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Full Length Research Paper

The Socioeconomic Characteristics of Pig Farmers in the Tropics as a Determinant of Pig Production and Profitability

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In Nigeria's Imo State, the socioeconomic traits of pig farmers were examined as factors influencing their output and financial success. Determining the socioeconomic characteristics of pig farmers, identifying the pig production systems in the study area, estimating the costs and returns associated with pig production, analyzing the constraints to pig production in the study area, and describing the socioeconomic characteristics of pig farmers will be the specific objectives. For a detailed investigation, 90 pig farmers will be selected using a multi-stage random sample process. Structured questionnaires and secondary sources from conferences, seminars, journals, published and unpublished theses, and workshops provided the data for this study. The frequency distribution table and percentage response were used to record the first, second, and third objectives. Gross margin analysis and the Cobb Douglas production function, respectively, were used to address objectives iii and iv. The socioeconomic characteristics of the sampled farmers were as follows: they were male, older, educated, had a large household, were more likely to use family labor, were experienced, and the majority of pig farmers used intensive rearing techniques, while the least number used extensive methods. Additionally, the majority of farmers were involved in Farrow to finish enterprises, with animal breeding being the least common. The Cobb Douglas production function revealed that piglet type, raising experience, organization membership, and pharmaceutical costs were positively correlated with the profitability of pig farming. Because their return scale was 3.0141, which is higher than unitary, the pig farmers in the study area were working in stage 1 (irrational stage), which is not at their optimal production size. With net farm income of N334,542 and gross revenue of N740,000 per sampled farmer, pig production was profitable in the research area. High feed and housing costs, issues with product marketing, high labor costs, and limited financing availability were the main obstacles to pig production in the research area. Among the suggestions made were the necessity of improving farmers' access to commercial bank credit, encouraging extension agents by covering their local transportation costs while doing their tasks, and guaranteeing that farmers have access to legitimate medications.

Key words: Socioeconomic characteristics, Pig, Farmers, Profitability, Determinant, Pig production.

INTRODUCTION

A large percentage of the rural population in many sub-Saharan African countries suffers from hunger and malnutrition due to a lack of animal protein, a situation that has been extensively documented in various publications (Ajala et al., 2007; Food Agriculture Organization, FAO, 2008, Ume et al., 2019). For example, in many Nigerian rural areas, the daily consumption of animal protein was 38 grams per caput, which is less than the Food Agriculture Organization's (FAO) minimum recommendation of 65 grams per caput per day. The aforementioned situation has a significant impact on their health, and the most frequently mentioned health issues in the research include poor mental capacity, low labor productivity, and slow national economic growth (FAO, 2008, Ewuziem, et al., 2010).

One of the quickest ways to combat the lack of animal protein in the diets of the majority of people in rural parts of

