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Changes in Per Capita Food Availability in West Africa: Implications for Agricultural Market Development

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INTRODUCTION

Rapid changes in the social and economic environment in West Africa (WA) are resulting in shifts in food consumption patterns.[1] These changes include growing total and urban population, increases in per capita incomes, demographic transition towards smaller family sizes in a few countries, migration within the zone towards the coastal states, and the adoption of more western lifestyles (Lopriore and Muehlhof, 2003, Hollinger and Staatz, 2015). In addition, policy shifts that constituted major changes in the conditions that determine demand, such as the Structural Adjustment Programs, the 1994 CFA franc devaluation, and the 2008 global spike in food prices have also brought about changes in relative prices, thereby stimulating shifts in food consumption patterns.

Changing food consumption patterns have implications for agricultural market development, currently a priority for WA's development agenda. With urbanization and the growing urban middle class in WA, understanding how these patterns have changed in level and diversity, whether new food groups are emerging as important sources of household food energy and whether the traditional cereal habits persist will help identify opportunities and challenges for the development of agricultural value chains to meet the growing effective demand.

This brief summarizes findings from Me-Nsope (2014) and Me-Nsope and Staatz (2013), which document the trends in per capita food availability in each of the 15 ECOWAS countries, using data from FAO's food balance sheet (FBS) from 1980 through 2009.[2] These trends need to be interpreted cautiously, as some of the apparent changes in per capita food availability (particularly for non-cereals)

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[1]In this note, West Africa refers to the 15 member countries of the Economic Community of West African States (ECOWAS), categorized into three groups: i) Non-Coastal Sahel – Mali, Burkina Faso and Niger; ii) the Coastal Sahel – Cape Verde, Gambia, Guinea Bissau, Senegal; and iii) the Coastal Non-Sahel – Benin, Cote d'Ivoire, Ghana, Guinea, Liberia, Nigeria, Sierra Leone and Togo.

[2] Unless otherwise noted, all figures presented here are based on data from FAOSTAT food balance sheets (FAOSTAT, 2015).

reflected in the FBS may be an artifact of improved coverage over time of national agricultural statistical systems that generate the production figures used in the FBS. Bearing this caveat in mind, the studies mentioned above document a dramatic evolution in the levels and composition of per capita food availability that have accompanied changes in structural factors such as urbanization, increases in per capita incomes, and civil strife. Specifically, the analysis examines trends in the per capita supply of: 1) calories per capita per day, 2) different food commodity groups, 3) starchy staples (cereals and roots and tubers), 4) macronutrients (carbohydrates, protein and fats), 5) protein by source (animal and plant), and 6) fat. The detailed studies mentioned above analyze data for each ECOWAS country. In this synthesis, we highlight important regional trends as well as discuss what is happening in the "big movers" in the region such as Nigeria, Ghana and Côte d'Ivoire that account for a large proportion of the region's population and gross domestic product (GDP).

TRENDS IN THE STRUCTURAL DRIVERS OF FOOD DEMAND IN ECOWAS

Figure 1 shows trends in the total population growth rate, urban population shares and growth of per capita incomes in selected ECOWAS nations for the period 1980-2010. With the exception of Liberia and Sierra Leone, which experienced declines in population growth rates in the early 1990s due to civil wars, all other ECOWAS nations saw their populations grow rapidly throughout the study period.

The population of WA is also becoming more urban, and the urban population is projected to continue to grow at a rate of 3.8 percent per year between 2015 and 2030 (UNDESA, 2014). West Africa is the most urbanized part of Sub-Saharan Africa. Figures for 2005-2010 reveal urban population shares of over 40% for 9 out of the 15 ECOWAS countries, and 3 of the 9 countries had a share above 50%. Urban population shares are generally higher in the coastal countries than in the non-coastal countries. In the future, it is likely that the WA population will be more concentrated along the coast due to substantial out-migration from the inland countries of the Sudano-Sahelian belt (e.g., Burkina Faso and Mali) to the coastal countries (UNEP 2002).

