



Investment and Marketing Analysis of the Pig Value Chain In Southwestern, Nigeria.

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ABSTRACT: The study examines the pig value chain in Southwest Nigeria, encompassing production, trade, slaughter, processing, and consumption. Through structured questionnaires administered to 120 respondents, 60 pork marketers and 60 pig farmers. The research reveals a predominantly young demographic among pig farmers and pork marketers, with viable enterprises identified in both sectors. SWOT analysis shows that both selected segments were not strong but suggested strategies for enhancing strengths and mitigating weaknesses, while opportunities for growth include diversifying pork products and offering veterinary services. Despite moderate income inequality of 0.49 Gini coefficient, transportation emerges as a significant constraint. Overall, the study concludes that key operations within the pig value chain are profitable, recommending the creation of market space as it were for other livestock.

KEYWORDS: Pig production, value chain, marketing, investment, SWOT Index.

I. INTRODUCTION

Pig is one of the domestic animals found in Nigeria and most parts of West African. Pigs are reared for the production of meat called pork and fat called lard. Pork is considered red meat. Pigs are also known as hogs or swine. Pork is suitable for processing and some of the processed products have a longer shelf than fresh meat and can thus be distributed to a wider section. A pig value chain refers to all the activities involved in the production, trade, slaughter, processing and consumption of pigs and pig products [12]. The low production of pork in Nigeria is the major reason why demand is higher than supply, some rear pigs as pets, some even eat

them, use them in making leather or for commercial purposes[10]. The broad objective of this study is to conduct an investment and marketing analysis in the pig value chain in Southwest, Nigeria and the specific objectives are to: 1. examine the socio economics characteristics of actors in the pig value chain; 2. estimate value added in the pig value chain; 3. conduct SWOT analysis of selected segments in the pig value chain; 4. Examine the market structure of selected segments in the pig value chain and; 5. identify constraint to investment in the pig value chain; The production of pigs will be of great importance to Agribusiness entrepreneur and investors that are interested in agro – based industries. As there are lots of by – product such as leather, glue, fertilizer, and a variety of medicines such as insulin among others that can be generated from pig [5]. Far from producing Pigs for meat consumption, pigs have long been used in human medicine, including pig skin grafts and implantation of pig valves [4]. Recent research shows that some genetically modified pigs are now being used for heart transplants, [4], [15], [8] considering the opportunity cost of an human donor to a pig, such pigs prices can go as high as in millions naira. [17]. The study area is Southwest, Nigeria. The region comprises six states – Ekiti, Lagos, Ogun, Ondo, Osun, and Oyo. Southwestern Nigeria is one of the major pig producing areas in Nigeria, and they are a significant part of the country's pig industry though pig industry in Southwest is dominated by the small – scale farmers [1]. Primary data was used for this study. The respondents for this study were selected actors in the pig value chain in Southwest Nigeria. The selected actors includes pig and pork marketers. Primary data was used for this study. A well-structured questionnaire was used to collect data. Thus, two (2)



different questionnaires was used to collect data such as socio – economic characteristics of respondent, value chain activities, value addition activities, etc. . The questionnaire was administered to the respondents through one on one interview. A multistage sampling procedure was used to select respondents for this study. In the first stage, Ekiti and Ondo state were purposively selected from Southwest Nigeria due to the prevalence of pig farming and pork consumption in the states .[1] In the second stage, three local governments was randomly selected from each of the two states. In the third stage, two communities from each local government was randomly selected. In the final stage, five pig farmers and five pork marketers was randomly selected from each communities using the snow ball techniques. Thus total of 120 respondents (60 farmers and 60 marketers) were sampled for this study.

Model Specification

Descriptive Statistics.

Descriptive statistics such as table, frequency, measures of central tendencies, percentages were used to analyse the socio economic characteristics of respondents.

Value Addition Model

Gross margin was used as proxy for value added. It was estimated by calculating the difference between the Total Revenue (TR) and Total Variable Cost (TVC).

$$GM = TR - TVC \dots \dots \dots (1)$$

Where, GM = Gross Margin,
 TR = Total Revenue
 TVC = Total Variable Cost.

