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Overview

Demand for livestock products, including poultry, is expanding in West Africa as a result of population growth and increased urbanization. Trade liberalization has had differing effects on poultry markets in the region, with some countries experiencing large import flows of frozen poultry from the European Union and others receiving very little. This report provides an overview of poultry market trends in Nigeria in comparison with trends in the wider West African region.

The West African poultry sector faces high production costs, safety concerns due to lack of sanitary controls, and technical constraints in processing and marketing. Production costs are higher in Africa due to the lack of an integrated and automated industrial poultry sector. Farmers lack reliable access to inputs, including chicks and feed, and face high costs for veterinary services.¹ African livestock markets are also limited by global concerns about product safety.² The persistence of animal disease outbreaks continues to limit domestic and export production potential.³ In addition to biological issues, the lack of breeders, marketing, and processing technology present technical constraints to poultry sector growth.⁴

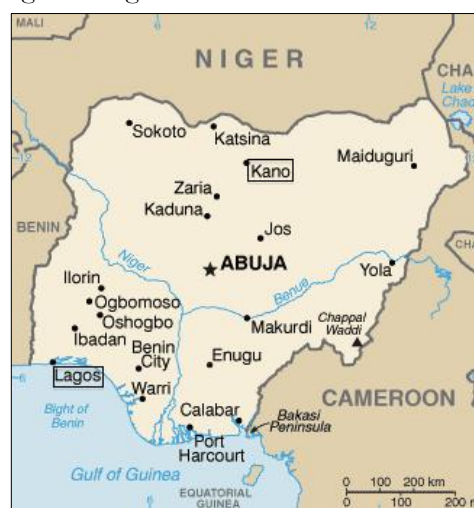
The introduction of the Common External Tariff (CET) in West Africa reduced the tariff rate applied in most countries, facilitating an influx of cheap poultry imports from Europe and decreasing the ability of the regional sector to compete with imported products. Under the CET, import tariffs on final consumer goods (including poultry) are set at 20 percent.^{5,6} As a member of the

Economic Community of West African States, Nigeria complies with most CET measures.⁷ The country adopted a ban on poultry imports in 2002 to reduce competition from foreign producers. However, illegal imports continue to enter via land borders.⁸

The primary sources for this analysis are the 2006 FAO-Emergency Centre for Transboundary Animal Diseases (ECTAD) poultry sector review and the Pro-Poor Highly Pathogenic Avian Influenza Risk Reduction group's 2008 review of Nigeria.^{9,10} Appendix 1 presents an overview of Nigeria's poultry sector along with other West African countries. EPAR Brief number 82, *Poultry Market in West Africa: Overview* (forthcoming) provides comparative analysis of the West African countries examined in this study.

Nigeria

Figure 1. Nigeria



NOTE: The findings and conclusions contained within this material are those of the authors and do not necessarily reflect positions or policies of the Bill & Melinda Gates Foundation.

Source: CIA World Factbook

Livestock production in Nigeria includes cattle, sheep, goats, pigs, and poultry.¹¹ The commercial poultry sector ranges from small-scale, peri-urban operations to very large, vertically integrated facilities. The majority of rural households also keep some type of poultry as a source of food and supplemental income.

Consumption & Consumer Preferences

Animal products provide about five percent of daily energy supply in Nigeria, considerably lower than the West African average of 9.5 percent. Poultry meat and eggs together provide 0.82 percent of total daily calories consumed on average, close to the regional average.^{12,13} Per capita consumption of chicken meat and eggs increased 20 percent from 2000 to 2007, reaching 5.4 kilograms per capita in 2007.¹⁴

Poultry meat and eggs are still considered luxury foods for many Nigerians. In rural areas, poultry consumption is reserved for special occasions, and meat and eggs typically come from household flocks. Urban dwellers consume larger amounts of poultry due to their relatively higher income levels and greater access to fresh or frozen products in markets and fast food outlets. Eggs are a daily part of the diet in urban areas, while poultry meat is consumed on an occasional basis.¹⁵ Throughout the country, demand for poultry meat spikes in December, around Christmas and the New Year, and in April, for Easter.¹⁶

