound annual growth rate in per capita cereal consumption. Calculated for 1980–1984 to 2005–2009.

n.c. = rate of growth not calculated, as zero/insignificant per capita availability reported in first period.

not a significant staple in three countries (Niger, Liberia, and Sierra Leone), and in the remaining six countries, per capita availability stagnated or declined slightly, with the exception of Cape Verde, where it fell sharply as part of a strong transformation of the diet towards a more “Western” pattern, apparently fuelled by strong income growth, urbanization, and declining national maize production.

### 5.2.5 Cassava

The level of apparent per capita consumption of cassava has been growing, in some cases dramatically, especially along the humid coast. The highest apparent per capita consumption levels were recorded in Ghana, Liberia and Benin, followed by Nigeria, Togo, Côte d'Ivoire, and Guinea (all above 100 kg). While apparent per capita consumption stagnated in several of these countries over the period 1980–82 to 2007–09, it increased by 35% in Nigeria, 68% in Ghana and 25% in Benin. Moreover, cassava became more heavily consumed in several countries where it was not the predominant staple in the 1980s, with the

largest increases occurring in Sierra Leone (where per capita availability jumped from 29 kg/year to 68 kg/year between 1980–82 and 2007–09), Guinea Bissau, Senegal, and Guinea.

### 5.2.6 Yams

While yams are an important staple in fewer countries, their apparent per capita consumption has grown more strongly than cassava in these countries. Yams remains the most important staple, in volume terms, in Côte d'Ivoire and the second most important staple in Ghana, Nigeria, Benin, and Togo. Moreover, the per capita availability of yams over the period 1980–82 to 2007–09 has grown much faster in Ghana, Nigeria, and Togo than has that of either rice or wheat. For example, during this period, apparent per capita consumption of yams increased by 87 kg/person/year in Ghana, compared with only 19 kg/person/year for rice and 8 kg/person/year for wheat. For Nigeria, the corresponding figures were a 61 kg/person/year increase for yams compared to 6 kg/person/year for rice and 5 kg/person/year for wheat.

Table 5.2 Per capita apparent consumption of roots and tubers<sup>a</sup> and CAGR<sup>b</sup>

Country	Cassava		Yams		Sweet potatoes		Irish potatoes		Other Roots and Tubers	
	(kg/yr)	CAGR	(kg/yr)	CAGR	(kg/yr)	CAGR	(kg/yr)	CAGR	(kg/yr)	CAGR
Benin	142	0.8%	139	2.1%	7	-0.8%	0	n.c.	0	n.c.
Burkina Faso	0	-9.0%	3	-4.7%	4	0.5%	0	n.c.	0	n.c.
Cape Verde	8	0.6%	0	n.c.	9	-0.4%	29	4.0%	0	n.c.
Côte d'Ivoire	106	-0.1%	187	0.1%	2	2.3%	1	-1.2%	0	n.c.
The Gambia	5	-2.1%	0	n.c.	0	n.c.	5	9.2%	0	n.c.
Ghana	209	2.1%	123	3.2%	4	n.c.	0	n.c.	56	0.6%
Guinea	101	1.3%	2	-6.2%	18	1.6%	0	n.c.	0	n.c.
Guinea Bissau	27	9.9%	0	n.c.	0	n.c.	0	n.c.	46	0.0%
Liberia	147	0.3%	6	-1.0%	5	-1.3%	0	n.c.	7	0.0%
Mali	2	n.c.	5	3.7%	15	11.3%	6	n.c.	0	n.c.
Niger	9	-4.4%	0	n.c.	3	-2.0%	0	n.c.	0	n.c.
Nigeria	113	1.5%	79	5.2%	15	11.3%	4	n.c.	0	n.c.
Senegal	18	6.6%	0	n.c.	3	3.8%	6	3.2%	0	n.c.
Sierra Leone	66	3.2%	0	n.c.	5	2.1%	0	n.c.	0	n.c.
Togo	109	-1.1%	80	-1.1%	0	n.c.	0	n.c.	2	-2.2%

Source: Calculated from FAOSTAT food balance sheet data

<sup>a</sup> Per capita cereal consumption average of 2005-2009

<sup>b</sup> CAGR = compound annual growth rate in per capita cereal consumption. Calculated for 1980-1984 to 2005-2009.

n.c. = rate of growth not calculated, as zero/insignificant per capita availability reported in first period.

### 5.2.7 Irish potatoes

Data from focus group discussions presented in Chapter 7 suggest that in countries with rising per capita incomes and rapid urbanization there may have been an increase in the per capita consumption of Irish potatoes, particularly in the form of chips (French fries) as part of the rise of fast food outlets. The food balance sheet data provides weak evidence of this. Irish potato annual per capita availability did increase dramatically in Cape Verde (by 18 kg over the period 1980-85 to 2004-09) as part of the structural transformation of that country's diet in response to rapid income growth, urbanization, and declining national maize production, but in most other countries increases, if they occurred, were modest. Surprisingly, food balance sheets for Ghana show Irish potato availability per capita at less than 1 kg/capita/year in recent years. Whether this reflects reality or a weakness in the underlying statistics on potato production and trade in Ghana is unclear, but it is at odds with data discussed in Chapter 7 suggesting increased urban consumption of potatoes.

### 5.2.8 Sweet potatoes

Sweet potatoes, which receive little attention from agricultural research systems and policy makers in the region, make modest contributions to starchy staple calories in several countries, and per capita use did not change in most of them. In both Nigeria and Mali, however, FBS data indicate an increase in apparent annual per capita consumption of 15 kg over the period 1980-85 to 2004-09 and an increase of 6 kg in Guinea. These increases may reflect a growing shift to root and tuber crops, which have a higher yield per ha of calories than cereals, as population pressure increased in these countries.

### 5.2.9 Share of total starchy staple calories

Calculating the share of the different staples in the total calories derived from starchy staples (Table 5.3) reveals the following overall trends:

- » In most countries (10 out of 15), the share of total starchy staple calories coming from rice has increased. The countries with a declining



share of rice already had a high level of apparent per capita consumption during the early 1980s (Guinea, Guinea Bissau) or were affected by prolonged periods of Civil War (Liberia, Sierra Leone). The absolute level of apparent rice consumption in Nigeria increased over this period, but its share of total starchy staple calories declined slightly because apparent per capita consumption of maize, yams and cassava grew even faster. In countries where rice had a low share in total calorie consumption during the early 1980s, this share has increased. Among these countries, Cape Verde had the strongest increase (from 13% to 40% of total calorie availability from starchy staples), while the share more than doubled in Benin, Togo and Ghana. Niger, Burkina Faso and Côte d'Ivoire witnessed more modest increases. Overall, however, rice's share in total apparent calorie consumption from starchy staples increased more modestly than would be suggested by just looking at the import statistics.

- » Wheat's share in apparent calorie consumption from starchy staples has increased in nine countries and remained stable in four, decreasing only in two countries. However, growth has been more modest than in case of rice, except for Senegal, Liberia and The Gambia. In all countries except Cape Verde, wheat contributes 10% or less to total calorie availability from starchy staples.
- » Surprisingly, the share of roots and tubers in total calorie consumption from starchy staples increased in ten countries and declined only in five. Their growing importance is particularly noticeable in some large traditional consumers such as Nigeria, Côte d'Ivoire, and Sierra Leone, but also in non-traditional consumers such as Senegal and Mali. Roots' and tubers' share of total starchy staple calories is highest in Ghana (58%), followed by Côte d'Ivoire (50%) and Benin (45%). In Nigeria, it has increased from 23% to 30%. Although apparent per capita consumption of roots and tubers has increased in a few of the Sahelian countries, their contribution to total starchy staple calories remains under 5% in these countries.

» Maize's share varies, increasing in eight countries and declining in two. Its importance has increased most vigorously in the Sahelian countries, except Niger, and in Nigeria and Togo. It declined strongly in Cape Verde (from 59% to 24%) and, in a less dramatic fashion, in Ghana, Benin and Côte d'Ivoire.

» The strongest decline across the region has been in the relative share of millet and sorghum. This decline has been particularly noticeable in countries where millet and sorghum are important staples (e.g. Burkina Faso, Mali, Nigeria and Senegal), with the exception of Niger and The Gambia, where it increased. Nevertheless, sorghum and millet are still the dominant sources of calories in the inland Sahelian countries and remain important in The Gambia and Nigeria.

### 5.3 High quality protein sources

Table 5.4 reveals huge differences in apparent per capita consumption levels of different animal protein sources and pulses across the region. Apparent per capita red meat consumption is highest in the inland Sahelian countries, Cape Verde, Guinea Bissau and Côte d'Ivoire, more than twice as high as in most of the coastal countries. Apparent per capita poultry meat consumption is highest in Cape Verde, followed by Benin. Despite high annual average growth rates across the region, apparent per capita consumption levels of poultry meat are still low compared to red meat and fish in most countries. For example, while per capita poultry availability has grown on average by 8% per annum over a 25 year period in Ghana, it only reached 4.5 kg per capita, despite massive increases in poultry imports. Figures are low compared with a 28.5kg per capita availability of fish and seafood. Apparent per capita egg consumption, which has grown less vigorously, has remained low, with Cape Verde (4 kg) and Nigeria (3 kg) being the region's top per capita egg consumers. Apparent annual per capita milk consumption has grown most strongly in Ghana (3.4%) followed by Cape Verde (2.1%) and Togo (1.3%). Most countries, however, experienced only modest growth, and several even saw declines

**Table 5.3** Share of selected starchy staples in calorie availability from starchy staples

1980-84 and 2005-09

Country	Roots and tubers		Maize		Rice		Wheat		Other Cereals	
	1980-84	2005-09	1980-84	2005-09	1980-84	2005-09	1980-84	2005-09	1980-84	2005-09
Benin	44	45	32	26	7	18	7	3	10	8
Burkina Faso	4	1	11	21	7	9	2	3	76	65
Cape Verde	5	8	59	24	13	40	23	27	0	0
Côte d'Ivoire	46	50	14	10	30	32	9	7	1	1
The Gambia	2	1	6	7	59	36	8	14	24	40
Ghana	57	58	21	13	5	13	6	7	11	7
Guinea	23	22	10	5	49	61	5	7	13	5
Guinea Bissau	10	14	9	10	57	55	3	6	21	16
Liberia	26	33	0	0	70	52	3	15	0	0
Mali	1	4	9	30	21	30	4	4	66	48
Niger	6	2	1	2	6	10	3	3	83	84
Nigeria	22	30	6	13	15	12	10	9	46	30
Senegal	1	5	8	16	45	48	10	16	36	16
Sierra Leone	9	17	3	3	79	68	5	8	4	4
Togo	45	34	23	33	6	13	7	5	19	14

Source: Calculated from data in Me-Nsope and Staatz, 2013

**Table 5.4** Per capita availability of high quality protein sourcesAvailability (2005-09) and CAGR<sup>a</sup> (1980-84–2005-09)

Country	Domestic Red Meat		Poultry		Other Meat		Fish & Seafood		Eggs		Milk (dry equiv.)	
	(kg/yr)	CAGR <sup>a</sup>	(kg/yr)	CAGR	(kg/yr)	CAGR	(kg/yr)	CAGR	(kg/yr)	CAGR	(kg/yr)	CAGR
Benin	5.2	-1.5%	11.1	3.1%	0.8	-2.6%	8.5	-1.0%	1.0	-2.7%	0.9	0.5%
Burkina Faso	12.9	2.8%	2.2	1.5%	0.6	-1.6%	1.8	0.6%	2.0	2.8%	1.7	-1.4%
Cape Verde	24.9	5.0%	14.6	11.1%	0.2	n.c.	13.0	-3.5%	4.0	5.7%	11.6	2.1%
Côte d'Ivoire	11.4	-0.4%	1.5	-1.8%	7.9	-0.9%	13.5	-0.9%	1.0	0.0%	0.8	-3.7%
The Gambia	5.1	-1.7%	3.9	7.1%	0.9	-2.2%	26.0	1.8%	2.0	2.8%	2.7	-0.4%
Ghana	8.2	0.7%	4.5	8.0%	4.6	-1.7%	28.5	1.2%	1.0	2.8%	0.8	3.4%
Guinea	7.0	2.3%	1.1	4.5%	0.6	-1.5%	10.5	1.4%	2.0	2.8%	1.4	0.8%
Guinea Bissau	13.2	0.0%	1.6	5.2%	0.0	n.c.	1.5	-2.0%	0.7	3.0%	1.6	-0.2%
Liberia	3.3	-0.8%	4.4	4.0%	2.3	-4.1%	5.0	-4.0%	2.0	1.2%	0.4	-4.6%
Mali	15.0	0.9%	3.0	1.7%	2.9	-0.3%	8.5	0.0%	0.4	-1.8%	6.0	0.5%
Niger	20.0	0.6%	0.8	-2.1%	3.3	0.7%	3.0	4.7%	0.3	-2.4%	5.4	0.0%
Nigeria	6.2	-0.5%	1.6	-0.4%	0.9	-1.3%	11.0	-0.5%	3.5	0.6%	0.8	-1.6%
Senegal	10.7	0.5%	3.3	2.8%	1.3	-0.2%	25.5	0.6%	2.0	2.8%	3.1	-1.1%
Sierra Leone	2.4	-0.4%	2.9	1.9%	1.8	4.5%	26.0	1.2%	1.5	1.6%	0.5	-3.6%
Togo	4.4	-0.2%	4.5	3.0%	0.8	-1.8%	7.0	-1.6%	1.0	2.8%	0.6	1.3%

Source: Calculated from FAOSTAT, food balance sheet data

n.c. = rate of growth not calculated, as zero/insignificant per capita availability reported in first period.

<sup>a</sup> compound annual growth rate

in per capita apparent consumption of milk. Pulses are important sources of high quality proteins in the Sahelian countries and Cape Verde but also in Nigeria, Benin and Sierra Leone (Table 5.5). Per capita apparent consumption of other meat, including bushmeat and pig meat, declined in most countries. Fish and seafood remains the most important high quality protein source in the coastal countries, with differing trends across countries.

Given the important differences in patterns of apparent per capita protein consumption across the region, the following paragraphs discuss the main trends by groups of countries.

### 5.3.1 Inland Sahelian countries: red meat and beans

Per capita animal protein availability has grown by between 10% and 43% in Burkina Faso, Mali, and Niger over the past 30 years. In these countries, the main animal protein sources are beef, mutton and goat meat. In Mali and Niger, milk and dairy products (associated with large pastoral popula-

tions) are also important animal protein sources, as are fish in Mali. Over the period 1980-85 to 2004-09, apparent per capita consumption of beef doubled in Burkina Faso (to 7.5 kg/year), increased by 37% in Mali (to 8.6 kg/year) and grew 56% in Niger (to 13.5 kg/year). Mutton and goat meat availability per capita also increased in Burkina and Mali (to 3.1 kg/capita and 6.2 kg/capita, respectively), but fell by 23% in Niger. Apparent per capita poultry consumption increased by 50% in both Burkina and Mali (to 2.2 kg and 2.9 kg, respectively) while “other meat” (which includes bushmeat) fell. Yet meats and milk are not the only high quality protein products consumed in these countries. Pulses (mainly cowpeas) are very important in the diets of all three countries, with the per capita availability of pulses exceeding that of red meat in Burkina and in Niger (Table 5.5). At nearly 30 kg per year, annual per capita pulse availability in Niger was by far the highest of any country in the region. Moreover, apparent per capita pulse consumption increased substantially in all three countries over the period 1980-85 to 2005-09, with the increases ranging from 37% in Burkina to 113% in Mali. In these low-income countries, cowpeas and other pulses serve as “poor people’s meat”, so it is likely that as incomes grew, even among the poor, households shifted to pulses as a first step in increasing their high quality protein intake.

### 5.3.2 Coastal Sahelian countries: diverse patterns of change

The coastal Sahelian countries include Cape Verde, Senegal, The Gambia and Guinea Bissau. In all these countries except Guinea Bissau, fish and seafood were the largest sources of animal protein in the 1980s. The countries have followed very different patterns of apparent consumption of animal protein since then. The most dramatic changes have taken place in Cape Verde, where apparent fish consumption per capita fell by nearly 60% between 1980-85 to 2004-09 (from 31 kg/year to 13 kg/per year) and was substituted by a dramatic increase in apparent per capita consumption of pig meat (up from 5.3 kg/year to 20 kg/year) and poultry (from 1 kg/year to 14.6 kg/year). Egg and milk consumption also grew rapidly and pulse consumption fell as Cape Verde shifted to

**Table 5.5** Per capita pulse availability

Availability (2005-09) and CAGR<sup>a</sup> (1980-84–2005-09)

Country	Pulses	
	(kg/yr)	CAGR <sup>a</sup>
Benin	14.5	3.3%
Burkina Faso	13.0	1.3%
Cape Verde	9.5	-1.2%
Côte d'Ivoire	2.1	4.1%
The Gambia	2.3	-3.0%
Ghana	0.8	-0.8%
Guinea	6.0	-0.6%
Guinea Bissau	2.2	0.2%
Liberia	2.8	3.0%
Mali	8.5	3.1%
Niger	29.5	1.5%
Nigeria	9.5	3.5%
Senegal	4.7	0.6%
Sierra Leone	12.5	1.8%
Togo	6.0	-1.1%

Source: Calculated from FAOSTAT, food balance sheet data

<sup>a</sup> Compound annual growth rate (CAGR) in pulse availability calculated between 1980-84 and 2005-09.

a diet more characteristic of industrialized countries. In contrast, both The Gambia and Senegal increased per capita availability of fish which averaged 26 kg/capita in The Gambia in 2005-09 and 25 kg/capita in Senegal and far outstripped all other protein sources in terms of volume. In both Senegal and The Gambia, there were large percentage increases in the per capita availability of poultry meat during the period (up 455% in The Gambia and 101% in Senegal), but absolute levels remain low. By 2005-09, per capita availability of poultry meat averaged 3.9 kg in The Gambia and 3.3 kg in Senegal. In Guinea Bissau, the largest source of animal protein by far was, and remains, pig meat. Over the period, there was a modest decline (1 kg per capita, or 14%) in apparent per capita pork consumption, which was offset by increases in per capita availability of beef and poultry.

### 5.3.3 Countries of the humid coast: less fish, more poultry

The eight countries of the humid coast include the economic powerhouses of Nigeria, Ghana, and Côte d'Ivoire, along with Benin, Guinea, Liberia, Sierra Leone, and Togo. In the early 1980s, fish was by far the most important source of animal protein in all eight of these countries. By 2004-09, per capita fish availability had fallen in five of the eight countries (Benin, Côte d'Ivoire, Liberia, Nigeria, and Togo) by between 21% (in Côte d'Ivoire) and 64% (in Liberia). In Nigeria, the decline was 10%. In contrast, Ghana, which had the most robust economic growth of the group, saw its annual per capita fish and seafood availability increase by 36% between 1980-85 and 2004-09, growing from 21 kg/person to 29 kg/person. In all countries where per capita fish availability rose, it was due to an increasing proportion of sea fish (partly reflecting imported frozen fish) relative to freshwater fish in the diet. "Other meat", which includes bushmeat, declined in six of the eight countries, likely reflecting the loss of wildlife habitat. While fish remained the most important animal protein source in six of the eight countries, its relative importance declined in most countries, as apparent per capita consumption of other animal protein sources increased. The most dramatic and widespread of these was the increase in per capita poultry meat availability as a result of

the increase in poultry imports discussed in Chapter 4. For example, annual apparent per capita poultry meat consumption in Ghana increased by 570% between 1980-85 to 2004-09, rising from just over 0.6 kg to 4.5 kg. Increases of over 100% (often from initially low levels) also occurred in Benin, Guinea, Liberia, and Sierra Leone.

Nigeria, on the other hand, which imposed periodic bans on the import of frozen poultry to protect domestic producers, recorded an 8% decline in poultry meat availability per capita according to the FBS data. However, the very large reported per capita increases in poultry availability per capita in Benin (rising from 5.2 kg in 1980-85 to 11.1 kg in 2005-09) may in part reflect poultry meat that was clandestinely re-exported to Nigeria. As noted earlier, recorded per capita availability of animal protein actually fell in Nigeria from 1980-85 to 2005-09. This included a 62% decline in per capita beef availability (falling from over 5 kg/person to 2 kg) and a 31% decline in apparent consumption of "other meat." These declines were partially offset by a more than doubling of mutton and goat meat (to 2.8 kg/person), pig meat (which increased from 0.5 kg to 1.4 kg/person) and a 50% increase in per capita availability of eggs. Fish, however, remained the most important single source of animal protein in the country. Nigeria also expanded its apparent per capita consumption of pulses (mainly cowpeas) by over 100% during this period, as did Benin, substituting a lower cost vegetal source of high quality protein for declining per capita red meat availability.

## 5.4 Fruits and vegetables

Statistics on horticultural products in West Africa are notoriously weak, so figures on the evolution of fruit and vegetable availability from the food balance sheets need to be interpreted cautiously. With this caveat in mind, the following patterns emerge from the FBS (Table 5.6).