Ginicoefficient

Gini coefficient was used to examine the market structure of selected enterprises in the pig value chain by measuring the degree of inequality. A statistical measure based on Lorenz curve was used to measure the degree of inequality that existed among actors in the pig marketers.

$$G = 1 - \frac{\sum XY}{\sum X \sum Y} \dots \dots \dots 2$$

Where,

G = the gini coefficient,
 X = the percentage of sellers
 Y = the cumulative portion of total sales and,
 $\sum XY$ = the summation of the product of cumulative proportion of the marketers and the cumulative proportion of the volume of sales in the market.

SWOT Index Analysis

A participatory SWOT analysis which considered the investment strength, weaknesses (internal), and Opportunities and threats (external). These are internal and external conditions that can make or break enterprises in the pig value chain. A well-conducted SWOT analysis was used to calculate the SWOT index. The SWOT issues that was used in the analysis were gathered from literature and response from market survey. The SWOT analysis table is showed in the appendix.

The SWOT index was calculated from cumulative responses from respondents to SWOT issues. Based on indicators (questions) generated on the SWOT issues, the cumulative response of respondents were scored. Equal points or portions of the index was assigned to response to questions. The SWOT index model (as adapted and modified from Alan, 2012) is as shown below:

$$SI_{si} = \frac{\sum IA_{sis}}{N_{sis}} \dots \dots \dots (11)$$

$$SI_{sir} = SI_{si} \dots \dots \dots (12)$$

$$TSI_{si} = SI_{sir} \times FR_{si} \dots \dots \dots (13)$$

$$TSI_{sis} = \sum TSI_{si} \dots \dots \dots (14)$$

Where:

SI_{si} = SWOT index per SWOT indicator
 $\sum IA_{sis}$ = Cumulative SWOT index (1)

accruable per SWOT issue (Strength, Weakness, Opportunities and Threats)
 N_{sis} = Number of SWOT indicators (questions) per SWOT issue

TNR_{si} = Total number of responses per SWOT indicator

SI_{sir} = SWOT index per SWOT indicator per respondent

FR_{si} = Frequency of responses per SWOT indicator (either yes or no)

TSI_{si} = Total SWOT index per SWOT indicator (either yes or no)

$\sum TSI_{si}$ = Cumulative Total SWOT index per SWOT indicator (either yes or no)

TSI_{sis} = Total SWOT index per SWOT issue

Decision Rule for SWOT issues / SWOT Index :

- a) **Strength** : if TSI_{sis} (yes) > 0.5 = Enterprise is considered strong
- b) **Weakness**: if TSI_{sis} (yes) > 0.5 = Enterprise is considered weak
- c) **Opportunity** : if TSI_{sis} (yes) > 0.5 = Enterprise is considered be maximizing opportunities for expansion and growth
- d) **Threats**: if TSI_{sis} (yes) > 0.5 = Enterprise is considered threatened



Likert Rating Scale (LRS)

A five-point Likert rating scale (LRS) was used to rate how identified constraint constitute investment and market risks along pig value chain in the study area. Descriptive statistics (frequency and percentages) were used to identify and examine these constraint to investment encountered along the pig value chain in the study area and identify the market risk in pig production and marketing enterprises. The points in the Likert Scale Rating were used to calculate the sum by multiplying number of respondents in each point scale by the point. Mean was calculated by dividing the calculated sum by the number of respondents (responses) as shown below

$$\text{Weighted Score (WS)} = 5n+4n+3n+2n+1n$$

$$= \text{Total Score for Each Constraint} \text{ ----- (15)}$$

Where,

n = frequency of each constraint for each rating.

$$\text{Means Score (MS)} = \frac{\text{Total Score of Each Constraint}}{\text{Total Number of Respondents}} \text{ ----- (16)}$$

Rank = value of the MS was used to rank the severity of the constraint to investment along the value chain.