Consumers show a preference for the tough meat that characterizes local poultry varieties. Most poultry meat is used in soups, and meat from non-local birds is too tender to hold up under long cooking times.¹⁷ Consumers prize Guinea fowl eggs over other egg varieties for having a superior taste.¹⁸ Poultry are also used for socio-cultural and religious purposes. Households give birds as gifts, and in southwestern Nigeria, chicken entrails are believed to increase libido in older men.¹⁹

Domestic Production

FAOSTAT data show that Nigeria's domestic poultry production has supplied close to 100 percent of the country's consumption, both before and after the 2002 import ban, as shown in *Figure 2*. However, large volumes of undocumented imports entered the country prior to the

ban, accounting for up to 21 percent of domestic consumption in 2002 according to the USDA Foreign Agricultural Service. The import ban has reduced, but not eliminated, undocumented imports.²⁰

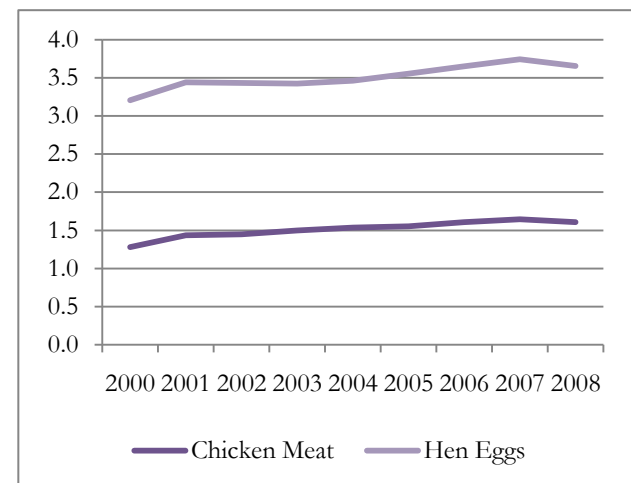
Nigeria produced 1.61 kilograms per capita of chicken meat and 3.66 kilograms per capita of eggs in 2008, as shown in *Figure 3*. Per capita production rates increased only slightly from 2000 to 2008.²¹

Figure 2. Domestic Poultry Production & Consumption (Tonnes)



Source: FAOSTAT

Figure 3. Domestic Chicken Meat and Egg Production (Kilograms per Capita)

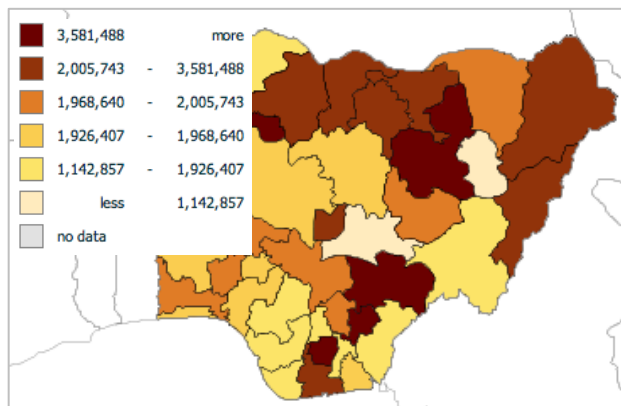


Source: FAOSTAT

Chickens, ducks, Guinea fowls, turkeys, pigeons, and ostriches are commonly raised in Nigeria. Poultry stocks are distributed throughout the country, as shown in *Figure 4*. Like other West African countries, production generally falls under two main categories, traditional rural systems and intensive commercial operations. In between these

two categories, intermediate, semi-intensive systems are also developing in rural towns and urban areas.²²

Figure 4. Number of Poultry* in Nigeria (2006)