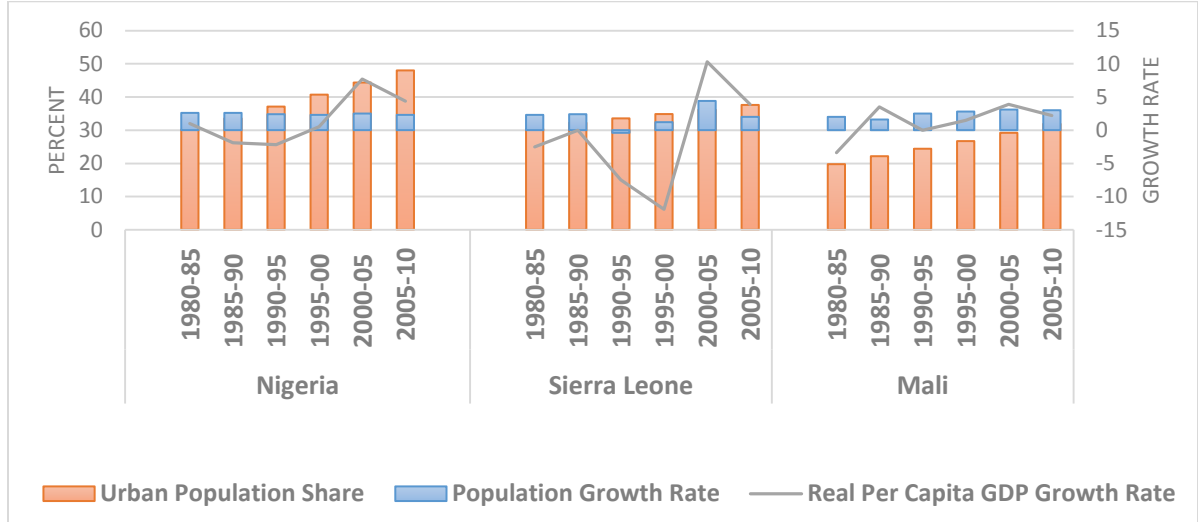
The evolution in real per capita GDP, an indicator of purchasing power, reveals an overall positive trend over the period 1980-2010. Increases in average annual real per capita GDP growth rates are particularly large in the 2000s. With the exception of a few countries (Cote d'Ivoire, Guinea Bissau, Liberia, Guinea and Togo), per capita GDP has been growing since 2000, and the growth rates have been largest for Cape Verde, Ghana, Nigeria, Burkina Faso, Mali and Sierra Leone.