Likert scales provide a range of responses to a statement or series of statements. Usually, there are 5 categories of response ranging from 5 = strongly agree to 1 = strongly disagree with a 3 = neutral type of response.[6]

II. RESULTS AND DISCUSSION
Socio – economic Characteristics of Pig Farmers and PorkMarketers

The distribution of pork marketers by age as shows in Table 1 reveals more respondents (76.7%) were between the range of 36 – 40 years of age this shows that majority of the sellers were relatively young considering that average life expectancy in Nigeria is 52 years [11].

Also, majority of the pig farmers (40%) were between 41 and 45 years. This shows that majority of the farmers were in their active age hence, had physical strength to handle most of the pig farm operation.This also implies that they still have many production years ahead which will augur well with for the Pig/pork industry in South west Nigeria.

Table 1, also shows that about 86.7% of pork marketers were female while 13.3% are male.This implies that women are responsible primarily for the post – harvest activities. Majority of the pig farmers (71.7%) were male while 28.3% were female. This indicated that pig farming is

predominately a male occupation in the study area. This support [8]who reported that in Africa, farming is an activity taken up by male gender.

The study shows thatmajority of pork marketers (80%) were married while 78.3% of pig farmers were also married. This indicates that majority of the pig farmers and pork marketers had dependents such as wife and children which were also helping the farming activities as family labour. This also indicates that pig farming and pork marketing are lucrative enterprises in the pig value chain that have high turnover and can support families. This is in line with the findings of [2], who opined that pig farming is not only profitable, but also guarantees between 15-35% returns on investment and has the potential to expand quickly.

The study indicated that majority of respondents had a certain level of education. Pork marketers (80%) had secondary education while majority of the pig farmer (53.3%) attained a tertiary education, 30% had secondary education, this implies that pig farmers are well education which would help them to easily understand the technicality of producing pigs.This is in line with [14] who observed that there is high literacy level among the respondents implying that pig farming requires certain level of education in terms of management to ensure productivity. The higher the literacy level of an individual, the more skilled the individual is, and the more effective is the managerial abilities. The result is also consistent with [14], who reported that education is vital for the management and expansion of any enterprise. The higher the literacy level of an individual, the more skilled the individual is, and the more effective is the managerial abilities.

shows that majority of pork sellers (61.7%) had household size between 5-6 members, 35% had 3 – 4 members and 2% had 1- 2 members while majority pig farmers (51.7%) had household size of 3-4, 43.6% had 5 -6 household size. This implies that majority of Pig farmers and Pork marketers had dependents who assist in the piggery enterprise and whose needs are supported by income from the enterprise. This further emphasises the profitability of enterprises considered in the pig value chain.This also implied that the family members could serve as source of labour and this would help in reducing the cost of hiring labour. This result agrees with [11] which indicated a mean household size of six persons among pig farmers in Delta State, Nigeria.

Table 1, shows that 73.3% of pork marketers had 3 -4 years of experience in pork marketing and 13.3% had 5 -6 years of experience. Also, 41.7% pig farmers had 5 to 6 years of



experience. This implies that Pig/pork marketers are familiar with the enterprise. The years of farming experience of the respondents implying that the enterprise was relatively new in the area. This could be attributed to environmental pollution common in pig farming. It could also be pointer to the fact that many find it cumbersome, too demanding and capital intensive. [7] noted that success and stability of any business depends on the skill and experience of the manager, and that education and experience are veritable tools for acquiring new ideas and skills that reflect positively on scope of enterprising, income and profit.

Table 1, shows that 98.3% of pork marketers are Christians and the remaining 1.7% were traditionalist. While 100% of Pig Farmers were Christians. This implies that Christianity is not against production and consumption of pig products.