### 5.4.1 Fruits

Table 5.6 shows that apparent annual per capita consumption of fruits historically has been much



**Table 5.6** *Per capita apparent consumption of fruits and vegetables*Consumption (2005-09) and CAGR<sup>a</sup> (1980-85–2005-09)

Country	Fruits		Vegetables	
	(kg/yr)	CAGR <sup>a</sup>	(kg/yr)	CAGR <sup>a</sup>
Benin	34	-0.2%	48	1.0%
Burkina Faso	5	-1.9%	16	-1.3%
Cape Verde	64	2.9%	57	9.1%
Côte d'Ivoire	76	-1.1%	36	-0.4%
The Gambia	5	0.0%	33	4.3%
Ghana	147	2.2%	34	2.4%
Guinea	104	-0.5%	53	-1.6%
Guinea Bissau	30	-1.5%	28	1.6%
Liberia	47	-0.7%	24	-1.2%
Mali	29	2.2%	50	0.2%
Niger	14	2.7%	50	4.1%
Nigeria	61	-0.1%	60	1.8%
Senegal	16	1.0%	60	5.3%
Sierra Leone	36	-0.1%	47	0.0%
Togo	8	-1.6%	27	0.5%

Source: Calculated from FAOSTAT, food balance sheet data

<sup>a</sup> CAGR = compound annual growth rate

higher in the countries of the humid coast (ranging from around 40 to over 100 kg/capita in the 1980s) than in either the inland Sahelian countries (from 6 to 18 kg/capita during the same period) or the coastal Sahelian states (on the order of 20 to 30 kg/capita). The sole exception to this pattern was Guinea Bissau (classified here as a coastal Sahelian state), whose per capita availability of fruit resembled more that of the humid coastal states. During the period 1980-85 to 2004-09, apparent per capita fruit consumption increased in five countries – Cape Verde, Mali, Ghana, Niger, and Senegal. It stagnated in three countries (The Gambia, Nigeria, and Sierra Leone) and declined in the remaining seven ECOWAS states.

Two variables stand out in the pattern of change in apparent per capita fruit consumption. First, income growth matters. The two countries with the most dramatic increases in apparent per capita consumption, both in absolute and percentage terms – Cape Verde at 106% and Ghana at 72% – were also the countries that had the most rapid

increases in per capita income over the period.<sup>45</sup> On the other hand, five of the seven countries where apparent per capita fruit consumption declined were among the countries with the poorest trends in economic performance (Côte d'Ivoire, Liberia, Guinea Bissau, Guinea and Togo), often associated with civil conflict. The two exceptions to this pattern were Benin and Burkina Faso, but in each of these countries, the absolute decline was only about 2 kg/person. In three countries (Nigeria, Sierra Leone, and The Gambia), apparent per capita consumption remained unchanged. In Nigeria, the figure held steady at the relatively high level of approximately 60 kg; in Sierra Leone, the corresponding figure was 36 kg, while The Gambia maintained apparent fruit consumption at the very low level of 6 kg/capita.

The second generality that emerges from the data is that in four out of the five countries where apparent per capita fruit consumption increased (Cape Verde, Mali, Niger and Senegal), initial levels in the 1980s were low by regional standards. This suggests that with significant income growth in these types of Sahelian countries, demand for fruit could expand rapidly. The budget-consumption studies reviewed in Chapter 6 support this hypothesis.

### 5.4.2 Vegetables

Table 5.6 indicates that apparent per capita consumption of vegetables increased more broadly across the region than did that of fruit over the period 1980-85 to 2004-09. Per capita availability rose in nine of the countries, held steady (less than 5% change) in two, and fell in only four. The four countries that experienced declines (Côte d'Ivoire, Guinea, Liberia and Burkina Faso) were also countries that experienced declines in apparent per capita fruit consumption. The most spectacular growth was in Cape Verde, where apparent per capita annual consumption of vegetables increased by 777% over the period, growing from 5 kg/capita early in the period to 61 kg/capita at the end. Ghana expanded apparent per capita vegetable consumption by 79%,

<sup>45</sup> Niger, which had very modest per capita income growth over the period, also registered strong percentage growth in per capita fruit availability (93%), but the absolute gain was modest, as it started from a very low initial base of 7 kg/capita in 1980-85.

and Nigeria by 55%. But not all countries that showed rapid expansion in apparent per capita vegetable consumption were among the countries showing the fastest per capita income growth. Three Sahelian countries that had relatively low levels of per capita vegetable availability in the 1980s increased that figure by over 100% over the 30 year period: Senegal (264%), The Gambia (187%), and Niger (170%). This finding illustrates that changes in consumption patterns are driven by more than just income growth; factors such as shifts in the population's location within the country and availability of local production (e.g. growth of horticultural production during the dry season to raise rural incomes) may also be important drivers of consumption.

### 5.5 Vegetable oil

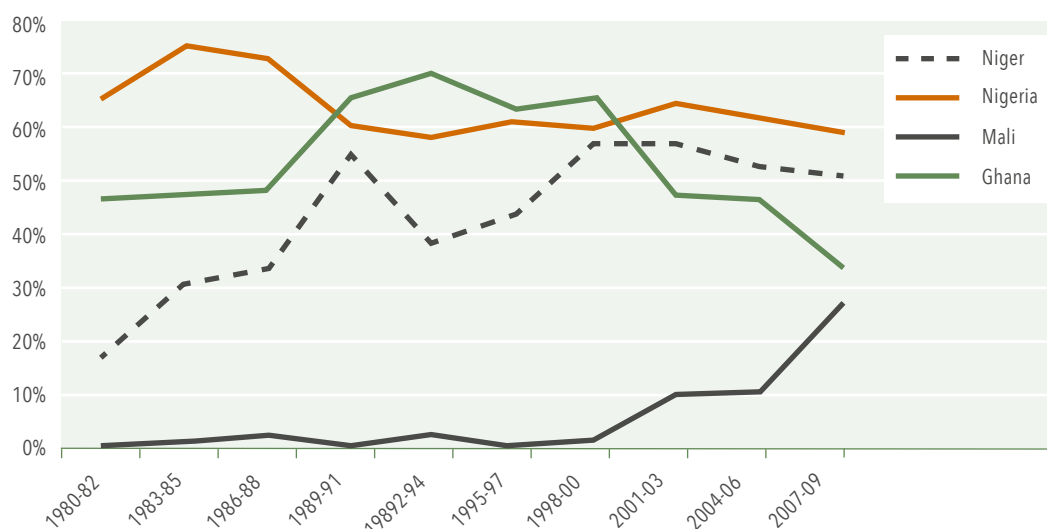
While some of the increased per capita availability of fat in most countries over the past 30 years was due to more animal fat in the diet, a large part reflected expanded per capita availability of vegetable oil. Recorded per capita availability of vegetable oil grew in all countries of the region except Benin and Sierra Leone between 1980–85

and 2005–09. Four of the countries that recorded the largest percentage gains were Sahelian (Burkina Faso at 71%; Niger, 50%; Mali, 45%; and The Gambia, 65%), while three were on the humid coast (Ghana, 55%; Nigeria, 50%; and Togo, 63%). The composition of vegetable oil consumption also changed (Figure 5.1). Along the humid coast, palm oil and palm kernel oil are the dominant oils, but their share of total vegetable oil has declined modestly in most countries, as the total apparent per capita consumption of other vegetable oils increased. In contrast, palm oil and palm kernel oil availability per capita, driven by inexpensive imports from Asia, has increased in the inland Sahelian countries, where other oils (groundnut, cottonseed) have traditionally been important.

The rapid rise in apparent per capita vegetable oil consumption across the region reflects a strong effort by consumers to improve what were often fat-deficient diets. If the current trends continue, future demand for vegetable oils in the region will continue to burgeon, raising challenges both to the agrifood system and public health as diets in some places move from fat-deficient to fat-surplus.

**Figure 5.1** Share of palm & palm kernel oil in total vegetable oil availability

1980-82 to 2007-09



Source: Calculated from FAOSTAT, food balance sheet data

### 5.6 Sugar and sweeteners

Like vegetable oils, there were widespread increases in per capita availability of sugar and sweeteners across the region. Annual per capita quantities increased, often dramatically, between 1980–85 and 2005–09 in 10 of the 15 ECOWAS states, stagnated in 3 (Sierra Leone, Côte d'Ivoire, and Nigeria), and declined modestly in Togo and Senegal. Particularly dramatic increases occurred in Ghana (425%), Benin (400%), Guinea Bissau (217%), Mali (213%) and Cape Verde (66%). The increases reflect both direct consumption of sugar (e.g. with tea) as well as increased consumption of sugar and other sweeteners incorporated into various processed foods and beverages. The growth in sugar consumption is a common phenomenon as incomes increase in low-income countries, and if these trends continue, one can anticipate continued strong demand for sugar. Like the strong demand for vegetable oil, this offers opportunities for West African producers, but also raises concerns about future public health, such as increasing problems of diabetes and obesity.

### 5.7 Alcoholic beverages

The FAOSTAT food balance sheets show that in 10 of the 15 ECOWAS countries, annual per capita availability of alcoholic beverages, mainly beer, exceeded 10 litres/person.<sup>46</sup> Among these countries, average per capita availability per year over the period 2007–09 ranged from 13 litres in Togo to 67 litres in Nigeria. Over the period 1980–85 to 2004–09, apparent per capita consumption of alcoholic beverages increased in seven of these ten countries, by rates ranging from 6% (in Sierra Leone, which at the beginning of the period had one of the highest levels in the region, at 47 litres) to 200% in Cape Verde (where it grew from 13 litres to 39 litres). If such growth trends continue, this may open new markets for import substitution of the grains used by West African breweries. Nigerian breweries, for example, have substituted

substantial quantities of locally grown sorghum for imported grains, and in 2011, SAB-Miller, the largest brewing company in the world, introduced a cassava beer in Mozambique. SAB-Miller is a major player in Nigeria, brewing most of its beer using locally produced sorghum, and it recently introduced cassava beer in Ghana and is considering doing so in Nigeria (Adeyemi, 2012; Olowa *et al.*, 2012).

### 5.8 Summary of key findings and policy implications

The trends in availability of per capita supplies of calories, protein, and fat, as revealed by the food balance sheet analysis, are striking. They show that on average, many West African countries have done a remarkable job over a 30-year period in improving per capita food supplies through a combination of own production and imports. Particularly strong growth came in countries that have experienced solid economic growth in recent years such as Ghana, Nigeria, Cape Verde, Burkina Faso and Mali. In contrast, nations that have suffered civil disruption, such as Liberia, Sierra Leone, and Côte d'Ivoire, stagnated in their apparent per capita consumption of these macronutrients. Regarding the per capita availability of different food groups, the picture that emerges is threefold: (1) a growing per capita availability of most food commodities in most countries, (2) a diversity of dietary patterns across the region (e.g., inland Sahelian versus coastal countries), and (3) increased diversification of dietary pattern within countries, albeit at different velocities.

Broad trends across the region include the increased per capita availability of starchy staples, meat and fish, sugar and sweeteners, vegetable oils, and alcoholic beverages. Per capita availability of individual food commodities and subgroups, however, vary significantly among countries. Traditionally, diets in Sahelian inland areas were mainly based on sorghum and millet, red meat and pulses, whereas in coastal countries, roots and tubers, maize and fish were predominant. While these basic differences still hold, food availability patterns at the national level have become increasingly diverse. Both the

<sup>46</sup> The 10 countries are Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea-Bissau, Nigeria, Sierra Leone, and Togo. The FAOSTAT food balance sheets provide estimates of beverage availability in terms of kg. For ease of exposition, figures are reported here in litres rather than kg, assuming that these beverages have approximately the same density as water (1 kg/litre).

relative importance of major food groups (cereals, roots and tubers, and livestock products) and individual food commodities within these groups have evolved. The trends towards dietary diversification at the national level is particularly marked in coastal countries but can also be observed in inland Sahelian countries.

*Concerning starchy staples*, one broad trend has been a strong increase of apparent rice and wheat consumption in most countries of the region. Per capita availability of rice is much higher than that of wheat in almost all countries, but the level of apparent consumption of both cereals varies widely by country. These differences suggest scope for continued significant growth of demand for both cereals, particularly in countries where per capita consumption levels are still low. The popularity of rice and wheat-based products as convenience foods in urban areas will also contribute to this growth (see Chapter 7). A second trend has been the declining importance of millet and sorghum as staples throughout the subregion, except in Niger. Concerning maize, the picture has been more varied, with per capita apparent consumption increasing in the Sahel and in some coastal countries while declining in others. Apparent per capita consumption of cassava has been growing, in some cases dramatically, especially along the humid coast (e.g. in Nigeria, Ghana, and Benin). Moreover, per capita cassava availability also grew in several countries where it was not the predominant staple in the 1980s, such as Sierra Leone, Guinea Bissau, Senegal, and Guinea. While yams are an important staple in fewer countries, their per capita availability has grown even more strongly than that of cassava in those countries that consume the most yams.

The above analysis indicates that trends in per capita starchy staple availability have been more diverse than simply rice and wheat substituting for traditional staples, as the trade data reviewed in Chapter 4 might suggest. Apparent per capita consumption of maize, yams and cassava has also grown strongly in several countries. The “rice and wheat” story is really a rice, wheat, cassava, yams, and maize story, with important variations among countries.

*Concerning high-quality protein*, two broad trends stand out: (1) growth in apparent per capita consumption of meat from ruminant livestock and pulses (mainly cowpeas) in the inland Sahelian countries, and (2) some substitution of poultry meat for fish along the coast. Moreover, there are still huge differences in apparent per capita consumption levels of different animal protein sources and pulses among countries. Apparent per capita red meat consumption is highest in the inland Sahelian countries, Cape Verde, Guinea Bissau and Côte d’Ivoire, more than twice as high as in most of the other coastal countries. Fish and seafood remains the most important high-quality protein source in the coastal countries, with differing trends across countries. For poultry meat, apparent per capita consumption is highest in Cape Verde, followed by Benin. Despite high annual average growth rates across the region, apparent per capita consumption levels of poultry meat are still low compared to red meat and fish in most countries. Pulses are important sources of high-quality proteins in the Sahelian countries and Cape Verde but also in Nigeria, Benin and Sierra Leone.

*Vegetable oil*. Per capita availability grew in all countries of the subregion except Benin and Sierra Leone between 1980-85 and 2005-09. Moreover, the composition of vegetable oil availability has changed, with a declining share of palm oil and palm kernel oil in the coastal countries and the opposite trend in the Sahelian countries. While increases in apparent per capita palm oil consumption in the Sahel appear to be driven by inexpensive palm oil imports from Asia, the diversification into other vegetable oils in the coastal countries might at least partially be due to the growing health concerns of consumers.

*The growth of per capita fruit and vegetable availability* has not been confined to countries with strong per capita income growth but is also apparent in Sahelian countries, albeit from low absolute levels. This finding illustrates that changes in dietary patterns are driven by more than just income growth; factors such as demographic shifts within the country and changes in local horticultural production systems may also be important drivers of consumption.



*Final remarks.* The increased overall per capita availability and greater diversity of food is positive from a food security and nutrition point of view, although FBS data do not provide information on access and use at the household and intra-households levels. On the other hand, the strong growth in apparent consumption of sugar and sweeteners and vegetable oils, especially palm oil, raises questions for public health in the future, such as increasing problems of diabetes and obesity. Similar concerns apply to the increased consumption of alcoholic beverages.

The FBS data, however, provide only figures on changes in estimated national average per capita availability of different types of foods. Comparison of the trends among countries that have experienced strong economic growth (e.g. Cape Verde and Ghana) with those whose economies have stagnated or declined (e.g. Côte d'Ivoire

and Liberia) give some hints into how changes in per capita income growth influences demand patterns; however, one needs to be cautious in interpreting such comparisons due to the many other possible conflating variables that could affect the results (e.g. disruption of supply chains due to civil strife, cultural preference for certain foods). Furthermore, the FBS data provide no information on how demand varies within a given country based on where a person lives (city or countryside), by income or by profession. For these types of information, which are critical in assessing how demand will evolve in the future, one needs to turn to other sources. Budget-consumption surveys (Chapter 6) and focus-group interviews with consumers and retailers whose business depends on understanding trends in consumer demand (Chapter 7) are two such sources of information to which we now turn.

## Appendix to Chapter 5

**Appendix Table A5.1** Daily food energy availability by country

1980-82 through 2007-09 (kcal/capita/day)

	1980 to 1982	1983 to 1985	1986 to 1988	1989 to 1991	1992 to 1994	1995 to 1997	1998 to 2000	2001 to 2003	2004 to 2006	2007 to 2009	1980-85–2004-09 (% chg. )
<b>Non-coastal Sahel</b>											
Burkina Faso	1745	1788	2256	2386	2544	2530	2495	2585	2656	2647	50.1%
Mali	1590	1783	2109	2186	2172	2215	2319	2436	2539	2604	52.5%
Niger	2067	2053	1998	2011	1878	1980	2145	2180	2256	2439	14.0%
<b>Coastal Sahel</b>											
Cape Verde	2239	2412	2596	2357	2458	2360	2382	2381	2525	2631	10.9%
The Gambia	1984	2214	2532	2486	2339	2245	2260	2268	2309	2501	14.6%
Guinea Bissau	2049	2176	2228	2245	2286	2211	2159	2211	2264	2421	10.9%
Senegal	2296	2281	2157	2187	2172	2137	2132	2164	2283	2432	3.0%
<b>Coastal non-Sahel</b>											
Benin	1937	1973	1990	2238	2254	2322	2361	2428	2481	2567	29.1%
Côte d'Ivoire	2846	2687	2581	2478	2423	2430	2447	2458	2498	2629	-7.3%
Ghana	1656	1825	2015	2052	2368	2483	2559	2664	2802	2909	64.1%
Guinea	2295	2297	2379	2403	2473	2444	2421	2431	2501	2628	11.7%
Liberia	2498	2412	2478	2297	2217	2167	2177	2062	2123	2243	-11.1%
Nigeria	1850	1756	1972	2192	2464	2532	2590	2555	2665	2741	49.9%
Sierra Leone	2068	1942	1962	1949	1975	2057	2002	2012	2097	2158	6.1%
Togo	1967	1879	1793	1921	1880	2013	2010	2054	2133	2297	15.2%

Source: Me-Nsope and Staatz, 2013 (based on FAOSTAT, data)

**Appendix Table A5.2 Non-Coastal Sahel: Daily protein availability**

(gram/capita), 1980-82 to 2007-09

	1980 to 1982	1983 to 1985	1986 to 1988	1989 to 1991	1992 to 1994	1995 to 1997	1998 to 2000	2001 to 2003	2004 to 2006	2007 to 2009	1980-85 to 2004-09 (% chg.)	Total change (%)
<b>Burkina Faso</b>												
Vegetal	47	47	61	64	70	67	66	69	70	71	50.0%	88.7%
Animal	7	7	8	8	9	10	10	10	10	10	42.9%	11.3%
<b>Total</b>	<b>54</b>	<b>54</b>	<b>69</b>	<b>72</b>	<b>79</b>	<b>77</b>	<b>76</b>	<b>79</b>	<b>80</b>	<b>81</b>	<b>49.1%</b>	
<b>Mali</b>												
Vegetal	31	37	44	45	47	47	49	51	52	53	54.4%	88.1%
Animal	17	15	15	17	15	16	16	16	18	19	15.6%	11.9%
<b>Total</b>	<b>48</b>	<b>52</b>	<b>59</b>	<b>62</b>	<b>62</b>	<b>63</b>	<b>65</b>	<b>67</b>	<b>70</b>	<b>72</b>	<b>42.0%</b>	
<b>Niger</b>												
Vegetal	48	45	45	44	42	42	49	48	52	62	22.6%	87.5%
Animal	17	14	12	12	12	13	14	15	16	18	9.7%	12.5%
<b>Total</b>	<b>65</b>	<b>59</b>	<b>57</b>	<b>56</b>	<b>54</b>	<b>55</b>	<b>63</b>	<b>63</b>	<b>68</b>	<b>80</b>	<b>19.4%</b>	

Source: Me-Nsope and Staatz, 2013(based on FAOSTAT data).

