

Role of Local Chicken (*Gallus Domesticus*) in Economic Development of Rural Farmers in Nigeria: A Review

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Abstract: *The benefits of domestic chickens are frequently overlooked. The study was conducted to determine the benefits played by domestic chickens in the economic development of rural households in Nigeria. It revealed that domestic chickens contribute to the livelihood of the rural households in terms of income generation and nutritional value, and that the bird possesses qualities like an ability to hatch on their own, brood, scavenge for a major part of their feed and appreciated immunity from endemic diseases. The most causes of domestic chicken mortality are as a result of diseases and predators. Therefore, the government and NGOs should engage more in sensitizing the public about the contributions and benefits of raising domestic chickens.*

Keywords: Domestic Chickens, Benefits, Rural Household, Income Generation

1. Introduction

According to study, industrial growth is less effective in reducing poverty than agricultural growth; this is because a major percentage of the population (about 70%) live in rural areas, therefore the agricultural sector is favorable as it allows greater employment opportunities for the poor. Even though the industrial sector is important for boosting the economy, it fails to create sufficient employment opportunities for the poor and unskilled workers. In addition, there was little evidence to prove that African countries could launch a successful economic transformation without going through an agricultural revolution on a country-wide basis (Omorgbe *et al*, 2014)

Domestic chickens: Domestic chickens are self-reliant and hardy birds with the capacity to withstand harsh weather conditions and adoption to an adverse environment. They are known to possess qualities such as the ability to hatch on their own, brood and scavenge for a major part of their feed and possess appreciated immunity from endemic diseases. (Nakkazi *et al*, 2014).

The Benefits of domestic chickens in the production of protein food and household income is frequently overlooked. Domestic chicken's production often serves as living banks of stored capital increasing through a time similar to interest earning investment, it provides income and a ready source of capital for financing on-farm agricultural investment as well as a financial and nutritional reserve during periods of adverse climatic fluctuations. (Epprecht, *et al*, 2008). Therefore, the purpose of the research is to understand the benefits domestic chickens in the livelihood of rural household in Nigeria.

Due to the high population growth in Africa, Nigeria inclusive the demand for eggs and poultry meat has significantly increased in recent years across large parts of the continent. According to estimates by the USAID (United States Agency for International Development), this trend is very likely to continue over the next few years. Therefore, the consumption of poultry and eggs will increase by 200% between 2010 and 2020 for at least some countries in sub-Saharan Africa (USDA, 2013, reported by Heinke, *et al*, 2015) He further stated that one of the African countries where this trend can clearly be seen in Nigeria. Dunya *et al*, (2015) indicated that domestic chickens constitute about 80% of the poultry birds in Nigeria. Ajayi (2010) also pointed that domestic chicken constitutes 80 percent of 120 million poultry raised in the rural areas in Nigeria. Their products are preferred by the majority of Nigerian because of the taste and suitable for a special dish. And their output (egg and meat) are readily available to villagers and people in the urban and semi-urban area. It serves as a good source of protein in their diet, in the same vein; they serve as good source of income.

The poultry sub-sector is the most commercialized (capitalized) of all the sub-sectors of the Nigerian agriculture. The types of poultry that are commonly reared in Nigeria are chickens, ducks, guinea fowls, turkeys, pigeons and more recently ostriches. However, chicken, guinea fowls, and turkeys are predominant (Nwandum *et al*, 2016). Domestic chicken production in Nigeria is based mainly on indigenous fowls (*Gallus domesticus*) and is common in rural households and they play some vital roles in the livelihood of rural communities and contribute significantly to their food security and income. Besides, they are used in customary rites and festivals and play an important role in pest control (Seth, 2014). According to

Jacob(2010), every poor household with few labor resources will normally keep some chickens. The local chickens are also known as rural, indigenous, scavenging, traditional or family chickens and have various names in local languages. (Jacob, 2010)

Kingori *et al* (2010) pointed that small-scale poultry farmers are intensifying the rearing of domestic chickens because of the good profit margins. Local chicken production is quite simple and does not require sophisticated structures and they play an economic, nutritional and socio-cultural role in the livelihoods of poor rural households in many developing countries (Alders and Pym, 2009). Therefore increasing the productivity of local chicken would make a significant contribution toward increasing rural people's food security and their ability to secure well-being.

