

Economic Analysis of Broiler Value Chain. A Case Study of Hillview Farm in Masvingo Province, Zimbabwe

A dissertation submitted in partial fulfilment of the requirements for the Bachelor of Science Honours in Agricultural Economics and Management.

Bindura University of Science Education



**Faculty of Agriculture and Environmental Science
Department of Agricultural Economics, Education and Extension**

Lyn Mangava

B202914B

Academic Advisor/Supervisor: Dr A.C Mujeyi

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RELEASE FORM

Name of Candidate: Lyn Mangava

Reg Number: B202914B

Degree: Bachelor of Science Honours in Agricultural Economics and Management.

Project Title: Economic Analysis of Broiler Value Chain. A Case Study of Hillview Farm in
Masvingo Province, Zimbabwe

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Signed...*L Mangava*.....

Permanent Address: 4A Clarence Drive, Newlands Harare

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The undersigned certified that they have supervised and recommended to Bindura University of Science Education for acceptance of dissertation **entitled ‘Economic Analysis of Broiler Value Chain. A Case Study of Hillview Farm in Masvingo Province, Zimbabwe’** submitted in partial fulfillment of a Bachelor of Science Honours in Agricultural Economics and Management.

Name of supervisor: Dr. Angeline C Mujeyi

Signature: 

Date: 31/5/24

DECLARATION

I Lyn Mangava declare that this dissertation is my original work, which has not been submitted to any academic institution or University. I confirmed that all materials used such as articles, books, and online sources are acknowledged.

Reg number: B202914B

Signature: *L Mangava*.....

Date: 11-06-2024

DEDICATION

This research project is dedicated to my lovely mother Mrs. F Matowowo, whose unwavering support, encouragement, and prayer have been a pillar of strength. I also dedicate this dissertation to my supportive supervisor Doc A. Mujeyi.

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ABSTRACT

This study conducts an economic analysis of the broiler value chain focusing on Hillview Farm, a medium-sized broiler farm located in Masvingo Province. Data was collected from 30 respondents using structured questionnaire and personal interviews. Gross margin analysis, Marketing margin analysis, and value chain mapping analysis were used to analyse the data. Gross margin analysis was used to estimate the cost and return of broiler production. The findings portray that the gross margin was \$ 12,475.76 per batch of 8,000 broilers and the return per \$ invested was \$1.41 indicating that broiler production at Hillview Farm is profitable and viable. However, the study depicted that though the farm has proved profitable, the broiler farm is experiencing high feed costs, which comprise 66% of the total variable costs. Marketing margin analysis was used to examine the marketing system and its performance at Hillview Farm. Therefore, the broiler value chain at Hillview Farm has proved to be efficient and productive as shown by the results of the marketing margin analysis. The study revealed that the farm's marketing margin was \$11,314.16 or 91% high and incurred \$1,161.60 which is 9% marketing cost hence a high marketing margin indicates that revenue generated from sales is sufficient to cover the marketing expenses and the farm still earns profits. Value chain mapping analysis was used to examine the marketing system for broilers at the farm. The result revealed that Irvine's is the supplier of DOD chicks, Fivet veterinary distributor supplies vaccines and medication to the farm, and Gain (feed supplier). Followed by the farm itself which is responsible for the rearing of the broiler from day old until slaughtering age. Hillview goes on to process and distribute dressed chicken and live chicken to restaurants, food outlets, schools, and consumers around Masvingo. SWOT analysis was used to identify constraints and opportunities in broiler production and marketing. The results show that the broiler farm experienced high feed costs, stiff competition, and outbreak of diseases. However, the farm should prioritize cost management, particularly regarding feed costs by considering formulating the feeds on the farm to control the cost of feeds better

Keywords: Economic analysis, broiler, value chain, Gross margin analysis, Marketing margin analysis, value chain mapping and SWOT analysis

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ABBREVIATIONS OR ACRONYMS

BEP- breakeven price

BVC -Broiler value chain

CBR-Cost-benefit ratio

CSA -Community Supported Agriculture

DOD -Day-old chicks

FAO-Food and Agriculture Organization

GPS - The Global Positioning System

SAZ - Standard Association of Zimbabwe

SSA- Sub-Saharan Africa

SWOT-Strength, Weakness, Opportunities, and Threats

TFC-Total fixed cost

TVC- Total variable cost

VCA- value chain analysis

ZPA- Zimbabwe Poultry Association

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CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Global poultry meat and egg production and trade with poultry products have shown a remarkable dynamic in recent years ((Windhorst, 2007). Between 1980 and 2021 poultry meat and egg production increased faster than that of beef and veal or pig meat. The trade volume of poultry meat increased even faster than production. In 2004, 12% of the poultry meat produced reached the world market but only 1.8% of the eggs. The rapid increase in poultry meat production has been very imbalanced. (Windhorst, 2007), therefore it means that the production of broilers is very crucial since it has so many benefits including employment benefits to the nation hence reducing the burden on the government of creating employment. China and Brazil became new centres of production in Asia and South America. In hen egg production Asia was the only winner in the analyzed period, all other continents lost market shares. The increase in regional concentration is mainly due to the dominating role of China. According to (Windhorst, 2007), developing countries exceeded developed countries in terms of production volumes between 1990 and 2000. They account for approximately 55%of the global poultry meat production and 68% of global egg production. This indicates the significant shifting the poultry industry, with developing countries no playing a dominant role in meeting world demand for poultry products,

According to (Erdaw, 2020) the trend of poultry product consumption per person in Africa is increasing. Poultry product consumption in SSA is improving the sector requires transformation (Nicolas Depetris Chauvin, 2012). (Pá, 2022) predicted that the consumption of meat from pigs and chickens would exceed red meat consumption by 2030 in most of the SSA countries. (Smith, 2015) revealed that global poultry meat consumption was projected to surpass that of pork in 2020 and to be 27% higher in 2023. By 2050, West Africa is projected to have a seven-time increment in the consumption of products from mono-gastric animals, followed by Southern and Eastern African countries, respectively (Narrod, 2007). As stated the consumption rate of animal products by the SSA countries, in general, is projected to grow more than 60% over the next 20 years. The same author suggested also that because of the reasons mentioned above and other facts, the poultry industry in the region is attracting investors. Hence, there are trends in

building a smarter poultry value chain establishment, such as breeding stocks, out-grower farms, and processing facilities in some of the SSA countries. (Mengesha, 2012b), pinpointed that the main reasons for an increased demand for animal-derived food is because of rapid urbanization, progressive growth of the human population, and income improvements, but the inclusive increment of production does not match in SSA. The main reason for supply not keeping up with the demand for poultry production might be that most products are coming from the traditionally operated family poultry that have low productivity. It has been increasingly difficult for smallholders to meet the food safety and quality standards that are being required by both growing urban and export markets (Narro, 2007)

Agriculture remains one of the most fundamental sectors in most developing countries, especially Zimbabwe ((Precious T Phiri, 2023). Agriculture is the backbone of Zimbabwe's economy as it contributes to 7% Gross Domestic Product (GDP) while ensuring food security to the country as viewed by (FAO, 2022). With the scientific name *Gallus Gullas domestic us*, broilers are birds species raised specifically for meat production because of their ability to grow fast (Kruchten, 2012). Most commercial broilers reach slaughter weight between 4 to 7 weeks of age. Broilers have a high feed conversation ratio of 1.6 based on body weight gain which is the reason why they grow fast viewed. There are several breeders in Zimbabwe which includes Irvine's, Charles Stewart, Masvingo Chicks, and Hubbard or Crest Zimbabwe (Zengeni, 2014). These breeders use advanced breeding techniques and management practices to efficiently produce broilers to ensure the farmers' continuous supply of chicks.