**Appendix Table A5.3 Coastal Sahel: Daily protein availability**

(gram/capita), 1980-82 to 2007-09

	1980 to 1982	1983 to 1985	1986 to 1988	1989 to 1991	1992 to 1994	1995 to 1997	1998 to 2000	2001 to 2003	2004 to 2006	2007 to 2009	1980-85 to 2004-09 (% chg.)	Total change (%)
<b>Cape Verde</b>												
Vegetal	45	48	55	45	39	37	39	37	39	41	-14.0%	-162.5%
Animal	20	19	16	17	22	22	24	25	28	32	53.8%	262.5%
<b>Total</b>	<b>65</b>	<b>67</b>	<b>71</b>	<b>62</b>	<b>61</b>	<b>59</b>	<b>63</b>	<b>62</b>	<b>67</b>	<b>73</b>	<b>6.1%</b>	
<b>The Gambia</b>												
Vegetal	37	39	43	41	39	37	38	40	40	45	11.8%	60.0%
Animal	11	12	12	13	11	12	13	14	14	15	26.1%	40.0%
<b>Total</b>	<b>48</b>	<b>51</b>	<b>55</b>	<b>54</b>	<b>50</b>	<b>49</b>	<b>51</b>	<b>54</b>	<b>54</b>	<b>60</b>	<b>15.2%</b>	
<b>Guinea Bissau</b>												
Vegetal	36	37	36	36	36	35	34	35	36	37	0.0%	0.0%
Animal	8	8	9	9	9	9	8	8	7	8	-6.3%	100.0%
<b>Total</b>	<b>44</b>	<b>45</b>	<b>45</b>	<b>45</b>	<b>45</b>	<b>44</b>	<b>42</b>	<b>43</b>	<b>43</b>	<b>45</b>	<b>-1.1%</b>	
<b>Senegal</b>												
Vegetal	50	49	49	48	42	41	42	37	41	44	-14.1%	127.3%
Animal	15	16	18	18	20	17	17	16	17	17	9.7%	-27.3%
<b>Total</b>	<b>65</b>	<b>65</b>	<b>67</b>	<b>66</b>	<b>62</b>	<b>58</b>	<b>59</b>	<b>53</b>	<b>58</b>	<b>61</b>	<b>-8.5%</b>	

Source: Me-Nsope and Staatz, 2013 (based on FAOSTAT data).

**Appendix Table A5.4 Coastal non-Sabel: Daily protein availability**

(gram/capita), 1980-82 to 2007-09

	1980 to 1982	1983 to 1985	1986 to 1988	1989 to 1991	1992 to 1994	1995 to 1997	1998 to 2000	2001 to 2003	2004 to 2006	2007 to 2009	1980-85 to 2004-09 (% chg.)	Total change (%)
<b>Benin</b>												
Vegetal	36	37	40	45	45	46	47	48	49	52	38.4%	103.7%
Animal	10	10	9	8	9	8	9	10	9	10	-5.0%	-3.7%
Total	46	47	49	53	54	54	56	58	58	62	29.0%	
<b>Côte d'Ivoire</b>												
Vegetal	43	41	39	38	37	37	37	37	37	40	-8.3%	43.8%
Animal	17	16	17	16	13	11	11	12	12	12	-27.3%	56.3%
Total	60	57	56	54	50	48	48	49	49	52	-13.7%	
<b>Ghana</b>												
Vegetal	26	28	31	31	37	38	39	41	42	43	57.4%	79.5%
Animal	12	13	14	14	14	14	15	14	16	17	32.0%	20.5%
Total	38	41	45	45	51	52	54	55	58	60	49.4%	
<b>Guinea</b>												
Vegetal	46	46	48	48	47	45	45	45	45	47	0.0%	0.0%
Animal	6	6	6	6	7	7	8	8	8	9	41.7%	100.0%
Total	52	52	54	54	54	52	53	53	53	56	4.8%	
<b>Liberia</b>												
Vegetal	38	36	36	34	31	34	33	28	29	32	-17.6%	54.2%
Animal	11	12	11	8	7	7	7	5	6	6	-47.8%	45.8%
Total	49	48	47	42	38	41	40	33	35	38	-24.7%	
<b>Nigeria</b>												
Vegetal	32	33	39	43	46	49	51	50	53	55	66.2%	104.9%
Animal	11	8	7	7	6	7	7	8	8	9	-10.5%	-4.9%
Total	43	41	46	50	52	56	58	58	61	64	48.8%	
<b>Sierra Leone</b>												
Vegetal	33	32	33	33	34	36	37	38	40	40	23.1%	75.0%
Animal	10	8	7	7	7	7	7	9	12	11	27.8%	25.0%
Total	43	40	40	40	41	43	44	47	52	51	24.1%	
<b>Togo</b>												
Vegetal	39	38	36	38	39	41	40	41	42	46	14.3%	110.0%
Animal	7	7	8	8	7	8	7	6	6	7	-7.1%	-10.0%
<b>Total</b>	<b>46</b>	<b>45</b>	<b>44</b>	<b>46</b>	<b>46</b>	<b>49</b>	<b>47</b>	<b>47</b>	<b>48</b>	<b>53</b>	<b>11.0%</b>	

Source: Me-Nsope and Staatz, 2013 (based on FAOSTAT data).

**Appendix Table A5.5 Daily fat availability by country**

(gram/capita), 1980-82 to 2007-09

	1980 to 1982	1983 to 1985	1986 to 1988	1989 to 1991	1992 to 1994	1995 to 1997	1998 to 2000	2001 to 2003	2004 to 2006	2007 to 2009	1980-85 to 2004-09 (% chg.)
<b>Non-coastal Sahel</b>											
Burkina Faso	33	39	48	48	52	53	54	59	59	61	66.7%
Mali	40	37	45	51	48	45	48	53	54	56	42.9%
Niger	37	36	32	33	31	38	41	47	49	54	41.1%
<b>Coastal Sahel</b>											
Cape Verde	55	65	69	66	81	79	70	69	73	79	26.7%
The Gambia	45	48	51	55	65	60	71	73	74	67	51.6%
Guinea Bissau	50	54	58	55	58	55	51	52	54	60	9.6%
Senegal	61	59	51	51	67	62	63	64	65	69	11.7%
<b>Coastal non-Sahel</b>											
Benin	48	49	40	41	41	40	46	51	53	47	3.1%
Côte d'Ivoire	50	48	45	45	44	46	49	51	50	49	1.0%
Ghana	36	37	40	37	38	35	39	39	45	50	30.1%
Guinea	50	47	42	43	51	52	53	55	60	61	24.7%
Liberia	47	54	48	46	62	64	58	55	57	55	10.9%
Nigeria	49	44	48	53	59	58	60	62	66	67	43.0%
Sierra Leone	61	56	59	56	58	60	48	48	55	55	-6.0%
Togo	29	30	32	39	39	43	39	46	47	50	64.4%

Source: Me-Nsope and Staatz, 2013 (based on FAOSTAT data)







# Chapter 6

## How do Urbanization and Income Levels affect Food Consumption? Insights from Budget-Consumption Studies

In order to understand better the impacts of urbanization and income growth on the evolution of the demand for food in the subregion, AGWA commissioned analysis by ReSAKSS/West Africa of budget-consumption surveys in eight countries: Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, Niger, Senegal, and Togo (Table 6.1). These countries reflect a range of experiences with respect to their degree of urbanization, as well as their per capita income levels and growth rates over the past 20 years. Data were sufficient to carry out detailed analyses for all of the countries except Benin. In five of the countries (Burkina Faso, Côte d'Ivoire, Ghana, Mali, and Senegal), two budget-consumption studies were available – one during the late 1980s or during the early 1990s, and the other from 2005 or later – thus allowing examination of how food expenditure patterns have changed over time (Taondyandé and Yade, 2012b).<sup>48</sup> The chapter complements this analysis with data from two budget-consumption surveys from Nigeria carried out in 2003/04 and 2009/10 (NBS, 2007; NBS, 2012a).

This chapter analyses the shares of the food budget that consumers in each of these countries devoted to the main food groups and to individual commodities. For the countries included in the ReSAKSS study, it also examines these expenditure patterns by income quintiles, urban and rural residence, and between the two survey periods in order to see how food expenditure patterns vary across the population. It then quantifies how income growth affects consumption patterns by estimating income elasticities of demand and marginal food budget shares for these commodities, by country, and discusses the implications of these

findings for potential domestic market growth as incomes increase.

### 6.1 Methodological issues

Despite the usefulness of budget-consumption surveys in better understanding the impact of key drivers, such as income and urbanization, on food demand, some caveats apply in the interpretation of their results. First, most budget-consumption surveys only measure household food expenditures but not actual food consumption. Even though the latter could be estimated by dividing expenditures for individual food items by their prices at the time of data collection, the accuracy remains questionable in view of the quality of available price data. Second, data are only collected in a single year, which might not be typical in terms of prices and thus distort the relative expenditure shares of different food items. Third, the surveys discussed here were conducted in different years in the different countries, which needs to be taken into account when comparing differences between countries and trends over time. Hence, the results of budget-consumption surveys should be interpreted with caution and checked against other data sources such as food balance sheets.

**Table 6.1**  
*Budget consumption surveys analysed by ReSAKSS*

Country	During 1990s	During 2000s
Benin		2007
Burkina Faso	1994	2009
Côte d'Ivoire	1993	2008
Ghana	1992	2006
Mali	1989	2006
Niger		2005
Senegal	1994	2002
Togo		2006

<sup>48</sup> The study was based on field work carried out with national teams in each country in collaboration with ReSAKSS and Michigan State University. See Taondyandé and Yade, 2012b, for details.

## 6.2 The importance of food expenditures in households' budgets

Food expenditures account for a high percentage of total household expenditures in the ReSAKSS survey countries, ranging from 39% in Côte d'Ivoire to 62% in Benin (Table 6.2). The 2009/10 Nigeria National Budget Survey put the figure for Nigeria at 65% for the population as a whole, ranging from 55% in urban areas to 72% in rural areas (NBS, 2012a). These figures showed very little change since the 2003/04 survey, which found 64% of total expenditures nation-wide going to food; the figure for urban areas was 58% while that in rural areas was 67% (NBS, 2007).

In all seven countries for which data are available on expenditures by income group, the percentage of household expenditures going to food increased steadily as per capita household incomes fell, absorbing from between 55% and 70% of total expenditures of the poorest fifth of the population, against 30% to 55% in the top income quintile, depending on the country. Table 6.2 also shows that the decline of food in overall household expenditures is very modest over the first four income quintiles, remaining above 50% for all countries except Côte d'Ivoire, and only declines significantly in the highest income quintiles. This pattern emerges in part because the differences between median incomes are much more marked between the fourth and fifth quintiles compared to differences that exist between the other quintiles.

These figures highlight two main policy issues: (1) the food price dilemma facing policy makers, and (2) the disproportionate share of upper income segments in total food expenditures. With consumers spending such a high percentage of their total budgets on food, there is very little room for consumers, especially poor consumers, to absorb increases in food prices without cutting consumption. Therefore, the scope for encouraging domestic food production through higher prices (e.g. by increasing import tariffs) may be very limited from a political standpoint. On the other hand, the large shares of the middle- and upper-income segments in total domestic food-market expenditures point to the importance of better understanding these groups' demands and their implications for domestic food market development.

### 6.2.1 Evolution of urban food expenditures

Table 6.3 shows the proportion of total food expenditures that takes place in urban areas and how that share has changed over time in the six countries for which two surveys were available. It shows the increasing importance of urban food markets across commodity groups and countries. Urban food expenditures accounted for 30% of total food expenditures in Burkina Faso (2009), 38% in Nigeria (2009/10), 40% in Mali (2006), and between 50% and 60% in Côte d'Ivoire, Ghana and Senegal at the time of the last surveys. The overall figure for Nigeria appears low, given the degree of urbanization in the country, but urban shares are higher

**Table 6.2** Percentage of total household expenditures going to food, by income quintile<sup>a</sup>

Country	Year	Income Quintiles (low to high)					National
		Q1	Q2	Q3	Q4	Q5	
Benin	2007						61.7
Burkina Faso	2003	69.6	68.3	65.4	60.4	41.7	53.6
Côte d'Ivoire	2008	51.3	49.8	46.8	43.1	29.9	38.6
Ghana	2006	60.6	59.0	57.1	53.6	45.0	51.0
Mali	2006	58.3	59.2	57.5	51.6	31.4	43.4
Niger	2005	60.5	62.9	64.7	63.6	55.5	60.1
Senegal	2002	54.8	53.0	53.1	52.8	47.1	45.3
Togo	2006	65.7	63.9	61.2	55.2	43.5	51.6

Source: Taondyandé and Yade, 2012b

<sup>a</sup>Q1= lowest income quintile, Q5=highest

(and increasing over time) for high-value products such as animal products, fruits and vegetables, and beverages. However, despite the growth of urban food consumption in absolute and relative terms, rural food markets remain important, especially in the less urbanised countries.

In terms of how urban food expenditures are distributed across different food groups (Table 6.4), Côte d'Ivoire experienced a noticeable shift between the two surveys from cereals and "other food products" towards animal products and fish, fruits and vegetables, and roots and tubers. Ghana and Senegal underwent similar changes, though less pronounced. While in Ghana, the share of meat expenditures remained at a high level of 27%,

in Senegal it increased from 29% to 33%. In Mali, cereals and meat and fish increased their budget shares at the expense of vegetable oils and other food products.

Nigeria, in contrast, recorded an increase in the share of urban food expenditures going to starchy staples in 2009/10 compared to 2003/04, a sharp drop in the budget share going to animal products, and an increase in the share going to fruits and vegetables. These changes may reflect consumers' adaptation to the high food prices prevailing in 2009/10, as they sought to protect their basic calorie consumption by cutting back on more expensive animal products. The largest increase in urban budget share for Nigeria in

**Table 6.3** Share of urban in total food expenditures for major food groups (%)

Food Group	Burkina Faso		Côte d'Ivoire		Ghana		Mali		Nigeria		Senegal	
	1994	2009	1993	2008	1992	2006	1989	2006	2003/04	2009/10	1994	2002
Cereals	21.9	28.4	42.7	52.1	48.2	54.2	27.7	37.6	25.9	27.8	40.4	49.9
Roots & tubers <sup>a</sup>	41.9	40.4	18.5	38.8	55	55.4	47.5	68.2	18.9	38.5	67.6	69
Pulses	15.5	27.8					23	38	<sup>b</sup>	34.8	21.1	37
Oils and oilseeds	29.7	34.9	41	51.6	44.4	48.8	29.8	39	24.4	36.6	44.8	49.3
Fruits and vegetables	40.2	39.8	44.5	57	47.9	52.6	35.3	53.6	22.2	43.8	52.7	64.8
Animal products and fish	31	37.5	65.7	61	42.7	50.6	45.1	53.4	26.4	42.8	58.2	74.6
Beverages	27.5	25.5	34.6	49.4	41.7	58.4	29.7	41.1	<sup>b</sup>	53.2		
Other food products	34.8	27.1	84.1	63.1	52.8	56.9	39.2	44.2	31.4	35.4	42.3	48.5
<b>Total food expenditures</b>	<b>26</b>	<b>30</b>	<b>46</b>	<b>53.7</b>	<b>52.8</b>	<b>56.9</b>	<b>34.2</b>	<b>44</b>	<b>25.3</b>	<b>37.5</b>	<b>47.2</b>	<b>58.3</b>

Source: Calculated from data in Taondyandé and Yade 2012; National Bureau of Statistics 2007; National Bureau of Statistics 2012.

<sup>a</sup>Includes plantains for Nigeria

<sup>b</sup>Not reported separately; likely included in "Other food products".

**Table 6.4** Evolution of food budget shares in urban areas (%)

Food Group	Burkina Faso		Côte d'Ivoire		Ghana		Mali		Nigeria		Senegal	
	1994	2009	1993	2008	1992	2006	1989	2006	2003/04	2009/10	1994	2002
Cereals	36.9	52.2	32.9	24.8	20.5	23.1	29.6	36.4	25.7	22.2	32.1	26.9
Roots & tubers <sup>a</sup>	1.9	0.9	8.8	12.1	21.0	15.6	1.6	2.8	10.8	23.2	2.4	2.9
Pulses	2.3	3.3					0.7	1.3	<sup>b</sup>	9.0	0.3	0.4
Oils and oilseeds	8.1	5.7	5.2	6.6	5.6	4.7	7.8	5.6	7.1	3.7	13.5	11.3
Fruits and vegetables	9.0	8.1	9.5	16.9	10.1	13.8	12.2	11.6	11.4	20.2	13.2	14.0
Animal products and fish	13.6	12.5	17.7	25.6	27.1	27.7	23.3	25.8	24.2	10.2	29.4	33.1
Beverages	13.8	6.9	3.2	2.2	6.8	7.2	5.2	6.2	<sup>b</sup>	6.4	n.a.	n.a.
Other food products	14.2	10.4	22.6	11.7	8.9	7.9	19.6	10.4	20.8	5.1		11.4

Source: Calculated from data in Taondyandé and Yade 2012; National Bureau of Statistics 2007; National Bureau of Statistics 2012.

<sup>a</sup>Includes plantains for Nigeria

<sup>b</sup>Not reported separately; likely included in "Other food products".

2009/10 compared to the earlier period was for roots and tubers, suggesting that consumers may have switched to these locally produced goods as prices for internationally traded cereals spiked. Gari, in particular, may have been a convenient “fast food” substitute for rice during this period of high rice prices. Data for Burkina Faso from 2009, also show a strong expansion of cereals at the expense of all other food groups compared to the earlier (1994) survey, likely for similar reasons, as consumers tried to defend basic calorie consumption at the expense of dietary diversity.

### 6.3 Structure of food expenditures by major food group

Table 6.5 presents the latest data on the share of the food budget going to major food groups in each of the eight countries included in the RE-SAKSS study along with comparable information for Nigeria. In seven of the nine countries, cereals have the highest share in total food expenditures. These include four Sahelian countries (Burkina Faso, Mali, Niger and Senegal) and three coastal countries (Nigeria, Côte d’Ivoire and Togo). In the case of Côte d’Ivoire, the high share of cereals is mainly due to the importance of rice. In Nigeria, roots, tubers, and plantains account for the second largest share of the food budget, closely following cereals. In contrast, in Benin and Ghana livestock products and fish accounted for the largest share of food expenditure, followed by roots and tu-

bers (Benin) and cereals (Ghana). In the other countries, animal products come in second place, accounting for 10% of total food expenditures in Burkina Faso in 2009 and 25% in Senegal in 2002. Nigeria has the lowest budget share of any of the countries devoted to animal products, but this is at least partially offset by the high budget share (9%) devoted to pulses, a high-quality protein source. Overall, food expenditures are more concentrated on a single food category in the inland Sahelian countries compared to the coastal countries: the main food group—cereals—accounts for between 44.5% (Mali) and 60.9% (Niger) of total food expenditures.

#### 6.3.1 Starchy staples: large expenditures and changing composition

The budget-consumption studies show the central role that starchy staples play in the food budgets of West Africans and how those expenditures are changing over time as the population becomes more urbanised and as incomes grow.

*Budget shares.* Starchy staples (cereals and roots and tubers combined) account for between 30 and 50% of total food expenditures in coastal countries. In inland Sahelian countries their share is even higher. Due to the importance of starchy staples in total food expenditures, increases in starchy staple prices hit consumers particularly hard. Previous studies have found that in response to higher staple food prices, West African consumers often

**Table 6.5** Structure of food expenditures by major food group (%)

Food Group	Benin 2007	Burkina 2009	Côte d’Ivoire 2008	Ghana 2006	Mali 2006	Niger 2005	Senegal 2002	Togo 2006	Nigeria 2009/10
Cereals	22.5	55.1	25.7	22.8	44.5	60.9	31.4	20.8	27.8
Roots and tubers	10.2	0.6	16.8	15	1.9	0.8	2.4	8	22.6 <sup>a</sup>
Pulses	3.7	3.6			1.6	1.8	0.6	2.7	9.7
Oils and oilseeds	8.6	4.9	6.9	5.1	6.5	3.3	13.4	6.4	3.7
Fruits and vegetables	11.6	6.1	15.7	13.9	9.9	4.8	12.6	14.9	17.3
Livestock products and fish	30.1	10.0	22.6	29.2	22.2	12.1	25.8	17.8	8.9
Beverages	6.7	8.1	2.4	6.6	6.9	4.2		6.2	4.5
Other products	6.7	11.5	10.0	7.4	6.4	12.0	13.7	23.2	5.4

Source: Taondyandé and Yade, 2012b; NBS, 2012a.

<sup>a</sup>Also includes plantains for Nigeria



cut back on diet quality (reducing consumption of fruits, vegetables, and animal protein) to “defend” their consumption of starchy staples; they sometimes also cut back on health and educational expenditures in order to try to reduce the impact of the higher prices on caloric intake (Camara, 2004; Diagana *et al.*, 1999). Data from the budget-consumption studies suggest that the same phenomenon occurred in Burkina Faso in 2009 and Nigeria in 2009/10 in response to the surge in food prices (see Table 6.4).

Starchy staple expenditures take a particularly large share of the food budget of the poor. In six of the seven countries for which detailed information is available in the decade 2000-09, the percentage of the food budget amongst urban consumers going to starchy staples declined as incomes rose (Appendix Table A6.1, p. 165). For example, in Niger the lowest-income quintile spent 61% of its food budget on starchy staples, compared to 44% for the highest-income quintile. The one exception to this pattern was Burkina Faso, where urban consumers spent between 48 and 55% of their food budget on these staples in all five income quintiles. In rural areas, budget shares going to starchy staples were at the same level or higher than those in urban areas for five of the six countries surveyed, being lower only in Togo (Appendix Table A6.2). The rural budget shares, however, varied much less across income groups; as incomes grew in rural areas, the tendency was to expand consumption of starchy staples proportionately to the increase in income. This probably reflects in part the lower average incomes in rural areas; as incomes rise in the rural areas, the first priority appears to be to increase total caloric consumption.

