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VALUE CHAIN APPRAISAL OF PIGS' MARKET FLOW, GOVERNANCE, AND SANITARY RISKS IN SOUTH EAST, NIGERIA

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ABSTRACT

A thematic study was carried out to establish the flow of pigs and pork in the region and to understand governance and sanitary risks in the value chain. Cross-sectional qualitative data were collected through focus group discussions and key informant interviews with participants. Data were collected on the source and destination of live and slaughtered pigs, value-addition infrastructure, governance, and sanitary risks. A total of 110 participants were involved in the study. The result showed that the sector was not regulated and veterinary/professional/animal health care services were not well patronized. The sale of life pigs was scarcely done with a weighing scale. It was observed that the destination of life pigs was from the region to Akwa Ibom, Rivers, Bayelsa states, and neighbouring countries such as the Cameroons and Equatorial Guinea. Most farmers relied on self-medication for their pigs and the use of herbs was widely practiced. Inspection of animals by certified personnel was not practiced, so, there were biosecurity concerns in most pig farms in the region. There were no formal markets in the pig value chain, although the prospect for the enterprise was high. Women participation in the value chain was 30%, and the market for pigs in the region was not regulated and there existed no grading system. Most times, the brokers set the price. Slaughtering animals close to the farm, head carrying of slaughtered animals, and use of motorbikes were sanitary risk issues in the value chain. Since there was no national policy on pig production, it was recommended that state governments within the region formulate policies to regulate the pig enterprise and provide an enabling environment to attract investors in the value chain. Such policies should include the provision of infrastructures and linkage with foreign investors for the benefit of actors within the value chain.

Keywords: Pigs, Value chain, Governance, Sanitary risks

INTRODUCTION

As reported by Robinson and Pozz (2011), the total demand for animal products in developing countries is expected to double by 2030 and pigs and poultry are expected to dominate meat supply compared to ruminants. To feed the rapidly expanding human population, balanced meals that are both plant and animal-based will continue to be in great demand due to their contribution to food security and nutrition. Population growth, urbanization, income growth, and changes in diets of people are predicted to fuel massive demand for food of animal origin (Maduka, *et al*, 2020).

Pigs have high feed conversion efficiency, early maturity, high fecundity, short gestation period, and very good utilizers of household waste. Their unique adaptive characteristics to survive in whatever areas they are found give them an advantage over other animals (Ajala, *et al.,* 2007). As opined by Rahman, *et al.* (2008), pigs are major important non-ruminant animals reared in the derived savannah and rainforest areas of Nigeria. And, as reported by FAO (2014) Pig and poultry production are the fastest-growing livestock sectors in the world. Pigs have the ability to convert a wide range of food materials into edible human food, producing meat that differs from the flesh of other farm animals in texture, taste, flavor, and certain nutritive properties (Akinyosoye, 2009).

Efforts are being made by developing countries to increase livestock production to meet demand through national policies on agriculture, such as the Livestock development policy of the Federal Republic of Nigeria, under the Ministry of Agriculture and Food Security (Kalu, *et al* 2024). However, as observed in the national agricultural performance reports of the National Agricultural Extension Research Liaison Services, the pig enterprise is not covered in the national Livestock programme in Nigeria, whereas reports from independent researchers show that the pig enterprise is contributing significantly to the nation's Gross Domestic Product (GDP) (Adetunji and Adeyemo, 2012; Osondu *et al* 2014 and Kalu *et al.* 2021, Kalu *et al.* 2024).

In most parts of Nigeria, especially in the southeastern region pork vendors are seen along the streets with queues of buyers, indicating the rising demand for the meat in the region, which suggests that this production system is characterized by a high degree of informality at all nodes, combined with the rapid growth trajectory in the sector (Kalu, *et al*, 2024).

Some studies have been carried out in the study area to ascertain the level of production and determinants of pig production in the study area (Igwe, 2013, Ochiaka, et al., 2023). However, limited research efforts have been made to ascertain the flow of pigs, governance structure, and sanitary risks in the pig production system.

The objectives of the study were to; describe the flow of pigs and pork and the interactions between actors in the value chain; and characterize the governance and risk factors in the pig value chain, of South East, Nigeria.