According to (Kashangura, 2016), broiler production in Zimbabwe plays an important role as it contributes to food security, income generation, and employment creation throughout the value chain hatcheries, feed millers, farmers, and distributors. Hence contributing to poverty alleviation, improving the livelihood of people, and stimulating economic growth of the country. (I Sani, 2023) , revealed that every step in the value chain adds value to the product, from the initial production of chicks to the final product sold to the consumers. The value chain includes various stakeholders or players such as input suppliers, broiler farmers, processors, distributors, and retailers (Baba, 2024). Input suppliers are responsible for supplying goods and services needed in the production of broilers for example day-old chicks, feed, medication, feeders, and

water troughs. Farmers are the growers that responsible for the day-to-day care of the birds from the day of old until they reach 42 days old. The farmer is accountable for feeding, monitoring the birds, and making sure the birds attain the standard weights needed by other stakeholders in the value chain.

Additionally, processors are responsible for transforming through slaughtering, cutting, and packaging of chicken meat as noted (Li, 2024). They ensure that they comply with rules of safety and standards. Distributors do the transporting or delivering as well as marketing and selling of broiler meat directly to customers and retailers. (Baba, 2024), pinpoint that, all the actors work together to bring broilers to the market. Broiler value chain requires coordination and cooperation among all parties involved to ensure a steady supply of high-quality chicken meat to meet consumer demand.

This research focuses on economic analysis of broiler value chain. Conducting a study provides valuable information into the economic viability and factors influencing broiler Production. The research done in Uyo Local Government Area of Akwa Ibon State, Nigeria revealed that there are constraints that affect the broiler value chain which include high production cost, management practices, market fluctuations, disease outbreaks, feed availability, and inadequate technical knowledge (Inyang, 2024) and (Kashangura, 2016). By understanding these constraints farmers and other stakeholders can develop targeted strategies to improve profitability and ensure long-term sustainability in broiler production

1.1.1 Overview of the study

This study focuses on the farm called Hillview Farm which is situated in the Ndadza community in Masvingo Province, about 12km from Masvingo Town in the southeast of the town along Great Zimbabwe Road. Hillview Farm is a medium-sized farm (920 hectares), with a production capacity of 96 000 broilers per year. The main activities of the farm are horticultural crops, livestock (Cattle and Goats), and poultry projects. Because it is in region 4, which receives low rainfall of 450mm to 650mm per annum, and due to climate resilience which is being adopted in Zimbabwe the farm ventured into low crop farming (maize), livestock (cattle and goat production) and poultry production (broilers, roadrunners and layers), since it is the most suitable

for that. The farm supplements the water system through dripping due to the lack of adequate rainfall and lack of dams to sustain crops during dry spells.

1.2 Problem statement

Despite an increase in demand for poultry meat due to its affordability and richness in proteins, broiler production in Zimbabwe, Farms are still facing constraints like increased cost of feed prices, information asymmetry, uncertainties (climatic conditions, diseases) poor management, market fluctuations (Precious T Phiri, 2023). These challenges reduce competitiveness, limited market penetration and inadequate returns. However, there is limited information on the economic analysis of the broiler value chain at Hillview Farm. Most broiler farmers just produce without making a proper assessment of the economic viability of the business. This study seeks to conduct an economic analysis of the broiler value chain by examining the profitability of broiler production, market channel used and identify the bottlenecks of broiler production and marketing. This research aims to address the gaps by conducting a case study of Hillview Farm.

1.3 Research questions

1. What are the costs and returns of broiler production at Hillview Farm?
2. What are the marketing channels for broilers at the farm?
3. What are the constraints and opportunities in broiler production and marketing at Hillview Farm?

1.4 Objective of the study

1.4.1 Main objectives

1. To assess the economic analysis broiler value chain at Hillview Farm.

1.4.2 Specific objectives

1. To estimate costs and returns of broiler production at Hillview Farm.
2. To examine the broiler marketing system and its performance at Hillview Farm
3. To identify the constraints and opportunities in broiler production and marketing at Hillview Farm.

1.5 Justification

Broiler value chain contributes much to the agricultural sector and the economy of Zimbabwe by creating employment opportunities and income for farmers and other actors in the broiler value chain. This study justifies the need for an economic analysis of broiler value chain as it helps the farm to identify inefficiencies in the marketing channels and production. By estimating the costs and revenue of the broiler at Hillview farm, the study helps the farm to identify areas for cost minimization and enhance profits. Hence, this study will add to the existing body of knowledge on poultry farming economics, can be used by policymakers, and provide a reference for future research endeavours. Furthermore, identifying constraints and opportunities in broiler production and marketing at Hillview Farm contributes to development strategies that enhance growth and sustainability in broiler production.

1.6 Organization of the report

The research comprises five chapters. Firstly, chapter one contains the background of the study, problem statement, research questions and objective of the study, justification of the study. Chapter one provides an overview of the topic and goal of the research. Secondly, chapter two contains a literature review that summarizes the research. Chapter three shows the description of the study area, research design, data collection, and analytical frameworks. Chapter four contains data presentation and data analysis. Lastly, chapter five represents the conclusion and recommendations and suggestions for the future research.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This literature study delves into the economic aspects of the broiler value chain, with a focus on evaluating costs and returns in broiler production, analysing the broiler marketing systems, and identity constraints and opportunities in broiler production and marketing. The analysis sheds light on the profitability and competitiveness of broiler production, allowing farmers and industry stakeholders to make educated decisions.

2.1 Theoretical framework

Theoretical frameworks are essential in research writing because they provide structure to the study and guide the creation of research questions (Julie A Luft, 2022). The use of theoretical frameworks can improve research quality by giving a reason for research questions and hypotheses, as well as connecting research topics to data analysis and presentation (Onwuegbuzie, 2006). They also help to acquire new knowledge by giving a foundation for explanations and interpretations (Ngoc, 2020). Therefore, theoretical frameworks are vital in research writing, since they give a roadmap for the investigation and raise the possibility of delivering significant findings, this research is going to be guided by the topic

2.2 Broiler Chicken Production in Zimbabwe

Broiler chickens (*Gallus gallas domesticus*) are birds reared specifically for meat production. This breed has white feathers and yellowish skin (Kruchten, 2012). Many farmers prefer this breed because of its ability to grow fast and yield quick returns as compared to livestock production and other poultry species. Broiler reaches slaughter weight at 4 to 6 weeks of age. They have a high feed conversion ratio that why they take a shorter period to grow. According to (Zengeni, 2014), there are three main broiler breeds in Zimbabwe which are Cobb 500, Ross and Hubbard. There are several breeders which are Irvine's day-old chicks, Masvingo Chicks, and Charles Stewart

Poultry production in Zimbabwe has been steadily increasing in recent years, driven by an increase in demand for poultry meat, an increase in population, and religious beliefs (Toit, 2016). Demand for poultry meat is also continuously increasing due to the skyrocketing prices of beef,

mutton and chevon meat, and game meat, so customers shift to chicken because of its affordability (Chari, 2023). (Taylor, 2014) pinpointed that high broiler meat consumption has attributed to the popularization of poultry meat as the healthier, affordable, accessible, and more convenient associated with less complicated breeding and rearing methods Poultry meat is a source of protein, and medical practitioners emphasize people consume more of chicken, unlike the red meat.