developing nations is to increase the consumption of pigs. This may be due to the pig's inherent traits, such as its ability to adapt to situations in which other animals are unable to survive, its ability to efficiently use household waste and byproducts to produce fresh meat, its large litter size per sow, its superior carcass yielding ability over cattle, sheep, and goats, its high dressing percentage of roughly 70% as opposed to 52.5% for cattle and roughly 50% for sheep and goats, and its effective conversion of feed energy to body energy (Okolo, 2011, Osondu, et al., 2014). According to Steinbach (1997) and Bamiro et al. (2008), pig carcasses also have a larger proportion of edible meat and less bones, as well as high fecundity, high feed conversion efficiency, early maturity, short generation intervals, and a relatively small space demand.Its meat (bacon), however, is the main source of income and foreign exchange earnings; pigskin and bristles are used to make light leather and brushes (John, 2007); pig manure is a valuable fertilizer; it can be aerobically digested to produce cooking gas; it may promote the growth of microorganisms and plants for aquatic animals to eat (Osondu et al., 2013); and it can be used as a source of labor and employment (Umeh et al., 2015). Pig and poultry businesses are growing at the quickest rates in the livestock industry, while other emerging nations are seeing stagnant or declining growth (FAO, 2008).Pig production is declining, which could have a negative impact on the enterprise's profitability. This decline could be caused by a number of factors, including poor quality feeds from unbalanced rations, poor access to veterinary services, farmers' illiteracy, limited credit available for purchasing material inputs, poor housing due to the high cost of building materials, and occasionally pigs kept in makeshift shelters (Pond and Manr, 1998; Ume, et al, 2018). Moreover, the country's absence of a pig product processing business, high feed costs, inadequate infrastructure, a lack of genetically sound breeders, and the concern of a small market for pig products are all factors (Ewusiem et al., 2008, Getara, 2009, Ume et al., 2017). The aforementioned issues have the potential to lower the production output of pig farmers, which would lower their profit margins. According to Ironkwe and Amefule (2008), successive governments at the state and federal levels have implemented various programs to boost animal production, including the farm settlement scheme, the Agricultural Development Programme (ADP), the Better Life Program, and a microcredit scheme for livestock parent/foundation stock. However, these initiatives have not produced much. In actuality, many farmers have abandoned their operations, making the nation's population's protein intake deficiency much more complicated. However, research indicates that suitable disease control methods, such as appropriate medicine, adequate feed and feeding (drugs), good breeding selection, and acceptable housing practices, can achieve optimal pig development and profitability (Agada, 1991, Ajala, et al., 2007). Therefore, the purpose of this work is to evaluate the socioeconomic traits of pig farmers as a factor that influences pig profitability in the research region. This could be useful because, with a thorough understanding of the socioeconomic characteristics of farmers and other swine production attendants, the management options they use or have access to, and the likely effects on production, it could help stakeholders and policy makers focus on the areas that require immediate intervention to improve the productivity and production of piggery enterprises and address the lack of protein in the diets of the majority of Nigerians, especially those living in rural areas. The specific goals are to: (i) characterize the socioeconomic traits of pig farmers; (ii) identify the systems of pig production in the study area; (iii) ascertain the impact of the socioeconomic traits of pig farmers on their profit; (iv) calculate the costs and returns associated with pig production; and (v) identify and analyze the barriers to pig production in the study area.

MATERIALS AND METHODS

The Study Area

Imo State, Nigeria, which lies between latitudes 7056'' and 6064'N of the Equator and longitudes 6046' and 5049E of the Greenwich Meridian, was the subject of the study. Anambra State borders the state to the north, Abia State borders it to the east, and Rivers and Imo States border it to the south and west, respectively. Its temperatures range from 26 to 440 degrees Celsius, its rainfall ranges from 1500 to 2800 mm, and its relative humidity is moderate at 65%. Imo is made up of numerous villages, numerous autonomous communities, and twenty-seven Loc al Government Areas (LGAS). With a population of 3,934 million, it occupies an area of 5100 km² (11). Yam, cassava, maize, and cocoyam are among the crops grown by the Imo people, who are mostly farmers. Pigs, poultry, goats, lambs, rabbits, and snails were among the animals raised by the farmers. The farmers also worked as saloon workers, auto mechanics, traders, civil servants, and hostelers.

Sampling Procedure and Sample Size

Local Government Areas (LGA), communities, villages, and respondents were chosen using purposive and multi-stage random selection approaches. First, three LGAs were specifically chosen for pig production due to their proximity to three-three (3-3) breweries. Okigwe North, Ideato North, and Ideato South were the LGAs that were chosen. Second, from each of the chosen LGAs, three communities were chosen at random out of five.

This resulted in nine communities overall. Third, out of the nine communities, ten villages were chosen at random. This increased the number of villages to 90. Lastly, a total of 90 farmers were chosen for in-depth analysis, one from each of the 90 communities.

Method of Data Collection

Both primary and secondary sources provided the data for this investigation. Structured questionnaires and informal or oral interviews with respondents were used to derive the primary data. Information on labor costs, medication costs (drugs, disinfectants, and vaccines), years of farming experience, educational attainment, water use in pig production, household and flock sizes, and access to institutional and non-institutional credit were all gathered through the questionnaire.

Method of Data Analysis

The frequency distribution table and percentage response were used to record the first, second, and third objectives. Gross margin analysis and Cobb Douglas production function and factor analysis were used to meet objectives iii, iv, and v, respectively.

