

# The Import Substituted Poultry Industry; Evidence from Ghana

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**Abstract** Rapid growth in Ghana's poultry imports revealed the weaknesses of the domestic industry in competing with imported products. Establishment of an intensive poultry system as a benchmark for examining the performance poultry production and marketing in addition to interviews with poultry stakeholders revealed the constraints in the poultry industry in Ghana. Results emphasized that Feed Conversion Rate is a major factor in reducing production cost and improving the broilers growth efficiency. The BNARI feed conversion rate for the broiler is 1.56 Kilogram of feed needed to produce 1 kg live weight compared to 2.12 kg of feed to produce 1 kg live weight by other poultry farmers engaged in the study. Feed costs represent more than 70% of the total cost of broilers production, and feed utilization efficiency, are critical for the growth rate of broilers. A major constraint is the lack of protection on the infant poultry industry by the Ghana government leading to unfair competition with cheap imported poultry products, which is 30-40 percent cheaper and undermines the growth of the local industry. Other constraints are high feed cost, high chick mortality as a result electricity power outage for brooding, feed and water contamination and consumer preference for imported poultry meat. There is still 74% demand market share to be fulfilled. The Ghana poultry industry is insecure because poultry farms are collapsing faster than new farms are being established or old farms are being expanded. There is a need for serious intervention by the government through policies and enforcements to reverse this trend.

**Keywords** Import substitution, Marketing poultry, Poultry imports, Feed formulation, Feed conversion rate, Chick mortality rate, Domestic poultry industry

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## 1. Introduction

Rapid growth in imports revealed the weaknesses of the domestic industry in competing with imported products [1]. The poultry sub-sector of Ghana can be broadly categorized into backyard production systems (also referred to free range birds) and commercial systems. The backyard production system is the most prevalent in Ghana with poultry playing a very important role in the livelihoods of farmers. According to various estimates they account for 60-80 percent of the national poultry population [2-4]. Backyard chickens include turkey, duck and other local poultry varieties. For example the Frizzle, Barred, Naked neck including guinea fowls (Pearl helmeted) are kept as a source of protein and as a means of sustaining or improving household livelihoods both in the rural areas and urban

towns. These birds are sometimes given kitchen waste to supplement the feed scavenged in the surroundings of their homestead to survive and to reproduce [5-7]. The commercial enterprises can be categorized into small-scale (50-5,000 birds), medium scale (5,000 – 10,000 birds) and large-scale (>10,000 birds) operations [4, 8]. Presently in Ghana, there are less than twenty large-scale commercial poultry operators, producing mainly eggs with limited production of broilers (meat). Broiler birds are often produced to meet demand at festive seasons such as Christmas or Easter, when most consumers would normally purchase live birds. Most of the poultry producers also sell off spent layer chickens during these festive occasions. But after the festive occasions, farmers fully focus on producing eggs again. The large commercial poultry farms are privately owned by individuals or a family. Ninety five percent of the poultry farmers (about 1500 in number) are small-to-medium-scale and they depend on the supply of both local and imported day-old chicks. They also depend on feed mills for their feed. The medium sized enterprises also produce primarily eggs [8]. The small-scale enterprises

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(including backyard poultry producers) mainly produce broiler birds. The medium and small-scale operators practice minimal bio-security. One of the major constraints in the poultry industry is competition with foreign imports [9, 10]. One concern has been that surges in food imports are disrupting local markets, with negative effects on prices, production and food security in the importing country [1]. Import surges and associated negative effects, notably on farmers or other producers in Ghana cannot be over emphasized and hits headlines. The surge in poultry imports in Ghana is caused by two factors: the lowering of trade barriers as a result of regional integration and economic liberalization; and the domestic producers' inability to meet consumer demand because of structural constraints to efficient production [11]. As a result, Government has put in place import quotas and import tax to protect the infant poultry industry, yet still prices of imported poultry is so low that local production cannot compete. Import surges have become more common as West African countries lowered tariffs as part of their regional trade agreements in the late 1990s. As part of the World Trade Organization, most West African countries have the right to impose tariffs ranging from 79 percent to 230 percent. However, as signatories of regional trade agreements committed to establishing common external tariffs, West African countries have dramatically lowered their tariffs [12].

In Ghana, the poultry farmers are among those that have been severely affected by the globalization process and trade liberalization which has resulted in structural changes [13]. The non-economists are likely to hear the terms import substitution industry. What impact does the import substitution industry means for the market and the economy? Assume two families living apart, "A" and "B". Family "A" has two children and Family "B", has six children. Both families depend mainly on what they produce and trade the surplus if any. Assuming all children of the two families are maize farmers and each farmer can produce two bags of maize per year. We also assume that each person needs one bag of maize per year to live satisfactorily when all conditions are favorable and at least half a bag of maize for unsustainable conditions. So, let also assume that in family "A", the children; "Kofi" grows maize but his brother "Kweku" does not and in family "B" all the six children grow maize resulting in 4 bags of maize as a surplus. In family "A", maize is sold at 15 Dollars per bag and in that of family "B", is equivalent to 5 Dollars per bag. "Kofi" makes good profit and can expand his business within the next few years which will lead to more bags of maize at lower price. However his brother "Kwaku" decided to trade with family "B" by buying their surplus maize and sells them at a lower price compares to his brothers. Their parent also decided to buy "Kweku's" maize since its far cheaper than "Kofi's". "Kofi" then decides to close down his business since there is no market for them.