METHODOLOGY

A cross-sectional study of the South East Pig farms, markets, processors, and meat markets was conducted. The region comprises five States – Abia, Anambra, Ebonyi, Enugu, and Imo with a land mass of 36,100 km2 and it's the Indigenous cultural homeland of the Igbo people. Three, out of the five States of the region , Abia, Enugu and Imo were purposively selected for this study for ease of access and presence of clusters of pig farmers. Initial interviews and conversations with ADP (Agricultural Development Programme) Staff and some key farmers allowed us to identify areas of high concentration of pig farms and key actors. From this initial point, we adopted the snowball method to reach further stakeholders in the value chain. Snowball sampling is a technique in which identified study participants recruit future study subjects from among their peers. A total of 110 participants were involved in the study including pig farmers, ADP Staff, Veterinarians, Feed/Input

dealers, Butchers, and Transporters. Despite the method being non-probabilistic, it is however, recommended when there is no prior knowledge about the study subjects (Raina, 2015; Valerio *et al*., 2016).

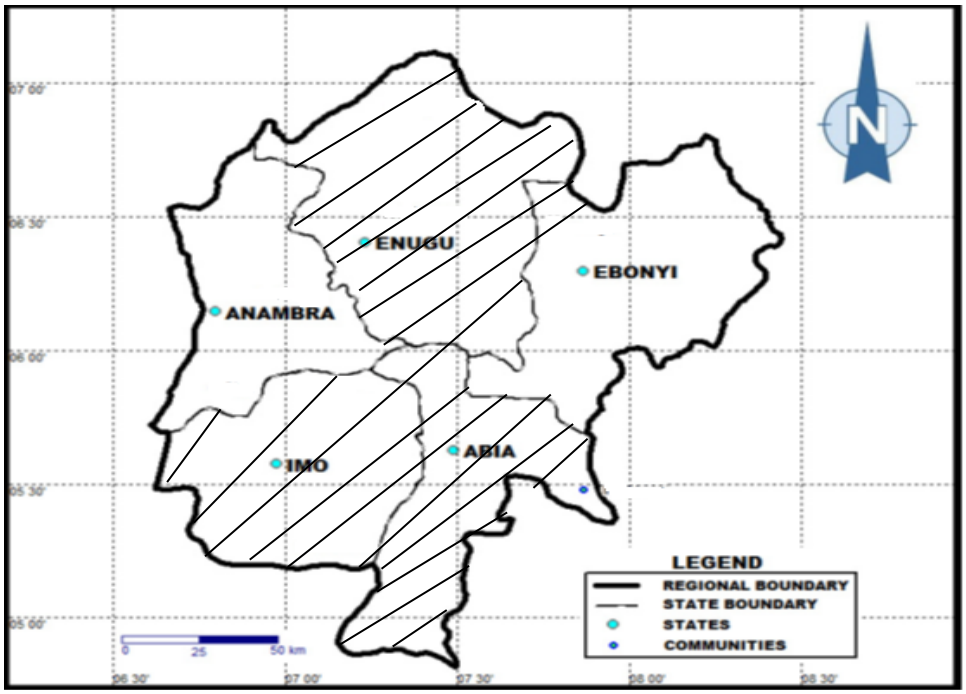


Fig. 1: Map of South-East, Nigeria showing the study area

The study focused on mapping the flow of pig marketing, sanitary risks, and governance issues, two of the four components making up the value chain analysis as defined by Kaplinsky and Morris (2001). Mapping helped to establish the flow of pigs and pig products as well as associated processes. We studied governance to examine the relative influence of different people and groups and the formal and informal rules governing the value chains. as well as government involvement in the enterprise. Sanitary risk looked at risk factors at the farm level.

Results and Discussion

Pig production systems in South East Nigeria, as earlier reported has not been properly documented, especially the value chain and overall pig production structure which this study sought to address, given the rising need for animal protein to meet the needs of the teeming population of the region.

Overall structure of the Pig Value Chain in South East, Nigeria

Source of Pigs

There are no designated markets for live pigs in South East Nigeria (Figure 2). However, the live pigs' market was dominated by butchers who buy from the farm, slaughter and sell the carcass to consumers, and brokers who buy and re-sell to slaughterhouses in neighbouring states where there are expatriates who consume them. There is hardly any company that processes pig into pork, for sale.