Table 1, sellers in the study area had other source of income from their other occupations. That majority of respondents are engaged in other occupations could be a sort of shock absorber or insurance in time of losses in pig production or a way of diversification of enterprise. This is advisable especially in this period of economic

recession so as to meet up with family expenses and improve the living conditions of the family. This finding is in term with [3] which shows that 93.3% and 71.7% of both Pork marketers and Pig farmers respectively engage in family labour while 6.7% of pork marketers and 21.7% of pig farmers used both hired and family labour. This implies that pork marketing and Pig farming are family labour dependent. This implied that the family members could serve as source of labour and this would help in reducing the cost of hiring labour. This result agrees with [13].

shows that 65% of pork sellers own a pig farm while 20% buy from other pig farm and only 15% buy from abattoir. This suggests vertical integration within the supply chain. By owning the farm that produces the pigs they sell, these sellers have more control over their supply, quality, and cost. This is in line with [9] who explained that integration leads to high gross margin, influences choice of marketing channel and improves market participation, encouraging commercialization of dairy smallholder farming.

Table 1: socio economic characteristics of the respondents.

Socio economic variables	Pork Marketers		Pig farmers		
	Frequency	Percentage	Age	Frequency	Percentage
Age			≤ 35	5	8.3
≤ 25	1	1.7	36 – 40	13	21.7
26 – 30	3	5.0	41 – 45	24	40.0
36 – 40	46	76.7	46 – 50	9	15.0
40 and above	10	16.7	50 above	9	15.0
Mean	40			42	
Gender	Frequency	Percentage	Frequency	Percentage	
Female	52	86.7	17	28.3	
Male	8	13.3	43	71.7	
Marital Status					
Single	4	6.7	3	5.0	
Married	48	80.0	47	78	
Separated	-	-	3	5.0	
Divorced	1	1.7	7	11.7	
Level of education					
No Formal education	3				
Primary		5.0	1	1.7	
	3	5.0	9	15	
Secondary	48	80.0	18	30.0	
Tertiary	6	10	32	53.3	
Household size					
1-2	2	3.3	4	6.7	
3-4	21	35.0	31	51.7	
5-6	37	61.7	26	43.6	
7 and above	-	-	-	-	
Years of experience					



1 – 2	6	10		
3 – 4	44	73.3	16	26.7
5 – 6	8	13.3	13	21.7
7-8	-	-	25	41.7
			6	10
Religion				
Christianity	59	98.3	60	100
Traditional	1	1.7	-	-
Type of labour				
Hired	-	-		6.7
			4	
Family	56	93.3	43	71.7
Both	4	6.7	13	21.7

Source: Data Analysis, 2024.

Value Added by Pork marketers.

Table 2 shows value added to pork by pork marketers who process fresh pork into roasted pork. As earlier said, gross margin was used as a proxy for value added. The value added by pork marketers per month was ₦216,073.63.

Table 2: Value added by pork marketers

Cost Items	Amount(₦)	Percentage (of TVC)
Cost of pig purchase	597,627	96.87
Cost of labour	1,578.95	0.26
Cost of charcoal/firewood	16,695	2.71
Cost of spices	1025.42	0.17
Total Variable cost (F)	616,926.37	100
Revenue Items		
Average pork processed per month (Kg) (A)	277.7	
Average number of pieces cut per kg (B)	15	
Average no of pieces sold per month (A x B = C)	4,165	
Average price per piece of pork sold (D)	200	
Total Revenue (₦) (C x D= E)	833,000	
Gross margin (₦) (F-E = G)	216,073.63	

Average Value Added to Pig (Monthly)

Table 3 shows value added by pig farmers who raise pigs to table size. As earlier said, gross margin was used as a proxy for value added. The value added by pig farmers per month was ₦474,832.04.