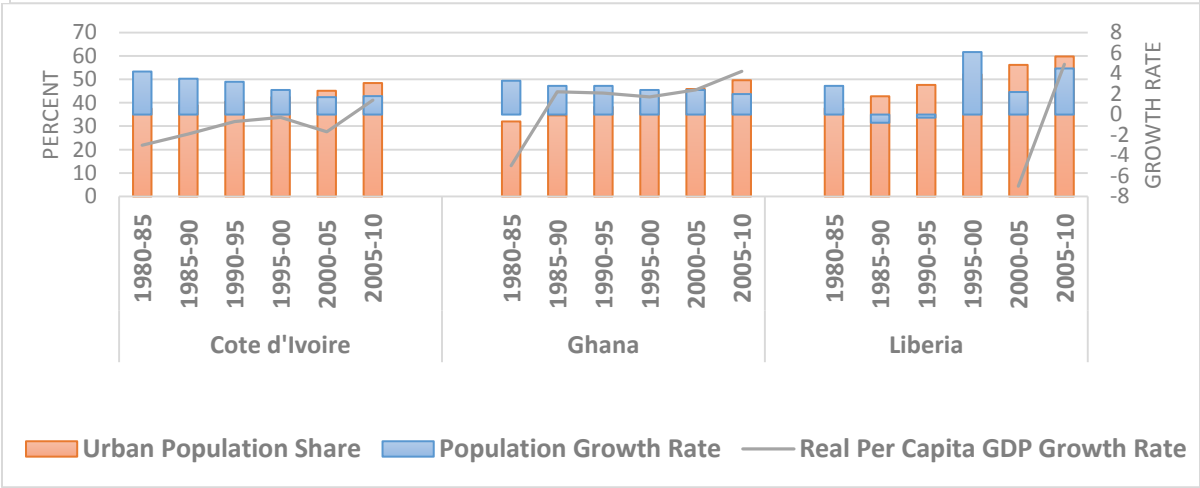
The size of the consumer population obviously has an effect on aggregate food demand. Growth in the urban population also has important consequences on how consumption patterns for the region as a whole evolve, especially when combined with growth in per capita incomes. Rising demand for convenience in urban areas favors demand for easy to prepare foods such as rice and bread (wheat) (Diagana et al., 1999). The specific effects of urbanization on consumption differ depending on the economic conditions; when accompanied by increases in per capita income, urbanization may result in an overall increase in per capita consumption, improvement in diet quality (such as an increase in animal protein consumption), and increases in the demand for processed or easy-to-prepare food (Regmi and Dyck, 2001).

KEY FINDINGS

Growing per capita calorie availability. Most ECOWAS countries show growing daily calorie supply (DCS) per capita over the period 1980-2009. The rate of growth in DCS per capita has been influenced by growth in overall economic performance and the political stability of the countries. Countries experiencing rapid economic growth (e.g., Ghana and Cape Verde), exhibit a more pronounced and consistent growth in DCS per capita, while countries that have been through civil strife (Cote d'Ivoire, Liberia and Sierra Leone) show disruptions in growth in DCS per capita (Figure 2). As a

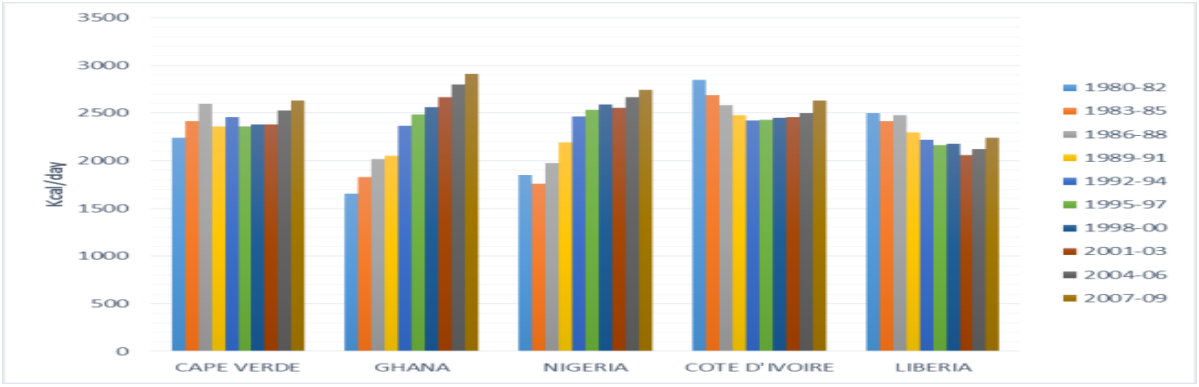
Figure 1. Population Growth Rates, Urban Population Shares, and Real per Capita GDP Growth Rates in ECOWAS Countries: 1980-2010





Sources: Population growth rates up to 2005 were calculated from FAO's Population Statistics, while the growth rates for 2005-2010 were taken from the United Nation's population statistics. Urban population shares were compiled using World Bank, 2013 data. Average annual real per capita GDP growth rates were computed using per capita GDP (constant prices), national currency from the International Monetary Fund, World Economic Outlook Database, April 2008

Figure 2. Trends in Daily Calorie Supply per Capita, 1980-2009, in Selected Countries



national average, DCS is an imperfect indicator of the state of individual food security. However, empirical evidence suggests a strong correlation between DCS per capita and more individual-based indicators of food security. For example, Smith and Haddad (2000) show that national caloric availability was responsible for more than a quarter of reductions in child malnutrition in developing countries over the period 1970-95. Thus, based on the observed trend in DCS per capita in this study, one can say that there have been some improvements in the state of food security over the last three decades.