Source: FAO Global Livestock Production and Health Atlas
 *Poultry includes chickens, turkeys, and ducks

Traditional poultry keeping takes place throughout the country, with almost every rural household raising poultry.^{23,24} Most rural smallholders keep two or three species of poultry, which may include indigenous chickens, ducks, Guinea fowl, and turkeys. Local chicken breeds are the most popular, making up an estimated 51 to 67 percent of rural flocks. Average household flock sizes in traditional systems have increased over time, growing from five birds on average in 1983 to 17 birds in 1989. By 2006, poultry stocks in the North averaged 49 birds, while in the East average stocks were 181 birds, suggesting that semi-commercial backyard production had probably entered the poultry system in the East.²⁵ UNDP evidence shows that traditional poultry systems accounted for 70 percent of the total poultry population in 2006.²⁶

Productivity of smallholder poultry systems is generally low because of environmental stresses, the use of indigenous, unimproved poultry varieties, and low availability of feed and veterinary inputs. Mortality rates are often up to 80 percent in smallholder systems due to disease, stress, and predators. Birds in traditional systems are allowed to roam freely during the day and roost under shrubs or in mud or wire cages at night. Poultry keepers typically provide a handful of corn, millet, or sorghum grains once a day. Scavenged plants and insects make up the remainder of birds' diets. Although some farmers make special watering provisions for their flocks, most birds seek out water in streams and succulent wild fruits.²⁷

Commercial poultry production is concentrated in the southern part of Nigeria, particularly in southwestern

states near Lagos.²⁸ The commercial operations specialize in non-indigenous, exotic poultry breeds.²⁹ Products from large-scale commercial operations include broiler chickens, eggs, day-old chicks, roosters, frozen and processed chicken meat, and feed, as well as poultry housing and feeding equipment.³⁰

Commercial production takes place at a range of scales, from very large facilities, some foreign-owned, to smaller, independent operations. At the top end of the scale, a small number of fully vertically integrated facilities operate near Lagos. These facilities manage their own feed mills, processing facilities, and hatcheries, which produce tens to hundreds of thousands of day-old chicks weekly. The largest facilities have adopted automated feeding and water systems and use ventilators and cooling fans to reduce heat-related poultry losses.³¹

Small- to medium-scale operations have capacities ranging from 1,000 to 20,000 birds. These facilities often buy day-old chicks and other inputs from the large-scale operators. Some are satellite companies of large-scale facilities and specialize in raising broilers or other birds to feed into the parent company's processing facilities.³²

Since the late 1980s, government poverty alleviation programs have promoted backyard poultry production for households in rural towns, peri-urban areas, and cities. These semi-intensive systems share characteristics of both rural, traditional systems and commercial operations. Backyard flock sizes range from 50 to 1,000 birds and may include indigenous breeds, exotic varieties, or a mix. Backyard poultry keepers include unemployed individuals and those looking to supplement normal income by producing and selling broiler chickens and eggs. Public and private institutions provide training in poultry production to interested households.³³ Some backyard producers have been able to expand operations and develop into full-fledged commercial producers.³⁴

Production Costs

For smallholders, poultry keeping is a low-input activity, requiring few financial resources. In commercial operations, feed accounts for a large portion of production costs. Maize, the most common feed ingredient, was banned from import from 2005 to 2008.³⁵ Maize prices tripled from 2007 to 2008 due to poor domestic harvests, leaving many poultry producers unable to source sufficient quantities for feed.³⁶ Since the import ban was lifted, maize

prices have remained high due to rising demand from other sectors and low carry-over stocks from previous years.³⁷ Some producers are looking to cheaper grains, such as sorghum and soft wheat, to replace maize in feed formulations.³⁸ No data on current production prices are available.