Model Specification Cobb Douglas

Since the 1930s, the Cobb-Douglass theory of production has offered a crucial framework for calculating productivity and the use of production factors. Under the presumption of constant returns to scale production, Cobb and Douglas modeled the increase of output in the American manufacturing sector between 1899 and 1922, where the output of commodities was determined by the combination of two factor inputs, namely labor and capital. The technological link between the quantities of two or more inputs (often labor and physical capital) and the output that can be produced in a production process is commonly denoted by the Cobb-Douglas production function. Cobb-Douglas is preferred in both developed and emerging nations since it can be used to analyze diverse economic policies and to function in numerous sectors of a nation's economy. It is used, for example, to rationally decide how much of each input factor to use in order to reduce production costs. It's mathematically expressed as:

$Y = AL\alpha K\beta$ (1)

Where Y = total output, L = units of labour, K = units of capital, and α and β are elasticity of labour and capital, and A is an efficiency parameter. The parameter A is the efficiency parameter. It serves as an indicator of the state of technology. The higher the value of A, the higher would be the level of output that can be produced by any particular combination of the inputs. The Cobb Douglas production function A, a and b are positive parameters where = a > O, b > O. The equation describes that productivity depends directly on L and C and that part of output which cannot be explained by L and C are explained by A which is the residual, often called technical change (Hajkova andHurnik, 2007).

The function was criticized from three fronts by economics scholars, namely on assumption of constant returns to scale which the model built its analysis, on the omission of technical change, thereby having the notion that technology I static within the duration of the study which is not possible in realities (Fraser, 2002). Furthermore, the neoclassical economists criticized the model on the basis that the productivity theory centered more of an pensiveness than a proven.
In Logarithms, the equation is:

$\log Y = \log Xo + \log X_1 + \log X_2 \ldots\ldots + \log X_n$ (2)

Where;
X_1 = Quantity of feed consumed in kilogram, X_2 = Labour (Mandays), X_3 = Cost of Medication (Drugs, disinfectants and vaccines) (N), X_4 = Years of rearing experience (Years), . X_5 = Educational level (Years), X_6 = Quantity of water(Litres), X_7 = Household Size (No), X_8 = Flock Size(No), X_9 = Credit (N)

Benefit cost Ratio:

This was used to estimate farm net revenue for pig production. Theoretically, net revenue (NR) is the total revenue (TR) less the total cost(TC);
NR = TR – TC .....(3)
Total cost is the addition of the entire variable cost(VC) and fixed cost (FC) items; TC = TVC + TFC .....(4)
Total revenue is the total amount of money that a farmer received from the sale of stock;
TR = ΣPxQx ..... (5)
Gross margin (GM) = TR – TVC… (6)
Net farm income (NFI) = GM − TFC (7)
The rate of return is a performance measure used to measure the amount of return on an investment relative to the investment cost. It is given by:
Rate of Returns (ROR) = NR/TC.....(8)
Gross Ratio (GR) = TC/TR .....(9)
Benefit Cost Ratio (BCR) = TR/TC (10)
P = price per pig
Q = quantity of pig sold
Pig production is profitable if its BCR ≥ 1. The higher the BCR, the more profitable the pig production business is. Depreciation was calculated using the straight line method **Factor analysis**

Factor analysis was used to analysis the constraints to pig production in the study area using principal component factor analysis with varimax -rotation with factor loading of 0.3 was used. The constraints to pig production in the study area were categorized into three factors using varimax rotation and factor loading of 0.30. The principal component factor analysis model is stated thus

$R_1 = Y_{11} M_1 + B_{12} M_2 + \text{----------} Yn_1 M_n$ …….. (11)

$R2 = Y21\ M2 + B22\ M2 + \text{----------} Y^2nMn$ ……..(12)

$R_3 = Y_{31} M_3 + B_{32}M_2 + \text{----------} Y^3nM_n$,……(13)

$R_n = Y_{n1}M_1 + B_{n2}M_2 + \text{----------} Y_{nn}M_n$ ……..(14)

Where;
$R_1 = c_n$= observed variable /constraints in pig production pdts
Y_1= Y_n = Factor loading or correlating coefficients
M_1 = M_n =unobserved underlying challenging factors facing pig production

RESULTS AND DISCUSSION

Socioeconomic Characteristics of the Farmers

Table 1 shows that 58.9 % of the respondents were more than 41 years and above, whilst 42.1% of them were within the age range of less than 41 years.