Diet diversification. The FBS data point to diversification in the composition of the food supply. The relative importance of starchy roots and tubers (R&T) in total food availability, particularly in the Sahel region, has grown over time. Historically, cereals have represented a large share of total household consumption in the Sahel. While cereals continue to remain the dominant starchy staples in the Sahel, the analysis of per capita food availability by major food groups shows an increase in the supply of starchy R&T, particularly in Mali, Senegal and Cape Verde. In Mali, for example, R & T availability increased from 4 kg/capita/year in 1980-82 to 32 kg /capita/year in 2007-09 period. The specific composition of this trend is discussed below.

Further, the FBS data indicate that most countries in the region have experienced important increases in the per capita supplies of fruits and vegetables (F&V). In the non-coastal Sahel, fruit and vegetable supplies per capita grew the most for Niger, with absolute increases of 30 kg/year and 8 kg/year, respectively. In the Coastal Non-Sahel, Ghana experienced the largest positive growth in per capita availability of F&V, with an absolute increase of 14 kg/year for vegetables and 79 kg/year for fruits over the period 1980-2009. Nigeria, by far the largest country in the region, experienced an absolute increase in vegetable supply per capita of 21 kg/year in the study period. In the Coastal Sahel, absolute increases in fruit and vegetable supplies per capita in the study period were 43 kg/year and 56 kg/year respectively in Cape Verde; and 5 kg/year and 47 kg/year, respectively in Senegal. While some of this apparent growth in per capita F&V supplies may reflect improvement in statistical coverage of these crops over time, the changes are so large (and consistent with data from budget-consumption studies discussed in Hollinger and Staatz, 2015) as to suggest an important diversification in West African diets over the 30-year period.

Changing mix of starchy staples. In terms of the contribution of individual starchy staple types to the diet (Figure 3), we find increases in per capita rice availability for most countries in the study period. In Cape Verde, for example, there has been a replacement of maize with rice as the dominant type of cereal. In spite of the increase in rice availability, in key coastal countries (Nigeria, Ghana, and Sierra Leone), starchy R&T remain dominant and have been characterized by the "cassava revolution" that has taken place beginning in the early 1980s (Nweke et al., 2002). The growth in per capita availability of cassava (e.g., Senegal) and sweet potatoes (e.g., Mali) most likely reflects the lower-income population shifting towards cheaper calorie sources. Recorded per capita availability of yams also showed huge increases in some Coastal Non-Sahelian countries (e.g., Ghana and Nigeria), although part of this increase may be due to better reporting over time on R&T production. There has also been positive growth in the supply of Irish potatoes in some countries (e.g., Cape Verde and Senegal), supporting evidence of a westernization of diets (increased consumption of potato chips/French fries).

The analysis also provides evidence of a striking growth in per capita availability of maize in the Sahel (Burkina Faso, Mali, and Senegal). Although food availability is only one dimension of food security, rising starchy staple availability has likely had a positive impact for food security in the region.

Overall, the data from the FBS reveal that shifts in apparent consumption among starchy staples in WA have been much more diverse than

simply rice and wheat substituting for traditional staples, as policy debates would often lead one to believe. The "rice and wheat" story is really a rice, wheat, cassava, yams, and maize story, with important variations among countries.