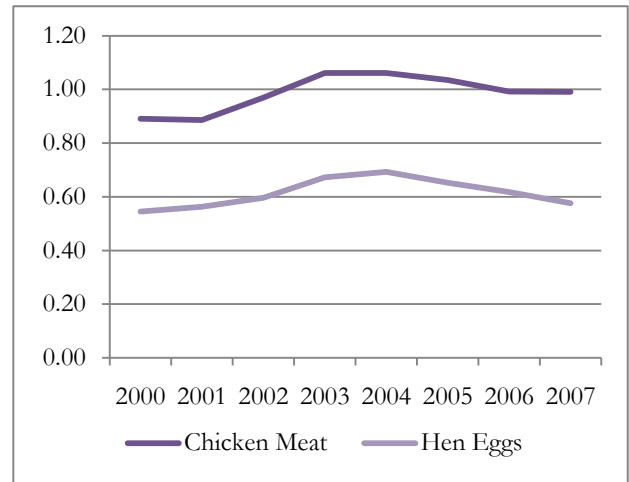
Processing & Marketing

In traditional systems, poultry are typically raised for household consumption.³⁹ The very few sold for income are typically brought to village markets by women and children and sold as live birds. Buyers from other villages and urban markets often attend village markets to purchase large numbers of chickens and transport them by truck for re-sale in southern cities.⁴⁰ Smallholders also sell eggs, but up to 50 percent are estimated to spoil before reaching markets or consumers' kitchens.⁴¹

In the commercial sector, large-scale operators slaughter and process their birds using in-house facilities. About 90 percent of broilers are processed and sold as frozen chickens, with the remainder sold as live birds.⁴² Eggs and fresh and frozen poultry meat are sold directly to consumers at the farmgate and open markets, to commercial distributors, and to supermarkets, fast food companies, and hotels and other hospitality industry operators.⁴³ Poultry products are mainly transported by road in all types of vehicles, including specially designed vans for day-old chicks, refrigerated trucks for frozen products, and cars, buses, trucks, and motorcycles for live birds. Shipments of day-old chicks are occasionally sent by air.⁴⁴

Backyard, semi-commercial producers sell poultry in live bird markets or directly from their homes or shops. They also sell live birds to distributors for re-sale to hotels and restaurants.⁴⁵

Figure 5. Ratio of Nigeria's Producer Price to World Average Price for Chicken Meat & Hen Egg



Source: FAOSTAT

Producer Prices

Figure 5 illustrates the ratio of domestic producer prices for chicken meat and eggs to world average producer prices. The producer price for chicken meat in 2007 (the latest year of available data) was almost identical to the world average, and egg prices have been below the world average for the entire period. These figures suggest that Nigeria may be competitive in supplying the global poultry meat and egg market. An important note is that domestic production prices may have increased in 2008 due to the rising costs of maize used for feed. This is an area for further investigation as updated data become available.

Safety Concerns

In rural, traditional systems, disease, particularly Newcastle disease, is the single biggest cause of poultry loss. An estimated 65 percent of rural poultry keepers have little or no access to veterinary services, and vaccines are typically only available in large quantities of age-specific doses.⁴⁶ The varied ages and species of birds in smallholder flocks have made it difficult for the government to institute health extension services.⁴⁷

Commercial producers generally follow established vaccination schedules and bio-security measures. Most operations reduce and control disease outbreaks through hygiene practices such as disinfecting equipment and segregating sick birds. Large-scale commercial operators often employ their own veterinarians, while medium and small-scale commercial facilities tend to contract with private providers.