(G. B. Nyamushamba, 2008)) noted that broiler chicken production started with large-scale farmers before independence. Due to technological advancement and the availability of knowledge, poultry farming is now practiced by both large-scale and small-scale farmers. The main advantage is that it can be practiced on small piece of land because broilers reach the slaughtering period faster than other livestock animals. In some cases, broiler takes 4 to 6 weeks to reach the expected body weight of 1.8kg to 2kg this is because of feed with high fat content the likes of Profeeds broiler feed. Research and development and technology help farmers with adequate knowledge that helps to maximize profits and minimize losses hence increasing the productivity of broiler chicken production.

In Zimbabwe, broiler farming plays the crucial role of creating employment for farmers for about 4% of employment to farm workers, feed supplies, marketing agencies, and veterinary agencies noted by (ZIMSTATS, 2021). It is also a source of income and livelihood for people in Zimbabwe (Kashangura, 2016). Poultry farming ensures food security to the nation because of its richness in protein nutrients and affordability. Broiler chicken production is believed to be a profitable enterprise because of its ability to grow fast for 4 to 6 weeks and provide quick returns as compared to other livestock enterprises (Dassanayake, 2006). Broiler chickens can be reared in small spaces but still make profits if the flocks are properly managed. Broiler production is said to be in mass progression in profit due to a progressive increase in demand for chicken meat as compared to other meats because it is a bit cheaper as compared to others as supported by (S.D Chowdhury, 2008) Majority of the restaurant, canteen, and other food outlets demands more of chicken meat because it's cheap and takes short time to be prepared.

2.3 Trend of broiler production in Zimbabwe

According to data collected by the Zimbabwe Poultry Association (ZPA, 2022) and (Knoena, 1961-2023) revealed that broiler production has been increasing in recent years. This may be caused by the availability of a favourable market to sell broilers and an increase in population can increase demand for broilers and broiler meat.

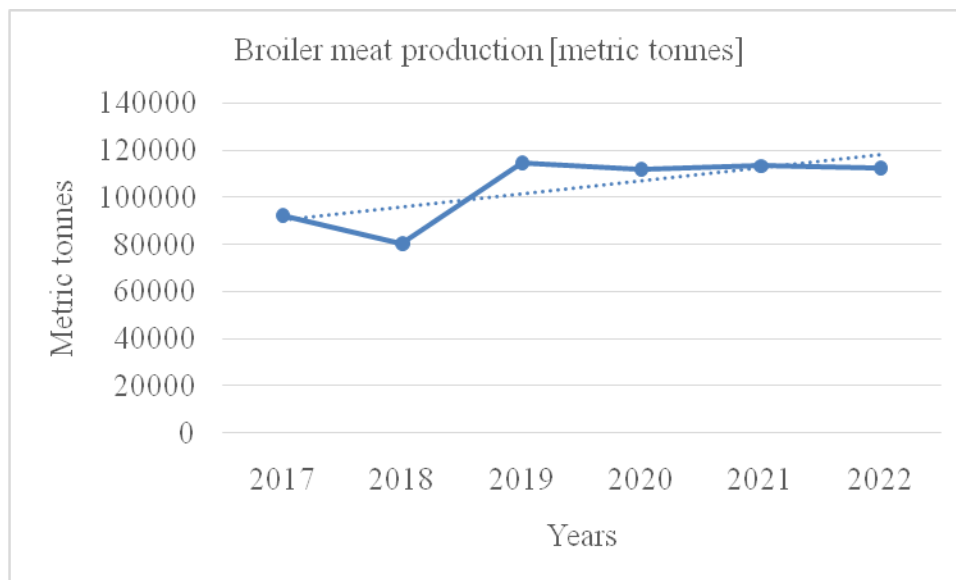


Figure 2.2 1 Broiler meat production trend (2017-2022)

Source: (Knoena, 1961-2023)

As shown by the trend above, from 2017 to 2018 there was a decrease in broiler production from 92 300 to 80 378 metric tonnes, this was due to disease outbreaks and market fluctuations. In 2019 there was an increase in production broiler meat production due to the availability of a favourable macroeconomic environment for business. However, from 2019 to 2020 there was a decrease in broiler production primarily due to challenges posed by the outbreak of the COVID-19 pandemic and economic instability. In 2021, there was a slight increase in broiler meat production and a slight decrease in 2022 as compared to other years

2.4 An overview of the broiler value chain

The broiler value chain refers to the entire process of raising broiler chickens, from hatching to processing and delivery to the final consumer noted by (Breisinger, 2023). According to (SA

Bukachi, 2024), the broiler value chain involves various stakeholders who include inputs suppliers, broiler producers, transportation, processing, wholesalers, retailers, and customers. Input suppliers constitute hatcheries that provide day-old chicks to broiler producers, feed manufacturers that supply feed and nutritional supplements for broiler chickens, and equipment suppliers that supply equipment such as feeders, drinkers, and climate control systems, necessary for broiler production.

Furthermore, Broiler producers are the farmers who raise broiler chickens from day-old chicks until the birds reach the initial slaughtering period and take full responsibility for managing the broiler houses, feeding, healthcare, and overall management of the birds (E Lambrecht, 2020). Another actor in the broiler value chain comprises transportation and logistics which are responsible for moving live birds from the farms to the processing plants or wholesalers, retailers, and end customers. Processing facilitates the slaughter, process, and packaging of broiler chicken for distribution. In addition, wholesalers purchase large quantities for example 100 birds and above for farmers of producers and distribute the broiler chickens to retailers' restaurants and other bulky purchasers. Retailers consist of supermarkets like Pick & Pay, Metro Peach, and other retail outlets that sell broilers directly to the consumer. These consumers are the end-users of broiler products that purchase and consume chicken.