Table 3: value added by pig farmers

Cost items	Amount (₦)	Percentage (of TVC)
Cost of feeding/month	127,142.54	28.67
Cost of vaccination	923.72	0.2
Cost of labour	14,500	3.27
Cost of security	23,148	5.2
Cost of purchase of pigs /month	121,248.99	27.3
Cost of pig for slaughter/month	156,442	35.28
Total variable cost (H)	443,405.25	100
Revenue Item		
Average kg of pigs purchased /month (A)		248
Average price per matured pig/ kg (₦) (B)		2000
Average price per slaughtered pig/kg(₦) (C)		2800
Average kg of pig sold/ month (D)		129.60
Average kg slaughter/month (E)		235.40
Revenue on matured pig (₦) (B*D)=(F)		259118.64
Revenue on slaughtered pig (₦) (E*C) =(G)		659118.65
Total revenue(₦) (F+G) = I		918237.29
Gross Margin(₦) (H -I)		474,832.04

SWOT Analysis of Pork Marketers

The SWOT analysis is a valuable tool for strategic management in agricultural organizations, particularly in Nigeria, where Agricultural sector plays a crucial role in the economy. SWOT analysis identifies the internal strengths such as fertile land, skilled labor, customer services, technology as well as weaknesses such as inadequate infrastructure or limited access to markets. Moreover, SWOT



analysis can assess external opportunities such as government policies, growing demands and as well as threats such as climate change, pests and diseases or market volatility. This analysis will enable pig/pork enterprises to develop strategies to capitalize on their strength, address weaknesses, exploit opportunities and mitigate threats, thereby enhancing their competitiveness and sustainability. [16].

Table 4a – 4c shows the SWOT index analysis for strength, weakness, opportunities and threats of pork marketing enterprises in the pig value chain in South Western Nigeria. Following the Strengthening of the enterprises based on the other indicators considered in the strength segment or quadrant.

Table 4b also reveals that the pork marketing enterprises in the pig value chain are not fully maximizing opportunities that they have for growth and expansion. Pork marketers should employ more opportunity such as preparing pork for consumption in various ways that can increase customer preferences such as bbarbecue, pepper soup as it is

decision rule of SWOT index analysis (and referring to table 4a), it is shown the pork marketing enterprises in the pig value chain cannot be considered as strong. The enterprises need to adopt strategies that will help boost their strength such as keeping records, helping in delivery, adopting innovations such as machineries and modern technologies. Also, Table 14b reveals that the pork marketing enterprises in the pig value chain can be considered as weak based on the weakness indicator applied. However there is still room for increase and more

discovered that majority of pork sellers in southwest Nigeria engaged in roasting. Lastly, Table 4c reveals that the pork marketing enterprises in the pig value chain are not threatened. Thus, they have opportunity to persist in the value chain and not be killed by prevailing economic circumstances or policies.

SWOT ISSUE : STRENGHT

SWOT INDICATORS	ΣSI_{Asis}	Ns_{sis}	SI_{si}	TNR_{si}	SI_{sir}	FR_{siY}	TSI_{siY}	FR_{siN}	TSI_{siN}
A Record keeping	1	12							
1 Do you keep records of your activities?			0.0833	60	0.001	1	0.001	59	0.082
2 Do you employ a record keepers?			0.0833	60	0.001	0	0.000	60	0.083
3 Do you record sales and production?			0.0833	60	0.001	54	0.075	6	0.008
B Customer services									
4 Do you give discount to customers?			0.0833	60	0.001	13	0.018	47	0.065
5 Do you help in delivery?			0.0833	60	0.001	2	0.003	58	0.081
C Labour Force / Relationship									
6 Do you give workers necessary training and incentives			0.0833	60	0.001	1	0.001	59	0.082
7 Is there working environment ecofriendly and conducive?			0.0833	60	0.001	8	0.011	52	0.072
8 Is there level of remuneration better compare to other enterprise?			0.0833	60	0.001	53	0.074	7	0.010



D Technological Advantage									
9	Is there availability of machines / technological innovations?	0.0833	60	0.001	59	0.082	1	0.001	
10	Is there affordable machine engineers?	0.0833	60	0.001	60	0.083	0	0.000	
E Environmental Impact									
11	Does the dung disposable measure eliminate/reduce smell?	0.0833	60	0.001	53	0.074	7	0.010	
12	Does the cleaning method reduce /eliminate water pollution?	0.0833	60	0.001	53	0.074	7	0.010	
TSI_{sis}						0.496	0.504		