*Changing composition of starchy staple expenditures with income growth and urbanization*

**Urban food expenditures.** While budget shares remain high for starchy staples across income groups, the composition of starchy staple expenditures varies by income and across countries. The surveys conducted during the last decade show the predominant share of rice in total food expenditures of urban populations in most countries. In five out of eight countries, urban consumers spent between 15% and 25% of their total food expenditures on

rice. Only in Ghana, Nigeria and Togo were the shares lower (between 11% and 14% in Ghana, 9% on average for Nigeria and between 6% and 7.5% in Togo). With the exception of Niger, urban rice expenditures in the Sahelian countries were higher than those for millet and sorghum combined, despite the higher per capita consumption of the latter as shown in the food balance sheets. In the humid coastal countries with the exception of Nigeria, urban rice expenditures were close to (in Togo and Ghana) or exceeded (in Côte d’Ivoire) total expenditures for roots and tubers. These data show the importance of rice as a convenience food despite its higher cost per calorie compared with traditional cereals and starchy roots. It appears that in urban Nigeria, however, gari may be playing more of a role as a convenient fast food, in part perhaps because of trade restrictions on polished rice (see Chapter 12).

Strikingly, the poorest income quintiles spent similar or larger shares of their food budgets on rice than did those with higher incomes in most countries. With the exception of Burkina Faso, the share of rice in total urban food expenditures decreased with rising incomes. This was most pronounced in Côte d’Ivoire, where the share of rice in total food expenditures amounted to 25% in the lowest income quintile but only 13.5% in the highest quintile. A similar trend can be seen in Ghana and Togo, even though the differences between income quintiles are much less. In Mali and Niger, it is the second-lowest income quintile that spent the highest share of its total food budget on rice (25% and 21%, respectively).

In Senegal, the country with the highest per capita income of the four Sahelian countries and the country with the longest tradition of heavy rice consumption, urban budget shares devoted to rice fell sharply as incomes rose, as higher-income consumers diversified their diets away from starchy staples. Likewise, in both urban Ghana and urban Côte d’Ivoire, the share of the budget going to rice declined as incomes rose (as did the budget share going to all starchy staples), as consumers in these countries diversified their expenditures towards fruits, vegetables, and animal products. In absolute terms, however, per

capita expenditures on rice continued to increase as incomes rose. In contrast, in the lower-income countries of Mali and Niger, the share of the urban food budget going to rice was high (between 19 and 25%) and varied little among 80% of the income distribution, dropping only amongst the highest income groups.

Burkina Faso is an exceptional case where the share of urban food expenditures for rice increased consistently from lower to higher income quintiles (from 16% to 25%). Likewise, the share going to wheat increased from 2% to 5%, while the share going to millet and sorghum plummeted from over 14% to 3%. Thus, as their incomes rose, urban Burkina Faso shifted increasingly to imported staples. In less dramatic fashion, the budget shares devoted to millet and sorghum fell amongst urban consumers as incomes rose in the other Sahelian countries analysed as well (Mali, Niger, and Senegal), and budget shares for both wheat and roots and tubers increased.

In line with the per capita consumption levels reported in the food balance sheets, the share of wheat in total urban food expenditures is still low in the survey countries, except in Senegal. In the poorest countries (Burkina Faso, Niger and Togo), the share of urban expenditures for wheat increased with rising incomes. In countries with higher wheat consumption, there was little variation across income groups (Ghana), or urban expenditure shares first increased and then decreased as incomes went up (Senegal). This suggests that urban wheat consumption is likely to expand with growing incomes, even though from a much lower basis compared to rice.

Also consistent with food balance sheet data, per capita maize expenditures were highest in Burkina Faso, followed by Niger and Togo. In the first two countries, urban expenditure shares are stable across income quintiles, around 16% and 11%, respectively. In the other countries, maize's shares in total expenditures decreased with growing incomes. This applied even more to sorghum and millet, especially in the Sahelian countries where they still account for a significant share of total urban food expenditures, especially among

the poor. The urban expenditure share of roots and tubers was stable across income quintiles in countries where these form an important part of the traditional diet (Ghana, Togo) or declined only slightly with higher incomes (Côte d'Ivoire). This suggests that in these countries households tend to diversify their diets by reducing the share of their incomes spent on maize and rice, rather than on starchy roots and tubers. It may also reflect the suitability of processed forms of cassava, such as gari and attiéké, as urban fast foods that can substitute for rice.

*Rural food expenditures.* In rural areas (Appendix Table A6.2, p. 165), the patterns differed from those in urban areas, reflecting in part lower cash incomes and lower opportunity cost of time. In the rural areas of all four Sahelian countries, budget shares for millet and sorghum were the highest of all the staples and varied little across the first four income groups. Rural households spent a lower share of their incomes on rice, although this share was growing or stable in most countries. Rural inhabitants in Senegal, Côte d'Ivoire and Mali spent the largest shares of their incomes on rice amongst the survey countries, ranging from 15% to 25%. Rural households spent a lower share of their incomes on maize compared to rice, except for Togo. Moreover, in all countries except for Burkina Faso and Niger, maize's share in overall food expenditures declined with rising incomes. Wheat consumption remained under 2% of rural food expenditures except in Senegal, where it varied between 5% for the lowest-income quintile and 8% for the highest-income group; the highest-income quintile in rural Senegal devoted more of its budget to wheat products than to millet and sorghum. In all countries, higher income quintiles spent more on wheat than did their poorer peers. This is consistent with the trends in urban areas and suggests strong increases in wheat demand with growing incomes, albeit from a much lower base than rice. Expenditure shares for roots and tubers in total in rural Ghana were lower than in urban areas, but increased in proportion with incomes. In Côte d'Ivoire, rural households spent double the share of their incomes on roots and tubers compared with their urban peers, especially in the three middle income segments.

*Changing composition of starchy staple expenditures over time.* The ReSAKSS study also examined changing expenditure patterns for food over time for five countries for which budget-consumption studies were available in the late 1980s/early 1990s and from 2005 onward (Burkina Faso, Côte d'Ivoire, Ghana, Mali, and Senegal). These comparisons show some strong shifts among starchy staple expenditures over time (Appendix Tables A6.3 and A6.4, p.167). The share of cereals increased in Burkina Faso, Mali and Ghana while declining in Côte d'Ivoire and Senegal in both urban and rural areas.<sup>48</sup> This increase was mainly driven by the strong growth of rice consumption, whose share in overall food expenditures increased in all the countries, except for Senegal. However, real expenditures for rice in absolute terms also increased in Senegal.<sup>49</sup> A second consistent trend across the five countries is the decline of millet and sorghum in total food expenditures (except for rural Burkina Faso). For the other two cereals, the picture was more diverse: maize's share of the food budget only increased in Burkina Faso, Mali and urban Senegal, while decreasing in the other countries. Wheat's share of the food budget increased in countries with low initial consumption levels (Burkina, Ghana and Mali), but fell in Côte d'Ivoire and urban Senegal, where expenditure shares were already high in the early 1990s. According to ReSAKSS, the strong decline in wheat consumption in Côte d'Ivoire could be attributable to the devaluation of the CFA franc.

Roots' and tubers' budget shares evolved differently in the two main consuming countries covered by repeat surveys: in Côte d'Ivoire the share increased in urban areas (from 8.8% in 1993 to 12.1% in 2008), but fell markedly in rural areas (from 31.7% to 22.2%). For Ghana, the surveys revealed a decline in urban areas from 21.0% to 15.6% between 1992 and 2006 but little change in rural areas. Thus, while absolute levels of expenditure increased for roots and tubers in Ghana (due to strong income growth over the period), the budget-consumption studies suggest less dramatic growth of root and tuber consumption in Ghana than do the FBS data.

48 According to ReSAKSS, the strong increase of cereal consumption in Burkina Faso needs to be interpreted with some caution, given that the survey instrument used in 1994 was not very detailed and some cereal expenditures in that year might be recorded under "other food products."

49 Calculated by dividing total per capita expenditures by deflated food prices in 1994 and 2002.

*Growing demand for processed staples.* As West African consumers become more urbanised and the opportunity cost of their time increases with income growth and a more hectic urban lifestyle, they increasingly seek staples in more convenient, processed forms. This is clearly seen in Table 6.6, which shows the percentage of consumer expenditures for basic staples in raw and processed forms across rural and urban areas in six countries. The proportion of staples purchased in processed form is higher in urban areas than in rural areas of all six countries.<sup>50</sup> The proportion of staples purchased in processed form also jumps sharply as one moves from a low-income country like Niger, where virtually all staples were purchased in unprocessed form, to an emerging economy like Ghana, where 70% of maize and 60% of cassava expenditures went for processed products in urban areas. A key variable driving this shift is the opportunity cost of time, particularly of women, who do most of the food preparation in the region. In countries where many people, especially poorly educated young women, have few opportunities for remunerative employment, the demand for processed products remains limited, as home processing is a cheaper alternative. In contrast, in countries such as Ghana, where incomes are rising rapidly and urban women have more employment opportunities outside the home, the growth in demand for processing services expands rapidly. This shift suggests that if West Africa succeeds in sustaining strong, broad-based income growth, there will likely be an explosive growth in the demand for processed staple food products, particularly in urban areas.

*Summary: starchy staples.* The picture that emerges of starchy staples consumption from the budget-consumption studies is one in which: (1) despite a slight decline in budget shares over time, these products, especially rice, continue to account for a high percentage of the total food budget, especially for low- and middle-income consumers, making their prices very politically sensitive; (2) there is a strong shift as incomes increase in the Sahelian countries away from millet and sorghum towards

50 Although detailed data are not available for Nigeria, the 2009/10 budget-consumption survey provides some evidence of similar patterns. For example, over 60% of total national expenditures on "bread and similar foods" occurred in urban areas, compared to only 30% of national expenditures on all cereal products.

rice, maize (in Mali and Burkina Faso) and, to a lesser extent, wheat; (3) the budget shares of rice and wheat are increasing in Ghana, where incomes have grown strongly, relative to roots and tubers, although absolute expenditures on roots and tubers continue to increase over time. The more recent surveys show that the expenditure shares of roots and tubers are fairly stable across income quintiles in other countries where these form an important part of the traditional diet, such as Togo and Côte d'Ivoire; (4) while these trends are more strongly seen in urban settings, they are also occurring in rural areas, as what was primarily an urban transformation of the diet a generation ago has become a national phenomenon.

The studies also demonstrate that consumption of rice, and to a lesser extent, wheat products, is not just driven by the rich, particularly in urban areas. While the budget shares and absolute levels of consumption of these predominantly imported staples is highest among the high-income groups (except in Senegal, where the budget shares fall for the highest income groups), these staples, particularly rice, claim from between one-fourth to over half of total expenditures on staples by the lowest-income quintile in seven countries surveyed.<sup>51</sup> Finally, the studies suggest that as per capita incomes increase

51 Compared to rice, which is consumed largely as imported, wheat is mainly consumed as bread, pasta and biscuits, and the imported raw material may only account for parts of the costs of these final products. Therefore, increases of wheat prices have a lower impact on consumers than in case of rice.

**Table 6.6** Shares of total expenditures on unprocessed and processed starchy staples, various countries

Staple	Burkina Faso, 2009			Mali, 2006			Niger, 2005		
	Urban	Rural	National	Urban	Rural	National	Urban	Rural	National
<b>Millet</b>									
Millet Grain	80.9	96.0	94.5	98.5	99.9	99.5	99.8	100.0	100.0
Processed/prepared forms	19.1	4.0	5.5	1.5	0.1	0.5	0.2	0.0	0.0
<b>Sorghum</b>									
Sorghum grain (white & red)	93.1	99.2	98.8	100.0	100.0	100.0	100	100	100
Sorghum flour	6.9	0.8	1.2	0.0	0.0	0.0	0.0	0.0	0.0
<b>Maize</b>									
Maize grain (white & yellow)	78.0	93.2	86.9	81.9	92.9	89.8	92.5	98.3	96.1
Processed/prepared forms	21.9	6.8	13.1	18.1	7.1	10.2	7.5	1.7	3.9
Staple	Senegal, 2002			Côte d'Ivoire, 2008			Ghana, 2006		
	Urban	Rural	National	Urban	Rural	National	Urban	Rural	National
<b>Maize</b>									
Maize grain (white & yellow)	85.7	89.4	89.0	15.6	23.2	20.7	31.2	48.3	40.2
Processed/prepared forms	14.3	10.6	11.0	84.4	76.8	79.3	69.8	51.7	59.8
<b>Millet<sup>a</sup></b>									
Millet Grain	46.1	92.7	80.5	25.1	30.4	27.1	–	–	–
Processed/prepared forms	53.9	7.3	19.5	74.9	69.6	72.9	–	–	–
<b>Sorghum<sup>a</sup></b>									
Sorghum grain (white & red)	a	a	a	26.4	30.6	29.5	–	–	–
Sorghum flour	a	a	a	73.6	69.4	50.5	–	–	–
<b>Cassava</b>									
Fresh cassava	–	–	–	26.1	52.7	40.8	39.7	48.3	44.0
Processed/prepared forms	–	–	–	73.9	47.3	59.2	60.3	51.7	56.0

Source: Calculated from data in Taondyandé and Yade, 2012b

<sup>a</sup> Figures for Senegal are for millet and sorghum combined

and populations become more urbanised, there will be a strong growth in the demand for processing services for such staples.

### 6.3.2 Fruits and vegetables

Appendix Table A6.1 (p.165) shows that across all seven countries surveyed in the 2000s, the share of the food budget allocated to fruits and vegetables was nearly constant across all income classes in urban areas. This finding implies that per capita fruit and vegetable expenditures in urban areas increase roughly proportionally with income growth. In rural areas, the pattern is less uniform, with the budget share allocated to fruits and vegetables decreasing as rural incomes rise in Burkina Faso, Ghana, and Mali; increasing in Côte d'Ivoire, Niger and Togo; and holding steady across the different income quintiles in Senegal (Appendix Table A6.2, p.165). Except for Burkina Faso, however, the changes in the fruit and vegetable budget shares were very modest across income groups in rural areas.

Even though the short-run relationship between income levels and fruit and vegetable expenditures is uneven across countries, as revealed in the cross-sectional surveys of the 2000s discussed above, the longer-term relationship, as revealed by comparing surveys over time, appears to be strongly positive. The comparison of the budget-consumption studies from the late 1980s and early 1990s with those in the 2000s reveal that for urban areas, budget shares allocated to fruits and vegetables increased over time in Côte d'Ivoire, Ghana and Senegal and declined slightly in Mali. The only substantial reduction in urban budget share going to fruits and vegetables was in Burkina Faso, where it fell from 9.0% in 1994 to 8.1% in 2009. The latter year was one of high staple food prices; as mentioned earlier, it appears that Burkinabé consumers tried to deal with the higher staple food prices by cutting back expenditures on other products. In rural areas, the budget shares going to fruit and vegetable expenditures increased in four of the six countries, held steady in Senegal, and declined only in Mali. The crop year 2005/06 in Mali was marked by high prices due to drought and locust attacks, which may have caused Malian consumers to devote a

higher proportion of their budget to basic staples. Overall, then, the budget-consumption study results appear consistent with the FBS analysis presented in Chapter 5 that showed fairly broad-based increases in apparent per capita fruit and vegetable consumption across the region over the past 30 years.

### 6.3.3 Animal products, including fish

The most dramatic findings that emerge from Appendix Tables A6.1 and A6.2 concern the strong increase in expenditure shares for meat, fish, and dairy products as incomes increase. In both urban and rural settings, the budget shares allocated to animal products rise with growing incomes. In urban Burkina Faso, Mali, Niger, and Senegal, budget shares allocated to animal products more than double between the poorest 20% of the population and the richest 20%. In rural areas, the increases are slightly lower yet still substantial. Only in urban Ghana (where per capita incomes were highest among the seven countries) and rural Niger (which has a large pastoral population) do budget shares for animal products remain fairly stable across income groups (implying, nonetheless, increases in absolute consumption as incomes rise). Overall, the figures reflect a strong desire by consumers to upgrade the quality of their diet by increasing consumption of animal protein as their incomes increase.

In four of the six countries for which data are available, Table 6.4 shows that urban consumers increased the proportion of their food budget going to animal products over time. The two exceptions were Burkina Faso and Nigeria, where higher starchy staple prices in 2009/10 may have forced consumers to reallocate their food budgets to those staples to defend their basic calorie consumption. In rural areas, the food budget shares allocated to animal products increased over time only in Côte d'Ivoire and Mali (Appendix Table A6.4, p.167). Because incomes were growing over time, however, absolute per capita expenditures on animal products increased in all urban and rural areas of the countries covered by the ReSAKSS study except rural Senegal, where they remained unchanged (Taondyandé and Yade, 2012b). In relative terms,



the most consistent increase in budget share across countries was for dairy products (driven largely by increased expenditures for imported milk powder). Both budget shares and absolute expenditures for dairy products increased across all rural and urban areas of the five countries surveyed except for rural Burkina Faso and rural Senegal, where they declined.

Across the five countries analysed by the ReSAKSS study, the absolute expenditures per capita for meat and poultry increased over time in all urban and rural areas except rural Senegal, where they declined slightly. In relative terms, meat and poultry accounted for the largest share of expenditures on animal protein in urban Burkina Faso, Côte d'Ivoire, and Mali in the late 1980s/early 1990s, while fish absorbed the highest proportion of the animal protein budget in Ghana and Senegal. By 2008, the data indicate a massive shift in relative budget shares towards fish in both urban and rural Côte d'Ivoire (which ReSAKSS attributes to increased consumption of inexpensive frozen fish – as suggested by a strong growth of fish imports during this period from 9.4 kg to 17.9 kg per capita) and a decline in the budget share going to red meat and poultry (Appendix Tables A.6.3 and A6.4). This substitution may have been due in part to the disruption of the livestock trade from Burkina Faso and Mali to Côte d'Ivoire as a result of the Ivorian conflict. In urban Senegal, there was a modest increase in the total food budget share going to meat and poultry between 1994 and 2002, but the budget shares of all other animal protein products also increased over that period, so the share of meat and poultry expenditures as a percentage of total animal protein expenditures remained stable. In contrast, in rural Senegal, the total budget share (as well as absolute expenditures) going to animal protein fell sharply between 1994 and 2002. This was largely driven by a decline in meat consumption, as both the budget share and the absolute expenditures on fish and seafood increased.

Ghana experienced an increase in the overall share of the food budget going to animal products between 1992 and 2006. In urban Ghana, relative shares of the total expenditures on animal products

were remarkably stable over time. In rural Ghana, there were modest increases in the shares going to meat and dairy products and a small decline in the relative share of fish expenditures between 1992 and 2006. Nonetheless, in 2006, fish still accounted for 73% of animal protein expenditures in rural Ghana and 55% in urban Ghana.

Unfortunately, the ReSAKSS analysis did not disaggregate meat expenditures between red meat and poultry, so it is not possible to use these data to examine the degree to which imported frozen poultry has substituted for either red meat or fish, as suggested in Chapter 5. We will examine that question in more detail in Chapter 7 based on interviews with consumer focus groups in Accra and Lagos.

#### *6.4 Quantifying the relationship between income growth and demand*

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In order to quantify how demands for different types of food groups are likely to change as per capita incomes increase in the region, ReSAKSS used the budget-consumption data to estimate income elasticities of demand and marginal budget shares (MBS) for the various urban and rural income groups. Income elasticities of demand and MBS both express the relationship between per capita income growth and growth in demand for different products, but they express the relationship in different ways. Income-elasticities of demand show the percentage growth in the expenditures for a product or food group given a one percent change in income. In contrast, marginal food-budget shares show the share of any additional spending on food that will go to a given product or food group (see Box 6.1).

##### *6.4.1 Income elasticities of demand*

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ReSAKSS reports that the estimated income elasticity of demand of food as a whole is approximately 1.0 for the set of countries analysed, ranging from 0.7 for Senegal to 1.1 in Togo. In contrast, estimates of the income elasticity of demand for all food, beverages and tobacco in high-income countries range from about 0.35 to 0.50 (ERS, 2012). The

### Box 6.1 Income elasticity of demand and marginal budget shares

The income elasticity of demand is the ratio of the percentage change in the expenditures for a given product or food group to the percentage change in per capita income.<sup>1</sup> The elasticity thus expresses how quickly, in percentage terms, demand for the product changes as the rate of income growth changes. The basic relationships are shown in the table below. In high-income countries, income elasticities of demand for

staple foods are typically very low (under 0.2) and often negative (ERS, 2012). The higher the elasticity, the faster will be the growth of demand as per capita incomes increase.