However, there are other stakeholders involved in the value chain like regulatory boards like SAZ that ensure the broiler products are safe for consumption. Both vertical and horizontal integration exist among actors of the value chain intending to ensure the effective flow of goods and services to satisfy their clients, create health competition, and enhance productivity that results in profit maximization for the value chain actors and overall development of the chain (Adeyonu, 2021). The figure below depicts the broiler value chain and the stakeholders involved

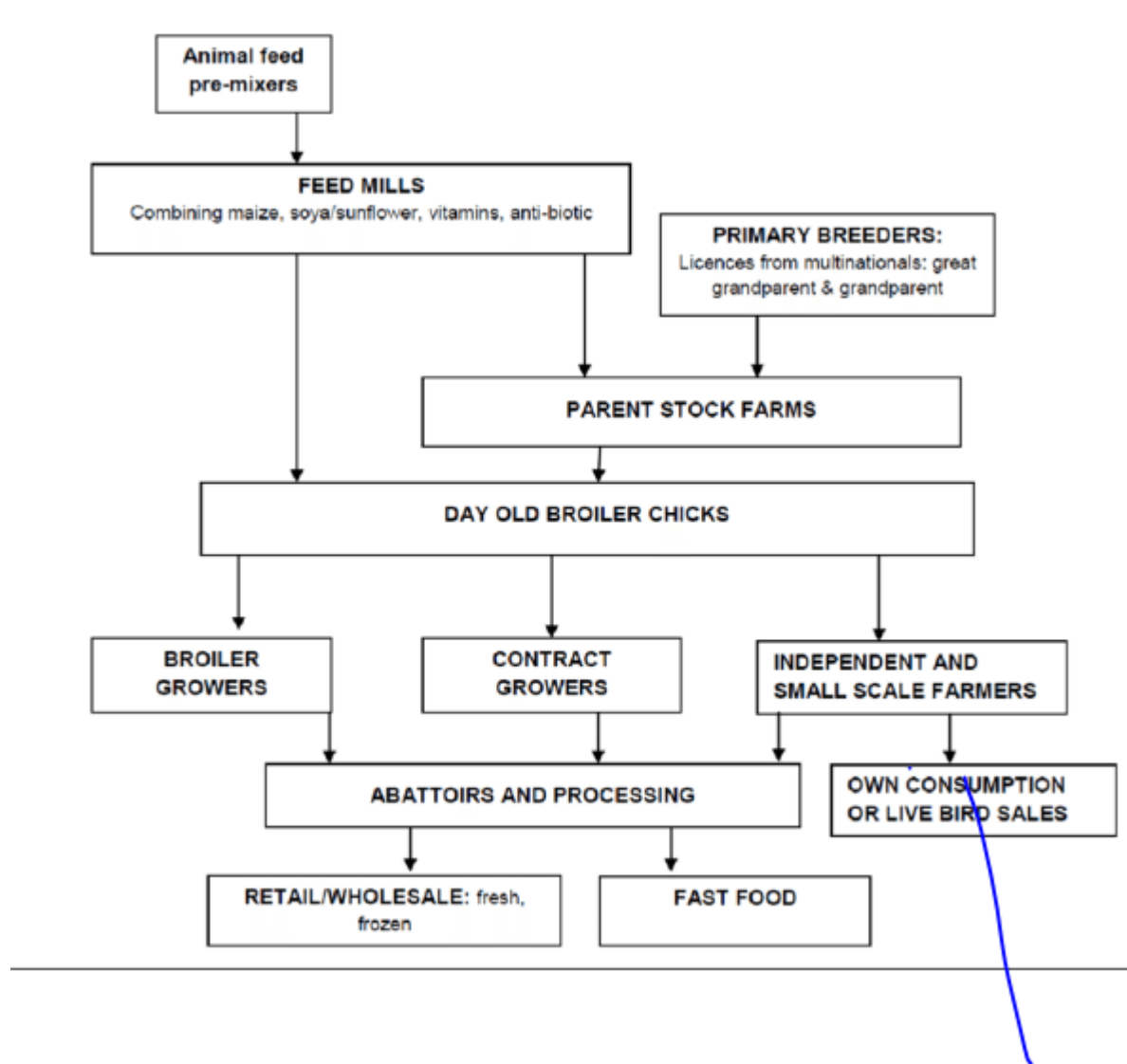


Figure 2.4 1 Value chain diagram

Source, (Bagopi, 2013)

The diagram above Fig 2.4 1 shows the broiler value chain which starts from the breeder followed by the farmer followed by processing followed by distribution and retail, and the final consumers.

2.5 Economic analysis of broiler value chain

According to (Abigail G. Adeyonu and Enoch O. Oyawoye, 2021)BVC focuses on linkages between corporate strategies, investments, and industrial policies. The result of Broiler Value Chain Mapping Zimbabwe identified farmers, hatcheries, broiler growers, processors, retailers,

and consumers as the main actors of the value chain. (Abigail G. Adeyonu and Enoch O. Oyawoye, 2021) Pinpointed that there are various actors or stakeholders in the broiler value chain who do value-adding activities until the meat produced gets to the final consumers. The broiler value chain encompasses activities that include production, processing, marketing, and consumption.

2.5.1 Production

Understanding the main expenses related to broiler production can be achieved by analysing the cost structure within the broiler value chain. This involves estimating the expenses of inputs including feed, shelter, equipment, labour, medicine, and chicks. It is easier to discover cost drivers, efficiency possibilities, and cost optimization techniques when one is aware of the cost structure.

According to (Boer, 2018), gaining an understanding of the economic ramifications of the various production techniques employed in broiler farming requires evaluating them. Comparisons between conventional systems, organic systems, free-range systems, and other alternative production techniques may be made during this analysis. The evaluation of various production systems' economic viability and sustainability involves analysing elements including capital requirements, operating costs, labour intensity, productivity, and product quality. Evaluating productivity and efficiency in the broiler production process requires examining the degree of technological use. Analysing the application of enhanced breeding methods, feed formulas, immunization schedules, housing innovations, and waste management systems are all included in this. It is easier to spot chances for resource optimization, cost savings, and productivity gains when one is aware of the economic effects of technology adoption (Heidari, 2015)

According to (Olorunwa, 2018), understanding the relationship between production volume and average costs is made easier by evaluating the economies of scale in broiler production. In this analysis, the cost benefits of a larger production scale such as better resource utilization, bulk purchasing, and stronger negotiating leverage with input suppliers are examined. Gaining knowledge on economies of scale facilitates the determination of ideal farm sizes and the

possibility of cost reduction via growth or consolidation. Examining productivity and efficiency metrics in the broiler industry facilitates benchmarking and the identification of areas for improvement. This entails assessing production metrics like labour productivity, growth rate, mortality rate, and feed conversion ratio. Evaluating the variables that affect productivity, like genetics, diet, health care, and farming methods, aids in the best use of available resources and raises overall output effectiveness.

Furthermore, understanding the interdependencies and value generation throughout multiple stages of the broiler production process can be achieved through an examination of the input-output linkages. In this analysis, the linkages between production processes, inputs (feed, chicks, medication, etc.), and outputs (living birds, processed meat) are examined. Comprehending the links between input and output facilitates the identification of prospects for adding value, optimizing costs, and minimizing waste in the production system. (White, 2018) . It is essential to evaluate the risks and uncertainties related to broiler production to comprehend the industry's sustainability and economic feasibility. This entails examining variables like input price swings, illness outbreaks, climatic unpredictability, and price volatility. In the broiler value chain, knowing the economic effects of risks and uncertainties influences investment choices, insurance policies, and risk management tactics.