Most backyard producers do not consult veterinarians. Some rely instead on advice from unqualified veterinary impostors. These pseudo-experts charge low fees and visit many backyard operations each day, raising the risk of spreading diseases among different flocks.⁴⁸

In 2006, Nigeria was the site of the first outbreak of Avian Influenza on the African continent.⁴⁹ The virus spread to 22 of the country's 36 states, and approximately one million birds died or were destroyed.^{50,51} Poultry prices dropped 82 percent as consumers boycotted poultry products.⁵² The government instituted a slaughter policy for infected birds and disease transmission eventually slowed into sporadic outbreaks.⁵³

Concerns about future outbreaks stem primarily from the low use of veterinary services and poor bio-security methods in rural and semi-commercial poultry systems. By introducing new birds from unknown sources, mixing different species within the same flocks, and allowing close contact between poultry and people, rural and backyard producers create a favorable environment for disease transmission.⁵⁴

Trade Flows

Prior to the 2002 import ban, the volume of legal frozen poultry imports entering Nigeria was substantial.⁵⁵ Reliable data on the magnitude of imports are unavailable, however, because virtually all imports entered the country unrecorded, without official payment of duties.⁵⁶ A report by the USDA Foreign Agricultural Service estimated that imports supplied 25,000 tonnes of poultry meat in 2002, or about 21 percent of domestic consumption.⁵⁷

The government of Nigeria banned egg and frozen poultry imports in 2002 in an attempt to protect domestic producers from foreign competition. Although the ban somewhat curtailed imports due to increased surveillance and seizure by regulatory authorities, frozen products continue to enter the country via land borders.⁵⁸ Most of the products are re-exports of frozen poultry from European countries, such as the Netherlands, France, and Belgium.⁵⁹ The World Bank estimates that 90 percent of Benin's poultry imports are informally re-exported to Nigeria.⁶⁰

Traders purchase the frozen poultry in neighboring countries and make unofficial payments to Nigerian border officials to clear border points. The frozen meat is often

transported without refrigeration, raising food quality and safety concerns. While most supermarkets have stopped carrying imported frozen poultry to avoid penalties from authorities, local markets still carry the products.⁶¹ Estimates of the volume of illegal poultry entering the country are unavailable. Nigeria exports very little poultry to other countries, despite government compensation and tariff incentives that encourage exportation.⁶²

Policy & Organizational Environment

The Nigerian government began providing support for the poultry sector in the 1960s through subsidized vaccine programs, training programs, and technical support services. Growth in the petroleum industry from the 1960s to the 1980s bolstered the national economy and encouraged new investment in various sectors, including poultry. Structural adjustment policies in the 1980s banned or restricted imports of many poultry inputs, such as grains, medicines, and vaccines, causing a rapid decline in the poultry industry until the 1990s.

Since the late 1990s, the government has sought to rejuvenate the poultry sector by investing in research and development projects.⁶³ The National Animal Production Institute is a publicly funded research center that studies poultry production practices and technologies and has developed an improved poultry breed for the country.⁶⁴ The National Veterinary Research Institute is responsible for diagnosing and investigating poultry diseases and developing vaccines. With support from the UN and World Bank, the facility undertook upgrades following the emergence of Avian Influenza in Nigeria and now serves as the designated Avian Influenza laboratory for West and Central Africa.⁶⁵

Other government policies supporting the domestic poultry sector include reducing tariffs on imported poultry vitamins and vaccines, subsidizing Newcastle disease vaccines for rural producers, and supporting the Presidential Initiative on Livestock, which sought to increase production, consumption, and export of poultry and other animal products. The initiative ran from 2004 to 2006 and was intended to help both smallholder and commercial producers through feed and nutrition, veterinary, and marketing and processing interventions. An analysis by the Pro-Poor Highly Pathogenic Avian Influenza group noted that the initiative's ideas and goals were worthwhile, but that the effort was hampered by lack

of funding and poor implementation.⁶⁶

The Poultry Association of Nigeria (PAN) is a producer organization whose members include large-scale commercial poultry operators, medium-scale producers, and small-scale commercial and backyard producers.⁶⁷ PAN promotes production and hygiene standards, communicates with members about poultry-related current events, and is an influential stakeholder in the sector.^{68,69}

Opportunities for Poultry Development

Smallholder poultry keeping is widespread in Nigeria, but consumption rates, particularly for rural households, remain low compared to the West African average. Increasing the productivity of smallholder systems depends largely on overcoming disease-related poultry loss. Rural poultry keepers would benefit from better access to vaccines and veterinary services.