In a few cases, demand for a product may actually fall as incomes increase, as consumers shift to more preferred substitutes. Economists refer to such products as “inferior goods.”<sup>2</sup>

#### Meaning of different values of the income elasticity of demand

Income elasticity of demand value ( $\eta$ )	Meaning
$0 < \eta < 1$	Demand grows as per capita income increases, but at a slower rate than income growth
$\eta > 1$	Demand grows at a faster rate than per capita income growth
$\eta < 0$	Demand falls as per capita incomes increase (“inferior good”)

An example illustrates the use of these elasticities in quantifying future growth in demand for various products. The ReSAKSS study estimated the income elasticity of demand for meat products in urban Burkina Faso at 1.4 (Table 6.7). If per capita incomes in Burkina Faso increase at 2.4% per year (the rate projected by the UN Population Division for the period 2010–30) and the urban population grows at 5.4% per year (also a UN projection), then total demand for meat products in urban Burkina Faso will increase at  $5.4\% + 2.4\% \times 1.4 = 8.76\%$  per year – a rate that would result in the doubling of demand every eight years.

The marginal budget share (MBS) for a food group expresses the percentage of a given increase in total expenditures (either for all consumption or for all food items) that will be

spent on a particular food group. For example, if total per capita consumption expenditures in Ghana increased by 100 cedis and consumers spent 5 of those cedis on additional purchases of rice, the MBS for rice would be 5. Alternatively, the MBS can be defined with respect to changes in total food expenditures rather than all consumption expenditures. In that case, it is referred to in this report as the marginal food-budget share (MFBS). The MFBS represents the percentage of any additional spending on food that will go to a particular food item. For example, if out of an increased total food expenditure of 100 cedis per capita, our Ghanaian consumer spent 10 cedis on rice, the MFBS for rice would be 10.

<sup>1</sup> In the budget-consumption studies analysed in this study, total per capita expenditures on all goods and services are taken as a proxy for per capita income.

<sup>2</sup> The term “inferior good” is not meant to convey any connotation about the nutritional quality of the product in question. Indeed, in early stages of economic growth, consumers often shift their purchases from whole-grain products to products based on more highly refined flours. Although in economic terms the whole-grain products are “inferior goods”, from a nutritional standpoint they are often superior to the highly refined products.

high income elasticity of demand for food in aggregate in West Africa implies that per capita demand for food will increase at roughly the same rate as growth in per capita incomes. This is consistent with the description given earlier in this study of a mass market in which many consumers are still trying to expand their basic intake of food as their incomes rise.

Table 6.7 presents the estimates of income elasticities of demand for the different foods in rural and urban areas of each country. Several salient features emerge from this table:

- » Elasticities are high for almost all food products, sometimes exceeding 1.0. This implies that per capita expenditures on these items will grow at a faster rate than per capita income growth. This applies particularly to wheat products, meat, dairy products, beverages and stimulants, and fruits and vegetables, as well as for outside dining.
- » The main exception is millet and sorghum (taken together), which, excluding Niger, has a low to moderate income elasticity of demand in most countries. The data indicate that in urban Burkina Faso millet and sorghum is an inferior good, with consumers decreasing their consumption of it as incomes increase. Only in Niger, where millet and sorghum remains the main staple and a significant part of the rural population remains undernourished, does the elasticity of demand exceed 0.5. The elasticity estimates indicate that even for Niger, however, demand for all other staples will grow at a faster rate as incomes increase than will the demand for millet and sorghum. Other commodities with income elasticities below 1.0 in most or all countries include maize and sugar.
- » Elasticities for almost all food groups are higher in rural areas than in urban areas. In part, this likely reflects lower per capita incomes in the rural areas, as poorer people tend to increase their food consumption more than the rich as incomes increase. But it also indicates that the structural transformation of West African diets described earlier (more consumption of wheat and rice, increased fruit, vegetable, meat, dairy products, oils, and sweeteners) is not just an urban phenomenon. Rural residents are also changing their diets as their incomes increase, often at a faster rate than their urban counterparts. One implication of this finding is that even though West Africa is becoming increasingly urbanised, improvements in food marketing and processing systems need to occur in rural as well as urban settings, as rural residents are also demanding an increasingly diversified diet.
- » Looking at individual staples, elasticities are high across all countries for wheat products and for rice in most countries (especially in rural areas). The elasticities for rice and wheat products exceed 1 in both rural and urban areas of Ghana, suggesting further rapid growth in demand for those products if Ghana continues its solid economic growth. The income elasticities of demand for yams and cassava are also very high for Ghana, exceeding those for wheat and rice in the rural areas and being amongst the highest for any of the staples in the seven countries studied.
- » Elasticities for cassava and yams were estimated for only three countries. The elasticities are lowest in Côte d'Ivoire (0.5 to 0.7), are greater in Togo (0.7 to 1.4), and, as mentioned earlier, are very high in Ghana (1.0 to 2.2). In all countries, the elasticities are higher for yam than for cassava, indicating that even though cassava is the focus of several production initiatives, future income growth may also put upward pressure on the price of yams.
- » The high elasticities for fruits and vegetables (close to or above 1.0 for most countries), oils and oilseeds, sugar and beverages are all broadly consistent with the picture of growing demand for these products that emerged from the food balance sheet analysis presented in Chapter 5.
- » Elasticities are very high for animal products, particularly for meats (red meat plus poultry) and dairy products. The higher elasticities for

these meats and dairy products relative to fish is consistent with the story that emerged from the FBS analysis of increased consumption of these products relative to fish in several of the countries analysed.

» Expenditures on outside dining were analysed only the surveys for Côte d'Ivoire and Togo, but the elasticities that emerged were the highest of any food category – nearly 4.0 in Côte d'Ivoire. These figures presage a potentially explosive growth in the demand for restaurant and street-food dining as incomes increase.

» Although the analysis carried out on the budget-consumption data focuses on commodity groups rather than processed products, some insight into the potential demand for processed products can be gained by looking at the elasticities for wheat products, dairy products, and outside dining. Practically no wheat is consumed in the region as grain; most is consumed as bread, noodles, or pasta.

Similarly, most dairy products consumed in the region are in processed form, primarily milk powder. Hence, the demands for wheat and dairy products are largely demand for processed products. Similarly, outside dining involves consumption of processed products (along with the associated services of being served and entertained by the experience). It is telling that the elasticities for this combination of goods are the highest of any food groups in the diet, suggesting that as incomes grow, the demands for processed foods are likely to grow extremely rapidly.

#### 6.4.2 Marginal food-budget shares

The MFBS more accurately reflect absolute increases in expenditure on a given food group as incomes increase, as a lower percentage increase in a large-expenditure item (such as rice) often absorbs more of any increment in food spending than does a large percentage increase in a low-expenditure item (such as wheat).

**Table 6.7** Income elasticities of demand for food products, by country and place of residence

Product	Burkina Faso		Côte d'Ivoire		Ghana		Mali		Niger		Senegal		Togo	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Rice	0.9	1.4	0.4	0.7	1.25	1.17	0.5	1.2	0.8	1.4	0.6	0.9	0.8	1.2
Wheat products	1.5	1.7	1.0	1.2	1.11	1.24	1.3	0.8	1.7	1.5	0.7	1.1	1.2	2.0
Maize	0.4	0.7	0.0	0.5	0.74	0.81	0.4	0.5	0.8	1.3			0.2	0.7
Millet and sorghum	-0.2	0.6				0.19	0.2	0.5	0.5	0.9	0.5	0.9	0.5	0.6
Cassava			0.5	0.7	0.98	1.65							0.7	1.1
Yam			0.6	0.5	1.27	2.19							1.0	1.4
Banana-plantains			0.6	0.7	0.37	1.31								
Beans/cowpeas									0.6	1.1			0.5	1.0
Pulses							0.7	1.1						
Fruits and vegetables	0.9	1.0	0.8	0.9	0.94	1.31	0.7	0.7	1.0	1.3	1.0	1.4	1.0	1.1
Oils and oilseeds	0.9	1.1	0.6	0.7	0.51	0.88	0.7	0.9	1.1	1.2	0.6	1.0	0.8	1.0
Meat	1.4	1.5	1.0	1.2	1.16	1.46	1.0	1.3	1.3	1.3	1.3	2.4	1.3	1.6
Fish and seafood	0.9	1.2	0.7	0.8	0.99	0.89	0.6	0.9	0.9	1.0	1.0	0.9	1.0	1.2
Dairy products	1.5	1.3	1.3	1.4	1.34	0.51	1.1	1.3	1.2	0.9	1.1	2.1	1.7	2.1
Sugar							0.6	0.8			0.6	1.0		
Beverages and stimulants	1.0	1.1	1.3	1.3	1.81	1.61			1.1	1.4			1.3	1.1
Outside dining			3.2	4.3									1.6	1.3
Other food products	0.7	1.0	1.2	1.5	1.67	1.37	0.8	0.9	1.0	1.1	1.0	0.9	0.9	0.9

Source: Taondyandé and Yade, 2012b

Figures 6.1 through 6.4 display the calculated MFBS for the survey countries, both in rural and urban areas. The stories that emerge from these figures are similar to those from the elasticity analysis, but give a better picture of the magnitude of the absolute changes in demand for the different food groups as total spending on food increases.

### *Starchy staples*

The MFBS for starchy staples (Figures 6.1 and 6.2) are striking in several respects.

- » The strong potential future demand for rice is evident, both in rural and urban areas. In Mali, for example, urban consumers would spend 14% of any increase in per capita food expenditures on rice; in rural Mali, the figure is 25%. In four of the seven countries, the MFBS for rice are higher in rural areas than in urban areas, indicating that rural consumers in these countries are more eager, given an increase in income, to raise their per capita rice consumption than are their urban counterparts.<sup>52</sup> Thus, the increase in rice consumption around the region is a rural-driven as well as an urban-driven phenomenon.
- » The strong desire by rural residents of Burkina Faso and Niger for additional calories is evident in the very high MFBS for all starchy staples, especially millet and sorghum. Over 40% of any additional food expenditures in rural Burkina would go to staples (24% to millet and sorghum); in rural Niger, the corresponding figures are 59% for all starchy staples and 42% for millet and sorghum. Thus, while the long-term demand perspective for these cereals is not vibrant for urban areas (for example, the MFBS for millet and sorghum in urban Burkina is negative – indicating that per capita consumption falls as the food budget expands), they remain important and potentially growing sources of calories for poor rural populations in these inland Sahelian countries.

» The MFBS for wheat is larger in urban areas than in rural areas of all the countries analysed except Ghana, reflecting the current low levels of wheat consumption in the rural areas. In the urban areas, the MFBS for wheat varies between 3.5 and 7.1% except for Mali, where it is under 1%. But in Niger and Mali, the MFBS for maize in urban areas exceeds that of wheat, indicating that as urban Malians and Burkinabé spend more money for food, they will increase expenditures for maize more than they will for wheat products. In rural areas, the maize MFBS exceeds that of wheat for all countries for which data are available except for Ghana, where the MFBSs are roughly comparable. Taken together, these findings imply that as total expenditures on food increase, spending for maize, in absolute terms, will grow more than that for wheat products in almost all the countries analysed here.

» In the three countries for which data are available on roots and tubers (Côte d'Ivoire, Ghana and Togo), the MFBS for yams and cassava exceed those of wheat in rural areas, and, for Ghana, in urban areas as well. In rural Ghana, MFBS for cassava is close to that for rice. In urban Togo, the MFBS for yams exceeds that for wheat, while in urban Côte d'Ivoire, the MFBS for cassava is only slightly lower than that for wheat. These figures indicate that as total food expenditures grow, expenditures for cassava and yams will grow, in absolute terms, at a pace at least comparable to that of wheat (but less than that for rice) in these coastal countries.

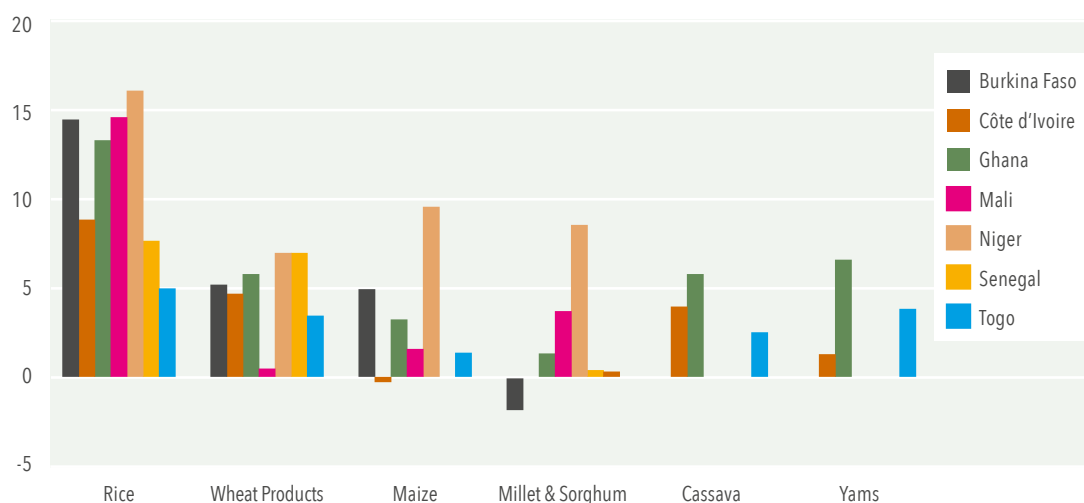
### *Animal products*

Figures 6.3 and 6.4 present the MFBS for animal products, which indicate the proportion of any increase in food expenditures that would go to animal products. The elasticity estimates showed that these were among the products whose demand, in percentage terms, would grow the fastest as per capita incomes increased. The following observations stand out from these MFBS:

» The MFBS for animal products in total are high, especially in urban areas, ranging from 20% in Togo and Niger to 44% in Senegal,

<sup>52</sup> The rural consumers are starting from a much lower initial level of per capita rice consumption; their higher MFBS indicate that they are trying to 'catch up' with the urban pattern of consumption.

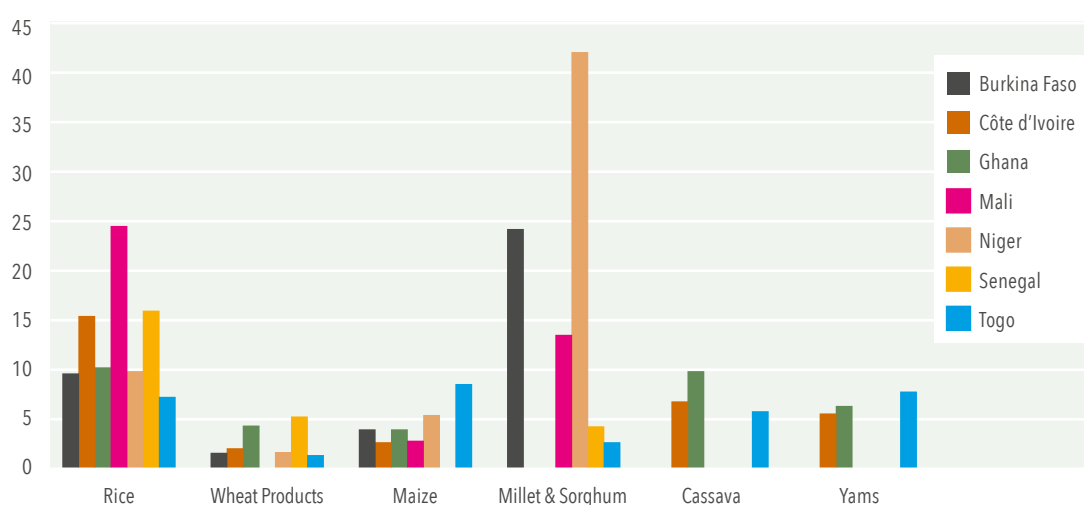


**Figure 6.1** Marginal food-budget shares for basic staples in urban areas

Source: Taondyandé and Yade, 2012b.

Data from the following years:

Burkina Faso (2002), Côte d'Ivoire (2008), Ghana (2006), Mali (2006), Niger (2005), Senegal (2002), and Togo (2006).

**Figure 6.2** Marginal food-budget shares for basic staples in rural areas

Source: Taondyandé and Yade, 2012b.

Data from the following years:

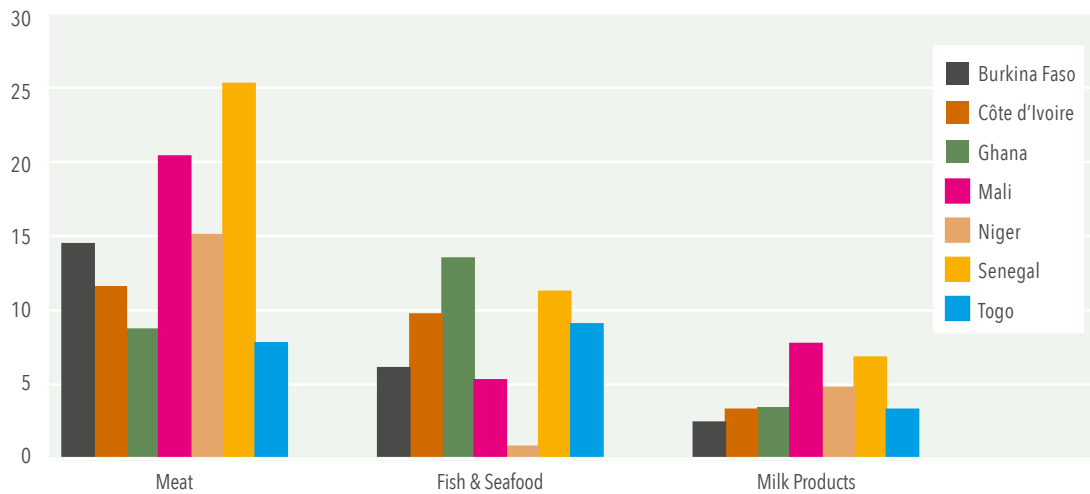
Burkina Faso (2002), Côte d'Ivoire (2008), Ghana (2006), Mali (2006), Niger (2005), Senegal (2002), and Togo (2006).

indicating that a substantial share of additional spending on food would go to these products.

» In both urban and rural areas, the MFBS are highest for meats (red meat and poultry meat combined), followed by fish and then dairy products. Even though the income elasticities of demand for dairy products generally exceeded those of meat (indicating that expenditures

on dairy products would increase at a faster percentage rate than would expenditures on meat as incomes increased), the MFBS indicate that the absolute volume of expenditures on meat products would increase at more than double the pace of spending on dairy products. This suggests that the infrastructure to handle meat marketing will have to expand more, in absolute terms, than will that for dairy products.

**Figure 6.3** Marginal food–budget shares for basic animal products in urban areas

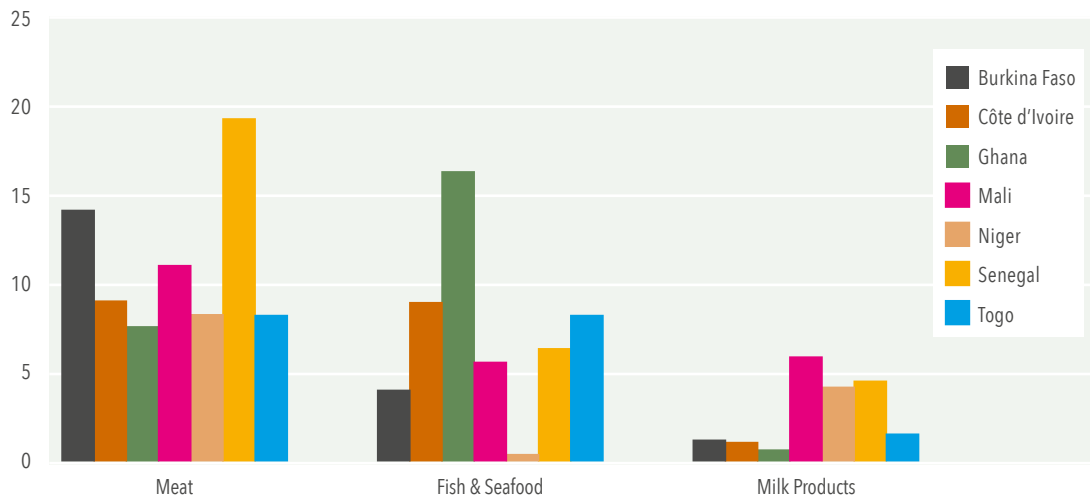


Source: Taondyandé and Yade, 2012b.

Data from the following years:

Burkina Faso (2002), Côte d'Ivoire (2008), Ghana (2006), Mali (2006), Niger (2005), Senegal (2002), and Togo (2006).

**Figure 6.4** Marginal food–budget shares for basic animal products in rural areas



Source: Taondyandé and Yade, 2012b.

Data from the following years:

Burkina Faso (2002), Côte d'Ivoire (2008), Ghana (2006), Mali (2006), Niger (2005), Senegal (2002), and Togo (2006).

» The absolute volume of expenditures on meat in response to an increase in incomes would also be greater than that on fish for every country except Ghana and Togo.