A wise parent will prevent "Kweku" from buying maize from family "B" or tax him higher percentage to protect "Kofi's" infant farming business to grow. Import

substitution, therefore entails an attempt to replace commodities that are being imported, with domestic sources of production and supply. It includes a number of industrialization policies based on a very little degree of international openness. By doing so, local communities can put their (hard-earned) money to work within their boundaries. Import substitution, involving the development of the domestic industry through varying forms of protection and is pervasive element of economic policy in today's less developed or developing countries including Ghana.

Developing countries such as Ghana should temporarily protect its domestic poultry industry with high tariff barriers (and / or quotas) on the importation of poultry goods and then try to promote the local farmers to produce these goods. The hope is that producers will be able to produce for the domestic market without a tariff wall and also export low-cost poultry goods [14].

Concerns about the negative effects of Ghana's poultry imports on domestic poultry prices have raised the concern of local farmers, consumers and governments. Import surges of poultry products in Ghana have risen to a mainstream debate at the national level in recent years undermining domestic poultry production. An import surge case for poultry was identified for study from MOFA, the University farm at Nungua, FAO and USDA available data. Industry stakeholders have pressed policy makers to raise tariffs, claiming that import competition threatens local industries. According to the FAO, (2006) approximately 50 percent of the poultry surges registered in developing countries have occurred in Africa, with 24 percent reported in West Africa, 11 percent in central Africa and 10 percent in southern Africa. Ghana has witnessed an increasing prevalence of poultry import surges over the past 6 years with imported quantities far exceeding domestic once. The incidence of these surges increase occurred in 2002 where imported quantities for the first time exceeded domestic levels and since then, import quantities keep skyrocketing yearly due to domestic poultry enterprises operating at low capacities. Poultry imports grew from 4000 tonnes in 1998 to 124 000 tonnes in 2004 (FAO, 2006). With production growing significantly less than imports, imports accounted for more than half of consumption gains over the past few years.

As a result the local market has become uncompetitive and lots of local poultry farmers have already left the industry for alternative business. The traditional poultry sector, characterized by backyard operations of small producers who sell live chickens in local markets, appears not to be affected by rising imports. The apparent lack of substitutability between commercially grown broilers and these farm-grown chickens can be inferred from price developments in the industrial and local markets.

This study therefore examines the impact of poultry imports on local poultry production, stakeholders and their markets. In addition, this paper examines poultry production performance, consumer attitude towards the

poultry markets and the challenges involved in production and marketing by stakeholders. From a theoretical and policy perspective, this research fits into the current debate on the poultry imports surges to agricultural improvement in Ghana and aims to provide useful lessons for neighboring countries that are engaged in a peer learning process with Ghana as an example. The limitation of this research is that, it involved only stakeholders within the greater Accra region of Ghana and data is limited by the fact that it rarely can be independently verified. In other words, researchers accepted what the poultry farmers and consumers say, whether in interviews, focus groups, or on questionnaires, at face value. The counterfactual performance study and examination among 5 selected farmers in the greater Accra district with all things being equal did not have similar feed formulation strategy, housing and maintenance culture thus there may be bias in performance comparison.

## 2. Materials and Methods

The research method used in this study includes the establishment of an intensive poultry system by the Biotechnology and Nuclear Agriculture Research Institute (BNARI) to use as a benchmark for examining the performance of poultry production and marketing. This was done to model the performance and real impact of imports on farmer's profitability and sustainability. Secondary sources of data were also reviewed. It also involves stakeholder surveys through standard interviews based on a set of questions by the Technology Transfer Center of BNARI of the Ghana Atomic Energy Commission (GAEC). The stakeholder theory of organizational management and business ethics that addresses morals and values in managing an organization originally detailed by Freeman (2010) was adapted. A Stakeholder approach identifies and models the groups which are stakeholders of a corporation, and both describes and recommends methods by which management can give due regard to the interests of those groups (Donaldson and Preston, 1995). "The interview questionnaire began with introductory and explanation of the purpose of the research which examine the poultry production performance among Ghanaians poultry farmers and market access. Consumers and wholesalers were also interviewed to elicit their perception of the local poultry industry. The study location was within and around the peri-urban areas of the Greater Accra region due to the presence of both medium and small-scale poultry farmers.