Table 4b: SWOT Index Analysis for Pork Marketers

SWOT ISSUE :WEAKNESS

SWOT INDICATORS		$\Sigma SI_{A_{sis}}$	$N_{si_{sis}}$	SI_{si}	TNR_{si}	SI_{sir}	FR_{siY}	TSI_{siY}	FR_{siN}	TSI_{siN}
A Record keeping										
1	Do you record sales on credit?	1	6	0.167	60	0.0028	4	0.011	56	0.156
2	Is there any bad debt?			0.167	60	0.0028	0	0.000	60	0.167
3	Do you lose left over to waste?			0.167	60	0.0028	4	0.011	56	0.156
B Customer service										
4	Do your buyers complain on assessing your location?			0.167	60	0.0028	1	0.003	59	0.164
5	Do your buyers complain on delivery time?			0.167	60	0.0028	0	0.000	60	0.167
C Environmental impact										
6	Is the farm EIA certified?			0.167	60	0.0028	0	0.000	60	0.167
TSI_{sis}						0.025	0.975			

SWOT ISSUE: OPPORTUNITY SWOT INDICATORS		$\Sigma SI_{A_{sis}}$	$N_{si_{sis}}$	SI_{si}	TNR_{si}	SI_{sir}	FR_{siY}	TSI_{siY}	FR_{siN}	TSI_{siN}
1	Is there any competitor that withdraw from business?	1	4	0.25	60	0.0042	0	0.000	60	0.250
2	Do you do other method such as barbecue or pepper soup?			0.25	60	0.0042	38	0.158	22	0.092
3	Do you have higher demand rate that you			0.25	60	0.0042	4	0.017	56	0.233



cannot meet – up with at the moment?									
4 Do you have buyers that uses pig for other purposes than meat?	0.25	60	0.0042	2	0.008	58	0.242		
TSI_{sis}							0.183		0.817

Source: Data Analysis, 2024.

Table 4c: SWOT Index Analysis for Pork Marketers

SWOT ISSUE: THREATS		ΣSI_{Asis}	Nsi_{sis}	SI_{si}	TNR_{si}	SI_{sir}	FR_{siY}	TSI_{siY}	FR_{siN}	TSI_{siN}
SWOT INDICATORS										
1	Is there any caution from meat sellers' regulation bodies?	1	3	0.333	60	0.0056	2	0.011	58	0.322
2	Any available larger competitor?			0.333	60	0.0056	2	0.011	58	0.322
3	Do you think that pork are cheaper to other meat sources?			0.333	60	0.0056	58	0.322	2	0.011
TSI_{sis}								0.344		0.656

Source: Data Analysis, 2024

Investment Analysis of Pig farmers

Tables 5a - 5b shows the SWOT index analysis for strength, weakness, opportunities and threats of pig farming enterprises in the pig value chain in South Western Nigeria. Following the decision rule of SWOT index analysis (and referring to table 5a), it is shown the pig farming enterprises in the pig value chain cannot be considered as strong. The enterprises need to adopt strategies that will help boost their strength such as keeping records, helping in delivery, adopting innovations such as machineries and modern technologies. Also, Table 16b reveals that the pig farming enterprises in the pig value chain cannot be considered as weak based on the weakness indicator applied. Table 16b

also reveals that the pig farming enterprises in the pig value chain have opportunities that can be maximized for growth and expansion. Pig farming should employ more opportunity such as engaging in veterinary services or consultancy, produce more so as to be able to meet up with demand rate and can also include daily abattoir and frozen as it is discovered that majority of pig farmers in southwest Nigeria does not meet up with demand and also sells only live pigs. Lastly, Table 4b reveals that the pig farming enterprises in the pig value chain are not threatened. Thus, they have opportunity to persist in the value chain and not be killed by prevailing economic circumstances or policies.

