

PUBLIC POLICY AND ADMINISTRATION OF LIVESTOCK IN NIGERIA

Tyodzer Patrick PILLAH^{1*}, Djebah, Nicholas E.², Victoria T. PILLAH, PhD³

^{*1-2-3} Department of Public Administration, Faculty of Management Sciences, Veritas University Abuja, Nigeria

Corresponding Author Omar Bara'atu Usman

Department of Public Administration,
 Faculty of Management Sciences,
 Veritas University Abuja, Nigeria.

pillahp@veritas.edu.ng

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Abstract: The purpose of this study was to present empirical data about the connection between Nigeria's credit policy environment and the livestock production index. An autoregressive distributed lag (ARDL) bound test approach was utilized to determine whether co-integration among time series data was present. The main goals of this study are to determine how these policies and programs reflect performance at various time points based on the government's commitment and the farmers' integration. Nevertheless, a number of obstacles, including social, political, economic, and technical ones, limited the programs. Stability, optimal quality, efficiency, and objectivity were demonstrated by the predicted long- and short-term models. The descriptive method of gathering data from primary and secondary sources is used in this study. The results showed that while loans from agricultural credit guarantee schemes to livestock units hurt livestock production, overall commercial bank credit to the agricultural sector and domestic private sector credit both had a significant positive impact over the long term. Livestock production is severely impacted in the near term by domestic credit to the private sector, lending interest rates, and livestock loans under agricultural credit guarantee schemes. In the short term, however, livestock production benefited from the commercial banks' overall lending to the agricultural sector. The findings' implications suggest that to boost livestock production in the nation, it is necessary to lower the lending interest rate for agricultural credit, reevaluate the agricultural credit guarantee program, and expand domestic and total commercial credit to the agricultural sector. In order to increase productivity, sustainability, and resilience, this study suggests removing current policy barriers, rerouting government spending to guarantee the availability of public goods and services that benefit producers, consumers, and society at large, and promoting the development of localized agricultural policies at the state and local government levels.

Keywords: Digital Libraries, Adoption factors, Developing Countries, Technology Acceptance, Information Access.

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Introduction

It is acknowledged that livestock management and agricultural credit policies are crucial instruments for boosting agricultural output, particularly among impoverished rural farmers who make up the majority of farming populations in the majority of developing nations (Idiong et al., 2010; Akpan et al., 2012; Jeiyol et al., 2013; Akpan et al., 2020). Numerous studies conducted in Nigeria have found a significant correlation between agricultural output and access to agricultural loans (Akpan et al., 2013; Awotide et al., 2015; Abu et al., 2017; Adewale et al., 2022). Several empirical studies have shown instances of credit shortage among Nigerian rural farmers, despite this favorable link (Adebayo & Adeola, 2008; Ololade & Olagunju, 2013; Assogba et al., 2017; Asom et al., 2023). In order to create a competitive industrial and economic environment, mobilize resources, and generate income, credit is considered a crucial tool (Akpan et al., 2012; Akpan et al., 2013; Essien and Arene, 2014). Given that agricultural production and processing are time-bound and the majority of farmers lack resources, credit is essential. Through income smoothing, loan provision improves the well-being of the most vulnerable, according to Beck and Demircuc-Kunt (2006). Credit is a necessary component of sustainable agricultural production and processing, according to Jeiyol et al. (2013) and Akpan et al. (2013). As such, achieving the national goal of

lowering rural poverty, generating sustainable employment, and guaranteeing self-sufficiency in the nation's food production depends on its availability and demand.

In response to these claims, the Nigerian Federal Government has already implemented a number of agricultural credit policies and initiatives aimed at enhancing agricultural output by offering farmers discounted and subsidized financial resources at a favorable interest rate (Akpan et al., 2012). In 1990, for instance, community banks were brought into the nation's financial system to offer banking and financial services to urban microbusinesses and the rural economy. Guidelines for sectoral concessional financing to agriculture were released by the Central Bank of Nigeria in 1996 (Manyong et al., 2005). The Commercial Agriculture Credit Scheme (CACS) was created in 2009 by the Federal Ministry of Agriculture and Water Resources (FMAWR) and the Central Bank of Nigeria (CBN) to finance agricultural processing, marketing, and storage (Olomola & Yaro, 2015). The Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL), which was adopted in 2011, and the Micro, Small, and Medium Enterprises Development Fund (MSMEDF), which was announced in 2013, are other credit policies that the federal government has implemented (Salisu and Alamu, 2023). Furthermore, the manipulation of the macroeconomic environment

through tools such as exchange rate policy, lending interest rate policy, and other monetary and fiscal policy measures has been deliberately used to stimulate growth in the real sector of the economy (CBN, 2022).

Many researchers have reported that the poor performance of the agricultural sector is caused by insufficient credit to farmers and agribusinesses in the country (Essien & Arne, 2014; Essien et al., 2016; Assogba et al., 2017; Asom et al., 2023). This is because of the government's incentives for farmers and agribusinesses to improve their performance (Akpan et al., 2012), the presence of a dualistic credit market structure that offers flexibility in credit access and demand, and the spread of an efficient market system. According to Essien et al. (2016), Akpan et al. (2016), and Akpan et al. (2019), many rural families will likely experience poverty, hunger, unemployment, and low living standards as a result of farmers' and small agribusinesses' poor performance. Similarly, credit is a useful way to get facilities to boost agricultural productivity in order to raise participants' income and improve their quality of life (Adebayo & Adeola, 2008; Adewale et al., 2022).

Establishing an empirical link between the nation's agricultural production indicators and the credit policy environment is necessary, given the critical role that agricultural credit plays in boosting agricultural output. One of the agricultural sector's elements that has had a major impact on rural life and the economies of emerging nations is the livestock subsector (Akpan, 2022). Many rural households rely on their vast and intricate value chain for both employment and revenue. For many impoverished rural farming households, the subsector acts as a crucial safety net and capital reserve. The dynamics of rural households and the social standing of families are greatly influenced by livestock. According to Herrero et al. (2013), Varijakshapanicker et al. (2019), Hennessy et al. (2021), and Pexas et al. (2023), the subunit also adds to the world's protein and energy supplies. Complementary interactions between crops and livestock in mixed and integrated farming systems have helped farmers diversify and intensify their revenue streams (Thornton et al., 2002). Given the livestock subsector's numerous economic contributions to Nigeria, it is imperative to investigate how it interacts with the nation's credit policy framework. Nigerians continue to consume far less protein than the WHO recommends, even after the country implemented a number of credit programs (Akpan & Udo, 2021; Akpan & Nkanta, 2022; Akpan, 2022). Several livestock subsector development strategies and programs in sub-Saharan African economies tend to have a smaller impact on livestock production, productivity, poverty alleviation, and rural families' food security, according to Hatab et al. (2019). The inability to obtain commercial bank credit is one of the factors contributing to the agriculture sector's declining GDP contribution, claims Oyelade (2019). Given Nigeria's high rates of poverty, malnutrition, and growing food insecurity, these claims need to be confirmed there.

Numerous authors from developing nations have attempted to establish empirical facts and acknowledge the significance of the relationship between agricultural production and the environment of credit policy. For instance, according to Chisasa and Makina (2013), a 1% increase in credit would encourage a 0.6% increase in South African agricultural output. In Pakistan, Khan et al. (2007) asserted that loans given to livestock farmers were egregiously abused by the vast majority of recipients and did not enhance their socioeconomic status. Credit was later identified by Khan et al. (2018) as a factor that stimulated livestock production in the

Pakistan region. Duguma and Debsu (2019) noted the significance of loan services for livestock production in Ethiopia. Abedullah et al. (2009), Khan et al. (2018), and Adewale et al. (2022) in Nigeria, Pakistan, and Nigeria, respectively, discovered a favorable correlation between farmers' income and animal production and agricultural credit. Olagunju and Babatunde (2011) discovered a strong positive correlation between poultry farmers' productivity and loan acquisition in Nigeria. In another study, Rahman et al. (2011) discovered a high correlation between Bangladesh's animal production (eggs, meat, and milk) and agricultural credit. Kuye (2013) discovered that microcredit has a beneficial impact on livestock output in the southern part of Nigeria as well. Zakaree (2014) hypothesized, based on time series, that domestic food production in Nigeria is negatively and statistically significantly impacted by the Agricultural Credit Guarantee Scheme Fund (ACGSF). Shiferaw et al. (2015) found that credit has a beneficial impact on cattle output in Ethiopia. According to Orok and Ayim's (2017) enlarged study on ACGSF in Nigeria, the sub-sector of agricultural production is more affected by the ACGSF than the sub-sectors of livestock and fisheries. Additionally, from 1981 to 2014, ACGSF raised the cattle subsector's output, according to Abu (2017) and Reuben et al. (2020). Asekome and Ikojie (2018), Iliyasu (2019), and Udoka et al. (2016) discovered that loan interest rates have a detrimental effect on agricultural investment in Nigeria. Career and associates. (2020) highlighted the necessity of rural credit policies for the adoption of integrated crop and animal production systems in Brazil. According to Umboh et al. (2021), livestock farmers' output rises when agricultural finance is paired with other agricultural inputs. According to Salisu and Alamu (2023), interest rates and commercial bank loans to agriculture have a favorable and statistically significant impact on Nigerian agricultural output.

It seems that the focus of this research in Nigeria has not been sufficiently addressed based on the evaluated literature. Furthermore, Nigeria's macroeconomic environment has changed significantly over the past 20 years, further entrenching the nation in poverty. As a result, proactive policy measures grounded in present realities are desperately needed. The information that is currently available regarding the connection between Nigeria's credit environment and the livestock subsector's output must thus be updated. Furthermore, while there are several sources of credit for livestock farmers, each with unique problems, the majority of the examined research only looked at one. Several credit sources and agricultural credit enhancers (loan rate) are included in the model to separate their individual effects on livestock output, which sets this study apart from other relevant studies. Given the significant issue of agricultural financing in emerging nations, the results would have broader ramifications for the expansion of the livestock subsector in these nations. Therefore, the study especially aimed to determine the empirical relationship between the development of livestock subsectors in Nigeria and the agricultural credit policy environment.

Statement of Problem

Generally speaking, agriculture is the collection of activities that use land and other natural resources to produce food, fiber, and animal products for sale as food or as a raw material for production. Agricultural activities generally include hunting, fishing, and forestry (Cafiero, 2003; Dellal and Bolat, 2019). A collection of regulations that control both domestic farming and the importation of agricultural goods from other countries is referred to as agricultural policy. Governments usually undertake agricultural

policies with the intention of attaining a particular result in domestic markets for agricultural products. In Nigeria, agricultural policy is shaped around the axis of increasing productivity and competitiveness, ensuring food security and safety, and promoting long-term development (Akinbamowo, 2013; Owolabi et al., 2016; Pawlak and Kołodziejczak, 2020).