BNARI adopted the deep litter system for a broiler intensive system for a period of 42 days with more than seven cycles produced within a year. The biological material used is the commercial broiler hybrids "Ross-308". The growth system was on the deep litter with a density of 10 chicks per square meter. In the growth period of day 1 to the 42nd day, microclimate factors such as temperature and relative humidity values conformed to the recommendations found in the 2014 Broiler Management Manual for

"Ross-308"[15]. The lighting schedule varies depending the age of the birds. 24 hours of light were provided from day 1 to day 7; 23 hours of light and 1 hour dark provided from day 8 to day 35-with dark periods on the night time and 24 hours light from day 36 to day 42. BNARI formulated feed mixed with protein and energy levels which closely conforms to the recommendation of the Aviagen Group [15] for "Ross-308" hybrid. The main feed ingredients include maize (white or yellow) wheat bran, cotton-seed cake, kernel cake, soybean cake, copra cake, fish meal, soybean meal; vitamin-mineral premixes, shell grit, RE3, salts, methionine and lysine. The main poultry feed inputs such as fishmeal, premix, concentrate and soybean, are imported [4]. The counterfactual performance study and examination among 5 selected poultry farmers within the respondents with all things being equal did not have similar feed formulation strategy, housing and maintenance culture. However, they all follow the vaccination programme recommended by the Veterinary Services Directorate of the Ministry of Food and Agriculture against Gumboro, Newcastle Disease (HB1, Lasota & Newcavac), and Fowl Pox [4]. BNARI provided three recipes of compound feed depending on the age of birds during the growth period: starter, grower and finisher. Performance parameters investigated during the experimental period were: body weight dynamics, average daily weight gain, feed conversion ratio, and mortality. Data collection occurred from 23rd January 2014 to December 2014. Stakeholders interviewed are poultry farmers, feed producers, retailers, consumers, and local restaurants. A total of 52 small-scale broiler and layer producers were interviewed in addition to 50 traders and consumers. This research outlines the key findings obtained from the BNARI Poultry Project established by the Biotechnology and Nuclear Agricultural Research Institute (BNARI) under the Ghana Atomic Energy Commission. Additional information was obtained from the Poultry Unit of the Ministry of Food and Agriculture, (MOFA), University of Ghana Farms, Abundant Grace farm at Dodowa, as well as personal interactions with experts on production, marketing and information on the benefits of production. Raw data obtained from measurements were processed using methods of biostatistics with Microsoft Excel spreadsheet application and SPSS.

## 3. Results and Discussions

Of the 150 respondents, 60 were farmers (40.0%) between the ages of 28-65 years. Also 40 (27%) were wholesalers and retailers between the ages of 21 to 40 while 50 of them (33%) were consumers from the age 17 to 70. All the farmers had a minimum of high school education with 80% among them having a higher degree ranging from bachelor to PhD. This implies that small and medium scale layers poultry farmers are literate and are among the economic active force the population. Majority (91%) of the

respondents have more than 4 people in a household and the poultry business is an important source of income to supplement the family maintenance [16-18]. For the 20% of farmers with up to high school literacy, the poultry business is their only source of job security and main source of finance for family up keep. However, the rest of the respondents with the minimum of degree certificates see it as an alternative way of investing their hard-earned income (20%), others also see it as security for their job (45%) and to generate more income to provide a better quality of life (35%). Ninety eight percent of respondents engage their family labour in their poultry business [19].

### 3.1. Productive Performance

The Arbor Acres, Ross 308 and Cobb 500 are the common breed of broilers produced among the respondents due to their robust, fast growing and feed efficiency with good meat yield [15]. The data obtained in the BNARI study were compared to the average standard values of selected poultry farmers engaged for the study using hybrids Ross-308 [15]. The productive performances gained by the intensive system employed by BNARI showed large differences for the final weight, age at slaughtering, feed index and mortality rate (Table 1) compared to that of the average poultry farmers of the same breed.

The main difference in the performance difference as shown in Table 1 is due to conditions of modern technology and the quality of inputs especially the design of the brooding set, high standard of biosecurity and cleanliness used since the research institute, BNARI, has advantage over the knowhow, good management and environmental conditions. Most large-scale poultry farms have their own bio-security measures, but bio-security tends to be minimal among medium and small-scale operators [8]. The growth efficiency of broilers is influenced by improving growth performance: body weight (BW), average daily gain (ADG) and feed conversion rate (FCR). The FCR is a major factor in reducing production cost and improving the broilers growth efficiency. Feed cost represent more than 70% of the total cost of broilers production in Ghana, and feed utilization efficiency, good management and environmental conditions are critical for the growth rate of broilers [15, 20].