Domestic Chickens as a Source of Income to Rural Household

Poultry farming in Nigeria is one of the most profitable businesses in the Nigerian agricultural sector and is lucrative and legitimate money-making venture. This type of livestock farming has potential to generate high returns within a short time frame, due to the fact that chickens mature very quickly. In Nigeria, poultry farming is experiencing significant growth due to the fact that an increasing number of people are moving away from consumption of smuggled birds, and red meat due to health worries. As a result, there is an increased demand for local chicken (Journal of Animal and plant science 2013). Domestic chickens can also serve as "insurance" in the fight against shocks and stresses, such as crop failures and sickness. It also has a function as a "savings account" which can be tapped into quickly to meet household needs (Fotsa, 2012).

Domestic chickens' production is usually the first step in the drive towards increased incomes through the acquisition of larger animals like goats, sheep, and cattle. (Islam *et al*, 2015). The importance of chicken as a source of income for the landless and marginal farmers, particularly women, has become increasingly recognized (Ogunlade and Adebayo, 2009). It is reported that Domestic chicken in rural areas is an important system for supplying the fast-growing human population with additional income to resource-poor farmers, especially women (Gueye, 2009). Ajala *et al*, (2007) also pointed that the main reason of keeping local chickens in Nigeria by the rural household is for income generation and consumption purpose, and few are keeping them for a hobby. According to Kryger *et al*, (2010) income and consumption have been considered the main rationale for keeping domestic chickens. Therefore local chickens are mainly kept to provide occasional meat, eggs, and income (Nakkazi *et al*, 2014).

The domestic chicken production is important because of the divergent role it plays, the sale of eggs and live birds in the urban and rural market is perhaps one of the major sources of cash earnings available to rural families. (Kperegbeyi *et al*, 2009). Household domestic chicken keeper derived an economic benefit of lower chicken price, lower mortality rate, lower management cost, lower initial investment, better market demand and less disease susceptibility. Other traits for preference attributed to local

chicken include the taste of eggs and meat which enhance their market value (Bushra, 2012). Although the output of traditional domestic chickens in terms of weight gain and number of eggs per hen per year is low, it is obtained with minimal labor and other input. This factor of low input and consequently low risk is one of the major advantages of domestic chicken production. (Jacob, 2010), He further pointed that local chicken act as a key supplement to revenue from crops and other livestock enterprises, this help in avoiding over dependency on traditional commodities with inconsistent prices.

Most rural household sold domestic chickens to obtain food, household items, and consumables, such as sugar, oil, and salt etc. it also helps to solve urgent household needs as they arise, such as medical treatment, school fees, children's clothing and other personal expenses (Andrew *et al*, 2009 and Jacob, 2010).

In Nigerian domestic chickens play major roles not only in rural economics but also contribute substantially to the gross national product. (Mahmud *et al*, 2017). Nwandu, (*et al*, 2016) also reported that the poultry sub-sector is chiefly in the provision of meat and egg as well as the provision of employment either directly or indirectly it contributes to the revenue (Gross Domestic Product) of Nigeria.

However, the table below shows the percentage contribution of livestock to agriculture and percentage of Agriculture to Nigerian GDP from 2010 – 2016.

Table 1: Percentage Contribution of livestock to agriculture and Agriculture to Nigeria GDP

Year	Percentage Contribution of Livestock to Agriculture	Agriculture, Value Added (% of GDP)
2010	6.42	23.9
2011	6.52	22.3
2012	6.44	22.1
2013	8.32	21.0
2014	8.70	20.2
2015	8.90	20.9
2016	8.73	21.02

Source: National Bureau of Statistics (2010 – 2016), World Development Indicators (2017)

Note: The agricultural percentage contribution to the Nigeria GDP it includes the domestic chickens share, as the local chicken is a subset of poultry and the poultry is a subset of livestock sub-sector in Nigerian agriculture sector.