» For almost every product in every country, the MFBS for animal products in urban areas are higher than those in rural areas, reflecting the higher initial levels of consumption of ani-

mal products in urban areas and the priority given by consumers in some countries, such as Burkina Faso and Niger, to spend a large part of any increments of their food budget on starchy staples. The higher MFBS in urban areas, combined with rapid urbanization in these countries, suggest that a large proportion of the future increases in expenditures on animal products will take place in urban areas.

### *Other products*

MFBS for fruits and vegetables, on a national level, range from a little over 5% in Mali and Niger to nearly 14% in Togo, Ghana and Côte d'Ivoire, with the figures higher in urban areas than in rural areas for every country except Ghana. These figures point to a potentially robust increase in absolute expenditures for fruits and vegetables in urban areas in response to income increases, generally exceeding that for fish and dairy products. This strong growth suggests the potential for fruit and vegetable value chains to be important future sources of income and employment. MFBS for oils and oilseeds are generally lower, ranging at a national level from 4 to 7%. In the four coastal countries (Senegal, Ghana, Togo and Côte d'Ivoire) where palm oil and peanut oil are traditional parts of the diet, these MFBS are higher in rural areas than in urban areas, while the reverse is true in the three inland countries of Burkina, Mali, and Niger. The MFBS for meals taken outside the home are extremely high in Côte d'Ivoire and Togo, the only two countries where this item was covered in the surveys. In urban Togo, almost 30% of any increment in spending on food would go to such meals, while in urban Côte d'Ivoire, the figure was 17%. This finding, like the elasticity data, suggests that as incomes increase, there could be an explosive growth in the demand for prepared foods, particularly in the cities.

### *6.5 Synthesis: main findings and policy implications*

The analysis of budget consumption surveys revealed that the overall share of food in total household expenditures remains high, ranging from 39% in Côte d'Ivoire to 65% in Nigeria during the last decade. While food expenditures shares decline as incomes grow, this decline is limited over the first four income quintiles, where it remains above 50% in all countries except Côte d'Ivoire. The decline is more noticeable between the fourth and the fifth income quintile given that the middle and upper income segments largely fall into the top income quintile. Two policy implications result: First, the high share of food in total

household expenditures makes large population groups vulnerable to food price increases. Hence, the scope for encouraging domestic food production through higher prices (e.g. by increasing import tariffs) may be very limited from a political standpoint. Second, the high food expenditure shares even in the fifth quintile translate into a disproportionately high share of middle- and upper-income households in total food expenditures and growing domestic food markets. Understanding this demand in terms of quality, safety and presentation of food products is key from a domestic food policy perspective, aimed at successfully competing against imports.

Concerning food commodity groups, cereals accounted for the largest share of total food expenditures in seven out of nine countries covered by the surveys analysed in this chapter, followed by livestock and fish. Only in Ghana and Benin did livestock and fish constitute the largest expenditure category, followed by cereals (in Ghana) and roots and tubers (in Benin). In Nigeria, expenditures on roots and tubers were only slightly below those on cereals. Food expenditures were more diversified in the coastal states than in inland Sahelian countries. Within the cereals group, rice had the largest share in the urban food expenditures in five of the nine countries. Moreover, in most countries, the poorest income quintiles spent similar or larger shares of their food budgets on rice than did higher income quintiles. This shows the importance of rice as a convenience food even for the poor. In Senegal, the country with the highest per capita rice consumption among the survey countries, urban budget shares devoted to rice fell sharply as incomes rose. This suggests that urban Senegalese households gradually substitute higher value food such as livestock products for rice as their incomes increase. Similar trends with respect to budget shares were found for Ghana and Côte d'Ivoire for starchy staples as a group. However, even though budget shares for these staples fell as incomes rose, per capita expenditures still increased in absolute terms with rising incomes. This confirms that middle- and upper-income households remain very important sources of demand for starchy staples in these countries.

In rural areas, rice and wheat are less important than in urban areas. However, the comparison with earlier survey data shows their growing importance for all income segments. Millet and sorghum and, to a lesser degree, maize still account for important shares in rural food budgets in inland Sahelian countries. Wheat consumption remains under 2% of food expenditures except in Senegal. In all countries, higher income quintiles spent more on wheat than did their poorer peers, both in rural and urban areas. This suggests that one can expect strong increases in wheat demand with growing incomes, albeit from a much lower base than rice. Only in urban Senegal, with the highest wheat consumption level among surveyed countries, does the share of the food budget devoted to wheat products decline slightly with rising incomes. Food expenditure shares for fruits and vegetables increased over time in the six countries (including Nigeria) for which two surveys were available. No marked differences between income segments could be found. In turn, expenditure shares for meat, fish and dairy products increased strongly with rising incomes in both urban and rural areas. As shown by the food balance sheet analysis, the relative importance of fish and meat varies between countries. While in Senegal in Ghana, expenditure shares of meat increased at the expense of fish, the opposite trend could be observed in Côte d'Ivoire.

Income elasticities were high for most food commodities, including wheat products, meat, dairy, beverages, fruits and vegetables. Income elasticities were higher in rural than in urban areas. This suggests that rural income growth would induce a disproportionate increase in food demand accompanied by a rapid change in the composition of the food basket. The analysis of marginal food budget shares shows the strongest market growth potential for animal products, followed by rice, fish, and fruits and vegetables. Producing and marketing such products is labour-intensive and

thus offer potential for substantial job creation if the demand can be met through local production rather than imports. Such products are also highly perishable and thus require tight coordination of their value chains if they are to deliver quality products and avoid food-safety problems.

While in percentage terms, wheat consumption is growing quickly as incomes increase, in some of the countries surveyed, maize, yam and cassava expenditures are projected to grow in absolute terms as much or more than expenditures on wheat. Finally, the studies point out that the demand for processed forms of staple foods and for food eaten away from home is strongly responsive to increases in income, pointing to potentially very rapid increases in the demand for processing and marketing services, particularly in urban areas, as per capita incomes grow. A key variable driving this shift is the opportunity cost of time, particularly of women, who do most of the food preparation in the subregion. In countries where many people, especially poorly educated young women, have few opportunities for remunerative employment, the demand for processed products remains limited, as home processing is a cheaper alternative. In contrast, in countries such as Ghana, where incomes are rising rapidly and urban women have more employment opportunities outside the home, the growth in demand for processing services expands rapidly. This shift suggests that if West Africa succeeds in sustaining strong, broad-based income growth, there will likely be an explosive growth in the demand for processed staple food products, particularly in urban areas.

In order to understand more about the nature of these demands for processed products and food eaten away from home, as well as shifting demands for different types of animal products in dynamic urban settings, Chapter 7 analyses information gleaned from discussions with consumers and retailers in urban Ghana and Nigeria.

## Appendix to Chapter 6

**Appendix Table A6.1** Percentage of the food budget allocated to different foods, by income group, in urban areas (%)

Country	Quintile (urban)	Rice	Maize	Millet/sorghum	Wheat	Roots & tubers	Total starchy staples	Fruits & vegetables	Animal products
Burkina Faso (2009)	1	16.4	16.6	14.6	2.3	0.6	50.5	8.7	6.8
	2	18.9	18.1	14.8	2.4	0.4	54.6	7.6	7.5
	3	21.7	16.2	9.1	3.6	0.7	51.3	8.5	8.8
	4	21.8	15.4	5.9	4.4	0.8	48.3	8.9	11.8
	5	25.2	16.6	3.1	5.2	1.1	51.2	7.6	16.1
Côte d'Ivoire (2008)	1	24.9	5.6	0.4	2.3	12	45.2	16.2	18.4
	2	23.7	3.9	0.6	3.3	10.6	42.1	16.6	21.3
	3	20.8	2.3	0.4	3.8	10	37.3	16.8	24.1
	4	17.2	1.8	0.4	4.4	9.6	33.4	17.3	26.2
	5	13.5	1.0	0.4	4.7	8.0	27.6	17.0	29.5
Ghana (2006)	1	13.9	8.1	0.5	5.4	13.0	40.9	14.9	25.6
	2	12.5	6.8	0.2	5.7	14.4	39.6	14.1	26.7
	3	12.2	5.5	0.2	6.1	12.3	36.3	14.2	28.4
	4	11.6	4.8	0.3	5.7	12.6	35.0	13.8	29.1
	5	11.1	3.7	0.1	5.9	12.9	33.7	13.3	27.4
Mali (2006)	1	20.5	5.5	14.8	3.8	1	45.6	11.1	16.1
	2	24.8	2.5	13.5	4.5	1.4	46.7	10.8	17.5
	3	22.5	2.7	11.5	3.9	2.3	42.9	11.6	20.7
	4	21.9	2.1	8.2	5.0	3.2	40.4	12.3	22.2
	5	14.0	1.9	6.3	4.8	3.8	30.8	11.5	36.5
Niger (2005)	1	18.7	10.6	29.9	1	0.8	61.0	7.1	7.8
	2	21.2	11	22.2	1.8	0.5	56.7	6.9	10.4
	3	20.4	11.5	18.8	2.4	0.9	54.0	7.6	12.7
	4	18.7	11.2	14.9	4.2	1.3	50.3	8.4	14.3
	5	16.1	10.1	10.4	5.8	1.7	44.1	9.6	19
Senegal (2002)	1	18.9	0.1	3.1	11.3	2.3	35.7	12.4	9.3
	2	15.3	0.1	2.6	12.8	2.6	33.4	13.3	12.7
	3	13.5	0.2	2.4	13.1	2.7	31.9	13.3	16.2
	4	10.9	0.2	1.9	11.8	3	27.8	14.4	20.4
	5	12.7	0.2	1.3	9.1	3.1	26.4	14.6	27.5
Togo (2006)	1	7.5	11.1	1	1.4	8.9	29.9	16.4	13.2
	2	7.8	8.6	0.8	2.6	8.4	28.2	15.6	15.5
	3	7	7.4	0.5	3.4	8.6	26.9	15.7	17.7
	4	6.9	5.8	0.2	3.6	8.2	24.7	16.4	19.2
	5	5.6	4	0.2	4.1	8.1	22.0	16.1	22.1

Source: Adapted from Taondyandé and Yade, 2012b

**Appendix Table A6.2** Percentage of the food budget allocated to different foods, by income group, in rural areas

Country	Quintile (rural)	Rice	Maize	Millet/sorghum	Wheat	Roots & tubers	Total starchy staples	Fruits & vegetables	Animal products
Burkina Faso (2009)	1	5	7.3	35	1.2	0.4	48.9	7.1	7.3
	2	5.9	9.2	38.7	1.1	0.3	55.2	6.5	7
	3	7.4	10.5	36.4	1.3	0.6	56.2	5.7	7.2
	4	8.5	10.2	33.9	1.5	0.6	54.7	5.4	9.3
	5	10.2	10.2	35.8	1.5	0.6	58.3	4.4	10.2



**Appendix Table A6.2** *Percentage of the food budget allocated to different foods, by income group, in rural areas (continued)*

Country	Quintile (rural)	Rice	Maize	Millet/sorghum	Wheat	Roots & tubers	Total starchy staples	Fruits & vegetables	Animal products
Côte d'Ivoire (2008)	1	21.9	10.3	0.8	1.1	16.9	51.0	13.7	14.7
	2	21.2	7.4	0.8	0.9	21.6	51.9	13.2	16.4
	3	20.4	5.4	0.3	1.4	20.2	47.7	15	17.3
	4	19.9	4.7	0.3	1.7	20.8	47.4	14.6	18.8
	5	17	3.9	0.4	2.2	16.3	39.8	14.2	22
Ghana (2006)	1	8.6	9.3	6.3	2.8	5.1	32.1	15.7	24.6
	2	10.1	7.5	1.5	3.9	8.1	31.1	15.4	31.5
	3	11.6	6.9	0.8	4.1	9.9	33.3	14.3	32.7
	4	10.6	6	0.7	4.4	12.1	33.8	14.7	31.3
	5	10.5	5.3	0.5	4.6	13.3	34.2	13.3	30.7
Mali (2006)	1	10.6	6.1	29.1	1.6	1	48.4	9	13.1
	2	14.2	4.9	28.1	1.9	0.7	49.8	8	14.8
	3	17.6	5.4	24.6	2	1.1	50.7	8	14.8
	4	17.4	5.7	24.1	2.2	0.9	50.3	7.3	16.5
	5	19.5	3.7	17.4	3	1.3	44.9	7.9	22.6
Niger (2005)	1	4.2	4.2	58.1	0.4	0.6	67.5	2.5	10.1
	2	5	3.7	56.8	0.5	1	67.0	3.1	10.2
	3	6.4	4.4	54.4	0.8	0.6	66.6	3.1	11.2
	4	7.2	3.8	50.3	1.4	0.7	63.4	4	11.1
	5	8.9	5.5	44.1	1.6	0.8	60.9	4.7	12.2
Senegal (2002)	1	25.8	1.1	10	4.5	1.3	42.7	9.9	3.6
	2	21.5	1.2	8.5	6.8	1.8	39.8	10.8	4.6
	3	21.8	1.2	7.6	7.5	1.9	40.0	11	4.9
	4	20.7	0.9	7.6	7	1.9	38.1	11	6
	5	22.6	0.6	6.3	7.6	1.9	39.0	10.4	8.4
Togo (2006)	1	6.5	11	1.6	0.5	5.3	24.9	10.7	12.5
	2	7.4	8.3	1.2	0.8	6.7	24.4	12.4	12.8
	3	7.8	7.5	0.8	1	7.2	24.3	13.7	14.5
	4	8	8	0.8	1.6	7.5	25.9	13.2	14.7
	5	7.9	5.8	0.9	2.2	8.3	25.1	13.8	18.8

Source: Adapted from Taondyandé and Yade, 2012b

**Appendix Table A6.3** *Evolution of the percentage of food expenditures on different food items in urban areas (%)*

Product	Burkina Faso		Côte d'Ivoire		Ghana		Mali		Senegal	
	1994	2009	1993	2008	1992	2006	1989	2006	1994	2002
Cereals	36.9	52.2	32.9	24.8	20.5	23.1	29.6	36.4	32.1	26.9
Rice	15.8	22.6	11.3	18.1	7.9	11.8	14.9	19.5	17.1	13.3
Maize	7.6	16.5	2.9	2.2	7.2	4.9	1.5	2.5	0.1	0.2
Millet and sorghum	9.9	6.7	0.2	0.4	0.2	0.2	11.0	9.4	2.1	1.9
Wheat products	2.9	4.3	18.5	4.1	4.7	5.8	2.0	4.5	12.1	10.9
Other cereal products	0.6	2.1			0.4	0.4	0.2	0.4	0.6	0.6
Roots, tubers, & plantains	1.9	0.9	8.8	12.1	21.0	15.6	1.6	2.8	2.4	2.9
Cassava & cassava products			3.0	5.5	8.3	6.7				
Yam & yam products			2.8	3.3	7.4	5.9				
Other roots & tubers			0.4	0.7	1.4	0.4				

**Appendix Table A6.3** Evolution of the percentage of food expenditures on different food items in urban areas (%) (continued)

Product	Burkina Faso		Côte d'Ivoire		Ghana		Mali		Senegal	
	1994	2009	1993	2008	1992	2006	1989	2006	1994	2002
Plantains			2.5	2.6	3.9	2.7				
Pulses	2.3	3.3					0.7	1.3	0.3	0.4
Oils and oilseeds	8.1	5.7	5.2	6.6	5.6	4.7	7.8	5.6	13.5	11.3
Fruits and vegetables	9.0	8.1	9.5	16.9	10.1	13.8	12.2	11.6	13.2	14.0
Animal products and fish	13.6	12.5	17.7	25.6	27.1	27.7	23.3	25.8	29.4	33.1
Meat	7.5	5.9	11.7	9.0	8.2	8.4	14.8	16.4	11.3	12.8
Dairy products	1.5	2.5	1.9	2.0	2.8	2.9	2.9	4.3	5.8	7.5
Eggs & egg products			0.7	1.1	1.5	1.3			0.4	0.6
Fish & seafood	4.6	4.1	3.4	13.5	14.6	15.2	5.6	5.0	12.0	12.2
Beverages & stimulants	13.8	6.9	3.2	2.2	6.8	7.2	5.2	6.2		
Other food products	14.2	10.4	22.6	11.7	8.9	7.9	19.6	10.4	9.0	11.4

Source: Taondyandé and Yade, 2012b

**Appendix Table A6.4** Evolution of the percentage of food expenditures on different food items in rural areas

Product	Burkina Faso		Côte d'Ivoire		Ghana		Mali		Senegal	
	1994	2009	1993	2008	1992	2006	1989	2006	1994	2002
Cereals	49.4	56.4	35.7	26.6	19.8	22.3	40.0	47.6	42.4	37.7
Rice	7.2	8.5	16.6	19.2	6.5	10.6	8.3	17.1	19.7	22.2
Maize	5.8	9.9	7.2	5.3	7.2	6.2	3.8	4.9	2.3	0.9
Millet and sorghum	34.9	35.8	0.7	0.4	1.6	1.0	26.4	22.9	16.2	7.4
Wheat products	1.4	1.4	11.3	1.7	4.0	4.3	0.8	2.4	4.1	7.1
Other cereal products	0.1	0.7			0.5	0.2	0.7	0.4	0.2	0.2
Roots, tubers, & plantains	0.9	0.6	31.7	22.2	15.5	14.3	0.9	1.0	1.0	1.8
Cassava & cassava products			10.6	7.9	8.8	7.5				
Yam & yam products			12.8	9.7	3.3	3.6				
Other roots & tubers			1.9	1.2	0.8	0.4				
Plantains			6.4	3.4	2.6	2.9				
Pulses	4.5	3.7					1.2	1.7	1.0	0.9
Oils and oilseeds	6.7	4.5	6.4	7.2	6.4	5.6	9.5	6.8	14.9	16.3
Fruits and vegetables	4.7	5.3	10.1	14.3	9.9	14.1	11.6	7.9	10.7	10.6
Animal products and fish	11.4	8.9	7.2	19.1	32.8	30.9	14.6	17.8	18.9	15.7
Meat	6.3	3.5	4.3	3.9	5.8	6.4	6.5	8.4	7.8	3.6
Dairy products	1.6	2.0	1.4	0.6	1.1	1.4	3.0	3.9	4.2	2.7
Eggs & egg products			0.3	0.3	1.3	0.8			0.8	0.1
Fish & seafood	3.5	3.5	1.2	14.3	24.6	22.4	5.1	5.4	6.2	9.4
Beverages & stimulants	12.8	8.7	5.2	2.6	8.6	5.9	6.4	6.9		
Other food products	9.4	12.0	3.7	8.0	7.2	6.8	15.7	10.3	10.9	16.9

Source: Taondyandé and Yade, 2012b





# Chapter 7

## The Rising Middle Class and Evolving Food Demand in Ghana and Nigeria

In order to get greater insight into the forces shaping urban food demand in the large coastal cities of West Africa, the AGWA team carried out focus-group interviews with consumers and retailers in Lagos and Accra. These were complemented by analysis of West African business forecasting studies that focus on the implications of West Africa's growing middle class for the food processing and retailing industries. Together, these sources of information provide a deeper understanding of how and why West Africa's rapid urbanization has profound implications for the future of Agriculture in the subregion. Unless otherwise noted, material in this section is based on AGWA field research carried out in Ghana and Nigeria in 2011 and 2012.

The chapter first provides contextual information about key features of the structural transformation in Ghana and Nigeria, focusing on urbanization, income and poverty levels and related trends. This information also includes evidence on the size and other key features of the urban middle-class, complementing the more general discussion of these topics in Chapter 2. The remaining sections of the chapter present key findings from the consumer interviews concerning evolving food demand and consumption patterns. This discussion includes analysis of consumer attitudes concerning product attributes and the determinants for eating away from home and choosing different food retail outlets. The chapter concludes by drawing implications of these findings for food system development.

### *7.1 Context: key features of structural transformation in Ghana and Nigeria*

This chapter starts with a brief snapshot of the structural transformation in Ghana and Nigeria to provide some context for the discussion of changing food consumption. It highlights common features and differences between the two countries concerning important socio-economic parameters and then discusses some key features concerning the size and evolution of urban middle classes in both countries.

### 7.1.1 Trends in economic growth and employment

**Growth.** Both countries recorded consistently strong economic growth over a long period of time, starting during the mid-1980s in Ghana and the mid-1990s in Nigeria. In both countries, the industrial and services sectors grew faster than agriculture, leading to a gradual decline of agriculture's share in GDP. In Ghana, the services sector has overtaken agriculture in terms of its share of GDP; in 2009-10 services accounted for 49.5% of GDP, followed by agriculture (31.7%) and industry (18.9%). In Nigeria, industry has become the largest contributor to GDP, accounting for 40.7% in 2009-10, whereas agriculture and services contributed 32.7% and 26.6%, respectively (World Bank, 2011b). The industrial sector is dominated by extractive industries (mining, oil and gas) and construction, while the share of manufacturing has remained stagnant at levels of approximately 10% of GDP. Growth of the services sector has been driven by financial services, information technology and communications, and trade. The services sector is mainly inward-looking, with service exports largely restricted to tourism.