From Table 1, the BNARI feed conversion rate for the broiler is 1.56 Kilogram of feed needed to produce 1 kg live weight compared to 2.12 kg of feed to produce a kg live weight by other poultry farmers engaged in the study. BNARI used soya bean meal as a source of protein other than fish meal which is highly contaminated and affect the mortality rate [21-23]. This is the main reason for explaining the higher feed conversion rate and mortality rate among birds of farmers in involved in the study as shown in Table 1. The body weight (BW) of BNARI broiler is significantly higher than the other poultry farmers as shown in Table 1.

The production environments of involved farmers were

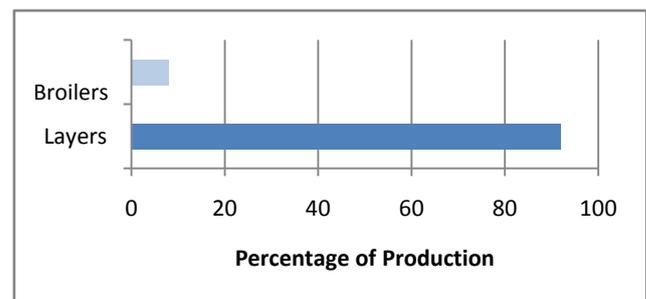
general poor with higher animal density per meter square, affecting the production efficiency and performance of birds compared to that of BNARI. The marketing strategy adopted by BNARI allowed higher patronization by end-users for it broilers compared to other farmers thus able to increase the number of cycles of units produced per year, giving it cost advantage over fixed cost per kg meat produced [24]. Figure 1 demonstrates that apart from the Arbor Acres, Ross 308 and Cobb 500 breed of broilers, layers primarily Lohmann Brown (Bovans black,) constitute more than 90% of producers poultry production in Ghana [25].

**Table 1.** Main characteristics between the productive performances

	BNARI	Other Farmers (Average)
Density (birds/m <sup>2</sup> covered surface)	10	15
Final weight (g)	2830	2510
Age at slaughtering (days)	42	42
Daily weight gain (g/day)	67.4	59.8
Feed Conversion Rate (FCR)	1.56	2.12
Mortality rate (%)	4.5	9.9
Units produced/year (n)	7.2	5.8

### 3.2. Production and Markets Systems

All farmers interviewed indulge in deep litter system of poultry production. Aside the Arbor Acres, Ross 308 and Cobb 500 breed of broilers produced by the interviewed poultry farmers, layers primarily constituted more than 90% of poultry production unit in Ghana as shown in Figure 1.

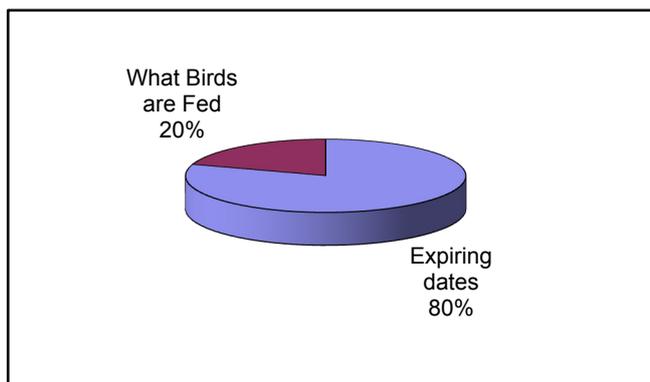


**Figure 1.** Ratio of broiler to layer production

Ghana's poultry feed industry has also shifted to producing layer feed as a result of this trend. About 90 percent of feed produced by commercial feed millers is layer feed. According to the correspondents, the main reason is the good unchallenged market for the demand and sales of eggs. None of the interviewed small-scale farmers including BNARI has a cold store to slaughter and preserved birds when they get to their finished weight.

This leads to high cost of feeding till the birds are sold. This has resulted in a major producer shift from broiler (meat) production towards the production of layer birds for table eggs. According to farmers, average industry egg production is 230-250 eggs/layer/year after which birds are

sold as spent poultry. However these birds exceed their average eggs producing age unless markets are found for them leading to sometime poor quality eggs. Of the wholesalers interviewed, 60% are meat importers and usually operate cold storage capacities of 1000-2000 tons and sell products to retailers in cartons and in bulk. Wholesalers are considered a key player in the success of the chicken out-grower scheme initiated in 2003 when they were encouraged to stock and distribute local chicken [4]. The other 40% mainly buy from domestic poultry farmers and retail them directly in the market or redistribute to organizations or catering companies. However majority (90%) complaints that, selling live birds are less profitable since they must be fed at a cost till they are completely sold. The poultry industry is developing on a limited scale due to lack of significant import limitations and lax border enforcement. As a result major shipments of poultry meat are imported from Europe the U.S., Canada and Brazil. More than 95% of eggs and live poultry are sold by farmers at their farm gates to retailers and wholesalers. Figure 2 revealed that interviewed consumers were more concern with the faking of expiration date of imported poultry product and what these birds are fed with.