Nutritional Value of Domestic Chicken to Rural Household

Nigeria is a favorable ground for poultry production business as no culture in the country forbids the consumption of poultry and its products but rather use it as food for social gatherings and for business purpose in eateries or restaurants. Nwandu, *et al* (2016), Domestic chickens play a significant role in enhancing food security of the poorest household. Tafida, *et al* (2014), Consumers prefer domestic chicken meat because of their better texture and strong flavor than those of commercial chickens (Sow & Gronget 2010). Chickens and chicken products such as meat and eggs are important foods for improving nutritional and

health status, particularly for risk populations, like children, pregnant women and debilitated persons (Olaniyi *et al.*, 2008).

Chickens products provide an excellent source of nutrient (e.g., B12) that to reduce child mortality and also improve maternal health, in sub-Saharan Africa (Scanes, 2007). According to David (2010), chicken meat and eggs are the best sources of quality protein for those who are under-nutrition in sub-Saharan Africa (SSA) and South Asia. Jacob (2010) pointed that chicken's meat and eggs provide readily available, high-quality source of proteins, vitamins, and micronutrients. Eggs are an essential source of iron, zinc and vitamin A, all of which are essential to health, growth, and wellbeing. Chicken and eggs contribute to a nutritious balanced diet, which is especially important for children, nursing mothers and people who are ill.

Kperegbeiyi *et al.* (2009), explained that Animal protein consumed in the rural area frequently comes from local chicken meat and eggs. Eggs are very good source of protein and contain a lot of minerals, vitamins, and iron. It is also very good for weight watchers because of its low calories and fat content. Chicken meat is also a good source of animal protein and is a better substitute for red meat especially the chicken breast and when the chicken is eaten without the skin. Chicken meats are free from carbohydrates which is one class of food that health conscious people try to consume less of (Kperegbeiyi *et al.*, 2009). Domestic chicken is very good for supplying vitamins and minerals to the body. A lot of people are concern or interesting in clean eating. This is because of many diseases and illnesses have been linked to the kind of foods that we eat. It is believed that a lot of diseases and illnesses can be avoided or even cured simply by improving on our diets. People care and concern for what they eat has gone beyond the food itself; it now includes how crops or animals were grown, processed, packaged and handled before it gets to the consumers. Domestic chicken is believed to be a healthier meat choice. It is believed that nonorganic chickens are exposed to a lot of toxins through diets and medication and end up transferring these toxins to the human body when they are consumed. Local chicken contains 56% water and 320 calories, 100g of meat energy whereas 71% water and 151 calories for the exotic broiler (Kperegbeiyi *et al.*, 2009)

Aglae (2017) pointed that egg laid by domestic chicken contain twice vitamin E found in commercial eggs and this help the rural poor in meeting their dietary requirement for this vitamin, which is important but hard to get nutrient that has beneficial antioxidant properties. In another word, vitamin E contributes in reducing the damage caused by aging process and exposure to pollution and another toxin in an environment and diet. Naturally raised chickens, contain two to ten times more of omega-3 fat compared to regular eggs. Omega-3 is a beneficial fat that can help reduce the low – grade inflammation in the body. This inflammation can lead to the development of cardiovascular disease and some cancers. In addition, commercial egg from hen confined indoors never see the sun while local chickens are exposed to the sun, this enable them to synthesize more of vitamin D. And part of the vitamin is transferred to the eggs which is essential in muscle function and the immune

system. Natural eggs have three to six times of vitamin D content of regular eggs. The varied natural diets of free-ranging chickens allow them to pack a lot more nutritional value in their eggs, which mainly concentrated in the yolk. In addition to the extra omega-3 fats, vitamin D and vitamin E. Natural eggs contain more vitamin A as well as two important B vitamins-folate, natural forms of folic acid, and vitamin B-12. Natural eggs also contain more lutein and zeaxanthin two antioxidant important for eye health. (Aglae, 2017)

Tarwireyi and Fanadzo (2013) reported that, because less fat is accumulated in carcasses of domestic chickens compared to commercial hybrids, it is healthier to consume indigenous chicken skin as it contains six times less fat than that of broiler skin. They also found that the protein content of indigenous chicken's meat was significantly higher in comparison to the meat of broilers and this was likely attributed to the difference in age at slaughtering. Given the nutritional and health advantages of local chickens, promotion of the production of these birds can help to increase the lifespan of many HIV-infected people in rural areas.