2.5.2 Processing

According to (Atuah, 2021), to comprehend the economic ramifications, it is critical to evaluate the infrastructure and processing technology employed in broiler processing facilities. This entails assessing the effectiveness, affordability, and capability of various processing tools, infrastructure, and automation systems. Understanding the infrastructure needs and technology developments facilitates the identification of prospects for process enhancement, cost containment, and value addition in the broiler processing industry. The relationship between processing volume and average costs can be better understood by examining the economies of scale in broiler processing. In this analysis, the cost benefits of a larger processing scale such as enhanced throughput, greater resource utilization, and stronger negotiating power with input suppliers are examined. Gaining an understanding of economies of scale facilitates the

identification of ideal processing capabilities as well as opportunities for cost savings through growth or consolidation.

Analysing the personnel and automation needs in broiler processing facilities is essential for determining productivity and cost structures. Analysing the time-consuming processes involved in processing, like sorting, cutting, deboning, packing, and quality checking, is part of this. Evaluating the economic viability and potential of automation technologies contributes to cost reduction, improved processing efficiency, and labour utilization optimization. (Chowdhary, 2020). To ensure product integrity and regulatory compliance, it is critical to examine the quality control and food safety practices in broiler processing. This analysis entails assessing the costs of quality control measures, including certification, testing, traceability, and inspection. Knowledge of the economic consequences of quality control and food safety aids in the identification of cost-effective practices reduces the number of product recalls, and upholds consumer trust.

to increase profitability and competitiveness in the market, value addition and product diversification potential in broiler processing should be evaluated. This entails examining the possibilities for product differentiation, by-product utilization, and the creation of processed goods with added value. Recognizing consumer inclinations and market demand for various processed broiler products facilitates the identification of potential avenues for value addition, income diversification, and margin enhancement. Researching broiler processing's effects on the environment and waste management techniques is essential for sustainable operations. This study evaluates the expenses related to environmental compliance, wastewater treatment, and waste disposal. Knowing the financial effects of waste management makes it easier to find economical solutions, encourage resource efficiency, and reduce the environmental impact of broiler processing activities. (Mdletshe, 2023) stated that to increase market prospects and foster global competitiveness, it is critical to assess market access and trade-related variables in broiler processing. The trade regulations, tariffs, non-tariff obstacles, and sanitary and phytosanitary standards that impact the import or export of broilers are all evaluated in this analysis. Policy advocacy and tactics to improve market integration and competitiveness in broiler processing are better informed by the identification of trade barriers and market access restrictions,

2.5.3 Marketing

Marketing is the process of promoting and selling products, services, or ideas to a target audience. It involves understanding customer needs, creating value, and communicating benefits to drive sales, revenue, and growth. Marketing plays an important role in the value chain as marketing stimulates demand, guaranteeing a consistent stream of income for farmers and processors. In the broiler value chain, there is a broiler marketing system.

2.5.3.1 Broiler marketing system

The broiler marketing system refers to the structure and processes that govern the distribution and sale of broiler chicken products from producers to customers or end users. It refers to the many routes, players, and actions that ease the transfer of broiler products from farm to market. The broiler marketing system varies depending on geographical location, market dynamics, and manufacturing scale. The broiler chicken marketing system is a complex network involving various stakeholders with large companies dominating the governance and market information dissemination (Alarcon, 2017). The broiler chicken marketing system is a complex network of production, distribution, and governance. (Gempesaw, 1988), developed a simulation model for contract broiler growers which includes marketing and financial management aspects. These studies collectively underscore the multifaceted nature of the broiler chicken marketing system with implications for production, distribution, and governance.

2.5.3.1.1 Integrator or processor channel

The broiler marketing system is divided into channels, with the Grower-Trader-Retailer-Consumer channel being the most visible and effective. Integrators give producers access to markets, technical assistance, and inputs. Broilers are sold through this route to an integrator or processor, who processes them and then distributes the finished goods to food service operators, retailers, and export markets (Cunningham, 2009). This system is generally controlled by integrators, who own and handle the production components such as processing and marketing. The connection between integrators and farmers plays a critical role in determining company effectiveness in broiler production (Ariffin, 2014). Despite structural rigidities, the broiler sector in Peninsular Malaysia demonstrates market integration, with asymmetries in price transmission between central and regional wholesale markets (Kaur, 2010).

2.5.3.1.2 Wholesale channels

Wholesale channels in broiler marketing include middlemen that acquire and distribute broiler products in bulk to retailers' food service providers and other buyers (Kaur, 2008). These channels connect the supply and demand sides of the market, allowing for economies of scale and favourable price arrangements. The efficiency and structure of the broiler market are largely determined by the wholesale channels in the broiler marketing system. According to (Mugo, 2012), the most well-known and effective channel is the one involving the broiler grower, trader, retailer, and consumer. (Carron, 2017), however, drew attention to important structural disparities and discrepancies in product quality and market access among various broiler chains.

2.5.3.1.3 Retail channels

In broiler marketing systems, retail channels refer to the many routes that broiler products take to reach consumers. These channels can range from direct sales from grower to consumer to more sophisticated pathways comprising dealers and retailers (Moni, 2019). Direct communication between producers and customers is facilitated by farmers' markets and neighbourhood food hubs, which emphasize freshness, quality, and traceability. Programs for community-supported agriculture (CSA) encourage sustainable farming practices and a feeling of community (Lim, 2024). The efficacy of these routes varies, with some being more visible and efficient than others. The utilization of various marketing channels can also have an impact on marketing margins, with some patterns resulting in larger margins (Utami, 2018).

2.5.3.1.4 Foodservice channels

Foodservice channels supply broiler products to restaurants, hotels, caterers, and other businesses (Queenan, 2022). A variety of food service channels are included in the broiler marketing system such as formal retail trade, commercial production, and alliances with big-box stores and fast-food restaurants. Public relations and paid advertising are two examples of marketing strategies that have an impact on these channels (Olson 2020). Nonetheless, the market is dominated by a small number of powerful players and they are up against competition from less expensive imports in this intricate system (Queenan, 2022)

2.5.3.1.5 Direct marketing

Direct marketing channels in a broiler marketing system involve manufacturers selling their products directly to consumers or end users, without the need for intermediaries (Utami, 2018). This allows producers to maintain control over the marketing and sales processes, resulting in closer client ties. Direct sales can take place on-farm, at marketplaces, and via internet platforms, with marketing tactics such as advertising, social media, and word-of-mouth. Community-supported agriculture (CSA) programs connect customers and producers, promoting community and transparency in the food system. Farmers' markets serve as direct marketing platforms that allow producers to interact with customers and establish trust. Online sales platforms, such as dedicated websites or social media enable producers to display their items and accept orders online. Farm-to-restaurant sales entail selling broiler items directly to restaurants, hotels, or other food service facilities.