Table 5a: SWOT Index Analysis of Pig Farmers

SWOT ISSUE: STRENGTH		ΣSI_{Asis}	Nsi_{sis}	SI_{si}	TNR_{si}	SI_{sir}	FR_{siY}	TSI_{siY}	FR_{siN}	TSI_{siN}
SWOT INDICATORS										
A	Record keeping									
1	Do you keep records of your activities?	1	11	0.0909	60	0.0015	3	0.005	57	0.086



2	Do you employ a record keepers?	0.090 9	60	0.001 5	0	0.000	60	0.091	
3	Do you record sales and production?	0.090 9	60	0.001 5	28	0.042	32	0.048	
B Customer services									
4	Do you give discount to customers?	0.090 9	60	0.001 5	38	0.058	22	0.033	
5	Do you help in delivery?	0.090 9	60	0.001 5	4	0.006	56	0.085	
C Labour Force / Relationship									
6	Do you give workers necessary training and incentives	0.090 9	60	0.001 5	40	0.061	20	0.030	
7	Is there working environment ecofriendly and conducive?	0.090 9	60	0.001 5	38	0.058	22	0.033	
8	Is there level of remuneration better compare to other enterprise?	0.090 9	60	0.001 5	55	0.083	5	0.008	
D Technological Advantage									
9	Is there availability of machines / technological innovations?	0.090 9	60	0.001 5	5	0.008	55	0.083	
E Environmental Impact									
10	Does the dung disposable measure eliminate/reduce smell?	0.090 9	60	0.001 5	58	0.088	2	0.003	
11	Does the cleaning method reduce /eliminate water pollution?	0.090 9	60	0.001 5151 52	40	0.061	20	0.030	
TSI_{sis}					0.468			0.532	

Source: Data Analysis, 2024

Table 5b: SWOT Index Analysis for Pig Farmer

SWOT ISSUE: WEAKNESS										
SWOT INDICATORS										
A		ΣSI _A _{sis}	NSI _{sis}	SI _{si}	TNR _{si}	SI _{sir}	FR _{siY}	TSI _{siY}	FR _{siN}	TSI _{siN}
Record keeping										
1	Do you record sales on credit?	1	6	0.1667	60	0.0028	4	0.011	56	0.156
2	Is there any bad debt?			0.1667	60	0.0028	4	0.011	56	0.156
Customer service										
3	Do your buyers complain on assessing your location?			0.1667	60	0.0028	50	0.139	10	0.028
4	Do your buyers complain on delivery time?			0.1667	60	0.0028	0	0.000	60	0.167
Environmental impact										
5	As there being any complaints from neighbors around on smell and noise?			0.1667	60	0.0028	22	0.061	38	0.106



6	Is the farm EIA certified?			0.1667	60	0.0028	1	0.003	59	0.164
TSI_{sis}								0.225	0.775	
SWOT ISSUE: OPPORTUNITY										
1	Is there any competitor that withdraw from business?	1	3	0.333	60	0.0056	0	0.000	60	0.333
2	Do you have higher demand rate that you cannot meet – up with at the moment?			0.3333	60	0.0056	40	0.222	20	0.111
3	Do you have buyers that uses pigs for other purposes than meat?			0.3333	60	0.0056	58	0.322	2	0.011
TSI_{sis}								0.544	0.456	
SWOT ISSUE: THREATS										
1	Is the mortality rate above 5%	1	3	0.3333	60	0.0056	0	0.000	60	0.333
2	Any available larger competitor?			0.3333	60	0.0056	2	0.011	58	0.322
3	Do you think that pigs are cheaper to other sources?			0.3333	60	0.0056	0	0.000	60	0.333
TSI_{sis}								0.0111	0.989	

GINI COEFFICIENT FOR PORK MARKETING

The Gini – coefficient of pork marketers shown table which is 0.489173 indicates a

Table 1: Distribution of income among pork marketers.

moderate level of income inequality in the income distribution i.e there were variability in the sales of pork but not extremely skewed. There is a relative even sales and sales is stable.