Table 1: Distribution of Respondents According to Socioeconomic Characteristics

Variable	Frequency	Percentage	Mean
Age			
21- 30	15	27.5	
31 – 40	22	24.4	42
41 – 50	20	22.2	
51 and above	33	36.7	
Educational Level			
Non formal education	15	16.7	
Primary education	25	27.8	
Secondary education	17	18.9	
Tertiary education	8	6.7	
Household size			
1 – 5	18	20	
6 – 10	35	39.9	7.2
11 -16	30	33.4	
17 – 21	7	7.8	
Farming Experience			
1 – 10	20	22.2	
11- 20	56	66.2	
21 and above	14	15.6	11.4
Drug/Vaccine Usage			
Yes	90	100	
No	-	-	
Labour Source			
Family	41	45.6	
Hired	17	18.9	
Communal	6	6.7	
Hired & Family	26	28.9	
Water Usage			
Yes	90	100	
No	-	-	
Rearing Method			
Intensive System	59	65.6	
Semi Intensive	21	23.3	
Extensive	10	11.1	
Enterprises			
Farrow	23	25.6	
Farrow - Finish	40	44.4	
Finishing operation	20	22.2	
Breeding	7	7.8	

Source; Field Survey; 2018

This suggested that older farmers dominated the production of pigs in the research area, and older farmers are typically knowledgeable and skilled managers who can run their businesses to generate large profits (Duniya et al., 2013). This result contradicted the findings of Rahman et al. (2008), who claimed that young people dominated their field of study. They noted that this farming group is typically creative and inspiring to advance the frontier of pig production and achieve high profitability.

Additionally, primary education was held by the majority of pig farmers (27.8%), followed by secondary education (18.7%), and university education (6.7%). Farmers' educational attainment improves their managerial skills, openness to innovation, and comprehension and evaluation of new production technology, all of which contribute to increased farm productivity and business profitability (Ironkwe and Amaefule, 2008).According to Table 1, 77.8% of the sampled farmers had more than 11 years of farming experience, whereas 22.2% had less than 11 years. This suggested that the farmers in the research region had a great deal of expertise raising pigs. According to Ume et al. (2018), farmers with years of experience raising livestock are better able to set reasonable goals and use their resources wisely in order to increase their output, which might potentially result in significant profits. Additionally, all of the pig farmers in the study area who were sampled employed drugs and vaccines to treat and prevent pig production diseases, respectively. The main issues with the usage of these medications and vaccinations are their scarcity at the farm level, their poor quality, and the fact that the majority of the vaccines are not maintained in the cold chain, which causes them to lose their viability. High mortality, low productivity, and low profitability are the results (Ewuziem et al., 2009).

According to Table 1 above, the majority of respondents (38.9%) had households with 6–10 people, while the smallest (7.8%) had households with 16–20 people. Pig production typically employs larger farming households with a larger number of labor-age members in order to lower production costs resulting from high labor costs and high profit margins (Ezeibe, 2010). In addition, the chart shows that 45.6% of the farmers in the sample employed family labor to raise pigs, followed by family and hired labor (28.0%) and communal labor (6.7%). Small-scale farmers in sub-Saharan Africa employ family labor in a unique way to reduce high production costs, which may be related to great profitability.