Particularly in developing economies, such as those in Sub-Saharan Africa, agricultural policies and practices are essential for enhancing the resilience of agricultural landscapes and livelihoods based on agriculture to socio-ecological shocks and pressures (Dellal and Bolat, 2019). Increasing production to meet the rising need for food was the main objective of Nigerian agricultural policy in its early years. A protective policy with government interventions was put into place as a result of national priorities and requirements. In 2014, Nigeria was thought to have the biggest economy in Africa. Approximately two-thirds of the nation's workforce is employed in the agriculture sector (IFAD, 2012; Owolabi et al., 2016). 50% of the value added to the GDP in 2002 came from agriculture (World Bank, 2012; Owolabi et al., 2016). Nigeria is a food-deficient nation that depends on imports of cereals, cattle products, and fish, even though it is the world's greatest producer of cassava, yam, and cowpea (Owolabi et al., 2016). Without a doubt, the history of Nigerian agriculture policy should start with the colonial era, when the colonists aimed to shape Nigerian farming systems to satisfy the needs of their domestic businesses and provide employment in their nations. Consequently, infrastructure was established mainly to enhance the evacuation and transportation of valuable and exportable goods (Okuneye and Ayinde, 2011). Agriculture was thought to be the main driver of the Nigerian economy until the 1960s. With little help from the government, Nigerian agriculture was able to expand quickly enough to supply enough food for a growing population, raw materials for a developing industrial sector, more foreign exchange and public revenue for the government, and jobs for a growing labor force. Since self-sufficiency in food production did not seem to be a problem deserving of public attention, the government's limited support for agricultural development was concentrated on export crops like cocoa, groundnuts, palm oil, rubber, and cotton (Federal Ministry of Agriculture, Water Resources and Rural Development, 2010).

With many contributions to the economic growth of the nation, agriculture has long been considered the "mainstay" of the Nigerian economy. Providing enough food for a growing population, supplying enough raw materials to a growing industrial sector, being the main source of employment, being a major source of foreign exchange earnings, and serving as a market for the industrial sector's products are some of the traditional roles of the agricultural sector in a growing economy (FMAWRRD, 2010). However, a multi-level examination is necessary to understand the basic link between government policy and agriculture. Governments' approaches to agricultural production are influenced by a variety of factors, including economic development theories, economic interests, international organizations and regimes (like the World Bank and the International Monetary Fund), local environmental conditions, and the legacies of national and subnational institutions (Lencucha et al., 2020).

Objectives of the Study

The general policy objectives of the livestock subsector are to put all available livestock resources to best use. This will be achieved through increased production, either by expanding the resource base by increasing the productivity of the existing

resources through systematic improvement of the national production system, or both. Specific objectives of the subsector are:

- To make Nigeria self-sufficient in the production of livestock products.
- Improve the nutritional status of Nigerians through the domestic provision of high quality, protein-rich livestock products.
- To provide locally all necessary raw material inputs for the livestock industry.
- To allow for a meaningful and efficient use of livestock by-products
- To improve and stabilize rural income emanating from livestock production and processing;
- To effectively protect the rural livestock farmer from the unpredictable vagaries and risks incidental to livestock production.
- To provide rural employment opportunities through expanded livestock production and processing; and
- To effect proper land use and maintenance of the ecosystem for expanded livestock production.

Scope of Study

The study covers all livestock enterprises in Nigeria that perform a vital role, offer food security and employment opportunities, and contribute to the country's financial system. However, the arena faces numerous demanding situations that hinder its growth and improvement (Jimoh and Shittu, 2019). This article aims to provide an in-depth analysis of the livestock industry in Nigeria, highlighting the demanding situations it faces and proposing capability strategies for its transformation. The current state of the farm animal industry in Nigeria is characterized by a widespread dependence on subsistence farming, constrained access to fashionable technology, and low productivity. Despite having certainly one of the most important cattle populations in Africa, Nigeria's contribution to global livestock breeding and exports remains modest (Ibrahim and Adebambo, 2019). The enterprise is mostly dominated by smallholder farmers, who face diverse, demanding situations in terms of infrastructure, right of entry to finance and credit, animal health offerings, and a weak coverage and regulatory framework. The excessive cost of feeds and different inputs is a sizable problem that detrimentally impacts the livestock industry in Nigeria. This mission is specifically applicable to rooster poultry farming, pig farming, and fish farming, in which feed costs represent an enormous portion of production prices (Adebayo et al., 2019; Fakoya and Ewuola, 2020). The following factors, such as dependence on imported feed ingredients, insufficient local production of feed ingredients, inadequate investment in feed processing facilities, limited competitiveness, and limited research and development, were proffered by various authors (Ogunsanmi et al., 2020; Oresegun et al., 2020; Olabode, 2021; Adepoju et al., 2021) to contribute to the excessive value of feeds and other animal inputs in Nigeria.

Operational Definition/clarification Of Terms

Livestock

Livestock are the domesticated animals that are raised in an agricultural setting to provide labor and produce diversified products for consumption, such as meat, eggs, milk, fur, leather, and wool.

Policy

Policy, as a concept, has attracted various explanations. Google sees it as a course or principle of action adopted or proposed by an organization or individual. In this way, Ikelegbe (2006) and others agreed that some emphasize policy as an action. In this category is Ezeani (2006), who said it is the proposed course of action that the government intends to implement concerning a given problem or situation confronting it. Others see it as a choice involving a multiplicity of options from which the choice is made.

Public Policy

Public policy is usually designed to affect a particular targeted population in a geopolitically defined entity. This position is in line with the definition put forward by Dye (2004), which is whatever the government chooses to do or not to do. This definition implies that the citizenry could make demands on the political system (government) for the establishment of industries, but it is the decision of the government to either accede to the demand of the citizens or ignore it.

Ikelegbe (2006) posited that public policy "is a course of action and a program of actions which is chosen from among several alternatives by certain actors in response to certain problems." What this implies is that policy actors have several alternatives from which they choose. The actors could be the government, private organizations, or individuals. Public policy is aimed at solving a particular problem.

Administration

Administration refers to the processes and activities involved in managing and coordinating resources, people, and information to achieve the goals of an organization or institution. It encompasses various functions like planning, organizing, staffing, directing, and controlling. In essence, it's the "how" of making things happen within a structure.

Review of Related Literature

Conceptual Clarification

Policies

According to Koontz et al. (1980), they are also regarded "as plans in that they are general statements or understandings which guide or channel thinking and action in decision making." This means that individuals' and organizational actions are regulated by policies. Hence, policies ensure that the decisions made are consistent with and contribute to stated goals and objectives. Policies tend to predecide issues and give a unified structure to other types of plans (Adeyemi, 1995:2). However, it is difficult to make policies consistent and integrated enough to facilitate the realization of organizational goals and objectives because policies are often altered, faltered, and rewritten during implementation.

Implementation

According to Nwadiani (1997), implementation "is the translation of education policy into action involving all activities that are carried out after a policy is formulated, accepted, and released." This is what could be called 'Omume.' This is the stage where formulated policies and prepared plan documents are executed. It is the most difficult stage in planning the education system in Nigeria. At the implementation stage, administrative efficiency and managerial skills are subjected to a great task. Implementation links policy plans with actual performance through

the activities of implementation agencies. Nwadiani (1997) also asserted that

Public Policy

According to Dye (1981:1), "public policy is whatever governments choose to do or not to do." It can be said to be a deliberate intent and action of the government on issues arising from the environment with a bid to address them in such a way as to satisfy the wishes and aspirations of the citizens, who are the major reason the government exists. This explains why Mabogunje, cited in Irhue (2016:68), opined that "public policy are those definite acts or actions of government geared towards the fulfilment of the obligation of government to the citizens, which are the maintenance of law and order, the provision of social and economic facilities needed for an enhanced standard of living of the people, etc.

To Ikelegbe (1996:4), "public policy is simply governmental actions, or proposed actions, or a course of proposed actions directed at achieving certain goals." Olaniyi (2016:13) sees public policy as "the management of human and material resources by policy actors to address a policy problem identified in a polity at any point in time." Chandler and Plano (1988:107) defined public policy as "the strategic use of resources to alleviate national problems or governmental concerns." Government exists to provide essential services to the citizens, and public policy is one of the ways of achieving that. That is why public policy has been seen as an activity that takes place at the governmental level.

In this vein, Dimock et al., cited in Olaniyi (2016:10), opined that "public policy is deciding at any time or place what objectives and substantive measures should be chosen to deal with a particular problem, issue, or innovation. It also includes the reasons they should be chosen. Public policy can bring about the achievement of sustainable development if properly implemented. What is sustainable development? According to Aina, cited in Ogu and Adeniji (1998), "Sustainable development seeks the incorporation of the environment and human needs in the pursuit of economic growth and development."

According to the Brundtland Commission Report of 1987, 47, "Sustainable development is the kind of development which satisfies the current need without endangering future generations to satisfy their own." Having considered the concept of public policy, the next concept to be explained and clarified is policy analysis. Without public policy, there cannot be policy analysis. It means that policy analysis exists because of the existence of public policy. One can therefore opine that policy analysis is all about issues concerning public policy and also about ensuring the success of public policy. This is because public policy is meant to achieve specific goals; it is policy analysis that contributes to the success or otherwise of public policy. What then is policy analysis? According to Shafritz (1968:409), policy analysis is "a set of techniques that seeks to answer the question of what the probable effect of a policy will be before it occurs."

The Dictionary of Public Administration, cited in Sapru (2006:51), defines policy analysis as "a systematic and data-based alternative to intuitive judgements about the effects of policy or policy options. It is used "(a.) for problem assessment and monitoring, (b.) as a 'before the fact' decision tool, and (c.) for evaluation. We have an analysis of the policy. Analysis for policy denotes the examination of a policy option before it is made to find out the necessary ingredients that would make a particular policy work and the possibility of getting those ingredients in place before

making the policy. This is because going ahead to make policies without considering those factors needed for their success may end up being an effort in futility. This explains why Ericson, cited in Egonmwan (2014:25), asserted that policy analysis is “a future-oriented inquiry into the optimum means of achieving a given set of social objectives.”

Analysis of Policy

Analysis of policy denotes the critical examination and monitoring of a particular policy, particularly during the implementation stage, to ensure effective and efficient implementation. Policy analysis is also done to find out the impact of the policy on the citizens as well as other intended beneficiaries. This is because when a policy is not properly implemented, it cannot achieve its desired result. The view was corroborated by Eliagwu (2005:225) when he asserted that “policy analysis is a very important aspect of policy-making. After analysis, the original policy idea may be abandoned, amended, or refined, or it may trigger the imitation of other policies to cope with the unforeseen impact of the original policy issue. Similarly, outcomes of analysis may affect the implementation process and even the mode of implementation and monitoring.” It is in this vein that Dror, cited in Sapru (2006:9), opined that “policy analysis” deals with the substantive examination of policy issues and the identification of preferable alternatives in part with the help of systematic approaches and explicit methods. Dye, cited in Egonmwan (2014:21), stated that policy analysis is “the description and explanation of the causes and consequences of government activity.” To Quade, policy analysis is “any type of analysis that generates and presents information in such a way as to improve the basis for policymakers to exercise their judgment. According to Eliagwu (2005:225), “there is very little practical distinction between formulation and analysis. The process of analysis begins with formulation, through implementation, and monitoring. Here, not only is information collated and relevant data sifted, but very often, intelligent assessment of data is made for the provision of options (and their implications) to higher actors in the policy process. The process of analysis requires experts and professionals with relevant skills, depending on the policy issue.”

Livestock

"Livestock" refers to domesticated animals raised in an agricultural setting to provide various products and services for human use. These animals are typically raised for food, such as meat, milk, and eggs, but can also provide other valuable products like wool, hides, and even labor.