2.5.3.1.6 Export markets

The sales and distribution channels used to sell and ship broiler products to foreign markets are known as export channels in a broiler marketing system (Tamir, 2019). The procedures and middlemen involved in exporting broiler products from the nation of origin to overseas markets are covered by these channels. To help broiler producers, reach a wider audience and facilitate international trade, export channels are essential (Jabbar, 2008). Numerous factors impact the broiler industry's export markets. To guarantee the safety of meat intended for export, (Raha, 2009), highlights the necessity of funding research and development as well as the implementation of preventive measures. According to (Kapombe, 1997), changes in exchange rates and market interventions have a major impact on US grill exports, demonstrating the price responsiveness of export markets. The pricing-to-market behaviour in the US broiler meat export markets is further examined by (No, 2015), who concludes that long-term planning can help reduce imbalances in domestic production and consumption.

2.5.4 Consumption

Consumption refers to the final stage of the broiler value chain, where the produced broiler meat is purchased and utilized by consumers. There are key factors that influence consumption which include demand drivers, market segmentation, and consumer behaviour. Demand drivers like

income influence consumption rate, as the consumer income increases consumers tend to purchase more of a product and vice versa. Population growth and urbanization can influence consumption in the broiler value chain by increasing demand for broiler meat hence increasing margins of poultry sectors

Market segmentation is another aspect to consider in the value chain. Market segmentation refers to a market with distinct customers with unique needs and preferences for instance demographic segment with young adults 18-35 years prefers a convenient product (broiler) hence the consumption rate increases causing broiler farmers to produce more broilers to meet the demand. Additionally, urban customers prefer convenient broiler chicken however in rural areas they prefer local delicacy chicken products (roadrunner and turkeys) hence causing a fall in consumption of broiler meat.

It is important to understand consumer behaviour, how a consumer makes their decisions for example preferences differ among customers. Small food outlets, small butcheries, and other customers prefer live chicken to be dressed while supermarkets, butcheries, restaurants, and others prefer dressed ones. To cater to that broiler farmer, sell both live and dressed.

2.6 Value chain efficiency and productivity

Value chain efficiency refers to optimal performance and coordination of activities within the value chain to maximize productivity and minimize cost and waste. Farmers are encouraged to do research in genetic research to ensure that they will be able to identify breeds with desirable offspring and resistant to diseases that guarantee a farmer profits. For example, COBB 500 has good traits because the birds have greater body weight, and high gain with a higher feed conversion index than Ross and Hubbard breeds as viewed by (Simona Pascalau, 2017). Understanding feed management ensures value chain efficiency and productivity in broiler production. Maintain a consistent feeding routine and standardized feeds from well-known suppliers like Profeeds, Fivet, and National Foods that ensure optimum growth of broilers.

Furthermore, it is important to poultry housing, health, and bio security as a way to ensure efficiency and productivity in broiler production. Provide adequate space to prevent

overcrowding which can cause stress and diseases like avian influenza. Note that the poultry house should be well-ventilated to optimize maximum growth and maintain strict bio security protocol for example use of a footbath with disinfectant to lower the spread of diseases from one fowl run to another. In addition, it is crucial to conduct health check-ups every day to check the well-being of the broiler and address the health challenges with immediate effect by administering medication or calling a veterinary doctor.(Nahed A. El-Shall, June 2020) pinpointed that a significant obstacle in the poultry sector is avian viral that causes avian influenza (AI), infectious bronchitis (IBD), and Newcastle diseases causing a great loss as it results in stunted growth high mortality, and immune suppression. Therefore, vaccination for avian viral is a must to ensure efficiency and productivity in broiler production. More so, understanding the market is crucial to knowing the tastes and preferences of customers. Differentiating products and building brand loyalty through branding help to ensure value chain efficiency and productivity since branding attracts customers to purchase the product.

2.7 Constraints of broiler production and marketing

There are many opportunities and challenges in the broiler production industry. Water scarcity, transportation problems, and uncompensated prices are some of the constraints (Praveena, 2017). The challenges associated with the tropical climate include high feed costs, severe weather, and heat stress (G. B. Nyamushamba, 2008). Growth and development are also impacted by nutritional constraints, especially when it comes to lowering heat load and fulfilling amino acid requirements (Gous, 2010). However, using feeds that are specially formulated on the farm may increase profitability (G. B. Nyamushamba, 2008).

2.7.1 Health and Diseases

A variety of dangerous diseases severely impede good broiler output. Leg problems, such as muscle weakness and bone deformation can cause lameness and paralysis, limiting movement, eating, and growth (Lin, 2022). The presence of the darkling beetle, a vector of severally diseases is harmful to broilers and may be associated with hypoglycaemia-spiking mortality syndrome (Dinev, 2013). (Kumari, 2016), pinpointed metabolic disorders such as ascites and sudden death syndrome. Concurrent infectious illnesses, such as mycoplasmosis, salmonellosis, and coccidiosis, worsen broiler health and productivity. The impact of infectious diseases can

result in mortality and decreased production efficiency (Shane, 1984). (Negash, 2009), revealed that infectious diseases such as mycoplasmosis, salmonellosis, coccidiosis, colibacillosis, and infectious bursal disease have been found to pose serious risks to the health and productivity of broiler chickens in Central Ethiopia.

2.7.2 Input Costs

One major barrier to broiler production is the high cost of inputs, especially feed (Zengeni, 2014). The lack of poultry feed in tropical climates and its high cost further aggravate this is further complicated by the impact of high ambient temperatures on feed intake and bird metabolism (Kpomasse, 2021). Improved loan packages, greater knowledge of the profitability of broiler production, and feed mill industry subsidies are required to lessen these difficulties. Furthermore, the use of feeds prepared on-farm can be investigated (Hassan, 2011)

2.7.3 Market dynamics

Market dynamics pose a considerable barrier to broiler manufacture, especially in small-scale enterprises. Hygiene and slaughter facilities are frequently insufficient, complicating achieving market norms (Moreki, 2011). Irregular marketing methods and unprofitability increase these issues (Anwar, 2004). In addition, non-remunerative prices, transportation challenges, and late payments are major restrictions in broiler farming (Praveena, 2017). The scarcity and high cost of chicken feed and veterinary services, combined with the influence of climate change, affect market dynamics in broiler production

2.8 Opportunities for broiler production and marketing

2.8.1 Growing consumer demand

The production of broilers presents numerous opportunities due to consumer demand, with profit-maximization models requiring consideration of targeted weight and premium pricing. The industry's potential for expansion is highlighted by population growth and rising incomes worldwide. Non-price factors like origin and convenience also play a significant role in consumer preferences, making domestic grill product marketing beneficial. (Snyder, 1955), emphasizes the importance of pasture in the grill production process, suggesting that satisfying consumer demand for premium, ethically produced grill products presents a significant

opportunity. Research in the southern region, particularly in Togo, South Africa, and Indonesia, reveals that economic and socio-demographic factors such as income and population growth significantly influence this demand. Broiler meat is considered an essential good in Zimbabwe, as it is the most reasonably priced meat option. Price-sensitive consumers are drawn to broiler products, influenced by factors such as broiler prices, family income, and religious beliefs.