In addition to expanding the supply of poultry products for household consumption, increasing production could allow smallholders to sell birds and eggs, an activity that is currently not common among rural producers. Improved methods of transporting and storing eggs could also increase egg sales, which are currently hampered by high rates of spoilage. Nigerian consumers' preference for indigenous chicken breeds offers a potential product niche for smallholder poultry keepers.

The country's growing backyard production sector also offers an opportunity for poultry development. Veterinary services and training support could both increase the productivity of backyard producers and help greater numbers of them transition into full-fledged commercial operations.

Nigeria's commercial poultry sector has the potential to expand production to increase per capita consumption levels, which have increased only slightly since 2000. The commercial sector could also begin producing poultry meat and eggs for export. The country's production prices are close to or below the world average. In addition, the sector has the support of a strong producer's group and links to multinational companies. Increasing production to take advantage of export prospects will likely depend on monitoring and mitigating Avian Influenza outbreaks and controlling high feed prices.^{70,71}

The interventions proposed by the Presidential Initiative

on Livestock also offer potential avenues for poultry development. Based on studies of the livestock sector, the government proposed a number of poultry development activities, but many were not carried out due to lack of funding and poor implementation. New interventions in the poultry sector could build on the initiative's background studies and lessons learned or revive some of the unfunded projects. The original interventions targeted smallholders and commercial producers but could be extended to assist backyard producers as well.

Conclusion

Poultry keeping is ubiquitous in Nigeria's rural areas and is increasingly common among peri-urban and urban households as a way to supplement income and increase access to protein. The commercial sector is comprised of operations at a range of sizes, including large-scale, vertically integrated facilities. Despite Avian Influenza, demand for poultry is rising and is expected to continue increasing as Nigeria's economy grows. At all levels in the sector, the country's poultry farmers have opportunities to expand production in response to rising demand.

Please direct comments or questions about this research to Leigh Anderson, at eparx@u.washington.edu

Appendix 1. West African Poultry Market Comparison

		West Africa*	Burkina Faso	Ghana	Mali
<i>Demographic Overview</i>	Population ¹	291,266,000	15,234,000	23,351,000	12,705,700
	Percent rural population ¹	59%	80%	50%	68%
	GDP per capita ¹	\$807	\$522	\$713	\$688
	Percent annual GDP growth ²	4.9%	4.5%	7.3%	5.0%
	Major urban areas	N/A	Ouagadougou, pop. 1,475,000 ³ Bobo-Dioulasso, pop. 490,000 ³	Accra, pop. 1,847,000 ⁴ Kumasi, pop. 1,170,000 ⁵	Bamako, pop. 1,475,000 ⁶ Segou, pop. 490,000 ⁶
<i>Consumption & Preferences</i>	Per capita consumption of poultry products ⁹	5.1 kg/capita	5.5 kg/capita	6.0 kg/capita	3.94 kg/capita
	Percent of daily calories from poultry and eggs ⁸	0.78%	0.89%	0.60%	0.69%
	Percent daily calories from all livestock ⁸	9.5%	8.4%	6.6%	14.8%
<i>Domestic Production & Market Structure</i>	Per capita poultry production ⁹	4.4 kg/capita	5.5 kg/capita	2.5 kg/capita	3.93 kg/capita
	Producers	Varies by country	Mostly rural smallholders and peri-urban, semi-industrial producers	Dominated almost exclusively by urban, industrial production	Mostly traditional rural production, industrial sector produces at most 10% of domestic total
	Smallholder Production Share	--	--	--	90–96% ¹⁰
	Percent of consumption** supplied by domestic production ⁹	86.3%	99.94%	41.7%	99.7%
	<i>Trade Flows***</i>	Imports ⁹	0.68 kg/capita	0.004 kg/capita	3.52 kg/capita
Exports ⁹		.001 kg/capita	.0002 kg/capita	.002 kg/capita	.002 kg/capita
<i>Policy & Organizational Environment</i>		Common External Tariff of 20%; growing need to address negative externalities of livestock production	Non-profit producer organization (MDA) working to increase the domestic poultry sector	International and domestic NGOs promoting poultry development in eight of ten regions	Several producer organizations at all levels of the supply chain supporting industrial production