- **Agricultural Purpose:**

Livestock are kept on farms or ranches and are bred and raised with the intention of providing goods or services that benefit humans.

- **Diverse Products:**

The products derived from livestock are varied and include:

- Food: Meat (beef, pork, lamb, etc.), milk, eggs, and even honey (from bees).
- Fiber: Wool from sheep, and other fibers from certain animals.

- Byproducts: Hides for leather, manure for fertilizer, and even labor (e.g., horses for pulling).

- **Common Examples:**

Cattle, sheep, goats, pigs, horses, and chickens are among the most common types of livestock raised worldwide.

Livestock Administration

Livestock administration encompasses the management and oversight of domesticated animals raised for agricultural purposes. It involves a range of practices aimed at optimizing the well-being, productivity, and sustainability of livestock, including breeding, nutrition, health, and resource management.

- **Animal Husbandry:**

This involves providing proper care, including feeding, watering, housing, and general welfare of livestock.

- **Breeding Management:**

This includes selecting breeding stock, managing mating, and optimizing reproductive efficiency.

- **Health Management:**

This involves disease prevention, treatment, and overall animal health monitoring.

- **Feed and Nutrition:**

Ensuring adequate and balanced nutrition for optimal growth and productivity.

- **Resource Management:**

This includes land, water, and other resources used in livestock production.

- **Economic Management:**

Managing costs, optimizing production efficiency, and maximizing profitability.

- **Environmental Management:**

Ensuring sustainable practices that minimize environmental impact.

The Federal Ministry of Livestock Development (FMLD) in Nigeria is an example of an institution responsible for livestock administration, with the aim of transforming the livestock sector into a sustainable and globally competitive industry, ensuring food security and economic growth.

The FMLD is structured into departments focusing on areas such as:

- livestock breeding, ranch development, pest control, and veterinary public health.

Examples of livestock administration practices:

- **Mixed Production:** Integrating livestock with crop production.
- **Intensive Farming Systems:** Raising livestock in confinement, often with a high degree of technological intervention.

- Extensive Farming Systems: Utilizing large areas of land for grazing livestock.

In Nigeria, common livestock include:

- Cattle, Goats, Sheep, Poultry (chickens, turkeys, etc.), Pigs, and Rabbits.
- Livestock administration is crucial for food security, economic development, and the livelihoods of many people, particularly in countries like Nigeria.

Conceptual Framework: A Discourse

Livestock Value Chain in the Administration of Nigeria

As the administrative and political nucleus of Nigeria, the Federal Capital Territory (FCT) is not only a hub of governmental activities but also a burgeoning center for agricultural pursuits. Among the various agricultural sectors, the livestock value chain in the FCT has gained prominence, contributing significantly to the local economy and exemplifying the potential for sustainable agricultural practices.

Livestock Farming

At the core of the livestock value chain in the FCT is livestock farming. The diverse geography of the FCT, encompassing plains and hills, provides an environment conducive to various livestock activities. Farmers across the territory engage in the rearing of cattle, sheep, goats, poultry, and other livestock, forming the foundational pillar of the livestock value chain.

Challenges in Livestock Farming

Despite its importance, livestock farming faces challenges such as disease outbreaks, inadequate veterinary services, and the need for improved breeding practices. Farmers in the FCT are actively addressing these challenges by adopting modern animal husbandry techniques, participating in vaccination programs, and collaborating with veterinary experts.

Animal Husbandry Practices

Livestock farmers in the FCT employ modern animal husbandry practices to ensure the health and productivity of their herds. This includes proper nutrition, vaccination programs, and improved breeding techniques to enhance the quality of meat, milk, and other livestock products.

Processing and Value Addition

The livestock value chain in the FCT extends beyond primary production, with a growing focus on processing and value addition. Entrepreneurs have invested in modern abattoirs, poultry processing units, and dairy facilities, adding value to the raw products and meeting the diverse demands of consumers.

Market Access and Distribution

Access to markets is vital for farmers and processors alike. The FCT's strategic location and well-connected transportation networks facilitate the distribution of livestock products to local markets and neighboring states. Strengthening market linkages and exploring export opportunities can further enhance the economic impact of the livestock value chain.

Government Interventions

Recognizing the significance of the livestock value chain, the FCT administration has implemented initiatives to support farmers and processors. This includes providing veterinary

services, promoting research and development, and creating an enabling environment for private sector investments.

Capacity Building and Training

To ensure the sustainability of the livestock value chain, capacity building and training programs have been instrumental. Farmers and agribusinesses in the FCT receive training on modern livestock management practices, disease control, and value addition, empowering them to enhance productivity and product quality.

Quality Control and Certification

Maintaining high-quality standards is paramount for livestock products. In collaboration with relevant authorities, the FCT emphasizes the importance of adherence to quality control measures and obtaining necessary certifications, ensuring the safety and reliability of its livestock products.

Technology Adoption

Embracing modern technologies is instrumental in enhancing productivity and efficiency in the livestock sector. Farmers and processors in the FCT are increasingly adopting technologies such as precision farming, digital record-keeping, and mobile veterinary services to optimize their operations.

The Way Forward

To unlock the full potential of the livestock value chain in the FCT, a multi-faceted approach is essential. This includes continued investment in research and technology, infrastructure development, and supportive policies. Collaboration between the government, private sector, and local communities is pivotal for overcoming challenges and ensuring sustained growth in the livestock industry.

In conclusion, the livestock value chain in the FCT stands as a dynamic and integral component of the territory's agricultural landscape. By addressing challenges, fostering innovation, and promoting value addition, the FCT is well-positioned to continue making significant contributions to Nigeria's agricultural and economic prosperity through its vibrant livestock industry.

Historical Background on Livestock Production Policies and Programs Evaluation in Nigeria

The post-independence agricultural policies in Nigeria

In Nigeria, raising the standard of living for its people is the primary goal of sustainable development. Stimulating economic activity in all important areas, especially agriculture, should achieve this. One well-known industry that can enhance people's quality of life for long-term development is agriculture (Nnamani, 2009; Fankun and Evbuoman, 2017). A significant number of policies were developed to control the nation's agricultural output. More equal agricultural growth was the main goal of the postcolonial era, and policies were put in place to support this, especially in the quest for export-led growth. According to Christian (2020), the nation was split into three regions: the Eastern Region (oil palm), the Northern Region (groundnut), and the Western Region (cocoa).

First National Development Plan (1962–68)

The First National Development Plan (1962–68) was adopted in 1962, marking the start of Nigeria's post-independence

development planning. The overall investment expenditure for this plan was N2,132 million, of which N780 million came from the private sector and N1,352.3 million from the governmental sector. Additionally, it established a 4% annual target growth rate for the economy (Iwuagwu, 2020). Among other things, it placed a strong emphasis on the introduction of more advanced farming techniques through cooperative (nucleus) plantations, farm settlements, the provision of better farm equipment (such as hydraulic hand presses for processing oil palm), and a significantly increased agricultural extension service (Lawal and Oluwatoyin, 2011; Ugwuanyi, 2014; Christian, 2020). Agriculture received N 160 million since it supplied around 60% of national income and export earnings and provided a source of living for more than 70% of the population (FAO 1966; Sokari-George, 1987). Due to financial limitations, the plan document notes that "the highest priority has been given to agriculture, industry, and training of high- and intermediate-level manpower" (First Plan 1962; Sokari-George, 1987). This allocation was for both capital and ongoing expenses. The plan also places a strong emphasis on a regionalization approach for agriculture. This is a huge step into the future. Under the regionalization approach, regional administrations were given more authority (Ukwu 1983). However, there was no push from the national government to coordinate the numerous regional governments' agricultural programs (Sokari-George, 1987). During this era, some governments established publicly owned companies.

Commodity boards, agricultural development corporations, and various farm settlement programs were all supported more by social concerns and by promoting community involvement in farming than by their direct involvement (Okuneye, 2011). Between 1962 and 1968, regional administrations' efforts and focus on economic development, as well as the region's goal, served as a major basis for agricultural policies. The marketing board was established to control agricultural commodities, the Niger dam was built to increase agricultural output, and extension services were developed as a result of the central and regional policies of the time. A number of agricultural research institutes and their extension research liaison services were also established in the early 1960s. The International Institute of Tropical Agriculture (IITA), founded in 1967; the International Livestock Centre for Africa (ILCA); and Ahmadu Bello University's Agricultural Extension and Research Liaison Service (AERLS), founded in 1963, are a few of the important organizations. During this time, the following specialized development programs were started or carried out:

Farm Settlement Scheme (FSS) (1960-1964)

According to Jaeger (1981) and Shafto (2017), farm settlement is a government program that supports rural development by giving small farmers land and resources for commercial farm operations, efficiency in the use of land resources, and dignity in farming through the provision of infrastructure. This was a key element of the Western Nigeria Agricultural and Natural Resources Policy of 1959 and was started by a few regional governments in Nigeria. By settling young school dropouts in a particular plot of land and making farming their career, this program aimed to keep them from relocating to cities in pursuit of white-collar jobs (Olatunbosun, 1964; Iwuchukwu and Igbokwe, 2012; Christian, 2020). Reducing rural-urban migration and improving rural communities' quality of life at a reasonable cost was the secondary objective (Iwuchukwu and Igbokwe, 2012; Abiodun et al., 2020). Unfortunately, some of the settlers were too young and inexperienced in farming, which led to a high dropout

rate among the settlers, a lack of funds, politicking with the program, and a lack of understanding of the meaning and implications of the scheme by some settlers who assumed that by participating in the scheme they would eventually get paid jobs. As a result, the scheme went into obscurity, and the few available ones were put in jeopardy. They were discouraged, and some withdrew as soon as the allowances stopped being paid. The significant financial and human costs of starting a successful farm settlement deterred some of the participants. Lastly, as intended, the scheme's expenditures were mainly used to build settlers' homes, schools, marketplaces, and roads; this did not directly boost the participants' agricultural output (Roider, 1968; Jaeger, 1981; Amalu, 1988; Iwuchukwu and Igbokwe, 2012; Ambali and Murana, 2017; Shafto, 2017; Abiodun, 2020; Christain, 2020). The main issues with the 1962–68 agricultural policies were highlighted by Clark (1963), who noted that the regional agricultural planning groups developed their own programs and used their own techniques for assessment and evaluation while working independently on the planning process. The coordination of plans was often hindered by intense rivalry between governments, which limited the regional flow of personnel, information, or ideas. The different regional administrations participating in agricultural planning pursued a variety of agricultural development plans, but the strategies were never well defined, and their ramifications were never carefully considered. Many complaints of regional agricultural policies and some of their unsatisfactory results stem from the failure to assess implicit assumptions about the direction of policy to encourage development, which may precede the plan framework itself (Stolper, 1966).