**Employment.** While agriculture remains the main source of employment, the importance of the services sector has grown strongly. In 2000 (the last year for which data are available), agriculture,

fisheries, and forestry accounted for 54% of total employment in Ghana, compared with 31% for the services sector and 16% for industry. For Nigeria, the equivalent figures for 2007 were 49% for agriculture, 43% for services, and 8% for industry (ILO, 2013).<sup>53</sup> The low share of the industrial sector in total employment, especially for Nigeria, is due to the importance of extractive industries, which are capital intensive. The majority of the population is self-employed, and the percentage of salaried employees remains low. Salaried employment is concentrated in urban areas in industries like banking, manufacturing and the public sector. Still, only a minority of the economically active population is employed in the formal sector. The share of the informal sector in total employment is estimated at 80% in Ghana at the national level, against 72% in Accra and 65% in Kumasi (Kolavelli *et al.*, 2012). Like other sub-Saharan African countries, employment appears to have lagged behind growth of the labour force, resulting in rising unemployment levels.

**Urbanization.** Both countries have seen strong growth of urban populations, with urbanization rates close to 50%. Lagos, the largest city in Nigeria, with a 2008 population of around 14 million, dwarfs other Nigerian urban centres and is the second fastest growing city in Africa (after Kinshasa) (UN Habitat, 2010). It has the highest literacy rate in Nigeria (94%), and like Accra it is home to a growing middle class. Accra has a higher per capita income and is more cosmopolitan than the rest of Ghana. With its approximately 2.6 million inhabitants in 2006, the Greater Accra Metropolitan Area (GAMA) accounts for about 20% of the total urban population of Ghana (World Bank, 2011a).

**Geographical imbalances.** Both countries are characterized by strong geographical imbalances in terms of incomes and living standards. Lagos is part of the South West region, which has the highest per capita annual household expenditure of the six Nigerian regions, amounting to US\$5 536 in 2010 compared to US\$1 455 in the poorest region, the North East. (Euromonitor International,

2012). According to the Ghana Living Standards Survey conducted in 2005/06, almost 75% of Accra's households fall in the highest income quintiles of the country, with 5% in the lowest quintile. GAMA households spent on average 2.5 times more per day than the national average. Nationwide, per capita expenditure in urban areas is 1.6 times higher than in rural areas. The mean household size is 3.5 in urban areas, against 4.4 in rural areas. GAMA alone accounts for 22.6% of total household expenditure in Ghana, and other urban areas account for another 32.6%. However, the share of food expenditures is lower in urban areas (43.7%) than in rural areas (62.4%) (GSS, 2008).

### 7.1.2 Poverty levels and middle classes in Ghana and Nigeria

**Ghana: sharply declining poverty levels and the growing middle-class.** The strong and consistent economic growth has led to a sharp reduction in poverty rates from 51.7% (in 1991/2) to 39.5% (in 1998/9) and further to 28.5% (in 2005/6). The absolute number of poor people has also fallen. This halving of poverty rates within 15 years is the record in sub-Saharan Africa (Kolavelli, *et al.*, 2012). The ReSAKSS analysis of household surveys from 1993 and 2006 suggests that average annual household income in urban areas almost doubled during this period, from US\$1 006 to US\$1 959, measured in 2010 US\$PPP (Taondyandé and Yade, 2012b). This is equivalent to an increase of the daily per capita expenditures from approximately US\$3 to US\$6. During the AGWA field work, consumers in Accra were also asked about their own definition of the income levels constituting lower, middle and upper income classes. Averaging the answers suggests that households earning between GHC 400 and 1 250 per month (US\$200 and US\$625) considered themselves as middle-class. If the average household size is four persons, this would result in daily per capita incomes for these households of between US\$1.60 and US\$10.40. According to AfDB (2011; see also Chapter 2), 13.5% of the population (equivalent to 3.2 million persons) belongs to the lower middle-class (with daily per capita expenditures between US\$4 and US\$10) and another 6.2% of the population (equivalent to 1.5 million persons)

53 Official statistics tend to over-estimate agriculture's contribution to employment and underestimate employment generated in the services sector. This is due to the seasonality of labour requirements in agriculture and the difficulties of capturing the large informal services sector in areas such as trade and transport.



belongs to the upper middle-class (spending between US\$10 and US\$20 per day).

*But strong income inequalities persist.* The richest 20%, with an average household size of 2.5 persons, accounted for 46.3% of total household expenditures, whereas households in the lowest expenditure quintile with an average household size of 6.4 members only spent 7.1% of the total (GSS, 2008). Income distribution is more skewed in urban than in rural areas. In urban Ghana, the richest 10% of the population spent on average US\$6 024 per year, while the poorest 10% spent only US\$459 (measured in 2010 PPP). Moreover, per capita expenditures of the richer income strata grew faster than those of the poorest strata between 1992 and 2006. The richest 30% accounted for about 60% of the total incremental consumer expenditure in urban Ghana over this period, whereas the poorest 30% spent only 10% of this increment (Taondyandé and Yade, 2012b).

*Nigeria: a more uneven and volatile trend,* reflecting the country's more unstable economic performance. Nigeria had a sizeable middle-class during the 1970s, fuelled by the oil boom. The middle class then dwindled as oil prices declined and the country fell into a fiscal crisis followed by austerity measures. This decline of the middle class is reflected in the country's soaring poverty rate, which increased from 27% in 1980 to 65% in 1996.<sup>54</sup> Between 1997 and 2004, the poverty incidence decreased to 54%, in parallel with improved economic performance. However, more recent data from 2009 pictures a co-evolution of strong GDP growth and rising poverty levels between 2004 and 2009. According to the latest poverty profile based on the Harmonized Living Standard Measurement Survey conducted in 2009, 69% of the population was classified as poor. Further disaggregation shows that the share of the moderately poor slightly decreased while the share of the most poor increased considerably between 2004 and 2009. Using an absolute poverty line, the poverty incidence increased from 54.7% to 60.9%

between 2004 and 2010 (NBS, 2012a).<sup>55</sup> The Gini coefficient on incomes increased from 0.43 to 0.45.

Data on the size and income levels of the Nigerian middle-class are sketchier, and available data from different official and private sources are inconsistent.<sup>56</sup> According to the Nigerian Bureau of Statistics (NBS), approximately 49 million Nigerians (33%) belonged to the non-poor category in 2010, earning more than two-thirds of the mean income. The AfDB study on the African middle-class (AfDB, 2011b) reports that 6.2% of Nigeria's population (equivalent to 9.3 million persons) fall into the lower middle class (with a per capita daily expenditure of US\$ 4-10) whereas 3.8% (equivalent to 5.7 million persons) belonged into the upper middle class (US\$10-20/day per capita expenditure) in 2008 (see Chapter 2). The private sector has more optimistic views about the current size as well as the future dynamic of the Nigerian middle class. Managers of agribusiness firms interviewed during the AGWA field work in March 2012 expressed doubts about the accuracy of official survey data in capturing the size and other characteristics of the middle class. They pointed to the likely underreporting of assets and incomes in the large informal urban sector and to the growing wedge between expenditures and reported income levels in higher-income strata. The optimistic private-sector view concerning the prospects for the Nigerian market is echoed by a recent survey on the Nigerian urban middle-class conducted by Renaissance Capital (2011). The survey report notes that according to IMF estimates, Nigeria's GDP rose fivefold from US\$46 billion in 2000 to US\$247 billion in 2011, while the population increased only by a little more than one third over the same period, from 119 million to 160 million. Future growth scenarios remain positive, and per capita GDP is expected to increase from US\$1 541 in 2011 to almost US\$2 000 by 2016, according to IMF projections.

<sup>54</sup> This is the poverty rate as defined by Nigeria's national poverty line. The poverty line defines an individual as poor if she or he earns less than two-thirds of the average per capita expenditure, regionally deflated (NBS, 2012a). Further disaggregation is made between the extreme poor (earning less than one-third of the mean income) and the moderately poor (earning between one- and two-thirds of the mean income).

<sup>55</sup> The reasons for this strong increase in poverty despite consistent per capita GDP growth are not clear. Given the high share of food and transport in total household expenditures, increases in food and oil prices certainly contributed to this seemingly contradictory trend. Moreover, unemployment has been on the rise, growing from 13.4% in 2004 to 23% in 2011 (NBS, 2012a).

<sup>56</sup> Unfortunately, budget-consumption survey data were not available for the analysis conducted by ReSAKSS, which could have provided detailed information on the size and evolution of different income strata over time.

*Implications for food demand.* Whatever the current size of the middle class in Ghana and Nigeria, it can be expected to grow, at least in absolute terms, in tandem with the strong economic growth and population growth projected for both countries. What are the implications of this growth of the middle class for food demand? Given the large share of food in total household expenditures, ranging from 50% in Ghana<sup>57</sup> to over 60% in Nigeria, and high income elasticities for most food products, income growth will translate into strong increases of food demand.<sup>58</sup> Due to the skewed income distribution, the non-poor population will account for a disproportionate share of this growing demand. As shown in table 6.2 in Chapter 6, the richest quintile of the population in Ghana still devotes 48% of its total expenditures to food and beverages (Taondyandé and Yade, 2012b). In Nigeria, the top income quintile accounted for 40% of total expenditures for food and non-alcoholic beverages, and the upper half of the population for about three-quarters. At the same time, income distribution in Nigeria is even more skewed: According to Euromonitor (2011), the richest 10% of Nigerian households spent on average US\$14 783 per year in 2010, 44.8 times more than the poorest 10% (US\$319).

The growing importance of middle and upper-income strata in urban markets has important implications for food system development. Better understanding this market and the factors determining the food choices of urban middle- and higher-income consumers is paramount for informing a food systems development strategy aimed at increasing the market share of domestic products. At the same time, given the increasingly skewed income distributions, cities like Lagos and Accra are also home to large, low-income populations. Thus, food systems need to cater to both a large population seeking inexpensive calories and proteins as well as a growing middle class seeking a more diverse and higher-quality diet. A third important implication

results from an important demographic trend: Due to strong population growth, both countries boast a massive, young consumer market. Hence, understanding the food preferences of urban youth is key for domestic food producers to capture this market increasingly served by imports.

## 7.2 Main results from the consumer interviews

As part of the AGWA study, interviews were conducted with urban consumers in Accra and Lagos between October 2011 and March 2012. In Ghana, consumer data were gathered via focus groups and an in-market survey targeting both modern and traditional food retailers. For the in-market survey, consumers were interviewed at two types of grocery retailers: a traditional open market and a modern grocery market.<sup>59</sup> Consumer data in Lagos were gathered via focus groups only.

The focus groups captured different demographics of the urban middle class in terms of income levels, age, gender and occupation (Table 7.1). Groups included polytechnic students, civil service workers, and full-time workers in different fields. Most consumers had at least a secondary education; many had some polytechnic or university training. Only few owned vehicles; most relied on public transportation. The number of household members ranged between 4 and 6, except for the students living on campus. Self-reported monthly income is ranged from US\$75 to \$250 in Accra and between US\$239 and US\$1 646 in Lagos. Adjusted by household size, daily per capita incomes ranged from US\$0.80 to US\$3.30 in Accra, and US\$1.66 and US\$10.00 in Lagos. Using the AfDB classification and assuming some downward bias in the self-reported income, the interviewed households belong mainly to the floating class and lower-middle class.

Consumers were asked about how their eating habits are changing and why; which foods

57 This includes food purchases (40%) and the imputed value of home consumption (10%) in Ghana (GSS, 2008)

58 The higher share of food expenditures in Nigeria may be due higher food prices caused by the combined effects of protectionist measures to reduce imports and high costs of domestic food production, processing and handling due to infrastructure-related constraints. High food prices reduce the purchasing power of net food buyers, especially urban populations, and dampen the growth of food demand, especially in the lowest income strata.

59 The term "traditional food retailers" refers to grocery retailers in an open or "wet" market, characterized by many individual vendors selling commodities, both indoors and outdoors. If a building exists, it is often owned by the municipality. "Modern grocery retailing" refers in this chapter to supermarket-based retailers where the retail outlet is owned by one person/company and all vending occurs inside this outlet. Prices are generally negotiable in a traditional grocery environment, but usually not negotiable in a supermarket.

**Table 7.1** Focus group sample characteristics, Accra and Lagos, 2011–12

Consumer demographics	N	Age (mean)	Gender mix (Female/Male)	Education attained (mean years)	HH size (mean)	Average Reported monthly HH income (GHC)	Average reported monthly HH income (US\$)	Monthly income per person (US\$)	Daily income per person (US\$)
Accra Ghana in-market survey						(GHC)	(US\$)	(US\$)	(US\$)
Traditional market	81	34	68/13	10.8	4.8	230	115.0	24.0	0.80
Modern grocery	57	40	32/25	12.4	4.0	330	165.0	41.3	1.38
Accra Ghana Consumer Focus Groups						(GHC)	(US\$)	(US\$)	(US\$)
Group 1: Polytechnic students (female)	11	22	11/0	9.0	1.0	200	100.0	100.0	3.33
Group 2: Polytechnic students (male)	20	23	0/20	9.0	1.0	150	75.0	75.0	2.50
Group 3: Civil service workers	12	42	6/6	13.4	4.3	435	217.5	51.2	1.71
Group 4: Full-time workers	13	32	6/7	9.8	4.4	500	250.0	56.8	1.89
Lagos Nigeria Consumer Focus Groups						(NGN)	(US\$)	(US\$)	(US\$)
Group 1: Single men working FT/PT	7	32.5	0/7	14.8	4.8	38 500	239.1	49.8	1.66
Group 2: Married men working FT	8	34	0/8	15.0	3.6	141 500	878.9	244.1	8.14
Group 3: Ladies working FT and making HH food purchasing decisions	9	54	9/0	15.3	5.5	265 000	1646.0	299.3	9.98
Group 4: University students	9	21	5/4	14.0	5.2	116 000	720.5	138.6	4.62
Group 5: Day labourers/trades people	6	40	0/6	12.0	4.3	45 000	279.5	65.0	2.17

Source: AGWA field surveys

they prefer to eat and their current availability in the market; how they make decisions about which foods to purchase and where; their level of confidence in food quality; and how they defined healthy food. Retailers were also interviewed regarding their approaches to serving the urban consumer in their respective countries.

### 7.2.1 Demand for convenience

Convenience is probably the number one factor influencing consumer food choices in Accra and Lagos today. Men and women are increasingly working away from home, driven by the overriding need for an increase in income to pay for food, shelter, clothing and other household expenses. Working days are long, often 10 hours, with an additional 2 to 4 hours of commuting time. Because of urban congestion and changing lifestyles in both cities, even the middle-class is “time-poor”; hence convenience is a major factor shaping demand for food for all groups in these cities. With growing numbers of family members entering the workforce, there is less time available to buy and prepare food. In order to cope with

this new reality, a growing share of urban dwellers tends to look for ready-made food as much and as nearby as possible. According to the latest budget consumption survey conducted in 2006 (GSS, 2008), households in Ghana spent on average 127 Cedis per annum on prepared meals, accounting for 9.7% of total food expenditures. Urban households spent 39% more, 177 Cedis on average, for prepared meals.

*Eating away from home.* An important consequence of urban congestion is that most workers cannot return home for noonday meals, thereby increasing the demand for prepared foods. This has led to a burgeoning of away-from-home eating (especially at lunch time) and consumption of snacks. In the words of one Accra consumer, “We eat at least four meals outside the home a week. We need foods to be fast and convenient.” The traditional model of one family member taking responsibility for meal planning and food preparation for the household has fractured in most urban environments. Meals taken together are becoming less frequent, and eating is increasingly individualized. Consumer interviews further revealed

that traditional mealtimes are being replaced by spontaneous food purchases on street corners or in small kiosks. The survey results in Accra indicate that low-income workers eat outside the home more frequently than middle-income workers. Earlier surveys revealed that lack of access to cooking facilities among the poor, particularly recent migrants, is a further driver for eating out (Maxwell *et al.*, 2000).

These factors have fuelled demand and led to a massive market expansion of convenience and fast-food options in urban centres. Increasingly it is street-food vendors, cafeterias at work or at school, small restaurants and fast-food outlets that provide family members with one or even several meals per day. Street foods play an important role as both a cheap and quick meal option and as an income-generating strategy. The meals and snacks served on the street cater to a wide variety of customer tastes and range from traditional recipes of rice or maize with vegetables and beans to more modern items including various types of fried or grilled meats, potatoes and bread.

Interviews suggest some differences according to gender and other demographic variables concerning the frequency of eating out. According to the market survey in Accra, men are eating more meals away from home than are women (4.5 versus 3 per week), whereas working women are more willing to bring in food for lunch. Lagos focus group discussions revealed clear differences between the “eating out” habits of single and married consumers. All single males reported eating five to seven meals away from home or nearby to work. Single females (primarily students) also reported eating out, but tended to have more access to kitchen facilities during the day. In strong contrast, few women with families reported ever eating out. They rather carry their lunch to work and eat dinner at home every day, while eating out is confined to special occasions. These differences highlight the role of evolving and more diverse urban lifestyles depending on gender and family situations.

*Convenience food.* In terms of product choice, increasing time pressure is the key driver behind the burgeoning demand for quick and easy-to-

prepare food products and dishes. The desire for convenience is reflected in the very rapid growth in consumption of rice and packaged foods, especially low-cost wheat-based products such as noodles, pasta and bakery products like bread, biscuits and meat pies. “Grab and go” small snacks are also gaining popularity. “Everyone loves plantain chips,” but wheat products are most prominent in the snack category. The youth and men, in general, see pastries and biscuits as snacking options more so than do older women.

Rice has overwhelmingly become the number one convenience food in both Accra and Lagos. While rice consumption has a longer tradition in Nigeria, it has not been a major food staple in Ghana until recently. According to focus group discussions, 10 to 15 years ago in Accra, rice was an “occasional” food, sometimes eaten annually during festivals such as Christmas or Easter or at important funerals, such as that of a paramount chief. Today, rice is eaten on a daily basis in Accra. Its main advantage over traditional dishes based on roots, tubers and maize is the ease and speed of preparation. Rice consumption has intensified with the introduction of the rice cooker and milled rice. Urban dwellers particularly demand rice that cooks and swells faster, leading to a preference of imported rice (which has lower moisture content and hence swells more) over local rice. Moreover, quality becomes increasingly important for time-constrained household members who are no longer willing to spend time hand-picking out stones and chaff. Among higher-income consumers, packaged high-quality rice is an emerging packaged product category. Among all income groups, fast-food dishes based on rice (with beans, chicken, or fish) are increasingly popular.

In addition to more recent convenience foods, many of which are linked to imports of products, raw materials or eating habits (noodles, chicken parts, rice), a number of traditional food staples have been adapted to meet the growing needs for speed and convenience. Gari and attiéké stand out as typical West African convenience foods based on cassava. Moreover, the growth of the small restaurant sector offering precooked traditional menus is another example.

*Packaged foods markets in Nigeria.* The growing demand for packaged food, especially rice, pasta and bakery products, is also reflected in market information provided by Euromonitor Interna-

tional. Table 7.2 depicts the size of the packaged food market in Nigeria in 2011 and the shares of the main products groups. Dried processed food is the largest category, which includes packaged rice,

**Table 7.2** Market size and share of packaged food products in Nigeria, 2011

Packaged Food Categories	Value in NGN (billion)	Value in US\$ (million)	Share
Dried processed food	248.7	1 611.0	31.6%
Noodles	64.5	418.2	8.2%
Bakery	232.1	1 503.6	29.5%
Dairy	165.6	1 072.9	21.0%
Sauces, dressings and condiments	72.9	472.0	9.3%
Oils and fats	41.5	268.7	5.3%
Baby food	9.5	61.4	1.2%
Canned processed food	6.4	41.4	0.8%
Frozen processed food	4.8	31.0	0.6%
Ice cream	2.4	15.2	0.3%
Sweet and savoury snacks	2.3	14.9	0.3%
Soup	1.4	9.0	0.2%
Total packaged food	787.6	5 101.1	100.0%

Source: Euromonitor International, March 2012

(Data were extracted from the Euromonitor International, 2012Passport database in March 2012)

**Table 7.3** Past and projected growth in sales of packaged food products in Nigeria<sup>a</sup>

By volume, 1998-2016

Categories	Sales Volume Growth				1998-11 CAGR (%)	2011-16 CAGR (%)
	1998	2005	2011	2016		
Noodles	37.7	54.4	143.3	214.8	10.8	8.4
Bakery	599.8	913.2	1 007.1	1 146.4	4.1	2.6
Baby food	3.6	4.7	5.6	6.2	3.3	2.1
Dried processed food	927.9	1 062.8	1 348.7	1 623.7	0.9	3.8
Sauces, dressings and condiments	77.0	92.1	103.8	112.7	2.3	1.7
Soup	1.7	1.7	2.0	2.3	1.3	3.4
Dairy	208.3	184.8	232.2	285.9	0.8	4.3
Frozen processed	6.6	6.0	7.4	8.7	0.8	3.3
Sweet and savoury	5.2	4.6	5.4	6.4	0.3	3.2
Canned or preserved	12.2	10.8	12.2	13.9	0.0	2.7
Ice cream	5.5	3.4	3.8	4.6	-2.7	3.7
Oils and fats	163.0	113.2	108.7	112.2	-3.1	0.6

Source: Euromonitor International, March 2012

<sup>a</sup> These market data represent food purchases occurring in the food retail market via different food retail sites, including food service, store-based retail. The latter includes supermarkets and hypermarkets, small shops such as convenience stores and kiosks, and open markets. Non store-based retailing such as by ambulant vendors or street hawkers and self-produced consumption are not captured. Data are assembled from various industry sources, market surveys and official sources.



instant noodles and dried pasta. Bakery products are the second largest category, which is dominated by biscuits and bread, followed by cakes and pastries. Dairy products and sauces, and dressings and condiments rank third and fourth place. Canned/preserved food and frozen processed food still play a minor role.