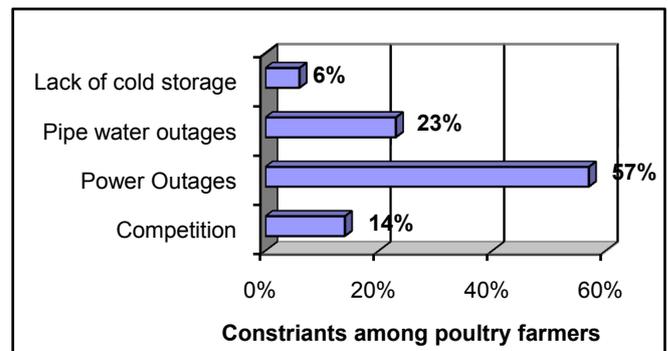
**Figure 2.** Consumer main problems with importer poultry products

Poultry consumers mainly the catering industry, organizations and households purchase chickens in all forms but mainly as live birds and pre-cut portions. Eighty percent of the consumers interviewed were worried about inaccessible expiring dates of these imported poultry products, which they claimed are less tasty and flavored compared to the domestic chicken (Figure 2). They were also worried as to what poultry birds were feed with and it origin [26]. An increasing consumers concern in the ways imported birds are raised and processed has led to the demand for domestic poultry production especially by the Muslim communities in Ghana who observe halaal. According Halal Food Authority (HFA) [27] which was launched in 1994, 80 to 85 per cent of raw meat especially poultry coming from slaughterhouses could not prove the validity of their claim of halal. This has provided uncompetitive niche market for the request of live poultry bird sustaining the local poultry industry. Halaal calls for live animals to be prayed for before slaughter and be

slaughtered in a way that allows full bleeding [27]. Presently there are seven hatcheries in Ghana that produce day-old chicks for commercial production of broiler and layer birds (GOG sources). However most of the poultry hatcheries are only producing about 60 percent of capacity due to low demand for broilers. According to the industry, the demand for layer birds from hatcheries is over 80 percent of total capacity [8]. Ghana exports few day-old chicks to some African countries, such as Liberia, Sierra Leone, Cameroon, Benin and Uganda [4]. Only three of these hatchery companies maintain their own parent stocks of layer including the Shaver Brown; Hisex Brown; ISA Brown; Lohmann Brown; Lohmann White; Hyline Silver, Starcross 288; Bovans Brown; and the Afabird which was developed locally [4]. The other poultry producers import fertile eggs. Broiler parent stocks include: Bovans Brown; ISA Brown; Cobb Avian 48. The poultry industry does not have a law which ensures the production of quality day-old chicks from domestic hatcheries. Also the Ghana government has no law that ensures the importation of good quality and disease-free fertile eggs. Thus majority of small and medium scale framers import form sources where they are guaranteed quality and disease free.

### 3.3. Production and marketing challenges

The first 14 days of the broiler's life is the most sensitive period for effective brooding because the bird is changing from an immature thermo regulation system to a mature one [28]. BNARI and all the farmers involved in the studies stated that unannounced electricity power outage and inconsistence pipe born water supply are their major constraint to production as shown in Figure 3.



**Figure 3.** Production constraints of poultry farmers (n=60)

Electricity power outages was most reported among 57% of the interviewed farmers including BNARI as their major constraints followed by pipe born water outages (23%) and competing (14%) with foreign imported poultry products on the Ghanaian market. Six percent also reported on lack of cold storage facilities as a challenge (Figure 3).

Eighty percent of interviewed farmer complaint that, inconsistencies in the supply of electricity increases chick mortality rate to sometime to almost 80%. Cold temperature leads to chicks huddling and burning feed to keep warm, which affects feed conversion ratio and this affects the rest

of chick development [28]. BNARI and other farmers also said their dependency on water dealer supply expose the birds to contaminants of fecal and zoonotic origin leading to infections and diseases as a result of unguaranteed water source which consequences is very high in birds mortality and productivity [23, 29]. The third challenge is that all farmers including BNARI lack cold storage facility and thus cannot slaughter and store finished birds, but to incur cost to feed birds till market are found for them. This robs them off their profits and efforts and put them on the poultry industry edge these days [30]. Poultry farmers said their plight is even worsened when they have to reduce prices in order to compete with foreign imports of poultry products into the country.

However, preference for imported chicken among interviewed consumers was higher for domestic source with reasons given as; convenience, as imported chicken is primarily offered as pre-cut pieces [26]; Also the choice of buying only specific pre-cut parts is offered by imported ones compared to buying domestic live birds whose net weight include the furthers, intestines and internal organs. The final carcasses (with head, neck and feet removed, heart, liver, back and gizzard), mainly the chest and the thigh is not enough for family to share compared to buying 2kg of all thighs of imported chicken from retail markets. However consumers affirmed that they prefer domestic chicken on the basis of freshness, taste and origin [26]. The main challenges among 98% of the wholesalers and retailers are the inconsistencies in electricity power supply which affects refrigeration and render most of their perishable imported meat unmarketable. This affects the method of preservation right into consumer's kitchen.