2.8.2 Technological advancement

The broiler industry has greatly benefited from technological advancements, especially in the field of Precision Livestock Farming. The use of sensor technology and GIS to monitor activities on the farm (Jackman, 2020). Both producers and consumers have benefited from the increased precision and documentation of decision-making brought about by the development of precision agriculture tools (Mollo, 2009). Additionally, broiler productivity and egg quality have improved due to the application of resource-saving technologies (Mednova, 2021). Last but not least, putting precision feeding and nutrition strategies into practice, which focus on daily nutrient requirements, may increase productivity and cut expenses (Moss, 2018). Therefore, these developments offer the broiler production sector a substantial chance to increase productivity.

2.8.3 Export markets

The potential for industry growth and profitability in broiler production is greatly enhanced by the availability of export markets. According to (Benalywa, 2019), certain frozen broiler meat products from Malaysia, like whole chickens and capons, showed a competitive advantage in international trade. Despite infrastructure and financial obstacles, (Fancher, 2020), talked about the US industry's transition to antibiotic-free broiler production, which could increase export potential by satisfying the increasing demand for such products. Together, these studies highlight the potential for broiler production to profit from export markets given that obstacles like cost, infrastructure, and production techniques are successfully overcome.

2.8.4 Vertical integration and contract farming

Contract farming is a common method of implementing this system, in which the integrator gives the farmer inputs and retrieves the finished product (Poojitha, 2018). In Zimbabwe, there are a lot of opportunities for broiler production through vertical integration and contract farming.

Research conducted in Zimbabwe (Zimunya, 2021) and Indonesia (Patrick, 2005) has demonstrated that contract broiler production can be profitable, with variables including selling price, grower attributes, and production costs influencing profitability. Zimbabwean broiler contract growers have also been found to have high levels of technical efficiency (Zimunya, 2021), with output being influenced by variables like batch size, feed quantity, and transportation cost. It has been discovered that the contract design, which serves as a proxy for the degree of vertical integration, affects production efficiency differently in West Sumatera (Asante, 2022). More formal and detailed contract farming produces higher levels of technical efficiency. According to these results, contract farming and vertical integration may be advantageous for Zimbabwe's broiler industry, especially in terms of technical efficiency and profitability.

2.9 Case study of the broiler value chain in other Regions

(Joubert, 2017), examines the broiler value chain a case study of South Africa. The study focused on the quantitative and qualitative analysis, the result portrays that the value chain is complex and is composed of several stakeholders who include the breeder, broiler farmer, and processor that dressed chickens for the local consumers and export.

According to a case study of the poultry value in Eastern Kenya. (Salome A. Bukachi, 2023), revealed that there is a linkage between all the actors in the value chain. The broiler value chain comprises actors like farmers, processors, and veterinary supplies. There are two types of actors in the value chain which include direct actors and indirect actors. Direct actors constitute farmers, processors, DOD suppliers, and consumers that are directly involved in the value chain whilst indirect comprise financial entities (for example banks) that provide financial support, research institutions, and extension officers that guide broiler farmers.

2.10 Summary

This chapter reviewed the literature on the broiler value chain.

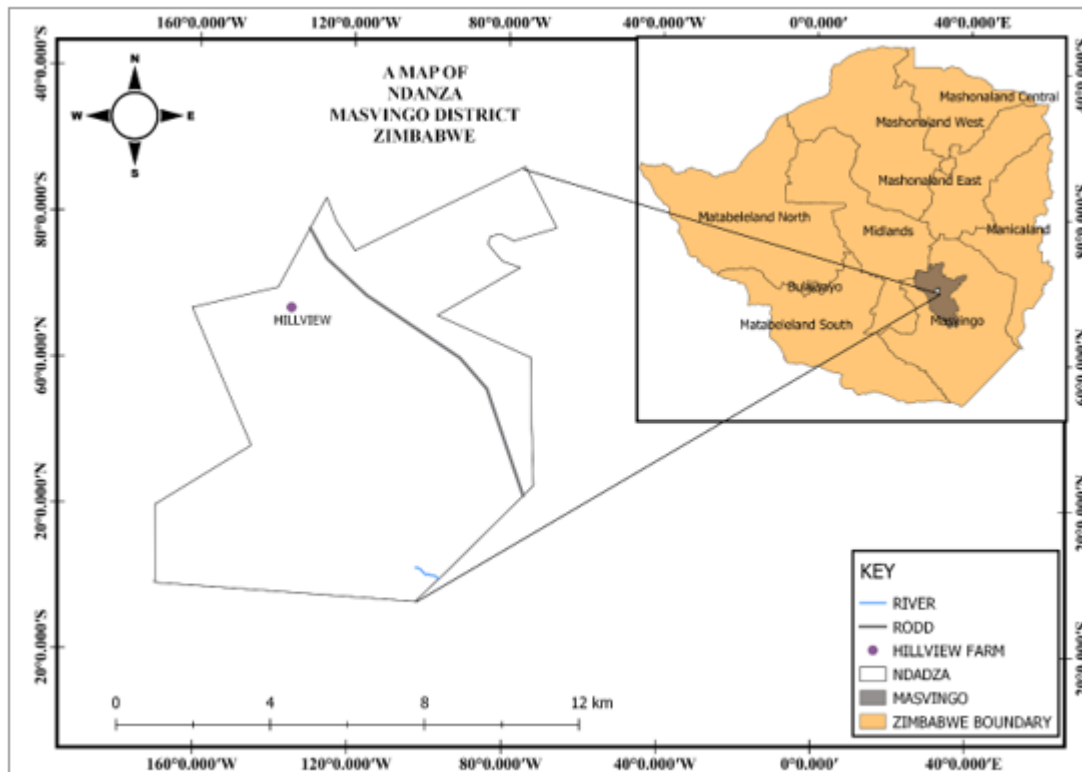
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter is going to present the research design and description of the study area, sampling procedure, and data collection instruments and data analysis. This will also provide a conceptual framework as to how the data acquired was analyzed

3.2 Description of the study area

The study was conducted at Hillview Farm, located in the Ndadza community in Masvingo Province Ward 7, about 12km from Masvingo Town along Great Zimbabwe Road. Hillview Farm is situated in the southeast of Zimbabwe in the Agro ecological region (IV). The average rainfall received is 450 to 650mm per year. This area is well known for growing crops like maize, sugar beans, and groundnuts, and keeping domestic animals like cattle and goats. The study area is shown below. Farmers in this area also practice poultry production. The study area map is shown below.



Source: Survey data 2024

Figure 3.2 1 Map of the study area

3.3 Research design

Both qualitative and quantitative data are to be collected using a case study approach. Key informant interview coupled with farm documents reviews (farm records). Qualitative data is descriptive in nature, it helps to analyse constraints that influence economic aspects and marketing of broiler production at Hillview Farm. Additionally, quantitative data is numeric, this data can be analysed using statistical methods for example cost and returns and marketing margins.