National accelerated food production programme (NAFPP) (1972-1973)

In 1973, eight states—Benue, Kano, Plateau, Anambra, Imo, Oyo, Ogun, and Ondo—were the sites of the NAFPP's trial program. Between 1974 and 1977, the research and extension components of the project were created (Njoku and Mijindadi, 1985; Iwuchukwu and Igbokwe, 2012; Ani, 2013). The initiative was divided into three phases: mass acceptance, manufacturing kit, and mini-kit (Iwuchukwu and Igbokwe, 2012; Ani, 2013). As stated by Mijindadi and Njoku (1985), the NAFPP is distinct as a plan to boost food production in Nigeria because of four characteristics: (a) crop-based research and extension activities are planned; (b) the farmer is directly involved in the cultural practices and seed varieties that he finds most acceptable; (c) extension workers are closely involved in research and receive extensive training in crop production techniques; and (d) the producer receives the supply of production inputs. Under the NAFPP technical package, participating farmers were essentially advised to adopt eleven significant advances. These consist of (1) using seed varieties with high yields, (2) using chemical seed dressing, and (3) using chemical fertilizer. Time needed for planting, plant spacing, weeding, planting place, harvesting, and using a rented tractor service (11) Making use of contemporary processing facilities; (10) Making use of contemporary farming processing facilities (Akinola, 1986). It provided direct and immediate feedback from farmers because it was simple to confirm that a farmer did not accept or would not adopt an innovation if the farmer did not participate in any of the phases, particularly the production kit and mass adoption phases (Bartlett and Fajemisin, 1981; Iwuchukwu and Igbokwe, 2012; Ani, 2013).

Research, extension, and agro services are the three main, interconnected parts of the initiative (Njoku and Mijindadi,

1985). If not for some significant limitations, the NAFPP could have proceeded more quickly. These limitations include the government's lack of support for the program, the non-adoption of better crop varieties, and the shortage of qualified extension personnel (Bartlett and Fajemisin, 1981; Njoku and Mijindadi, 1985). Research at the Institute for Agricultural Research, Samaru-Zaria, has produced a number of improved sorghum, millet, and wheat varieties, most of which farmers in the Northern States have deemed to be acceptable. However, the rate of adoption is still being lowered by socioeconomic issues. There are now sorghum cultivars that are disease-resistant, short-stalked, quick-maturing, and high-yielding. These kinds of short fencing materials after harvest have caused farmers to embrace them slowly. Another point of conflict is the desires of farmers. In many instances, farmers find food made from particular types to be unappealing due to the color and flavor of the seed. Other issues with NAFPP include the lack of extension officers to oversee field operations, farmers' financial support of the program's final two phases, and the Federal Government's sudden or early termination of funding because of Operation Feed the Nation (Bartlett and Fajemisin, 1981; Njoku and Mijindadi, 1985; Iwuchukwu and Igbokwe, 2012; Ani, 2013).

Agricultural Development Programme (ADP) (1974- 1986)

The agricultural development program was created in Malawi with the goal of addressing rural poverty. The development of the first three enclave projects in Nigeria's northern region in 1974 marked the transfer of the "basic concept." The Agricultural Development Programs in Funtua, Gusau, and Gombe are among them (Omonijo et al., 2014). In 1989, the program was replicated in all 19 states of the Federation due to its previous remarkable outcomes (Iwuchukwu and Igbokwe, 2012).

Omonijo et al. (2014) claim that since the ADPs were established, average yields for all of Nigeria's primary crops have grown when compared to the pre-ADP era. The Bauchi State had a rise in millet, cassava, and cotton yields between 1982 and 1991, according to yield data for the Kano, Sokoto, Ilorin, Oyo-North, and Bauchi Agricultural Development Programs. (World Bank, 1993; Aliero, 2008; Omonijo et al., 2014); rice in the Kaduna Agricultural Development Program; cassava in the Ilorin Agricultural Development Program; and yam and cowpeas in the Ondo Agricultural Development Program. During the project's implementation, a number of problems surfaced, such as a lack of funding brought on by the 1982 oil price decline, which delayed hiring qualified personnel and the availability or acquisition of facilities and materials needed for the project's start. Implementation thus took a lot longer than anticipated. Second, although most farmers practice mixed/relay cropping, ADP places more focus on modern/high input technologies like solo cropping. Additionally, the program's subsidized input supply was delayed. The high rate of labor mobility, the limited participation of input agencies, the decline in financing policies and counterpart funding, and the complexities of technology transfer are some additional problems (Iwuchukwu and Igbokwe, 2012).

River Basin-Development Authorities (RBDAs) (1976-2020)

Nigeria's basin water resources must be developed, supplied, and managed by the River Basin Development Authorities (RBDAs), as required by law. Section 1 (1) of the River Basin Development Authority (RBDA) Act CAP 396 LFN 1990 (Adeoti, 2020). The RBDAs were assigned an exceptionally wide range of responsibilities in 1976. These included operations

unrelated to water resources, like seed multiplication, animal breeding, and food processing, as well as flood control, watershed management, pollution control, fisheries, and navigation. Agricultural services and rural electrification were among the operations that were part of their mandate and would be shared with state agencies (Adams, 1985; Danladi and Naankiel, 2019). Additionally, the RBDAs were expected to carry out broader economic and social tasks, such as reducing migration from rural to urban areas and bridging the gap between rural and urban centers. These goals were to be accomplished by building dams to impound water on the surface, allowing for year-round cultivation throughout the nation (George, 2019). The program revealed the following problems: some authorities grew out of proportion, and their activities were severely hampered by political meddling. Additionally, significant public monies were wasted to sell off non-water assets in order to reduce the size and operations of RBDAs (Iwuchukwu and Igbokwe, 2012; Adeoti, 2020). Nevertheless, the RBDAs have fallen short of expectations almost forty years after they were established. The RBDAs have simply failed to harness the country's water resources in order to boost agricultural development within the country through irrigation farming (George, 2019).

Operation Feed the Nation (OFN) (1976 – 1980)

One effort by the Nigerian government to promote agriculture and improve the lives of rural residents and all Nigerians was Operation Feed the Nation (Nwosu, 1990). Operate the national agricultural extension and mobilization program to encourage a new generation to return to farming and to attain self-sufficiency in the production of food crops. The Nigerian Agriculture and Cooperative Bank was mandated by the government to expand lending to farmers and agricultural credit programs as part of the push to boost entrepreneurship in the sector. Extension services, subsidized fertilizer delivery, and a desire by large-scale farmers to expand commercial farming were all examples of government engagement. Aircraft were used to spray pesticides, and farmers received chicken chicks. Additionally, in order to create agricultural estates, the government bought sizable parcels of land and leased them to farmers who received extension services from the government (Forrest, 1981; Arua, 1982; Anikpo, 1985; Offu, 2013). The bulk of studies that looked at the role of OFN produced failure judgments, with the exception of the problem of increasing awareness of the nation's food condition (Akinbode, 1980; Akinbode, 1982). For instance, the program's first year's increase in total food production was not maintained after that. Indeed, 88.3% of Oyo State farmers surveyed criticized the program's inadequate design (Akande, 1980; Akinbode, 1982). As a result, the plan to use it to improve rural Nigerians' quality of life and agricultural output was squandered from the start (Nwosu, 1990).

Green Revolution Programme (GRP) (1981 – 1983)

The Green Revolution (GR) began in April 1980. In order to guarantee food security and self-sufficiency in essential staples, the program sought to boost the production of food and raw materials. In addition to increasing and diversifying the nation's foreign cash revenues through export crop production and processing, its second goal was to boost livestock and fish production to meet both domestic and export demands (Iwuchukwu and Igbokwe, 2012). One of the many pro-poor policy measures implemented by the Nigerian government is without a doubt the Green Revolution. The government's intentional attempt to correct perceived flaws in previous and current institutional and policy arrangements is

known as a reform (Grindle and Thomas, 1991; Dare Kolawole, 2012). For instance, interventionist measures to intensify agriculture were consistently implemented in Nigeria both during and after its independence. The Nigerian Green Revolution is therefore an ongoing activity. Agrochemicals, improved seeds and seedlings, irrigation systems, mechanized machinery, finance facilities, enhanced marketing, and favorable prices for agricultural products were all provided by the federal government to ensure the program's success (Iwuchukwu and Igbokwe, 2012). Thus, enhanced plant technology—the complexity of which came from mixing disparate inputs to increase grain yields—was seen to be the cause of the green revolution. Combining inputs and applying scientific knowledge to the inputs became essential to its success (Famoriyo and Raza, 1982). The program did not achieve its goal of increasing food supply because most of the projects involved in the program were delayed. In addition, there was no monitoring or evaluation of the projects for which large sums of money were spent (Famoriyo and Raza, 1982; Dare Kolawole, 2012; Iwuchukwu and Igbokwe, 2012).

National Fadama Development Project (NFDP) (1990-2020)

The first National Fadama Development Project (NFDP-1) was created in the early 1990s with funding from the World Bank to advance low-tech, basic irrigation. The main objective of NFDP-I was to expand high-value-added farm and non-farm operations in order to sustainably raise the earnings of Fadama users. Twelve states, including the Federal Capital Territory (FCT), were covered by the program: Adamawa, Bauchi, Gombe, Imo, Kaduna, Kebbi, Lagos, Niger, Ogun, Oyo, and Taraba. According to Olaolu et al. (2013), Alawode and Oluwatayo (2019), and Christian (2020), the program is currently in phase III. In order to boost food production, the National Fadama Development Project I (NFDP I) focused mostly on promoting low-cost, basic irrigation technologies. However, it mainly disregarded downstream activities like processing, preservation, and conservation, as well as rural infrastructures intended to guarantee the effective evacuation of farm produce to markets. Additionally, farmers engaged in other agricultural sectors, such as cattle and fisheries, were not considered in the project. This led to restricted benefits for only those engaged in agricultural production, as well as ongoing conflict among users (Adegbite et al., 2008). The Community Demand Driven (CDD) approach, which is used in the Fadama II project, places a strong emphasis on community-level stakeholder participation to create socially inclusive and participatory Local Development Plans (LDPs), which form the basis for funding and support (Agwu and Abah, 2010). The experiences gained from implementing numerous agricultural and rural development initiatives throughout the years gave rise to the Fadama experiment in building social capital for development (Eze, 2014). By increasing local capacity to realize the nation's agricultural potential, the only goal is to alleviate poverty and enhance the standard of living for those living in rural areas. According to Bature et al. (2013) and Benjamin (2014), the "Fadama III operation will support the financing and implementation of five main components designed to transfer financial and technical resources to the beneficiary groups in (i) institutional and social development; (ii) physical infrastructure for productive use; (iii) transfer and adoption of technology to expand productivity, improve value-added, and conserve land quality; (iv) support extension and applied research; and (v) provide matching grants to access assets for income-generation and livelihood improvements." Conflict problems were caused by a few limitations and the fact that it was limited to crop production (Onoja, 2004).

These conflicts, which primarily arose between farmers and other Fadama users, particularly pastoralists and fishermen, concerned stock routes, crop destruction, and encroachment, and the unskilled handling of water application through irrigation can degrade and deplete the soil of its productive capacity (Agwu and Abah, 2010; Agunloye et al., 2017; Christian, 2020).

Agricultural Transformation Agenda (2011-2015)

The National Economic Transformation Agenda is being implemented by the Federal Republic of Nigeria with the intention of diversifying the economy away from dependency on oil, guaranteeing food security, and generating employment, especially for young people. Accordingly, in order to encourage agribusiness, draw in private sector investment in agriculture, lower post-harvest losses, enhance the value of regional produce, build rural infrastructure, and facilitate farmers' access to markets and financial services, the Federal Ministry of Agriculture and Rural Development is implementing the Agricultural Transformation Agenda (ATA) (FRN, 2013; Obiora, 2014; Ajani and Igbokwe, 2014; Adesugba and Mavrotas, 2016; Meludu et al., 2017).