Additionally, water was employed in pig production by all of the sampled pig producers in the research area. According to studies, water makes up around 82 percent of the body weight of young pigs and 55 percent of the body weight of market hogs, making it the single greatest ingredient of the body (Ewuziem et al., 2010). However, a high water content (86–98%) in pig dung raises storage and disposal costs, according to Holness (1999). Furthermore, the majority of respondents (65.6%) raised their pigs in an intense system, followed by those who raised them in a semi-intensive system (23.3%) and the respondents who raised them in an extended system of management (11.1%). According to studies, rearing practices are important for swine production since they facilitate management and enable farmers to successfully raise 85% or more of the animals in the lowest amount of time (Pathraja and Oyedipe, 1990).However, the following traits are present in pigs raised under intensive management: Slow growth, insect and disease infestation, irregular sow breed, high piglet mortality, and low output due to

inconsistent seasonal feeding (Getara et al., 2009). According to Table 11, the majority of respondents (52.2%) worked in the farrow and finish enterprise, while the smallest percentage (22.2%) worked in the finishing operation. Compared to other prosperous businesses, the farrow and finish process required greater facilities (Pond and Manar, 1998).

Results of Cobb Douglas Production Function

The Results of Cobb Douglas production function is presented in Table 2

As per the findings of Ume et al. (2018), the profitability of the pig operation was negatively correlated with the age of the household head. Contrary to the strength needed for pig production, the variable's sign identity may be linked to the waning of strength that comes with aging. The result is that these family heads use labor to carry out the pig producing activities, which hurts the farm's bottom line. Furthermore, at a 1% significance level, the breed type of the piglets' coefficient correlates positively with the profitability of the pig farm. This suggests that piglets with traits like good litter sizes, leanness, muscle, current growth rates, and high feed conversion to pork efficiency are more likely to yield high profits than piglets with traits that contrast with the previously mentioned characteristics (Bamiro et al., 2008).Additionally, the labor cost coefficient was statistically significant at the 5% significance level and had a negative sign to the profit of pig producers. Because pig production requires a lot of labor, only a small number of workers could volunteer, but at extremely high wages. The low worker acceptability may be due to their fear of pig bites and their allergy to the smell of the animal's produce. This outcome supported the findings of Ogunfowona et al. (1990), who noted that raising pigs is a laborious process that requires effective management to lessen the odor connected with its production. Additionally, there was a positive correlation between the farmers' level of profit and the rearing experience coefficients. This means that a one-year increase in the number of years of household farming experience might lead to a profit gain equal to the coefficient's size. Mpofu and Makuza's (2003) findings supported the aforementioned claim. They believed that farmers with a lot of experience are more likely to combine resources in the best way to increase productivity, which could result in a large profit. Nevertheless, the household size coefficient was statistically significant at the 5% alpha level and positive, as predicted by a priori analysis. According to Ume et al. (2017), "the more household members of labor age and availability the household head has, the more likely it is that they will use them to implement pig husbandry management technologies and save the money that could have been paid to hired laborers as part of the business profit." In order to alleviate the labor constraints that are typical in agricultural production, particularly during the peak farming season when labor is expensive and scarce, they proposed that families with large and mature household members have a greater chance of implementing labor-intensive technologies related to pig production.

Furthermore, at a 95% confidence interval, the feed cost coefficient demonstrated an indirect association with farm profit in pig production. This could imply that the higher the proportion of concentrates in pig diets compared to domestic and crop leftovers, the higher the outputs, but the lower the potential profit due to the high cost of the resource (concentrates). This result is consistent with a number of studies (Bama et al., 2004; Rahman et al., 2008; Okolo, 2011) that show the detrimental effects of feeding pigs to grains, particularly in the majority of sub-Saharan African nations where grains are in short supply and fiercely compete with humans, resulting in low farm productivity and little profit. Furthermore, as anticipated, the pig farmer's educational status coefficient was positive, meaning that a unit increase in the family head's years of education will result in a profit rise equal to the coefficient. The variable's positive sign may be explained by the fact that farmers with higher levels of education are better able to understand and respond to new and improved innovations, which can increase their output and profit on their farms compared to those with lower levels of education. However, research indicates that a sufficient extension delivery system could compensate for farmers' lack of education, particularly with regard to the adoption of new technology (Rahman et al., 2008). Additionally, at the 10% alpha level, the flock size coefficient was positive and statistically significant. The coefficient's sign matched the a priori hypothesis, indicating that farmers are more likely to make more money from pig sales if their flock size is larger. This result is consistent with Ume et al. (2018)'s analysis of the economics of pig production in Nigeria's Ebonyi State's Ezza North Local Government Area. Additionally, at the 5% alpha level, the drug cost coefficient was positive and significant. The outcome might make it necessary for pig farmers to have greater access to pharmaceuticals, disinfectants, and vaccines in order to increase their level of output and profit. On the other hand, the FAO (2008) found that subpar and adulterated drugs and vaccines were flooding many markets in the majority of Africa's developing nations. Additionally, the high cost of these medications to farmers could result in high animal mortality and low profit margins. Additionally, the organization's membership coefficient was significant at the 1.0% risk threshold and positively correlated with pig profitability in the research area. This suggests that farmers who belong to groups like cooperatives are more likely to turn a profit than those who do not. This could be explained by the cooperative's capacity to instill in its members a more positive attitude toward adopting innovations through information access, member interactions, and training (Osundu et al., 2014).