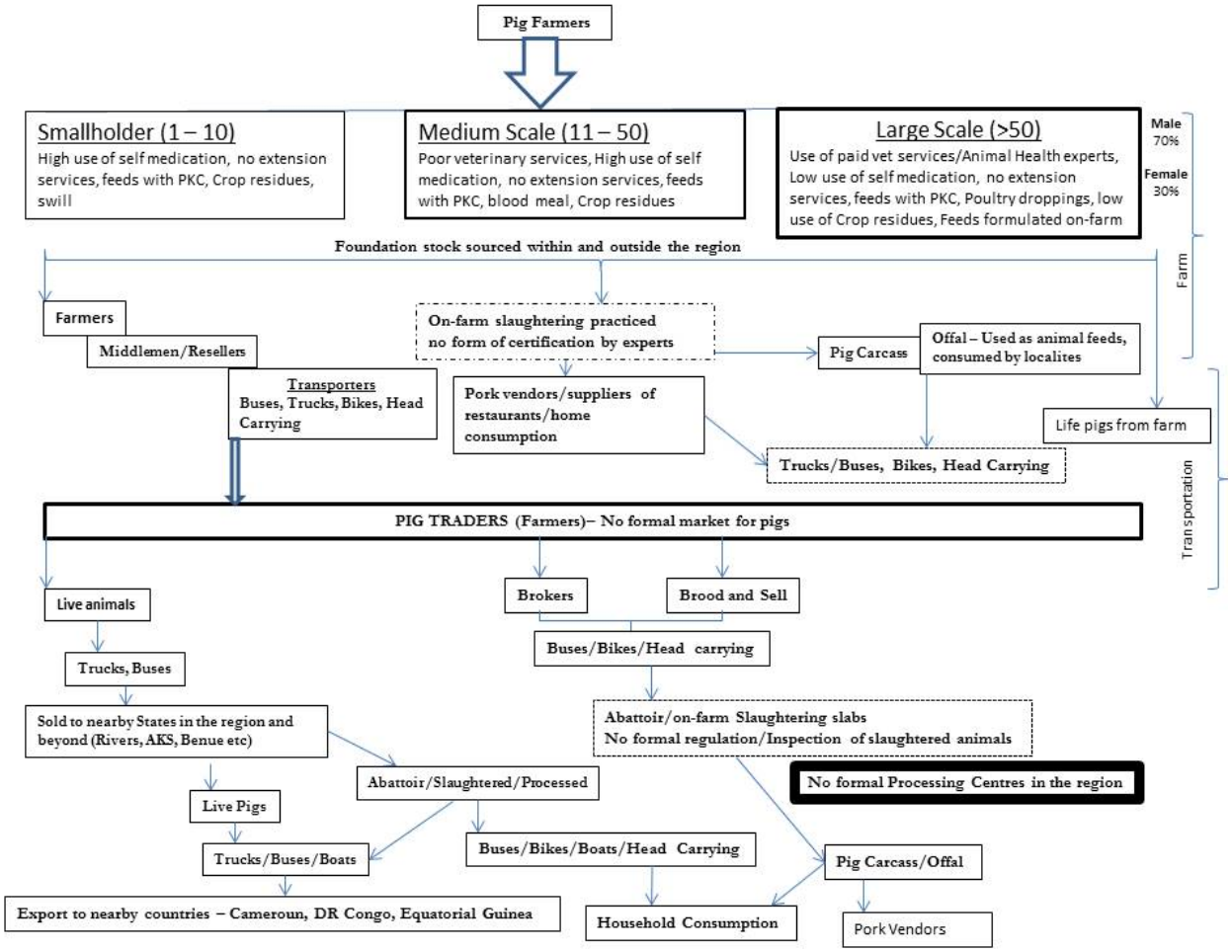


Figure 2 shows the overall structure of the Pig Value Chain in South East, Nigeria. ***Broken boxes show where there are sanitary risks while bold boxes show areas for urgent improvement in the sector.***

Sales and Transport of Pigs

The value of a pig is mostly determined by its size and rarely weighed. Weighing of live pigs is an innovation only practiced by some medium and large farm operators.