But the ATASP-1 was implemented in four Staple Crops Processing Zones (SCPZs) of Adani Omor, Bida-Badeggi, Kano-Jigawa, and Kebbi-Sokoto and covers 21 LGAs in seven states: Anambra (Ogbaru and Orumba North LGAs), Enugu (Uzo Uwani LGA), Jigawa (Hadejia LGA), Kano (Bunkure, Kura, and Rano LGAs), Kebbi (Argungu, Bagudo, Birnin Kebbi, Dandi, Ngaski, Shanga, and Suru LGAs), Niger (Agaie, Gbako, Lapai, Lavun, Katcha, and Mokwa LGAs), and Sokoto (Kware LGA). FRN (2013), Adesugba and Mavrotas (2016), Alhassan et al., and others define the processing zones as contiguous, specially delimited areas of land in high agricultural production and potential areas where localized provision of a well-developed physical infrastructure, such as access roads, energy, and water, is necessary to support production, processing, and marketing activities for selected commodities. The ATA was founded on the premise that agriculture is a business and that policy should support it.

The policy's primary goal was to "reset the clock" and reintroduce sustainable agriculture to the Nigerian economy using a private sector-driven, business-like mindset. From 2011 to 2015, the plan was implemented (FMARD, 2016). The ATA faces the following limitations: Inadequate execution of various policies and programs intended to strengthen Nigeria's agricultural sector, draw in investors, and increase private sector involvement; (ii) Insufficient coordination of the activities of the various agencies responsible for the agricultural development program; (iii) The incapacity of smallholder farmers in rural areas to secure financing to utilize lucrative technology packages intended to increase productivity and lift them out of subsistence; and (iv) Inadequate infrastructure (poor roads and electricity), especially in rural areas, which form the country's agricultural foundation, continues to be a significant obstacle (Owoade, 2019). Other issues with ATA include GES's narrow focus and exit strategy, which have a significant impact on the ministry's budget and are the reason for the dramatic increase in bank debt. From farmer registration and data collection to the supply and distribution mechanism, the system has numerous leaks. Inadequate availability of superior variety seeds (for example, there is still a 300,000 MT discrepancy between supply and demand), poor financial availability, especially for small farmers, The market for financing agriculture was disturbed by Nirsal's 2013 revision to the credit guarantee regulations until the laws were reexamined in the middle of 2015. Bank lending has stalled due to the projected N39 billion

backlog of outstanding GES loans. Although USD 8 billion in pledges from domestic and foreign investors are frequently mentioned, only a small portion of these have really gone from concept to reality (FMARD, 2016).

The Agriculture Promotion Policy (2016 – 2020)

The primary goal of the Agriculture Promotion Policy (APP) is to remove a number of obstacles that have an impact on Nigerian agricultural productivity. This new plan identifies two major deficiencies in the agriculture sector: the inability to supply quality produce for the export market and the inability to meet domestic food demand. The plan's top aim was to close these gaps in order to set Nigeria's agriculture industry up for long-term success. The goal of the policy is to accelerate Nigeria's progress toward realizing her full agricultural potential. The agenda includes goals for raising agricultural output, growing and enhancing the quality of exports, and guaranteeing that farmers at all levels have access to necessary infrastructure and farm supplies (FMARD, 2016; NANTS, 2018).

A commitment to remedy the setback within a certain time frame was one of the remedies provided by the policy, which reflected the bulk of the issues experienced by smallholder food growers, especially smallholder women farmers. This policy gives associations or groups of smallholder female farmers a window of opportunity to alter long-standing sociocultural customs that disadvantage women when it comes to land ownership, especially when it comes to inherited family holdings. In accordance with this strategy, gender disparity in land ownership levels will be addressed by the Federal Ministry of Agriculture and Rural Development (FMARD) in collaboration with state governments and other regulatory agencies (FMARD, 2016; 2018; Action Aid, 2018; NANTS, 2018). By addressing major barriers to the simple distribution and accessibility of agricultural inputs like fertilizers, the APP aims to increase soil nutrients by delivering them to places where their use is lucrative and increasing cost-effectiveness through the use of technology. By guaranteeing small- and large-scale farmers a straightforward supply of affordable fertilizers, the strategy seeks to increase fertilizer accessibility. Along with other levels of climate-adaptive agricultural practices, it also recognized the necessity of educating smallholder farmers on the principles of soil improvement mechanisms and management (FMARD, 2016; Action Aid, 2018; NANTS, 2018).

Overview of the Livestock Sub-sector Production in Nigeria

Importance of livestock in the economy

The LSS makes a substantial economic contribution to the country. It contributed 10% of the agricultural GDP and 6% of the total GDP in 1963. It made up 20% of the agricultural GDP and 5% of the overall GDP by 1981. The decline in agriculture's share of the GDP from over 60% in 1960 to roughly 26% in 1981 is reflected in the LSS's doubling of its share of the agricultural GDP. According to the Federal Ministry of Agriculture's Animal Review Mission (1981), the value of animal production in 1981 was estimated to be at N2.0 billion (US\$2.0 billion).

Livestock population and distribution

Nigeria's livestock population in 1981 was estimated at about 9.3 million cattle, 8.8 million sheep, 20.8 million goats, 133.5 million poultry, and 0.86 million pigs (Federal Ministry of Agriculture, 1981). Ruminant livestock distribution is limited by

tsetse fly incidence and by the availability of forage. Nearly tsetse fly-free but with the lowest pasture supplies, the semi-arid ecological zone (400-900 mm of annual rainfall) used to support 90% of cattle and 70% of sheep and goats. But according to recent research by Putt et al. (1980) and Bourn and Milligan (1983), there has been a noticeable southward drift in Nigeria's cattle sub-humid zone (900–1500 mm of rainfall annually). This is partially because the zone has opened up, which has led to a decrease in tsetse infestation, and partially because pastoralists are trying to find a solution to the feed supply issue. This transfer is consistent with the government's plan to move a significant percentage of the country's ruminant herd from the overcrowded semiarid zone to the sub-humid zone (David-West, 1980).

Pigs are more common in the southern humid zone (+1500 mm of annual rainfall) and the intermediate belt between the humid and subhumid zones, but poultry are raised nationwide in both conventional backyard flocks and contemporary commercial facilities.

Production

In Nigeria, raising cattle is still done traditionally under mixed farming systems in the south and pastoral and agropastoral systems in the north. The Fulanis handle animals under the pastoralist system through transhumance or nomadic herding techniques. Families typically have 90 animals (Federal Ministry of Agriculture, 1981). Cattle's nutritional stress during the dry season, which runs from January to March, is the primary barrier to higher output. Seasonal migrations in pursuit of pasture are frequently required as a result. In addition to causing suffering for the animals, these migrations have frequently led to disputes with crop farmers who claim that the migrant animals destroy and consume their harvests. According to estimates, roughly 40% of the former pastoralists have relocated to areas where they have been able to get past land tenure restrictions and on government grazing reserves created especially for this purpose, in part because of these conflicts and in part because the sub-humid zone has opened up (Waters-Bayer and Taylor-Powell, 1986; Oppong, 1988).

The move toward better integration of crop and animal husbandry has mainly coincided with denaturalization. In order to adapt to their sedentary lifestyle, settled pastoralists and agropastoralists frequently lower the size of their herds. According to Otchere (1986), families typically had 45 animals. An average of 280 liters of milk was produced annually per cow, with an offtake rate of 11% and a calving rate of 48%.

8. Crop farmers who retain a few heads of cattle to supplement their cropping activities and large-scale public sector cattle ranching enterprises are examples of two other, less important types of cow production. For instance, a farmer in the semi-arid zone may keep a few heads of cattle for draft purposes, whereas a farmer in the humid zone may keep trypanotolerant cattle in herds of up to 30 in the west and 1 to 6 in the east for sale during times of low meat supply.

In regions with little population pressure, small ruminant production methods range from wide, low-input systems based on open grazing and village scavenging to more intense cut-and-carry feeding of confined animals in the country's heavily farmed areas. Sheep and goats are kept by pastoralists and agropastoralists as part of their cattle herds in the semi-arid and sub-humid regions. Agropastoralists often keep goats in herds of five, whereas pastoralists typically keep sheep in herds of twenty to forty

(Federal Ministry of Agriculture, 1981; Bayer, 1986). In the humid zone, smallholder crop growers also frequently keep trypanotolerant dwarf sheep and goats. Goats make up the majority, with an average flock size of three to four per owner. Throughout the country, flock size and productivity are mainly constrained by disease and the availability of feed.

There are two different production systems used to raise poultry. About 85% of the country's birds are raised in private flocks in the first category, while the other 15% are kept in facilities that are typically found close to major cities and are handled along contemporary commercial lines. Both systems are limited by disease, even though the latter is more productive, with chickens producing roughly 160 eggs annually as opposed to the backyard system's 40 eggs (Federal Ministry of Agriculture, 1981). The dependence on imported maize feed, which for a while (from the middle of the 1970s to the middle of the 1980s) was less expensive than domestically grown maize due to the skewed domestic price regime brought on by the overvaluation of the naira and low global market prices, as well as the increase in meat and milk production over the past 15 years, further restricts the commercial flock. Nigerian Livestock Meat Authority/Federal Livestock Department slaughter data were modified to account for unrecorded slaughterings based on evidence from other research (e.g., Federal Ministry of Agriculture, 1981; Okali and Upton, 1984). Even though numbers like those in Table 1 are merely approximations, the table indicates that by the mid-1980s, output of goat, pork, and milk had grown by around 50% compared to the mid-1970s average, while production of beef, mutton, and chicken meat had nearly doubled. Per capita production levels fluctuated a little throughout the same time period. Production per capita rose by about 60% for beef and mutton. While per capita milk production decreased by almost 10%, per capita production levels for goat meat and pork stayed rather stable. Even by African standards, the figures of per capita meat and milk production given in Table I are extremely low, lower than the East African regional average of about 13.8 kg of meat and 35 kg of milk per capita in 1984 (Anteneh et al., 1988).

Trade

Cattle imports have persisted even though the output of the majority of cattle products has increased during the past 15 years. Table I demonstrates that imports of every other product have increased, with the exception of pork. The import surge was especially notable from 1977 to 1981. Incomes were significantly raised by the dramatic growth in oil profits that started in 1974 and lasted until the early 1980s. Demand for animal goods increased as a result of this and the high income elasticities of that demand, but supply could not keep up. One import had a major role in filling the widening imbalance between supply and demand. However, in an attempt to reduce the import bill, the government has, since 1983, cut imports of most animal products through a series of policy measures, including import licenses, physical quota limits, and outright bans.

The private sector handles the majority of the internal livestock trade. The commerce has traditionally been mostly one-way, going from the northern producing regions to the southern major cities. The three primary (rural), secondary (local), and tertiary (urban/terminal) markets make up the marketing system, and intermediaries serve as a bridge connecting traders at any two levels. The LSS has benefited greatly from the upgraded road system, especially since the middle of the 1970s, since it makes it simple to access livestock markets. Most people agree that the

marketing system's activities are well-structured and effective (World Bank, 1985a). As discussed in the next section, government attempts to provide parallel marketing and processing facilities through the Nigerian Livestock and Meat Authority (NLMA) and, later on, through the Nigerian Livestock Production Company (NLPC) have been unsuccessful.