Improved dietary quality. The data indicate improvements in the quality of food supply over time. Beyond the increases in F&V availability, the supply of daily protein per capita has been increasing for most countries since the early 2000s. Plants are the dominant source of protein in the entire region. Although plant protein is generally of lower quality than animal protein, some of these countries (e.g., Niger, Sierra Leone, Nigeria and Cape Verde) derive an important share of vegetable protein from pulses, which are a source of high-quality protein. Some countries have also shown a positive trend in the supply of animal protein (Figure 4).

Figure 3. Trends in Starchy Staples Availability, 1980-2009. Selected Countries

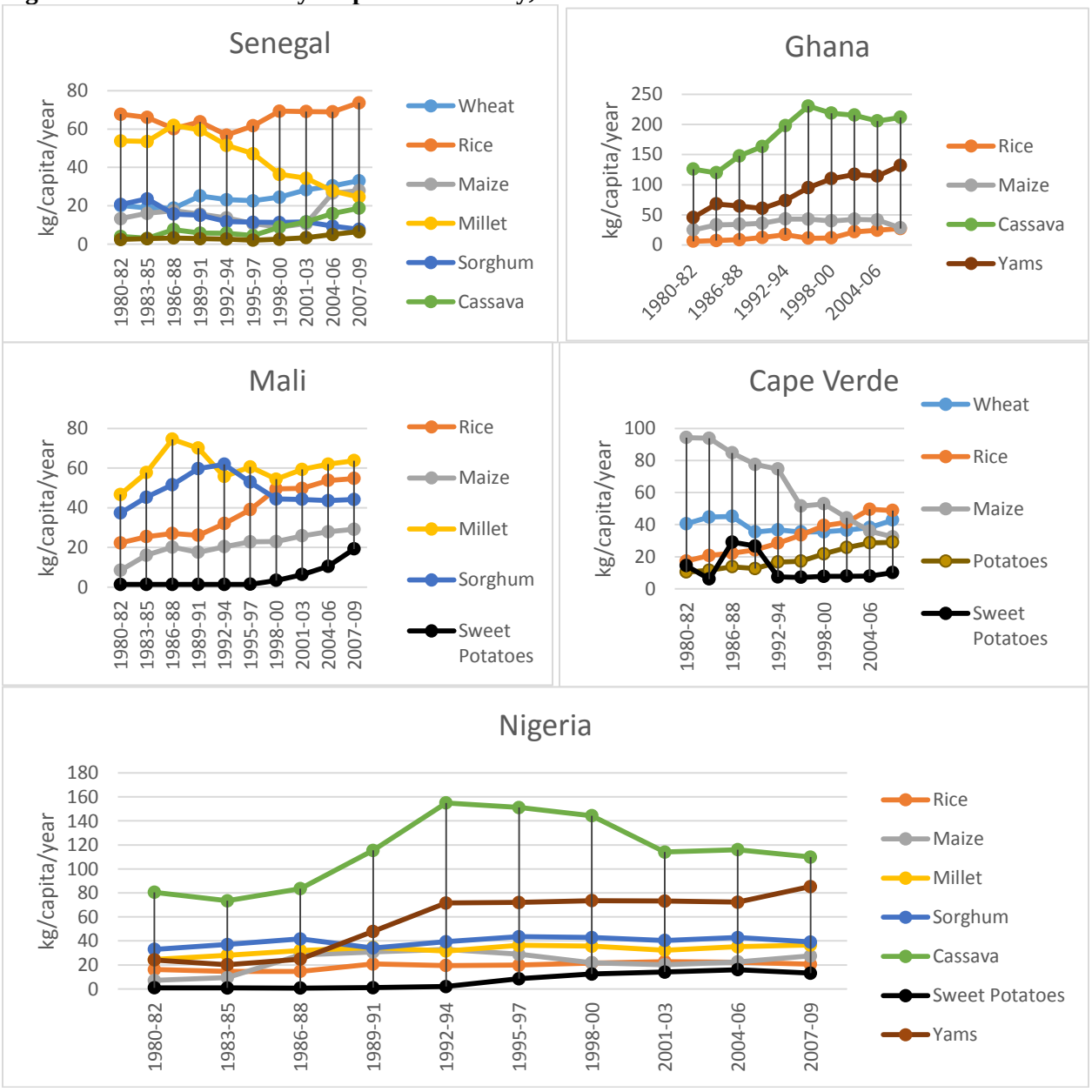


Figure 4. Trends in per Capita Supplies of Protein from Various Sources (gm/capita/day)