Table 7.3 shows the growth rates of the main packaged food product categories in volume terms between 1998 and 2011, along with the forecasted compound annual growth rates until 2016. Asian-style noodles showed the strongest growth rate between 1998 and 2011 and are projected to remain the most dynamic packaged food product. Packaged rice already accounts for two-thirds of the value of dried processed food and is projected to grow at 3.3% in volume and 2.7% in value terms per annum between 2011 and 2016, against 8.4% and 8.9% for instant noodles (Euromonitor International 2012). Sauces, dressings and condiments that complement rice and pasta-based dishes have also grown strongly.

### 7.2.2 Protein choices: fish is king, but chicken, eggs, and beans are cheaper

In the case of protein choices, consumer interviews revealed trade-offs between price, convenience and health attributes. As noted in the food-balance-sheet analysis in Chapter 5, fish is still by far the predominant source of animal protein in Nigeria and Ghana. However, especially in Accra, there has been a noticeable shift in recent years from fish towards chicken, according to consumers.

Low-cost imported frozen chicken has transformed chicken from an occasional food treat to a frequent menu item, both in home-cooked food and in meals taken outside the home. Chicken meat has become much more affordable to poor urban consumers, who are buying different chicken parts rather than whole birds. Moreover, supermarkets offer various qualities at different prices, including cut up pieces and whole birds either frozen, chilled, dressed, or live, for specific uses. Consumers can stop by a cold store or supermarket and pick up a few affordable pieces of imported, frozen chicken for dinner that night. Even more recently, consumers have begun

to be able to purchase “chilled, dressed” and ready-to-cook chicken at more modern supermarkets. In the past, a live broiler or layer was the only option. Between 10% and 15% of Ghanaian consumers interviewed in traditional and modern markets report that they never buy live chicken.

Chapter 5 showed that per capita meat consumption in Nigeria is lower than in Ghana, but that Nigerians consume larger quantities of pulses as an important source of protein. In the case of chicken, the lower per capita consumption is likely due to chicken’s higher price than in Ghana as a result of the import ban on poultry and higher domestic production and logistics costs. Hence, while chicken is still an important item in the Nigerian protein market, its degree of substitution for fish has been less than in Ghana. In both countries, the spread of fast-food chains such as KFC, Chicken Republic and Mr Biggs has also encouraged chicken consumption among the middle class, where dining out is becoming an increasing form of family entertainment.

No clear picture emerged from the focus-group discussions regarding preferences between chicken and fish. In general, fish was considered more healthy than chicken but also more expensive. The discussions indicated that cost considerations are leading urban consumers increasingly to seek out other protein sources. Among the lower-income groups, especially in Lagos and Abuja, beans and cowpeas are an important alternative. Students interviewed in both Accra and Lagos eat eggs more frequently than other consumers, in part because eggs are a cheaper protein source than either chicken or fish, and in spite of the students’ concerns about the safety of those eggs.<sup>60</sup> There is also growing consumption of dairy products. Flavoured yogurt and blends of yogurt and fruit juices are increasingly popular in both cities.

### 7.2.3 Traditional foods

Urban consumers seem to be at a crossroads with respect to convenience and traditional foods. Consumer interviews revealed that urban consum-

<sup>60</sup> Students in Lagos refer to the egg sandwiches they buy on campus as “risky burgers.”



ers still prefer their traditional foods based on starchy roots, maize, beans and plantains, but are increasingly forced to turn to more convenient foods that are faster to prepare and more readily available in restaurants and street food outlets. Traditional dishes are often based on fermented products such as doughs, gari, pounded yam, and bean flour. Many focus-group participants stated that although they would prefer to eat traditional foods, they are increasingly unable to do so because of the trends described in the previous section. The demand for speed and convenience is resulting in a gradual departure from traditional cooking and eating habits. This applies to home cooking as well as to fast-food vendors. Women participating in the focus groups in Ghana said that they “cook mostly on the weekends and heat it up during the day. There is no time to cook every day.” However, the ability to store food depends on access to and reliability of refrigerators and electricity.

During the rapid market survey in Accra, consumers were asked about their main food choices when eating out. While 45% of all interviewed persons eat mainly “modern” fast food (42.8% rice and chicken, 2.2% pizza), roughly the same percentage eats mainly traditional foods such as kenkey (18.8%), fufu and soup (11.6%), banku (9.4%), fried yam and plantain (2.9%), and beans and plantain (0.7%).<sup>61</sup> Another 7.2% are eating snacks, and 4.3% stated that they do not eat out at all. These food choices are offered by myriads of small restaurants, food stalls and “bush canteens” (see Chapter 8). However, there appears to be a tendency towards “Western” food and a reduction of variability in food choices for the population forced to eat out. Some focus groups in Ghana complained about the limited food choices outside home: “Chicken is everywhere. We used to eat chicken a few times a year – it was a treat. Now it is very common and boring.” This suggests that there is a latent demand for convenience foods based on traditional dishes.

Some modern quick-service restaurants have responded to this demand by offering both traditional and “Western” dishes, especially in Nigeria. These outlets targeting middle-market segments

serve popular traditional cuisine such as *ebba*, pounded yam and *moimoi* along with mainstream dishes built around fried chicken, fish and rice. In Ghana, the modern fast-food and quick-service sector mainly offers fried chicken and rice, whereas local cuisine such as fufu, gari and stews are more restricted to canteens and small restaurants. However, even these outlets increasingly offer modern convenience dishes. Hence, the dominant trend seems to be towards dishes perceived as “modern” and “Western.” This shift is also reinforced by lifestyle changes and the desire to “be modern”, especially among young urban dwellers. Western quick-service restaurants such as KFC are regarded as trendy and up-market and are populated by middle and higher-income persons. For a premium, the franchised new entrants bring a foodservice ambience that is perceived as up-market and accessible to most consumers, even if they can only afford an ice cream.

#### 7.2.4 Value addition based on traditional foods

As mentioned above, there are a number of West African answers to the need for speed and convenience based on traditional food staples: Gari and attiéké but also bean flour are easy to prepare and readily available in traditional market outlets. Several efforts have been made to add value by enhancing product quality, hygiene, presentation and packaging in order to offer these products in modern food marketing channels such as supermarkets. For example, research in Ghana indicated a potential market for hygienically prepared and packaged cassava products among young Ghanaian professionals (Collinson *et al.*, 2003), and several domestic processors have responded by offering such products, e.g., Garipack. Attempts have further been made to engineer instant products for traditional dishes such as Pounded yam, fufu flour, banku flour and banku dough. During the focus-group interviews, consumers were asked about their opinions of currently available processed traditional products.

Surprisingly, consumers interviewed did not show clear preferences for the current market offerings in “convenient” traditional foods. Various

<sup>61</sup> Kenkey is fermented maize dough, fufu is pounded yam or cassava, and banku is a fermented maize or cassava dough, often cooked in banana leaves.

reasons for not purchasing processed traditional products were given. Most were related to quality, presentation and packaging, whereas price was not a prime concern. In the focus-group discussions in Ghana, the consumers of all ages questioned the freshness and taste of products such as Garipack. Buyers in the open market try different garis and often have their preferred supplier. Not being able to try and taste Garipack acts as an entry barrier for some consumers. Those consumers who do buy products such as Garipack say that the packaged variety is “not polluted [with foreign materials] like at the market.” In general, packaging and labelling need improvement. Some consumers in Accra commented that no clear instructions about the preparation of instant fufu were given on the package (e.g. concerning the amounts of water and powder to be mixed), resulting in trial and error with unsatisfactory results. Others were also concerned with the thin packaging being able to “be torn by a fingernail.” It thus appears that if processed forms of these roots and tubers are to compete effectively with rice, further technical work is needed to make them more acceptable to consumers.

In Lagos, discussions revolved about Pounded Yam as an alternative to hand-pounded yam, whose preparation is time-consuming and cumbersome. Men voiced a strong preference for traditionally pounded yam. They said that “it is African to use our hands and pound.” Since it is mainly female hands pounding the yam, women had different and more diverse views. Especially female students and working women said that they would consider using Pounded Yam since they didn’t mind the taste and expected to be time-constrained. Most women who were making choices for their families said they generally did not buy Pounded Yam. The feedback was relatively negative and centred around texture and labelling. The Pounded Yam “turned to water overnight...this turned me off and made me think it was made of non-natural ingredients.” Many women want ingredients to be written on the label as well as nutritional information.

These results show that developing a market for value-added foods based on traditional dishes

and food staples is not straightforward. In addition to overcoming technical constraints concerning product quality, food processing companies targeting upper market segments need a better understanding of consumer tastes and preferences and of the determinants of purchasing decisions. In the case of some traditional dishes, offering convenience and instant food products may face stronger resistance from consumers, especially when competing with the traditionally-prepared dishes as a reference for taste and quality. On the other hand, the increased need for convenience, especially in the wake of growing female employment, is likely over time to reduce this resistance. In any case, continuous product innovations and attractive packaging, labelling and advertising are critical for success.

#### 7.2.5 Concerns about quality and food safety, healthfulness and cost

The transformation of diets in Accra, Lagos, and Abuja, combined with more sedentary urban lifestyles, have raised concerns among consumers about the nutritional quality, safety and costs of their foods. Focus group discussions and interviews with food processing companies conducted as part of the field work revealed that middle-class Nigerians have become increasingly concerned about the amount of fat in their diet and the adverse health effects resulting from high cholesterol levels. The importance of reducing the fat content of meals has been widely accepted. According to the focus group discussions, in many urban social circles, it is no longer culturally acceptable to maintain a high-fat diet. Participants stated that “an individual’s family doctor will disapprove it, employers who provide health schemes disapprove it and ‘good mothers’ don’t allow their children to consume high-fat foods in more than modest amounts”. This growing awareness about health implications of food has created a marketing opportunity for producers of low-fat meats or vegetable oils with higher content of unsaturated fatty acids. There is also growing concern about excessive sugar intake, as consumers are increasingly aware of the related health risks such as diabetes. Overall, the middle-class consumers participating in the focus group discussions were

well-informed about the health implications and nutritional values of different foods. However, issues of availability and affordability of nutritious foods were flagged strongly.

According to the Lagos consumers interviewed, the preferred healthy diet generally would consist of “fruits, more vegetables, less red meat, more fish, guinea fowl and fewer carbohydrates (pounded yam is a preferred carbohydrate).” Older women said that they “would like to eat healthy salads, but there are no healthy salad dressings available [e.g. there is only ‘creme’], so salad is not a great option. Olive oil may be available, but it is expensive and likely adulterated.” Palm oil is a mainstay in food preparation and is increasingly considered unhealthy as lifestyles change. Holding income constant, there was a strong feeling across respondents in the Lagos focus groups that diets should evolve with age, which provides insight into how preferences may change with changing age distributions. “At a certain age...around 40, we should eat less red meat and more fish and chicken. We still buy beef for children. Children want beef meat – they don’t want too much fish.”

Accra consumers interviewed in the surveys said that a healthy diet would be “tilapia...steamed vegetables with a little salt, whole cereals and legumes ...and boiled yams and cocoyam.” Yet, these diet trends do not seem common in the urban population, particularly with the youth. According to the young people interviewed, street food “must be cheap and fast.” Students said that “time is the main factor in deciding what to eat, price is next.” They also say there are few affordable, healthy options. These trends of this demographic, such as their desires for convenience and health, are particularly important to follow as they represent the future educated consumer demographic in Lagos and Accra.

*Nutritious food is too expensive.* A common complaint among the consumers interviewed is that the only convenient foods in urban areas are high in oils (including palm oil, which is increasingly considered by consumers as unhealthful) and carbohydrates – for example, fried chicken and rice. Although demand for many fresh foods has been

growing robustly in both Nigeria and Ghana as a whole and are projected to continue to do so, many consumers felt that in congested Accra and Lagos, healthier options such as fish, fresh fruits and vegetables, and juices were increasingly expensive relative to the fast-food alternatives. Many respondents indicated that they would like to shift to a more healthy diet if their incomes would allow it, but given their current incomes and relative prices, they feel such a diet is out of their reach. This suggests that if costs of supplying more healthful items such as fresh fruits and vegetables could be reduced, there is potentially a strong market for such goods.

Across the various groups interviewed, consumers were interested in seeing more “natural” juice in the market. Consumers referred to no additives, no extra sugar and 100% fruit – “pure juice would be healthier to take. It is unprocessed.” The youth said that they would “take more juice if there were more natural [budget-friendly].” Carbonated soda (e.g. Coca-Cola or Fanta) or malt, frequently taken as a lunch-time drink in Nigeria, sells for 75-150 Nairas per bottle. Some consumers said that they would pay up to 300 Naira (two times the price of soda) if they “were sure the juice was not processed.” Other consumers are limited to the cheapest options. Accra consumers said that “a small bottle of pineapple juice would be 3 GHC (US\$1.50) and difficult to find at a quick-food place, whereas Fanta is easy and around 50 pesewas (US\$0.25)”. If the juice is indeed six times more expensive than Fanta and more difficult to find, the chances of expanding its consumption are slim.

If domestic agro-industry is to be effective in offering healthy options, price competition is a must. However, from the in-market survey, the majority of Accra consumers stated they believe quality is more important than price, which is an important finding for both agro-industry and nutrition strategies that should be further investigated. The experience with the rapid spread of mobile phones across Africa, even among lower-income segments of the population, shows the potential to introduce products with strong utility even to consumers with low purchasing power.

*Quality and food safety.* As consumers shift to more processed and prepared foods, they are increasingly relying on others—often unknown to them—to prepare their food, including workers in food manufacturing plants, street vendors, and restaurant employees. This shift from home food preparation to reliance on others has led to questions about how consumers can be assured that their food products are of high quality and safe. Ghanaian and Nigerian consumers do not see “healthy foods” and “safe-to-eat foods” as separate categories, but as closely interrelated. Although consumers interviewed in these studies expressed a strong desire for more local “African” foods, there is scepticism about whether consumers can rely on the quality of such products.

Consumers expressed a high desire for reliable diet and food safety information but little confidence in the information and labelling currently available. For example, only 1% of respondents interviewed in traditional markets and 5% of those interviewed in modern food markets in Accra indicated satisfaction with the information available on food quality and standards for poultry. Many consumers doubt the integrity of packaged foods, fearing adulteration, and are sceptical of official quality certification systems. In the face of such concerns, consumers try to develop personal relationships with their food vendors to help ensure quality.

For packaged foods, consumers reported that they frequently choose internationally branded products over local alternatives, trusting more the quality of the international brands (especially those from the EU and North America). An extreme example of this preference concerns weaning foods for infants. A 2007 study in Accra found that consumers routinely paid three times more for an imported weaning food produced by Nestlé than for a locally manufactured alternative (“weanimix”) that had been jointly developed by the Ghanaian Ministry of Health and UNICEF to meet the nutritional needs of young children (Nagai *et al.*, 2009). Clearly, developing more reliable and credible food labelling, food safety and quality assurance programmes will be critical if West African food processors are to compete

successfully with imports, particularly in the more upscale segments of the market.

Food safety is also a concern in view of the trend towards eating out and the importance of street food and informal restaurants. Meats such as chicken, fish or sausage are typically fried due to preparation and eating ease and served hot to ensure food safety. Lower-income consumers tend to choose rice dishes and eggs, as these foods are cheaper and often viewed as relatively safe to eat. Fish is a relatively expensive food to buy at a canteen. In all cases, consumers are careful about which vendors they patronize.

### *7.3 Synthesis: main findings and policy implications*

Ghana and Nigeria have had strong economic growth over prolonged periods of time leading to growing incomes and urban middle classes. However, the quality of growth in terms of its impact on broad-based poverty reduction differed between both countries. While Ghana’s broad-based growth led to halving of poverty rates within 15 years, Nigeria presents a more mixed picture. Despite the country’s higher per capita income, poverty levels remained higher than in Ghana and have increased recently. Still, its middle-class population, defined as those who spend between US\$4 and US\$20 per person per day, is estimated at approximately 12 million, against 4.8 million in Ghana. In addition, the floating class, which spends between US\$2 and \$4 per person per day, is estimated at 19.5 million in Nigeria and 6.3 million in Ghana. These higher-income households account for a disproportionate share of the food market. In Nigeria, the top income quintile is estimated to account for 40% of total expenditures for food and non-alcoholic beverages, and the upper half of the population for about three quarters.

The case studies confirm that diets and food markets in Accra and Lagos are rapidly transforming, driven by increasing incomes, urbanization and globalization. The market remains segmented among a large number of low-income

people seeking low-cost calories (starchy staples) and proteins (pulses and cheap types of meat and fish) and a growing and increasingly diverse middle class aspiring to upgrade its diet with higher-value animal products, fresh fruits, vegetables, and juices. Yet both groups face time and transport pressures created by urban congestion and significant lifestyle changes associated with urbanization; these pressures are driving an increasing demand for processed and more convenient foods such as rice. Particularly important shifts have been from traditional staples (especially roots and tubers) towards rice and wheat-based products and towards packaged products (noodles, pasta, bread, and chicken pieces), as well as increased demand for predominantly fried prepared foods and snacks.

Consumer interviews revealed that consumer food choices are a complex function of demand for convenience, affordability, healthfulness, and the tension between food traditions and modern/Western lifestyle features. Often, consumers face trade-offs, e.g. between convenience and health, or between affordability and safety. Overall, food consumption patterns are becoming increasingly diverse, combining traditional cuisine on week-ends, fast food and snacks during weekdays and rice or wheat-based convenience food for dinner at home. There are also differences between food preferences and availability of respective food options.

Demand for convenience emerged as the most important crosscutting factor determining what to buy, where to buy and where to eat. Across income segments, time constraints drive the demand for outside eating and for quick and easy to prepare food such as rice, pasta, noodles, bakery products, and snacks. The supply of fried chicken, French fries and rice has grown strongly in response. Some consumers complained about increasingly limited choices, especially concerning more healthy dishes. While most consumers expressed their preference for traditional foods, the need for convenience forces them to change their diets. This suggests market potential for convenience food products based on traditional food staples and dishes. Experiences with such product offerings

such as packaged gari and instant pounded yam reveal that consumer acceptance is a challenge. High standards in packaging, product presentation, labelling and advertising are key to overcoming these challenges.

The urban middle-class consumers interviewed of different age groups in Accra and Lagos were well aware about health implications of various food products and dishes. Consumers expressed strong desire to eat more fruits and vegetables, juices based on natural fruits, and vegetable oils with unsaturated fatty acids. Limited availability and high prices were ubiquitously cited as main constraints.

The demand for healthy and nutritious food and for more traditional dishes is often trumped by the need for convenience and the attraction to modern or Western lifestyles. This is evidenced by the preference, especially among young urban middle class and aspiring consumers, for branded packaged food products and by Western-style quick-service restaurants offering fried chicken, French fries, burgers, etc. The large advertising budgets of large food manufacturers and fast food chains reinforce these trends. Food safety is another important concern of urban consumers, especially those with higher income and education levels. The latent mistrust in the safety of the domestic processed and packaged food products drives consumers towards international brands of food products and fast-food outlets due to the perceived higher quality of imported items, placing domestic producers at a systematic disadvantage, particularly for higher-value market segments.

In this context, there are important roles for the public sector to manage this transformation in a more beneficial way for consumers and the domestic food system. These include:

- » Enhancing the awareness of nutritional values and of health and safety concerns across the entire population.
- » Strengthening the national food safety system to enhance consumers' trust in the system.



- » Supporting domestic producers along the food value chain in adopting better production standards. This requires balancing the equally valid policy objectives of ensuring healthy food to consumers with the socio-economic importance of the large informal sector engaged in food production and value chains.
- » Improving the marketing system for fresh produce, especially fruits and vegetables and meat and fish, in order to enhance the availability and quality of these products in urban areas, thereby contributing to a more balanced diet.
- » Encouraging the development and modernization of the food wholesaling industry, which in Asia has played a major role in upgrading product quality for food processors and quick-service food operations (Reardon *et al.*, 2012).