- Domestic production of beef, mutton, goat meat and pork was estimated by adjusting Federal Livestock Department slaughter figures to account for unrecorded slaughterings. For poultry meat, domestic production was estimated following the approach used by the Livestock Review Mission of 1981 (see Federal Ministry of Agriculture, 1981 p. 33). Data on domestic milk production include estimates of the production of whole fresh milk from traditional and exotic herds but exclude the production of milk from milk processing plants.
- All figures relating to milk in the table are expressed in liquid milk equivalents.
- The import figures for beef include both the meat equivalent of live imports and processed beef imports. For sheep and goats the figures represent only the meat equivalent of live imports, while for pork and poultry only imported bacon and chicken are included since live imports of pigs and poultry are not allowed except for experimental purposes.
- Aggregate Consumption = Domestic Production + Net Imports.

Sources:

- Federal Livestock Department, Nigerian Livestock Information Service (various issues) and Computer Print-outs.
- Federal Office of Statistics, Nigeria Trade Summary (various issues).
- Federal Ministry of Agriculture, 1981 and Nwoko, 1986.

Consumption

Since there isn't a thorough national consumption survey, estimates of aggregate consumption have been calculated by summing the numbers for net imports and local production, as indicated in Table 1. According to the table, between 1972 and 1986, the overall consumption of the majority of meat products nearly doubled. 892,500 tons of liquid milk equivalents were consumed in the early 1980s, up from 490,000 tons in the mid-1970s. Nonetheless, overall milk consumption seemed to have decreased from 1982 to 1986, especially after 1984.

Between 1972 and 1986, the average amount of meat consumed per person was 5.6 kg. When examining specific animal items, the amount of beef, mutton, and poultry consumed per person rose by over 50% throughout this time, whereas the amount of goat and pork consumed per person did not rise. Following a brief increase from the mid-1970s, per capita milk consumption fell precipitously in the mid-1980s.

All things considered, Table I demonstrates that the difference between production and consumption is greater for milk than for meat. Nigeria's dairy consumption has always been dependent on imports. Consequently, milk consumption has been more influenced by trade and economic policy than meat consumption. Since the fall in demand has coincided with periods of sharp increases in milk prices, the decline in per capita milk consumption since the mid-1980s suggests that urbanization and

income growth may not have as much of an impact on milk demand as relative prices (more on this in the following section).

Historical Survey of Government Objectives and Policies toward the Livestock Sub-sector

Four convenient periods can be used to review government goals and policies for the LSS in Nigeria: the colonial era before independence in 1960, the immediate post-independence period until the end of the Sahelian drought in 1974, the oil boom period from 1975 to 1985, and the years since 1986, when the structural adjustment program was started. This section explains these four eras, focuses on the key goals and policies, and provides justification for specific government initiatives.

The colonial era

Although the determination to increase livestock product exports had developed before World War II, the first colonial goals with regard to the LSS were not made clear. According to early records (quoted in Waters-Bayer, 1988), plans to gather fresh milk from the Fulanis for the purpose of separating the cream and turning it into clarified butterfat (CBF) for export started in northern Nigeria in the late 1920s. Between 1933 and 1939, CBF exports increased from 10 tons to 2,400 tons (Waters-Bayer, 1988, p. 26). In order to satisfy the demand of the expatriate community in Jos and Lagos, dairy herds and milk processing facilities were also established at Vom and Agege in the early 1940s (David-West, 1978).

The main way that the colonial government achieved its goals was by investing in both basic research and physical infrastructure. A comprehensive internal rail and road network system was finished by 1950. In the late 1940s and early 1950s, several Livestock Improvement and Breeding Centers (LIBCs) were set up across the nation to conduct cross-breeding experiments utilizing exotic bulls and artificial insemination, mainly to boost milk output. Additionally, research was done to assess the potential of both native and invasive pasture species. More than 270 grass and legume species were evaluated for nutritional value, growth performance, and adaptability between 1955 and 1960 (Federal Ministry of Agriculture, 1981). But as the majority of the programs implemented during this time were focused on ranching, they had less effect on pastoral or smallholder systems. Moreover, it seems that cattle, especially dairy production, have received more attention than other animals. Independence until 2074. Nigeria's livestock development policy was both maintained and changed with the country's independence. On the one hand, cattle breeding programs were maintained, and some of the programs started the eradication of tsetse. On the other hand, the new regional administrations launched a number of programs to try to strengthen smallholder and pastoral systems because they wanted to increase the economy's rate of growth and attain a more fair distribution of wealth. Therefore, a supplemental feed program was implemented in northern Nigeria in 1962 with the goal of reducing seasonal weight losses by introducing concentrate feeding to cattle. Additionally, the plan was perceived as an effort to promote settlement among the pastoralists who lived on the move. Equal portions of cottonseed and groundnut cakes, along with 2% common salt and mineral licks, made up the supplemental ration, the cost of which was subsidized (Federal Ministry of Agriculture, 1981). The plan did not have the intended effect because of the insufficient supply and delayed delivery of the supplements, despite the pastoralists' positive response.

In order to safeguard the traditional grazing lands against crop farming, provide a year-round supply of ruminant feed, and promote the settlement of pastoral nomads, grazing reserves were established in the same area beginning in 1965. Various state administrations had acquired 2.3 million hectares by 1980 (Oxby, 1982).

In the early 1960s, a smallholder steer fattening program was implemented in the southwest. Participating farmers fattened trypanotolerant steers using semi-intensive management approaches in order to supply slaughterhouses in nearby metropolitan areas. As a result of the program's success, a Smallholder Fattening Scheme was established in 1979 as part of the First Livestock Development Project, which was funded by the World Bank (Federal Ministry of Agriculture, 1981).

During this time, trade and industry investment policies were also prioritized in addition to these regional programs. Import taxes were the first trade policy measure aimed against the LSS. In 1960, there was a 20% duty rate on imported cheese, butter, and pork. Tariff rates rapidly increased during the following five years, rising from 35% for cheese and butter to 66.7% for meat. In the 1961 budget speech, the argument that "increases were imposed upon goods consumed by the better-off sections of the community" was used as justification for the future course of trade policy. The statement added that "no one could reasonably maintain that imported meat and butter constitute indispensable or significant items in the family budget of the low-income groups which form the bulk of our population" (Federal Ministry of Agriculture, 1987). Thus, tariff increases were imposed to serve as an indirect consumption tax and raise revenue for the government.

Trade policy took on a new dimension during the 1967–1970 civil war. Throughout the war, the balance of payments position was the most important factor. The adoption and widespread application of quantitative limits marked a substantial shift from the past. Therefore, import licensing played a major role in controlling meat imports between 1965 and 1970. After the Civil War, freer trade did not return. As import limits were implemented to cover products like beef and poultry meat, the application of quantitative import limitations actually gained more significance between 1971 and 1973. These actions gave domestic livestock farmers an implied protection, as will be covered in the next section.

The government made an effort to set up a system of parallel production and marketing at this time. The Federal Government created the NLMA in 1971 for a variety of purposes, including running wholesale meat markets, cattle farms, and abattoirs; producing animal feeds; dealing in livestock, hides, and skins; regulating and controlling the interstate operations of livestock and livestock product dealers; and conducting any business related to the livestock industry. Direct production investment was a key tool of policy throughout the majority of this time. In 1972, the NLMA's Mokwa cattle ranch began intensive feedlot fattening for beef, which was based on high molasses intakes, supplemental cottonseed feeding, and restricted pasture (Federal Ministry of Agriculture, 1981). The Federal Republic of Germany was the first to offer bilateral assistance. The Bacita Sugar Factory's introduction of sugarcane molasses was a noteworthy advancement. Local steers and bulls, primarily Sokoto Gudalis and Bunajis, were bought as yearlings under the program; their average weight was between 200 and 240 kg. The animals' average live weight over the three-month fattening phase was 300 kg. Cold stores owned by the government sold the dressed corpses.

Despite the initial success of the plan, only roughly 15,000 animals were fattened between 1972 and 1978 due to management issues at the ranch and the backward linkage with the sugar mill (National Livestock Production Company, 1980). Just like during the colonial period, it appears that little attention was paid to the other animal species, apart from cattle, during this period. 1975-1985

During the years 1975–85, policies implemented in the immediate post-independence era were mainly maintained. The basic economic objective remained income growth with some new emphasis on greater animal protein intake. The cattle trade policy was first loosened as a result of the oil boom's increased government revenue. 3. Once more, customs charges on the majority of animal products declined between 10 and 30 percent between 1974 and 1977 as a result of the removal of quantitative import limits and the reduction of tariff rates.

However, the trade liberalization policy was only in place for a brief time. Quantitative import limits were reinstated, and customs taxes were raised in response to the abrupt decline in the global oil market that occurred between 1978 and the middle of 1979. Import licenses applied to frozen or chilled meat, while import ban orders applied to fresh milk, eggs, and live fowl. As a result of these actions, domestic prices of It is now widely known that those in charge of trade restrictions, along with those who had access to import licenses and foreign exchange allocations, were able to profit from the rents implied by the price difference between domestic and international prices, even though the 1983 budget speech restated the "determination to make Nigeria self-sufficient in food production" and thus offered yet another defense for the trade restrictions. Thus, following Collier (1988), a reasonable inference is that rent-seeking was at least partly responsible for the restriction of imports of livestock products.

The government's currency rate policy had significant indirect effects on livestock product availability in addition to the direct consequences of trade policy. According to Oyejide (1986), the real exchange rate increased by 61% between 1973 and 1980, in part because of the oil boom's large capital inflows and in part because the government failed to devalue the naira to reflect Nigeria's comparatively high rate of inflation. Periodic import restrictions and exchange control laws maintained the inflated exchange rate. As previously mentioned, a number of animal products experienced price instability due to brief fluctuations in quantitative import limitations.

In the meantime, the technological and investment policies that had been implemented earlier were maintained. In order to finance and offer technical assistance for the growth of the Mokwa and Manchok fattening ranches, the Nigerian Livestock Production Company (NLPC) was founded in 1976. The NLPC was expanded and restructured to assume the responsibilities of the Nigerian Livestock and Meat Authority after it was dissolved in 1979.

As part of the government's intention to support the domestic dairy industry, a number of dairy processing facilities were also established. These included Minna Dairy Plant in Minna, Nigeria Dairy Company in Kaduna, and Madara Limited in Vom. Each was built with a daily capacity of more than 20,000 liters of fresh milk, some of which was to be obtained from nearby farmers and the remainder from related government dairy farms. However, inadequate prices offered by the plants made local milk collection

difficult, and the plants resorted to basing their production activities on reconstituting imported powdered milk (Federal Ministry of Agriculture, 1981; Waters-Bayer, 1988). Very few of these plants now operate above 10% of installed capacity as a result of poor management, poor maintenance of equipment, and increases in the cost of milk powder and import duties.