		West Africa*	Senegal	Nigeria	Cote d'Ivoire
<i>Demographic Overview</i>	Population ¹	291,266,000	12,211,200	151,212,300	20,591,300
	Percent rural population ¹	59%	58%	52%	51%
	GDP per capita ¹	\$807	\$1,087	\$1,370	\$1,137
	Percent annual GDP growth ²	4.9%	3.3%	6.0%	2.2%
	Major urban areas	N/A	Dakar, pop. 1,009,300 ⁷ Touba, pop. 451,300 ⁷	Lagos, pop. 8,030,000 ¹² Kano, pop. 2,993,000 ¹³	Abidjan, pop. 3,576,000 ¹³ Bouake, pop. 574,000 ¹³
<i>Consumption & Preferences</i>	Per capita consumption of poultry products ⁹	5.1 kg/capita	5.84 kg/capita	5.39 kg/capita	2.42 kg/capita
	Percent of daily calories from poultry and eggs ⁸	0.78%	1.00%	0.83%	0.57%
	Percent daily calories from all livestock ⁸	9.5%	10.1%	4.98%	5.9%
<i>Domestic Production & Market Structure</i>	Per capita poultry production ⁹	4.4 kg/capita	5.76 kg/capita	5.39 kg/capita	2.37 kg/capita
	Producers	Varies by country	Both traditional, rural producers and semi-industrial producers in urban areas	Traditional, rural producers; semi-commercial backyard producers, and large-scale industrial facilities	About 70% family production, 30% semi-industrial production of chicken meat and eggs
	Smallholder Production Share	--	47% ¹¹	69% ¹⁶	73% ¹⁷
	Percent of consumption** supplied by domestic production ⁹	86.3%	98.6%	99.98% ⁹	97.7%
	<i>Trade Flows***</i>	Imports ⁹	0.68 kg/capita	.094 kg/capita	.001 kg/capita
Exports ⁹		.001 kg/capita	.012 kg/capita	--	Less than .001 kg/capita
<i>Policy & Organizational Environment</i>		Common External Tariff of 20%; growing need to address negative externalities of livestock production	Ban on poultry imports from all countries since 2006	Ban on poultry imports from all countries since 2002, but illegal imports continue to enter the country	IPRAVI coordinates the sector, umbrella for producer organizations and connection to government

Sources: ¹World Development Indicators, 2008; ²World Development Indicators, 2007 – 2008, based on constant 2000 U.S. dollars; ³Encyclopædia Britannica Online, 2006; ⁴Encyclopædia Britannica Online, 2003; ⁵Encyclopædia Britannica Online, 2000; ⁶Gale Virtual Reference Library, 2006; ⁷Encyclopædia Britannica Online, 2004; ⁸World Food Programme, 2004 – 2006, FAOSTAT, 2004 – 2006; ⁹FAOSTAT, 2007; ¹⁰Dupaigre, 2004; ¹¹USDA, 2005; ¹²Encyclopædia Britannica Online, 2002; ¹³Encyclopædia Britannica Online, 2005; ¹⁴Encyclopædia Britannica Online, 2001; ¹⁵Oxford Reference Online, 2002; ¹⁶Obi,

T. W., Olubukola, A., & Maina, G. A., 2008; ¹⁷Ahuja & Sen, 2007; -- indicates no data *Includes Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo **Chicken meat & eggs, ***Chicken meat, turkey meat, duck meat, canned chicken, hen eggs

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Endnotes

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