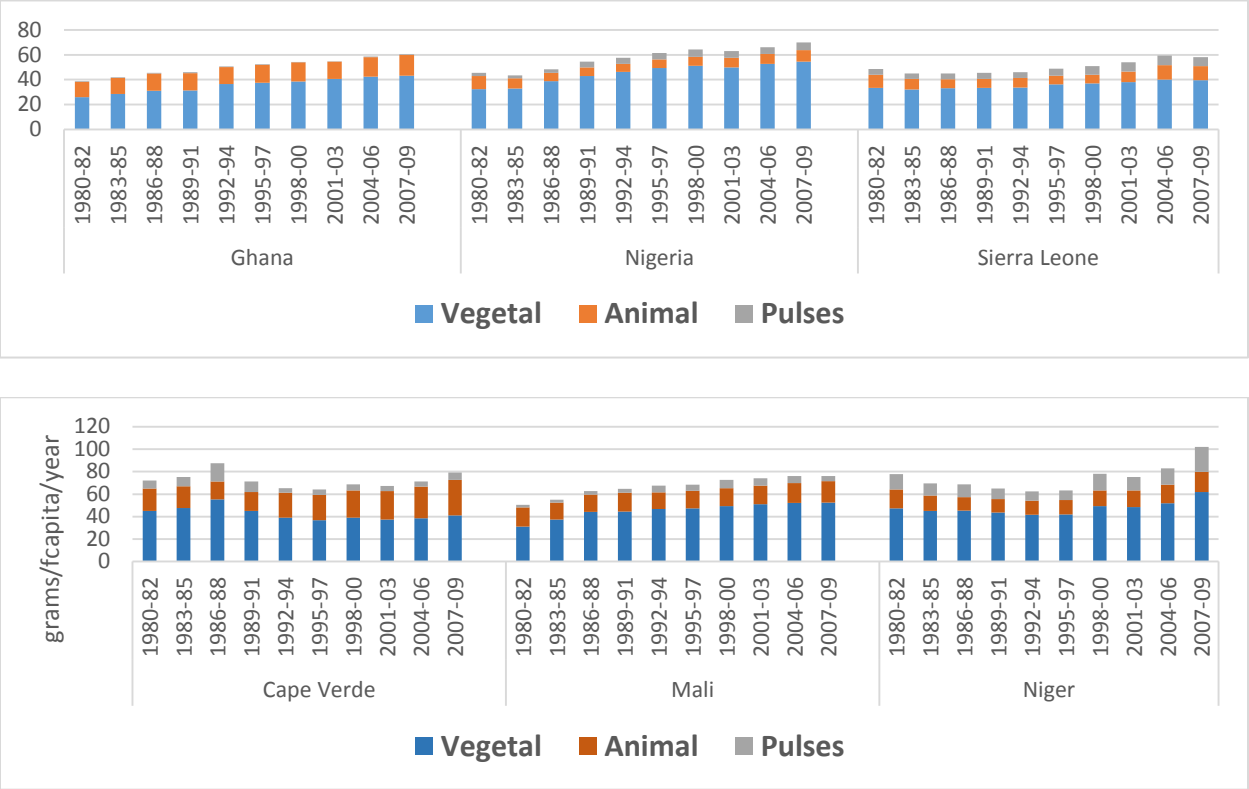
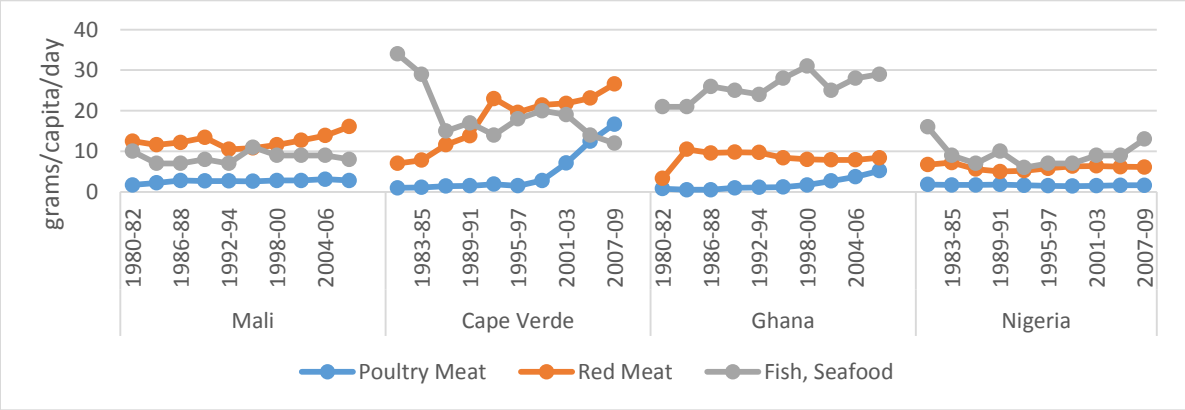