During this time, institutional policies pertaining to finance and land were established. The Land Tenure Decree of 1978 gave state governors ownership of all rural land that was not being actively used. Although this decree can be used to secure an official title to land (i.e., a certificate of occupancy), most pastoralists cannot afford the time-consuming and costly process. Furthermore, it has been argued that the decree has acted to prevent the acquisition of land for the creation of new grazing reserves because it advocated high levels of land compensation (Waters-Bayer and Taylor-Powell, 1986).

1978 also saw the introduction of the Agricultural Credit Guarantee Scheme (ACGS). Since its inception, the program has played a significant role in securing loans made to the LSS for agricultural purposes by commercial and merchant banks. However, the lending has been uneven and has tended to favor the modern poultry industry. According to loan guarantee figures, a total of N316.86 million in loans was guaranteed between the scheme's launch in 1978 and 1986. N149.04 million, or 85.7%, of the livestock loans went to poultry production, while N173.90 million, or 54.9%, went to livestock. Commercial banks were prepared to provide loans for poultry ventures not because they were inherently more lucrative, but rather because, additionally, the plan seemed to have mostly served the big commercial producer. For instance, in 1986, small and medium-sized borrowers with less than N50,000 made up 97.6% of all borrowers but only received 39.9% of all loans, while borrowers with more than N50,000 made up only 2.4% of all borrowers but received 60.1% of all guaranteed loans totaling N68.4 million. However, the ACGS's implementation has played a significant role in the growth of commercial bank loans for livestock production. Generally speaking, at this time, government initiatives to support private producers involved in contemporary commercial chicken farming were apparent.

POST - 1986

The Nigerian economy has undergone numerous sectoral reforms as a result of the Structural Adjustment Programme (SAP), which was started in September 1986. It has an impact on the LSS by reducing the state's involvement in production activities and emphasizing the use of the private sector as a tool for input supply and production. As a result, the NLPC and its subsidiaries were shut down. Prices of imported livestock goods, especially dairy products, increased significantly after the naira was severely devalued in September 1986, falling from almost parity with the US currency to 4.6 naira to the dollar.

Freer commerce has not generally resulted from the new scheme. The ad valorem duty on imported beef was 30% at the beginning of the program. To safeguard domestic farmers, fresh, chilled, or frozen meat imports have been prohibited since early 1988. Import taxes on live animals, with the exception of poultry, increased from 15% in 1984 to 20% in 1986. The animals are not directly impacted by these tariff rates, either, because the majority of live animals are hiked across the border from neighboring nations by their herders, who skirt official crossing posts. In 1986,

imports of live chickens were prohibited, with the exception of foundation and parent stock needed for research or breeding.

Increased interest rates since 1987 have also limited the number of livestock producers applying for loans from commercial banks.

In conclusion, Nigeria's history of livestock development shows a persistent search for a plan to increase output and productivity. The policies put in place to accomplish these objectives haven't always been consistent. In particular, trade and exchange rate policies seem to have been motivated more by macroeconomic considerations than by a desire to develop livestock. Additionally, the assistance provided to different livestock species and producer categories has been uneven. While tiny ruminants appear to have been neglected, large commercial producers seem to have gained at the expense of the majority of small-scale pastoralists. These issues raise doubts about whether government goals have been met.

Evaluation of Livestock Production Policy in Nigeria

Raising the low level of animal protein supply and enhancing and stabilizing rural income from livestock production and processing have been two of the main long-term objectives of livestock policy since independence. The necessity to achieve self-sufficiency in livestock production has received more policy attention recently due to worries about balance of payments issues (Federal Ministry of Agriculture, 1988). The final portion discussed the policies that have been put in place to accomplish these goals. The impact of these policies is examined here in order to assess their effectiveness in assisting the government in achieving its goals.

Impact of policies on livestock output and protein consumption

Table 3 displays the animal productivity index during 1971–86. The total production divided by the number of animals in the herd of that species is the definition of animal productivity. It is difficult to determine the actual level of productivity growth because the index is based on incredibly weak data sets. However, throughout this time, output increased significantly only for poultry. While the productivity of beef increased by 11%, or at most 0.7% of the annual compound rate, the productivity of mutton decreased. Changes in total production are broken down into changes in productivity and changes in the total number of animals, with productivity staying constant in the table's lower section. The table indicates that for mutton and pork, more than 80% of the growth in output came from increases in the number of animals, while less than 20% arose from increased production per animal.

A closer look at the 16-year span shown in Table 3 shows that productivity for sheep and cattle was marginally greater in 1979–86 than in 1971–78. In every other instance, the productivity per animal was lower in 1979–86 than it was in 1971–78. In the case of poultry, the production decline was quite noticeable. Compared to other animal species, poultry appeared to be more affected by the import restrictions that were in place at the time (such as the prohibition on the importation of maize feed and day-old chicks). With the exception of the decreased productivity of poultry between 1979 and 1986, the above-mentioned picture of the breakdown of changes in total production into changes in numbers and productivity mostly stays the same during the two

sub-periods. This implies that most of the growth in poultry productivity occurred in the first half of the 16-year period covered here.

Unsurprisingly, there has been no discernible shift in the intake of animal protein as a result of the slight increase in livestock output. The percentage of animal protein in total protein intake has stayed relatively constant over the course of the 25-year period, based on food balance sheets computed for the 1961–85 period (Table 4). The intake of animal protein increased very little, even during the height of the oil boom, which was from 1975 to 1981. Given the standard daily requirement of 75 g of protein (Wagner, 1986), of which around 35 g should come from animal sources (David-West, 1978), it is clear that intake levels of both aggregate and animal protein have been far below the standard.

Direct price intervention has not been a key policy tool in the LSS 4, in contrast to the pre-1986 scenario in the agricultural subsector when commodity marketing boards used to establish producer prices for export crops and guarantee minimum prices for food crops. However, because they have an effect on the entire domestic cost structure, the government's restrictive trade and currency rate policies have indirectly impacted livestock prices. It will be argued that the combination of import limitations, the oil boom, and the currency's overvaluation has set off mechanisms that have resulted in two significant effects on LSS prices and incentives.

First, it seemed that restrictive trade policies that were intended to stabilize the overpriced exchange rate and solve the balance of payments issue had caused domestic prices to rise above their global equivalents. Nominal protection coefficients (NPCs) for beef, mutton, and poultry meat increased between 1973 and 1984, as Figure 1 illustrates. The official exchange rate has been used to estimate the NPCs. Figure I shows that all three goods were protected from external competition for most of the period under discussion, even if domestic beef and mutton prices were lower than their global equivalents during 1973 and 1974. Due in part to stricter regulations on the poultry trade and in part to the decline in global poultry prices during this time, the protection level for poultry was higher than that for beef and mutton. That when the exchange rate is changed to reflect the overvaluation of the naira, the growing trend in NPC for beef is slowed. Similar patterns were found with poultry and mutton meat, albeit they are not displayed. However, by maintaining domestic prices higher than global equivalents, the government protected livestock producers through its trade restrictions. During this time, home output was undoubtedly stimulated in part by the protection given to poultry. Moreover, since the policy affected livestock producers differently, it had some effect on income distribution within the LSS.

The other significant impact on livestock incentives and pricing resulted from the influx of foreign cash linked to the oil boom. A typical instance of the "Dutch disease" was brought on by the abrupt rise in capital inflows associated with oil (Corden, 1984). In addition to increasing the supply of tradeables, the foreign capital inflow raised earnings, which in turn raised demand for all commodities and services. By raising the price of non-tradeables in comparison to tradeables, the resulting excess demand for them was reduced, leading to reallocations of production and spending. The data in Table 5, which indicates that between 1975 and 1985, the price of animal products (tradeable) decreased by roughly 50% in comparison to the price of millet (a non-tradeable grain that is frequently traded for animal products in northern Nigeria), partially confirms that this process did, in fact, take place during the oil

boom. The relative price reduction has been delayed by the devaluation of the naira after the SAP was introduced in September 1986. The World Bank (1985), the Federal Livestock Department, the Nigerian Livestock Information Service (various issues), and others all agree that one effect of the oil boom was a noticeable shift in relative prices in favor of non-tradeable goods and services and against producers of traceable goods.

In conclusion, different levels of protection are offered for domestic production as a result of government measures that have raised the domestic prices of the majority of animal products above their comparable global values. Nonetheless, it seems that until 1985, home prices for the majority of cattle products were both high by global standards and low enough to draw in domestic resources to boost output. The improved profitability of investments in the construction and service sectors during the same period was in stark contrast to this picture, which mostly represented the state of agricultural tradeable products overall (Collier, 1988).

Lessons and Policy Directions for the Future

What insights may be gained from the previous examination and analysis of Nigeria's livestock development goals and regulations? First, Nigeria's livestock output has not increased much as a result of direct government production programs. Such programs have produced only modest increases in production. Even worse, these programs have tended to impede the growth of the traditional sector by taking resources away from pastoralists and agropastoralists.

Second, trade policy essentially replaced an explicit price policy for the LSS for most of the period under study. However, trade policy did not offer suitable incentives for the production of livestock in the country. The majority of animal goods were protected by trade restrictions brought about by legislative measures made in response to macroeconomic concerns. The protection that resulted lacked stability and consistency, two crucial components of a suitable production incentive system, because it developed as a byproduct of other issues.

What should be the future course of government policy in light of these lessons? Numerous adjustments have been made since the SAP's founding in order to correct some of the errors from the past. In addition to the adjustments that have already been made, there are two particular challenges that merit discussion and should support the expansion of cattle production.

The first step is to evaluate the government's investment policy in the LSS. In the past, government funding for production programs was frequently granted with little to no regard for the programs' prior performance history. It is necessary to change this policy to one that encourages research on new technologies and fortifies extension services to share the findings of this research. Simultaneously, supplementary incentive programs should be implemented to encourage private capital investment in the LSS and ease the adoption of new technology.

Second, the full ramifications of government policies for the various economic sectors must be publicly acknowledged and taken into account while they are being designed. Because the majority of livestock products may be traded, regulations pertaining to livestock, commerce, and currency rates are inextricably connected. As a result, policy decisions need to be better coordinated. However, a strong database is necessary for coordination and well-informed policymaking. One notable aspect

of policymaking in the past has been the absence of empirical data when making important decisions on the creation of new projects, support for various livestock species, import levels, and other matters. It should come as no surprise that such policymaking has frequently resulted in errors. Therefore, it is necessary to improve the collection, processing, and reporting of production statistics.

Last but not least, the drastic devaluation of the naira and the economic changes of the past two years have increased domestic pricing and established a situation that will incentivize manufacturers who can reduce their reliance on imported inputs for manufacturing. This has obvious ramifications for chicken farmers that rely on imported feeds, medications, and stocks. However, there is currently a chance to enhance the output of beef, mutton, and goat meat due to the low value of such inputs used in the production of ruminant livestock in Nigeria. The country will only benefit from this potential, though, if a steady combination of policies is implemented to promote better animal husbandry and nutrition as well as the effective distribution of agricultural inputs and veterinary supplies. These issues should form part of an overall package of measures to promote structural changes within the LSS.

Public policy and administration of livestock in Nigeria are managed by the Federal Ministry of Livestock Development (FMLD) and the National Livestock Transformation Plan (NLTP). The FMLD aims to transform the livestock sector into a sustainable and competitive industry by addressing key challenges like infrastructure and farmer-herder conflicts. The NLTP framework focuses on modernizing the livestock sector to enhance productivity, sustainability, and economic growth.