The majority of pigs going for slaughter and carcasses were reportedly transported with motorbikes or buses. Head carrying of live pigs was also reported for on-farm slaughter slabs. which as observed by Shyaka et al (2021) are both food and disease risk factors. However, traders buying many pigs for sale in neighbouring states use trucks/buses to transport pigs. From neighbouring states of Akwa Ibom and Cross River. Live pigs are taken across the border for sale in neighbouring Cameroon and Equatorial Guinea. The number of live pigs produced, sold/exported each year were not known as there was no regulated market for pigs, both at regional and national levels.

Slaughter Houses/Slabs

Majority of pork consumed in the region was slaughtered informally, not at slaughter slabs. Pork vendors also operate backyard slaughter slabs in addition to on-farm slaughter in most farms. This is a key concern as there were no inspections of the quality of live pigs slaughtered for consumption by health officials responsible for that. It was reported that the concern of the quality of the animal does not arise where the farmer operates in confinement and takes care of the animals. Lack of national policy for pigs and the non-challant attitudes of relevant authorities which also is evident in the way and manner slaughter houses for other livestock such as cow is managed could be responsible.

A major gap in the pig value chain in the region was the absence of formal markets for live pigs and slaughter slabs.

Governance Issues

Dominance, Market Information, Technical Knowledge

The study revealed that medium-scale farmers and brokers dominate in the pig value chain. The absence of formal markets for pigs saddles the responsibility of palpating the animals to ascertain their suitability for slaughter on both the farmer and the broker. The non-existence of approved slaughter slabs and formal processing centers, makes the roadside butcher a major source of pork meat consumed by households within the region, except for those sold to brokers from neighbouring states.

Although there were veterinary drug stores in most towns across the region, the involvement of veterinarians in handling health concerns of farmers and certifying live pigs was very poor due to the high cost of utilizing their services. Most farmers resorted to self-medication and the use of animal health workers when overwhelmed.

Rules and Incentives

It was reported that starting a pig farm did not require any formal permission. However, farms must be situated away from residential areas and confined. Pigs in the region were mainly kept in confinements and scarcely would they be seen roaming.

When transporting live pigs from one state to another, some unregulated taxes were paid. There was no regulation on the activities of butchers and how live pigs were slaughtered in the region. The agencies of government that should regulate such activities were not alive to their duties. So pigs were slaughtered at will by farmers/butchers without appropriate inspection of both the animal and where they were slaughtered against international best practices. As of 2015, the Registrar of the Veterinary Council of Nigeria reported that Nigeria only had three standard abattoirs and there existed no National Meat Law, governing the activities of abattoirs/slaughterhouses except for States like Lagos, Anambra and Ogun (Daily Post, 2015).

Sanitary Risk Concerns

Farm Level Operations

Most farms of all types are frequently visited, by buyers and others with no proper attention to disinfection measures. This could be a source of the spread of diseases. In some cases, especially among the small-scale operators, animals brought in from other farms were not usually quarantined, and no adequate risk measures were taken. As reported by Asambe, *et al* (2019), most pig farmers were aware of recommended sanitary measures, but that has not translated to actual practice. Management of effluents from some of the farms was not properly handled, such as burning of the feces. Head carrying of carcasses and the use of motorbikes were common which as observed by Shyaka *et al* (2021) were both food and disease risk factors.

Most farmers, especially at the small and medium scale levels manipulated the treatment of the animals, which was also a risk factor. Some farmers buy drugs from veterinary stores and roadside operators for the treatment of the animals. There was usually no proper examination of the animals at this level, before drug administration. The use of some plants, such as *centrosema pubescens* (butterfly pea) as antibiotics among others practices was common and this corroborates the findings of Ani et al., (2024) that roots, leaves, juices, and stems were mostly utilized by livestock farmers in treating diseases.

Conclusion and Recommendations

The study concluded that most life pigs were processed into pork and the live pigs sold to neighbouring regions and countries. There were no formal pig markets and the sector had not received adequate government support, due to religious and cultural barriers. There was the need for more research efforts and investment to offer cheap and available feed resources for pig production as feed cost was a major concern for farmers. Some potential consumers were also concerned about the safety of the meat they consume, hence, the need for improvement in sanitary inspections at the farms, and veterinary services. State governments in the region should drive policies for the improvement of the sector.

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