Local broiler meat production is in direct competition with imports of chicken, turkey and duck meat. Local broiler meat may not compete with imports of frozen chicken meat due to the fact that the frozen meat is often sold cut and butchered which is more affordable and

convenient to the final consumer [26]. A poultry census survey conducted in 2009 by the Veterinary Services Directorate showed that the broiler production in Ghana is reducing because of the rising cost of production and marketing problems [4]. Poultry producer organizations stated that approximately 75 percent of the broiler poultry farmers have closed looking for alternatives including pig production following a period of low profitability [31]. According to Woolverton and Frimpong [26] prices of poultry products are important attribute that influences the preference for imported poultry to domestic one and thus measures to reduce cost of production and increase productivity of domestic poultry is vital. Market price fluctuation as a result of imports and non-availability of land and space were also pointed by the respondents as constraints to increase productivity. Inadequate extension and advisory services to support developing poultry farms was indicated as major challenge. Data collected on the number of chicks marketed as input for broiler production activities indicate that the number of broiler chicks reared by the local farms has declined [25].

#### 3.4. Imports Trends and the Local Poultry Industry

Ghanaian imports of poultry have grown dramatically over the past decade, rising from 32,939 metric tons in 2003 to 73,788.4 metric tons in 2012 (Figure 4). Figure 4 shows a negative impact on the growth of the poultry industry in the country as a result of the impact of the avian influenza (H5N1) viruses which posed the greatest pandemic threat to millions of birds and man between 2008 to 2009 [32, 33]. Aside causing economic losses to poultry farmers, this led to a large scale socio-economic impact around the world export and imports. The rise in import growth, in conjunction with the inability of domestic production to meet demand, has increased the share of imports in domestic consumption to about 75 percent [34, 35].

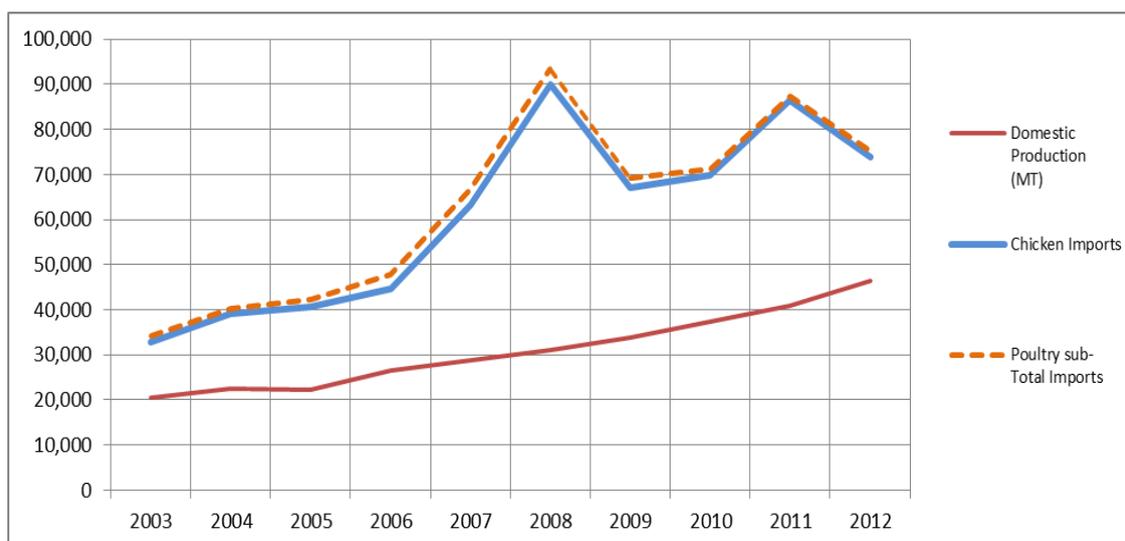


Figure 4. Domestic production and imports of poultry products from 2003 to 2012 [36]

Figure 4 shows the import trends and its impact on local production. The composition of these imports is predominantly frozen cuts (80 percent), supplemented by frozen carcasses (20 percent) [8].