Production Elasticity and Return to Scale

The return to scale of the production function is shown in Table 2

The degree to which output responds to changes in inputs is measured by the elasticity of production. Given the Cobb Douglas specification of the model, the direct elasticity of production for the different inputs serves as an estimate for the parameters of stochastic frontier production.

Pig production in the study area had a return to scale of 3.0141. Since this number exceeds unity, the return to scale is increasing. This suggests that the farmers were not producing at their best scale and were instead functioning in stage 1, or the irrational stage. Therefore, in order to increase their outputs, farmers must add additional resources or inputs to their production.

Table 2: Production Elasticity and Return to Scale

Variable	Elasticity
Piglet Type	0.6591
Cost of feed	-0.48632
Cost of Capital	0.5430
Cost of Medication	1.4390
Cost of Water	0.5741
Flock Size	0.8444
Cost of Labour	-0.5591
Return to Scale	3.0141

Source; Field Survey; 2018

Costs and Returns in Pig Production

Table 3 showed that the average total cost of production incurred by the respondents was ₦101,810.

Both variable and fixed costs make up the overall cost; according to the table, variable costs account for 86% of the production costs, while fixed costs make up 5.29%. Furthermore, the cost of feed accounts for 50.5%, labor for 28.97%, and medications, disinfectants, and vaccines for 6.83%. Each respondent's average gross revenue was N444, 000. For each respondent, the average gross margin was N350, 330. Each respondent's average net farm income was N342,190. Consequently, N19,010 was the average net farm income per pig. This suggested that raising pigs is a lucrative endeavor. According to the table, the total cost of production for ten (10) pigs in the study region, including total variable costs and total fixed costs, was N 383,458.

Eighty-six percent of the overall production costs were variable, and ninety-four percent were fixed. Furthermore, the cost of feed accounted for 56.6% of the overall production costs, followed by the cost of piglets (17.2%) and the least expensive drug (1.5%). The competition for human consumption of the same ingredients may be the cause of the high cost of pig feed. As is frequently observed in African markets, the cheap cost of medication may be attributed to the fact that the majority of resource-poor farmers use Indigenous Known Technologies (IKT), which are expensive and of poor quality (Okolo, 2011). Each farmer in the sample had an average gross revenue of N740,000, while their net farm income was N334,542.

Pig production had a 55% rate of return on investment, meaning that for every N1.00 invested, 54K was made. Because the Benefit-Cost Ratio (B C R) is greater than 1, it indicates that pig production is a lucrative enterprise. The gross margin ratio (G M R) was no different. The results of the expense structure ratio (E S R) also showed that the pig industry is financially sound. In conclusion, the business is profitable, according to the examination of the several profitability ratio methodologies.

Varimax-Rotated Factors Against pig production

Table 4, three factors were take out based on the reaction of the respondents to the questionnaire issued to them,

Table 4 Varimax-Rotated Factors Against pig production in the Study Area.

Variable	Factor 1	Factor 2	Factor 3
Feed	-0.115	0.312	0.171
Poor breed	0.216	0.320*	0.003
Housing	0.236	0.093	0.339
Marketing of products	-0.308	0.414	-0.367
Lack of capital	0.346*	-0.137	0.212
High labour cost	0232	0.329*	-0.119
Poor extension contact	0.318*	-0.028	0.140
Disease	0.122	-0.304	0.322*
Veterinary posts	0.007	0.128	0.349*
Inadequate equipment	0.307	0.190	0.326*
Lack of drugs	0.118	0.439*	0.127

Source: computed from SAS 2018.