Constraints of Domestic Chicken Production in Nigeria

The constraints facing domestic chicken's production include diseases which are known to be the major causes of mortality in domestic chicken production followed by predators and other causes such as poisons, theft, and poor nutrition. (Tsgaw *et al.*, 2013). Hawks, crows, snakes, dogs, and cats as the main predators preying on young chickens. Ndahambelela (2016), other constraints to increase in domestic chicken production in the rural areas are losses due to predators, insufficient feeding, and poor housing. In most cases, farmers don't offer balanced or standard feeds instead they provide supplements of grains and food residues (Ali, 2012). Standard recommended commercial feed has shown to be too costly for farmers and cannot, be supplied on regular basis (Ja'afar-Furo *et al.*, 2007). Thus high cost and unavailability of feed seem to hinder adoption of standard feed to the domestic chicken sector (Byarugaba, 2007).

Garba *et al.* (2013) reported that the constraints militating against domestic chickens' production revealed that rural farmers are having problems of transportation, due to the poor roads networks linking them to the main cities; they found it very difficult in transporting their birds and eggs especially in the rainy season and because of this, they normally encounter breakage eggs and mortality from the bird while taking them to/from market. They also have the constraint of pest and diseases as one the major problems facing their birds especially during cold weather where most of their birds die due to Newcastle and Gomboro diseases. This led to mass sales of the birds at lower price, implying lost/low farm return. Cannibalism, weather changes, and low productivity also are some of the constraints of domestic chicken's production.

Weather changes constitute a major problem in the poultry industry as extremes of cold and heat causes chilling and excess hydration which led to the eventual death of a bird. Cold weather is also associated with an outbreak of many poultry diseases like fowl cholera, Newcastle, and Gomboro

(Garba *et al.*,2013). Low productivity means low returns as such, these birds are domestic breeds without any genetic improvements in terms of growth and eggs productions thus, are smaller in size and produces small eggs of low quality. He further revealed that inadequate of extension services, modern vaccines, and feed as well as low capital as some of the problems facing the domestic chicken's keepers. According to Tafida *et al.*, (2014) diseases account for 43.8% annual death domestic chickens in Nigeria. Newcastle is the most prominent disease constituting 50.8% of the disease burden in the communities. Other important diseases are unclassified respiratory infection (12.5%), Fowlpox (6.5%) and coccidiosis (5.0%) According to Ajuyah (2013) about 40 to 60% of young chickens die during the first 8 weeks of age, mainly because of disease and predator attack. Dunya *et al.*,(2015) reported that the price of live chicken is affected by plumage, color, size, age, sex, market site and the health status of the birds.

2. Conclusion

One of the most important positive characters of domestic chicken is their hardness, which is an ability to tolerate the harsh environmental condition and poor husbandry practices without much loss in production and is easy to start with lower initial investment cost. The research reveals that domestic chickens play vital benefits in the livelihood of the rural household in various areas of life, which include; revenue generation as a source of emergency cash income to the rural household that can be used for their daily needs like payment of children's school fees, medical bill, cloth, etc. and it encouraged cash flow, savings, investments and insurance against absolute poverty. It also serves as a source of high-quality animal protein and vitamin that are essential to the health, growth, and well-being of the rural household. Other roles of domestic or indigenous chicken production in pest and weed control, as sanitizing agent and converter of household waste and leftover grains to meat and eggs, it also serves as sources of manure for the garden. The constraints of domestic chickens' production in Nigeria include diseases, predators, accidents, low productivity, problems of transportation, poor nutrition etc.

3. Recommendations

Given the analysis and assessment of benefits of domestic chickens in the livelihood of rural household in Nigeria, the following recommendations were made.

- 1) Availability of interrelated inputs such as extension services, market access and supplementary feeds for chickens may also enhance the efficiency of domestic chicken production in the rural areas.
- 2) The government and NGOs should invest more resources in sensitizing the public about the benefits of raising domestic chickens and they should also be trained on proper husbandry practices.
- 3) Veterinary departments should institute good health practices such as quarantine to minimize the spread of diseases among birds.
- 4) It will be useful if the government of the federation should carry out a nationwide vaccination programme during harmattan where most of the birds die due to Newcastle and Gomboro diseases

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