According to the report of USDA [8] as of 2012, Ghana is only able to meet only about 10 percent (46,308 metric tons) of total poultry demand with large supply (73,788.4 metric tons) of poultry meat from the EU and Brazil with the US supplying about 31% of these imports. This means that, total imports represent 16% of total demand. There is still 74% demand market share to be fulfilled. Aside the meat products, Ghana also imports large quantities of day-old chicks and hatching eggs from these countries [4]. The poultry cuts from the EU and Brazilian are larger relative to the US cuts, which are more attractive to the catering trade however US poultry enjoys a price advantage (the US price is US\$2.2/kg, that of the EU US\$3.2/kg and that of Brazil US\$3.4/kg) [8]. The cost of these imports is estimated to equal the turn-over of local broiler production [1]. Ghana produces around 30,997.8 tons of both broiler and spent layers chickens per year [36]. The low level of poultry production in Ghana is attributed to the high cost of production (feed, drugs), inefficient production methods, limited knowledge of modern poultry management, high chick mortality rate as a result of interrupted electricity supply and lack of processing facilities, as well as competition with cheap imports which tend to be 30-40 percent cheaper than locally produced chicken [8]. Other constraints include the high energy prices which continue to increase production costs by over 60 percent [8]. Also the insufficiency in both quantity and quality of feed especially during certain periods of the year is one of the main impediments in the way of improvement of poultry production in Ghana [4]. Feed ingredients availability for compound feed manufacturing has not been consistent. Some of the feed ingredients like fish meal are not produced locally while in the case of others the domestic production is not adequate to meet the requirements of the industry. Ghanaian per capita poultry consumption is estimated to have increased from 4 kg to 6.6 kg between 2010 and 2012, with a further increase to 6.8 kg projected for 2013. However, interviews with various restaurants fast food owners indicate that they favour imported chicken because they are conveniently prepared and packaged since domestic production are limited in facilities that prepare quick and easy poultry meat products [8].

To boost domestic production the current Ghanaian government has “removed customs duties on poultry inputs (feed, additives, drugs and vaccines) and facilitating improved access to veterinary services”. In terms of trade policy, poultry imports attract a 20% duty, with an additional 12.5% VAT being levied and other additional charges amounting to about 4.9% [8, 37].

Domestic poultry production will continue to decline as investors look elsewhere for better and quicker profits, thus

keeping poultry prices high. Increasing poultry prices will likely lead many Ghanaian consumers to substitute poultry for less expensive meats such as pork and fishes. With rising demand for poultry, prices are expected to go up for both domestic and imported product [26]. Rising feed costs are putting intense pressure on sectors of the industry, and are being compounded by higher transport costs [8, 30, 31]. Chicken is by far the most popular poultry meat consumed by most Ghanaians, probably because of its versatility as a food and the fact that it is easy to add a wide range of spices and flavours. Domestic poultry production alone cannot meet consumption demand paving ways for poultry and other meat import. Meat and poultry import policies can sometimes be better explained by politics than by economics. For example, The Russian government blamed high price of meat as a primary driver of inflation in 2005 [38]. To keep inflation in check, and to preserve availability of meat on the domestic market, the Russian government has sought to ease market access by reducing the tariff on out-of-quota poultry imports with particular concern of maintaining a low inflation rate [38].

### 3.5. Poultry Prices

Unit costs of production for poultry meat and eggs have increased since at least 2001 without comparable increases in sale prices [39]. Figure 5 depicts the prices of both broilers and spent layers since 1994. The price of domestic live chicken had increased by over 1000% since 2005 to 2014 (Figure 5). Figure 5 shows the trend of price/bird of both spent layers and broilers from 1994 to 2008 and to date in Ghana Cedis. Currently spent layer and broiler are selling between 35-45 (\$11-\$14) Ghana Cedis respectively.

Increase in poultry prices in Ghana has been due to rising costs of local household consumption maize which producers use for animal feed. Consumption of chicken and eggs continue to increase, despite the significantly higher prices. The price of a kilo of imported chicken leg quarters is currently GHC5.0-GHC6.50 (\$2.63-\$3.42) compared to GHC3.50-GHC4.50 (\$1.84-\$2.36) this time last year. The wholesale price of a crate of eggs (30 eggs per crate) has been increasing from GHC9.00 (\$4.73) in 2011/2012 to GHC12 (\$6) in 2012/2013 [8]. Poultry prices fluctuate among others as a result of variable import volumes and seasonality. During occasions such as Christmas, new-year and Easter, prices are high. The avian influenza outbreak treat of 2005 reduced the demand for poultry, and prices began to drop accordingly. Prices were GH ¢ 4/bird in June 2005 and decreased to as low as GH ¢ 3.5/bird in September 2006, at which point poultry prices began to recover [8, 40]. However the negative impact of the avian influenza (H5N1) viruses which posed the greatest pandemic threat to millions of birds and led to their destruction affected demand in Ghana leading to higher prices as shown in Figure 5 (CDC, 2010; FAO/WHO/OIE/AU-IBAR, 2008).