- Federal Ministry of Livestock Development (FMLD):

Established to oversee the livestock sector's development, focusing on productivity, food security, and economic growth.

- National Livestock Transformation Plan (NLTP):

Aims to modernize and transform the livestock sector through intensive production systems, promoting sustainability and reducing conflict.

- Key Objectives:

The policy aims to achieve self-sufficiency in livestock production, improve nutrition, provide raw materials for the industry, and ensure efficient by-product utilization.

- Specific Initiatives:

- **Ranching Models:** The NLTP includes the development of ranching models, moving away from traditional, public-oriented approaches to business-oriented models with support for technical, socio-economic, and security services.
- **Livestock Productivity and Resilience Support Project (L-PRES):** This project aims to improve livestock productivity, resilience, and commercialization of selected value chains, while also strengthening the country's crisis response capacity.
- **Agroforestry and Silvopastoral Systems:** These systems integrate trees, forage crops, and livestock to improve soil fertility, carbon sequestration, and diversify farmers' income.

- **Challenges:**
 - **Inadequate Infrastructure:** Poor infrastructure, including access to veterinary services, feed, and processing facilities, hinders productivity.
 - **Farmer-Herder Conflicts:** Conflicts between farmers and herders over land and resources require policy interventions.
 - **Low Productivity:** The livestock sector contributes a small percentage to Nigeria's agricultural GDP, indicating underdevelopment.
 - **Disease Outbreaks:** Animal diseases pose a significant threat to livestock production and require effective disease control measures.
- **Policy Implementation:**
 - **The NLTP Implementation Plan:** This plan outlines a 5-year investment strategy for sector transformation, including demonstration ranches for improved pasture and professionalization of herders.
 - **National Animal Identification and Traceability System (NAITS):** NAITS is being developed to enhance the livestock sector's sustainability through improved tracking and management.
 - **Public Awareness Campaigns:** The FMLD utilizes press and public relations to disseminate information about policies and programs related to the livestock sector.

Livestock Production and Administration in Nigeria

Objectives The general policy objectives of the livestock subsector is to put all available livestock resource into best use. This will be achieved through increased production either by expanding the resources base by increasing the productivity of the existing resources through systematic improvement of the national production system or both. Specific objectives of the subsector are:

- To make Nigeria self-sufficient in the production of livestock products.
- Improve the nutritional status of Nigerians through the domestic provision of high quality, protein-rich livestock products.
- To provide locally all necessary raw material inputs for the livestock industry.
- To allow for a meaningful and efficient use of livestock by-products
- To improve and stabilize rural income emanating from livestock production and processing;
- To effectively protect the rural livestock farmer from the unpredictable vagaries and risks incidental to livestock production.

breeds will be adopted by the government. In respect of the dairy breeds, the thrust of policy will be to upgrade local breeds through the use of exotic breeds (mainly the Jersey and Holstein Friesians) to a level not exercising 50 percent to maintain hybrid vigor for sheep and goats, the breeds. Although the poultry and pig industries are based on existing exotic breeds, efforts will be made to develop a Nigerian foundation stock of poultry and pigs.

- To provide rural employment opportunities through expanded livestock production and processing; and
- To effect proper land use and maintenance of the ecosystem for expanded livestock production.

Targets The government aims at attaining self-sufficiency in livestock production in the shortest possible time. Since, however, resource endowment and availability may not allow for the simultaneous achievement of such self-sufficiency in all classes of livestock at the same time, the government plans to attain the equalization of demand for and supply of poultry meat in five years' time, poultry eggs in four, sheep and goats in five, and dairy (milk) in four years. With respect to other classes of livestock and livestock products, the government will allow more time for their self-sufficiency levels to be reached. Meanwhile, all efforts will be put into ensuring an adequate domestic supply of these to supplement the supply of the first category of livestock.

Strategies

Ecological Specialization In recognition of the natural ecological zoning of the country, which supports the raising of different kinds of livestock in different parts of the country, the government will continue to encourage the production of various classes of livestock in those regions of the country with proven comparative geographical and production advantages. Government will, however, not discourage the production of any class of livestock by any entrepreneur anywhere in the country in a bid to attain self-sufficiency within the targeted period. Consequently, the government will provide necessary support facilities that will ensure effective livestock production by small, medium, and large-scale producers.

Sedentarization The government will emphasize the allocation of land to nomadic pastoralists who, over the years, have become landless people. This will require government adjudication of land. The government will, therefore, pursue a legal acquisition of grazing lands for lease allocation to grazers. It will also zone available agricultural lands to provide a quota for livestock producers. In this respect, the Federal Government will ensure that land for the use and settlement of livestock owners is provided by each state government; in all, a minimum of 10 percent of the country's land area will be legally acquired and constituted into grazing reserves for lease allocation to grazers.

Livestock Feeds The government will ensure that livestock farmers are encouraged to practice various forms of fodder conservation techniques. It will, in addition, provide adequate storage facilities for grains and strategic supplementary feed reserves as part of efforts to alleviate the effects of incessant drought. Finally, the government will ensure the proper utilization of all agroindustrial by-products and crop residues that are found to be suitable for livestock feeding.

Livestock Breeding A breeding policy that will provide for the selection and multiplication of the various indigenous beef

The relationship between the agricultural credit environment and livestock growth

The Autoregressive Distributed Lag (ARDL) model was estimated to determine the relationship between livestock growth and variables representing the agricultural credit environment or agricultural credit policy. The ARDL-bound test developed by Pesaran and Shin (1999) and Pesaran et al. (2001) was used to

confirm the presence of cointegration among series. After confirming cointegration, the short- and long-run models of livestock growth were estimated. The ARDL-bound model has some advantages compared to the two-stage method of Engle and Granger (1987) and the cointegration method developed by Johansen and Juselius (1990). The ARDL-bound test method is used to handle series with mixed stationary problems (i.e., a mixture of $I(0)$ and $I(1)$). Therefore, the assumption that all series must be integrated in the same order is relaxed. However, ARDL can also be applied to series that are stationary at the level or the first difference. The next advantage is that the ARDL test is relatively more efficient for small and finite sample data sizes. The method provided unbiased and sufficient estimates of the long-run model (Harris & Sollis, 2003). The bounds test is a simple technique because, unlike other multivariate co-integration methods, it allows the co-integration relationship to be estimated by OLS once the lag order of the model is identified.

Research Methodology

This study involved a literature review. Articles related to this study were retrieved from reputable databases, such as Scopus, Elsevier, ProQuest, ResearchGate, and Google Scholar. The documents were accumulated from search engines using relevant search terms, including "agriculture in Nigeria" OR "agricultural policy," "regional agricultural policy" OR "national policies on agriculture" OR "agricultural development in Nigeria" OR "national development plan," etc. The abstract of the retrieved documents was extensively reviewed for categorization into a range of themes and associations. At this stage, duplicate documents were discarded, thus leaving only the relevant original documents for further review. Articles written in languages other than English and published after 1960 and beyond 2020 were excluded. Articles reviewed in this study were selected as indicated in their title or abstract pertaining to agricultural policy. Besides, full-text review and assessment of documents that report agricultural policy as well. The objective of this review is to examine the role of agricultural policies in economic development and integration in Nigeria. This review focused only on post-independence agricultural policies as they were formulated by Nigerians and reflect the interests of Nigeria. The paper will serve as a policy guide to stakeholders for decision-making in the agricultural sector. The paper provides critical insights into the merits and demerits of various agricultural policies in the post-independence history of Nigeria and the implications for agricultural and economic development.

Study area

Nigeria is rich in agricultural resources, and over 60 percent of the population is involved in the production of staple foods such as cassava, maize, rice, yams, various beans and pulses, sorghum, ginger, onions, tomatoes, melons, and vegetables, etc. (FAO, 2023; Federal Ministry of Agriculture and Food Security [FMAFS], 2023). In Nigeria animal production such as poultry, goats, sheep, pigs, and cattle flourished in all regions of the country (FMAFS, 2023). The most important cash crops are cocoa, cotton, peanuts, palm oil, and rubber (Federal Ministry of Environment, 2021).

Data source

The study used secondary data from the World Bank, Central Bank of Nigeria and Food and Agriculture Organization

(FAO). The data covered the period from 1991 to 2021. The timespan chosen was based on data availability.

Model specification / analytical technique

The contribution of the agricultural credit policy environment to the growth of the livestock subsector (proxy by livestock production index) in Nigeria has been implicitly stated in a Cobb-Douglas form as shown in Equation. The specification of the model followed the production theory. Acquired credit is assumed to be used for acquired factors of production such as labor, capital, and land etc. According to Omolade and Adepoju (2019), agricultural credit is directly related to agricultural production factors. Implicitly, agricultural production is a function of agricultural credit. The estimated coefficients of the given model represent the elasticity. However, we consider different categories of credit that are directly or indirectly available to the agricultural sector. In the model, each credit variable was transformed by weighting to reduce the tendency for multicollinearity.

Conclusion and Recommendation

The main objective of this research was to establish an empirical relationship between some agricultural credit policy variables and the growth of the livestock sub-sector in Nigeria. Time series data were sourced from the World Bank (WB), Food and Agriculture Organization (FAO), and Central Bank of Nigeria (CBN).

Reviewing and categorizing peer-reviewed English literature provides a rigorous and standardized method of characterizing what we know about Nigerian agricultural policies. The study used review-based methodology to guide analysis, involving an extensive assessment of current knowledge based on expert input and review. The merits of systematic literature review are widely acknowledged, but the process's transparency has been called into question: what literature is reviewed? What keywords and databases were used to find relevant literature? However, herein the study developed. The study here develops such an approach to tracking agricultural policies in Nigeria, recognizing that the approach holds great promise for other areas of agriculture, health sciences, and climate change research. The findings of this study offer an insight into the pros and cons of agricultural policies and the constraints associated with identified policies in Nigeria right from independence.

ADF and ADF-GLS were used to check the stationarity or unit root of the series. The estimated results of ADF and ADF-GLS showed that the lending interest rate was stationary at level $I(0)$, while other variables were stationary at the first difference $I(1)$. The autoregressive distributed lag (ARDL)-bound co-integration test was used to analyze the data. After confirming cointegration of the specified variables, the long- and short-run models of the livestock gross production index equations were estimated with the error term having the appropriate sign and being statistically significant at the conventional probability level. The results showed that the commercial bank total credit to the agricultural sector had a positive and significant impact on livestock production in both the long and short runs. On the other hand, the agricultural credit guarantee scheme loan allocated to the livestock subsector had a negative correlation with the livestock production index in both the short and long run. The lending interest rate had a negative short-run relationship with the livestock production index. The total domestic credit to the private sector showed a positive relationship with the gross livestock production index in the long

run and a negative relationship in the short run. The results suggest that credit policy variables have a significant impact on the output of the livestock subsector in Nigeria.

Based on these empirical facts and the need to boost livestock production in Nigeria, it is recommended that the overall credit to the agricultural sector from the commercial banks be increased to provide an incentive to increase livestock production. Additionally, domestic lending to the private sector should be strengthened or increased to boost livestock production. In addition, the current lending interest rate in the country should be reduced to improve access to credit for livestock farms. The Agricultural Credit Guarantee Scheme loan for the livestock sub-sector should be reassessed and monitored to achieve the desired objective.

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