Factor 1= economic/institutional factor, Factor 2 = infrastructural factor and Factor 3 = socio-financial factor (Ikani and Dafwang, 1995). Only variable with factor loading of 0.30 and above at 10% overlapping variance were used in naming the factors.The factor loading of less than 0.30 and variables that loaded more than one factor were discarded. The variables that loaded more than one factor like inadequate equipment and marketing of product were revealed. In identification of the factors, Ume, *et al*; (2018) opined that each factor is assigned a value considering their disposition. The limitations underneath the economic /institutional factor include Capital problem (0.346) and poor access to extension services (0.318). The problem of poor access to credit has been a bane to agricultural development in Nigeria and this could be correlated to lack of collaterals, high interest rates, short-term repayment and ignorance of loan source by the farming population (Ume, *et al*; 2018). In addition the problem of poor extension services to most pig farmers could be associated to high extension – farmers ratio, lack of technological information in pig farming and inadequate incentives to the change agents (Ezeibe, 2010)

The following variables are loaded under factor 2 (infrastructure factor): high labor costs (0.329), feed costs (0.312), disease costs (0.304), and medicine costs (0.439). Since the majority of low-income resource farmers use family labor in their pig operations, the high cost of labor has led to both a decrease in flock size and, as Okolo (2011) asserts, a high cost of production.

Furthermore, the high cost of feed, particularly commercial components, forces farmers, especially those with limited resources, to feed their pigs with domestic or local food ingredients, which stunts their growth (Duniya et al., 2013). Furthermore, the majority of farmers abandon their farms due to low productivity to other economic activities because farm profits are no longer sufficient to support them due to the high cost of medications and vaccines, their inaccessibility at the farm level,

and their lack of knowledge about how to use these medications (Ume et al., 2019). Additionally, the majority of pig-producing societies in developing nations continue to use local breeds of pigs due to their ability to withstand harsh weather conditions, low cost of piglets, resistance to pests and diseases, hardiness, and ability to be raised with minimal inputs through extensive rearing (Bama et al., 2008). Veterinary post (0.349), sickness (0.322), and housing (0.339) were the variables under socio-financial aspects. Due to the problem of substandard housing, mice, insects, and odors have proliferated, polluting the near and neighboring environments. For example, pigs are kept in unfinished housing in most rural locations, close to residential buildings and natural materials like bamboos. This means that pigs are frequently unrestrained and harm home property and the environment (Ajala et al., 2007). Due to limited access to veterinary care in most rural areas, most farmers are forced to self-medicate, about which they lack sufficient knowledge, and seek the services of quacks, which has resulted in the complete or partial eradication of a significant portion of the farmers' flocks (Agada, 1991). Furthermore, a significant mortality rate in pig production, especially for piglets, may result from diseases such brucellosis, Africa swine fever, diarrhea, and coccidiosis (Adesechinwa et al., 2003).

CONCLUSION AND RECOMMENDATION

Conclusion

These conclusions were reached in light of the data.
The results of the socioeconomic characteristics revealed that the majority of the respondents were men, older, better educated, more likely to have a large home, more accustomed to family labor, and more experienced. The majority of pig farmers also worked in farrow-to-finish businesses and intensive rearing.Additionally, piglet type, raising experience, organization membership, pharmaceutical costs, flock size, household size, and educational attainment all had an impact on the profitability of pig farms in the research area. The research area's pig production was further hindered by high feed and housing costs, issues with product marketing, high labor costs, limited financing availability, and weak extension contacts.

Recommendation

The following suggestions were interpreted: Workshops, seminars, and adult education should raise farmers' educational attainment. Additionally, by offering superior breeds to increase their output, both new and experienced farmers could be persuaded to remain in the pig business. For easier access to pig material inputs like feed, veterinary medications, and vaccines, pig farmers should also be encouraged to establish or join cooperatives. In order to reduce manufacturing costs, large-family households are also urged to employ them as a source of labor.

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