Figure 5. Composition of Animal Protein by Source in Selected ECOWAS Countries



The distribution of animal protein by source (Figure 5) shows that red meat remains an important source of animal protein for the Sahelian countries. Cape Verde, for example, has seen declines in per capita fish and seafood supply overtime, while red meat supply continues to increase. Fish and seafood remain the dominant source of animal protein for most of the coastal countries. Most countries in the region also experienced growth in the per capita supply of poultry meat over time, primarily from imports. Further, apparent per capita daily fat supply increased for most countries in the study period. The share of carbohydrates, fats, and proteins in total DCS, however, did not change much over time.

While most countries meet and even exceed the WHO/FAO recommended daily allowance (measured as shares) for carbohydrates, the share of protein in daily energy continues to remain close to the lower bound of the recommended daily value.[3] However, this does imply that the diets have not improved over time, as some countries have experienced not only growth in the supply of proteins in absolute terms, but also have been improving in terms of the availability of animal protein as well as pulses.

The countries that have shown evidence of diet upgrading through increased per capita availability of animal protein have been mostly those that have also shown evidence of rapid and strong economic growth over time (e.g., Ghana and Cape Verde). Countries with modest economic growth, such as Mali, have also shown modest growth in the consumption of animal protein over time.

CONCLUSIONS AND IMPLICATIONS

Food balance sheet data indicate growth and diversification of per capita availability of foods consistent with what one would expect as a result of the region's growing economies and rapid urbanization. These patterns include greater per capita daily availability of calories and of starchy staples, a diversification in starchy staples availability, and improvements in the quality of the diet (in terms of animal protein, pulses, fruits and vegetables) over time.

Policies to develop agricultural markets should take into account the diversification in the composition of food consumption rather than focus, as they often have in the past, mainly on cereals and other starchy staples. Many of the products concerned—livestock products, fish, fruits and vegetables—are perishable and therefore require more sophisticated and tightly coordinated marketing systems and key investments such as cold chains to link West African producers effectively to these growing demands. The good news is that if such systems can be developed, the production, processing and marketing of these products is much more labor-intensive than cereal production, offering the opportunity to create new job opportunities for West Africa's burgeoning labor force.

[3] FAO's recommended daily shares for a balanced diet—55-75% of total calories from carbohydrates, 15-35% from fats and 10-15% from proteins (Nishida et al. 2004).

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