Income (₹)	Number of sellers	Proportion of sellers (X)	Cumu. % of sellers.	Total sales (₹)	Proportion of total sales	Cumm. Proportion of total sales (Y)	XY
≤481,000	40	0.67	66.67	1,920,000	0.391	0.391	0.26197
481,000 – 980,000	5	0.08	75.00	4,320,000	0.088	0.479	0.039757
981,000 – 1,480,000	6	0.1	85.00	5,520,000	0.112	0.591	0.0591
1,481,000 – 1,980,000	-	-	-	-	-	-	-
1,981,000 – 2,480,000	9	0.15	100	20,100,000	0.409	1.00	0.1500
Total	60	1.00		491,400,000	1.00	1.00	0.510827

Source: Data Analysis, 2024

$$\begin{aligned} \text{Gini coefficient} &= 1 - \sum XY \\ &= 1 - 0.510827 \\ &= 0.489173 \end{aligned}$$

Constraint to Investment in Pork Marketing

The distribution of pork marketers by the constraints faced in pork marketing is presented in Table 24. The study reveals that transportation ($\bar{X} = 4.93$) ranked first, closely followed by cost of purchase ($\bar{X} = 4.85$) and poor access to credit ($\bar{X} = 3.73$) while customer preference ($\bar{X} = 1.68$). 95% of the pig farmers reported transportation as limiting factor in pork marketing.



Table 2: Analysis of Constraint to Marketing Investment of Pork Marketers

Constraint to investment	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Rank
Cost of purchase	57(95)	1(1.7)	0(0)	0(0)	57(95)	4.85	2nd
Transportation	57(95)	2(3.3)	1(1.7)	0(0)	0(0)	4.93	1st
Poor access to credit	4(6.7)	45(75.0)	4(6.7)	5(8.3)	2(3.3)	3.73	3rd
Customer preferences	7(11.7)	2(3.3)	0(0)	7(11.7)	44(73.3)	1.68	4th

Source: Data Analysis, 2024

CONSTRAINT TO INVESTMENT IN PIG FARMING

The distribution of pork marketers by the constraints faced in pig production is presented in Table 25. The study reveals that Transportation ($\bar{X} = 4.5$) ranked first,

closely followed by feeding cost ($\bar{X} = 4.0$) and poor access to extension service ($\bar{X} = 3.85$). Furthermore, cost of piglets ($\bar{X} = 3.8$) ranked fourth, while site location ($\bar{X} = 2.8$) and pollution and maintenance ($\bar{X} = 1.6$), ranked fifth and sixth respectively. 36.7% of the pork farmer reported Transportation as limiting factor in pork marketing.

Table 3: Analysis of Constraint to Investment in Pig Farming

Constraint to investment	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Rank
Cost of piglet	7(11.7)	23(38.3)	0(0)	0(0)	0(0)	3.8	4th
Feeding	18(30)	25(41.7)	18(30)	0(0)	0(0)	4.0	2nd
Transportation	22(36.7)	38(63.3)	0(0)	0(0)	0(0)	4.5	1st
Site location	2(3.3)	13(21.7)	14(23.3)	28(46.7)	3(5.0)	2.8	5th
Poor access to extension services	10(6.7)	3(5.0)	3(5.0)	13(2.7)	13(2.7)	3.85	3rd
Pollution and maintenance	24(16.7)	10(16.7)	23(38.3)	3(5)	0(0)	1.6	6th

Source: Data Analysis, 2024

III. CONCLUSION

It can be concluded that the key operations in the pig value chain were profitable enterprises and young adults were mostly engaged in pig value chain with more males involved in pig farming and more female in pork marketing. Based on the findings of this study, the following recommendations were made:

1. There should be market space to sell matured pigs and abattoir as it were for cattle, sheep and other animals.
2. Processing of pork cold-room should be encouraged to increase the shelf life of raw pork and promote export with a view to increase demand and generating foreign exchange.
3. Pig farmers in the study area should endeavor to employ the use of technical and mechanical innovation on production and processing for better and easy performance. The extension farmers should endeavour to inform the actors along pig value chain with these innovation.

4. Investors who are interested in Pig/Pork marketing should familiarize with government policies on meat and abattoir, environmental assessment, climatic changes that might impose great threats on the business.

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