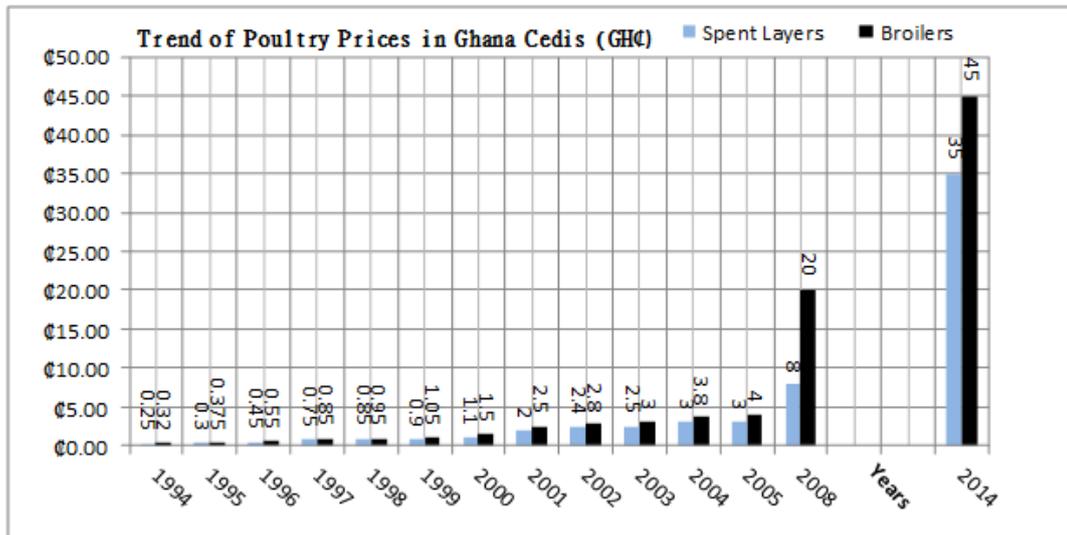


Figure 5. Trend of Poultry Prices in Ghana (1994-2008 & 2014). Source: [40]

## 4. Conclusions

The Ghana poultry industry is insecure because poultry farms are collapsing faster than new farms are being established or old farms are being expanded. This is largely due to the unprotected domestic infant poultry industry having to compete with cheaper imports, high poultry feed prices, expensive veterinary drugs and the lack of cold storage facilities and interrupted power supply cuts leading to spoilage especially for wholesalers who have invested in deep freezers. As a result of a lack of consistent electricity and water supply and lack of deep freezers by farmers to store domestic processed frozen birds, the import substitution of frozen birds can barely be sustained with domestic production. Higher imported meat drives down farm gate poultry prices, and there is a need for serious measures to limit meat imports. This can be done by registering all meat importers to acquire license and also the introduction of reasonable level of meat tariff rate quotas which will make imported meat prices same as domestic prices. This can be seen as an attempt to level the playing field for the domestic poultry or meat farmers. Although consumers buy imported chicken as a result of convenience, it also had an impact on consumer buying behaviour as a result of taste, origin and production processes. Most of the interviewed poultry farmers depend solely on poultry trading as their main source of income. Poultry production is an important socio-economic and household livelihoods activity in Ghana. Controlling importation and animal feed costs is critical to the future of the Ghanaian poultry industry. Since these represent 82% or more depending on the time birds are sold on variable production costs. The survey notes that costs have been rising in response to rising global maize costs. It is clear that lower tariff rates lead to increasing shipments of low priced poultry, keeping inflation lower and increasing the availability of meat on the domestic market. However it undermines the domestic poultry industry. Its

disadvantages far outweigh the benefits. Therefore there is the need to protect local poultry industry by enforcing strict phytosanitary policy relating to the importation of fresh meat and introducing higher tariff barriers as soon as possible. If this is not done, Ghana will be forever dependent on imported meat while our domestic poultry industries collapse. There is a need for the local government to invest in research and development in the poultry industry. For example, the government of Australia charges 0.02 Australia dollars per bird mainly for research and development to boost productivity in that industry. The Government can also put in place another source of water supply mainly for agricultural development purposes using recycled water and rain harvesting at a fee for interested farmers. The electricity power outage problems must also be taken care of if productivity of the poultry industry is to be boost. The local government can also set up standardized poultry sheds (housing minimum of 20 thousand birds) to support local investors and increase production. And last but not the least, the government can attract investors to site pockets of centralized poultry processing plant of any scale of operation to process poultry at a price which farmers can afford under hygienic, wholesome, attractive and saleable conditions. Attention also needs to be paid to current practices of transshipping product through duty-free third country such as Togo ports. Weaknesses in border control can also contribute to the meat supply. Metric tons of meat can be imported illegally into Ghana as a direct result of lax border enforcement. The importance of poultry industries to the Ghanaian economy and livelihoods cannot be over emphasized, particularly in the context of employment and as a major source of protein. Policies must support the full attention of domestic farmers and protect industries. The authors recommend the use of a systems thinking approach to investigate the root causes of the collapse of the industry and the poor productivity of the domestic poultry industry of Ghana.

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