3.4 Data collection

Both primary and secondary data were collected for this research from broiler farmers at a specific point since this research is focusing on a case study of Hillview Farm. Primary data were obtained using a structured questionnaire and personal interviews with farmers at Hillview Farm. Secondary data was collected from farm records, management, and the marketing team. The research was conducted using purposive sampling since the research was focusing on one Hillview farm. 34 participants were selected using purposive sampling out of 43 farm workers. Purposive sampling dwells on selecting respondents who are rich in information for a detailed study (Walker, 2020). The sample size was estimated using Slovan's formula as shown below

$$n = N \div 1 + N (e)^2 \text{ (Hadi, 2023)}$$

Whereby

n is the sample size

N is the population of the study area

E is the confidant's interval of the study

$$n = 43 \div 1 + 43(e)^2$$

$$n = 34$$

Therefore, 34 participants were selected from Hillview Farm. A questionnaire was designed and used to collect data. However, 30 participants were interviewed and the remaining 4 participants were unavailable at the farm.

3.5 Analytical frameworks

Data collection was analyzed using four frameworks in analyzing the specific dataset. The frameworks include Descriptive statistics, Gross margin analysis, marketing margin analysis, and Value chain and SWOT analysis.

3.5.1 Descriptive statistics

Descriptive statistics was conducted to analyse demographic and socioeconomic characteristics of respondents (for example gender, marital status, age, experience in broiler production, educational level), utilizing tables, frequencies, and charts. Data will be analysed using EXCEL. According to (Bukola, 2023) descriptive statistics is a fundamental tool used to summarise data, analyse data, and provide insights into patterns, trends, and characteristics of the dataset. Descriptive statistics will be used to analyse the data for all objectives using tables, graphs, and pie charts.

3.5.2 Gross margin analysis (EXEL)

Gross margin analysis was employed to assess broiler production at Hillview Farm as well as provide information about profitability. According to (Precious Phiri, 23), gross margin is a simple model that is used to measure the financial performance of an enterprise and also used in comparing the performance of different projects that have similar input requirements. Gross margin is a useful tool used for planning, budgeting, farm management, and estimating returns of broiler production. This analytic framework is one of the common methods to determine profitability through estimating the profit of a firm. The formula for calculating Gross Margin is expressed as follows

$$\text{Gross margin} = Ps \times Q - \sum PqXq \text{ by (Kashangura, 2016)}$$

Where P_s is the unit price of one bird

Q is the quantity sold

$\sum PqXq$ Is the total variable cost (TVC)?

TVC includes the cost of buying day-old chicks. Feed, vaccines, medical, labour, marketing, and cost of fuel.

Gross margin was used to analyse the profitability of broiler production at Hillview Farm. If the gross margin is negative, it indicates that the farm is not generating any profit rather the project is not viable. If it's positive, it shows that the broiler production is profitable and viable.

3.5.3 Marketing Margin Analysis

Marketing margin analysis was used to examine the broiler marketing system and its performance at Hillview Farm. Microsoft Excel was used as a technique to analyses data. Marketing margin refers to the difference between the selling price of a product or service and the cost of marketing and selling it (Alemu, 2013). It represents the profit generated from the marketing efforts and activities associated with promoting and distributing the product or service.

To calculate the marketing margin, the researcher needs to determine the total cost of marketing and selling a product or service, including expenses such as advertising, sales commissions, promotional materials, trade show participation, and any other costs directly related to marketing efforts. This can be referred to as the marketing cost or marketing expenses. Algebraically marketing margin can be expressed as

$MM = GM - MC$ by (Alemu, 2013)

Where,

MM=Marketing Margin

GM= Gross Margin

MC= Marketing Cost

The marketing margin provides insights into the effectiveness of marketing strategies and helps businesses evaluate the profitability of their marketing efforts. A higher marketing margin indicates that the revenue generated from sales is sufficient to cover marketing expenses and still provide a profit, while a lower margin may suggest the need for adjustments in pricing, marketing strategies, or cost management.

It's important to note that marketing margin is just one aspect of overall profitability and businesses should also consider other factors such as production costs, overhead expenses, and the overall market conditions when evaluating their financial performance.

3.5.4 Value chain mapping analysis

The value chain mapping analysis was employed to examine the broiler marketing channels used at the farm from the producer of the broiler, processing, and marketing until the broiler reaches the final consumers which are the customers. Broiler value chain analysis was conducted to identify the key stakeholders in the broiler marketing system including producer, processor, distribution, and customers. Microsoft Word and Snip application will be used to analyse data. Value chain mapping will be used to visually present the movements and activities involved in the value chain and the symbiotic relationship among stakeholders in the marketing system.

3.5.5 SWOT analysis

SWOT analysis was employed to identify and analyse constraints and opportunities in broiler production and marketing at Hillview Farm. Microsoft Word was used to analyse data.(EA Barus, 2023), define SWOT analysis as a strategic method used for evaluating factors that influence a business to achieve its set goals both long-term and short-term goals. Strengths are internal factors that give Hillview Farm a competitive advantage in broiler production and marketing. For example, the farm may have access to high-quality breeding stock, experienced staff, and efficient production processes that contribute to its success in the market. Weaknesses are internal factors that may hinder the farm's performance in broiler production and marketing. For instance, the farm may face challenges such as high production costs, limited access to financing, and inadequate infrastructure that influences their ability to compete effectively.

Opportunities are external factors that could be leveraged by Hillview Farm to improve its broiler production and marketing (M.R.Akbari, 2021). For example, there may be a growing demand for organic or free-range broilers in the market, presenting an opportunity for the farm to diversify its product offerings and capture new market segments (Lampkin, 2010). According to (Rusmiyati, 2017) threats refer to external factors that could pose risks to the farm's broiler production and marketing activities. This could include factors such as changing consumer

preferences, increased competition from other broiler producers, and fluctuations in feed prices that could influence the farm's profitability.

3.6 Summary

Table 3.6 1 Summary of objectives, research questions and analytical frameworks or tools

Objectives	Research questions	Analytical framework
To estimate costs and returns in broiler production at Hillview Farm.	What are the cost and returns of broiler production at Hillview farm	Gross Margin Analysis
To examine the broiler marketing system and its performance at Hillview Farm.	What are the marketing channels for broilers at the farm, the prices at the farm gate, and the consumer level?	Marketing Margin Analysis and Value Chain Mapping Analysis
To identify constraints and opportunities in broiler production and marketing at Hill View Farm	What are the constraints and opportunities in broiler production and marketing at Hillview Farm?	SWOT analysis

CHAPTER FOUR: RESULTS AND DATA INTERPRETATION

4.1 Introduction

The findings of the study unveiled crucial insights into the economics of broiler production at Hillview Farm. Through meticulous cost estimation and return analysis, a comprehensive picture emerged, elucidating the financial dynamics of the enterprise. Moreover, the examination of the broiler marketing system sheds light on its efficacy and efficiency, providing valuable benchmarks for performance evaluation. By identifying constraints and opportunities within the production process, the study not only highlighted areas for improvement but also pinpointed avenues for growth and innovation. These insights serve as a roadmap for optimizing operations, enhancing profitability, and fostering sustainable development in the broiler industry.

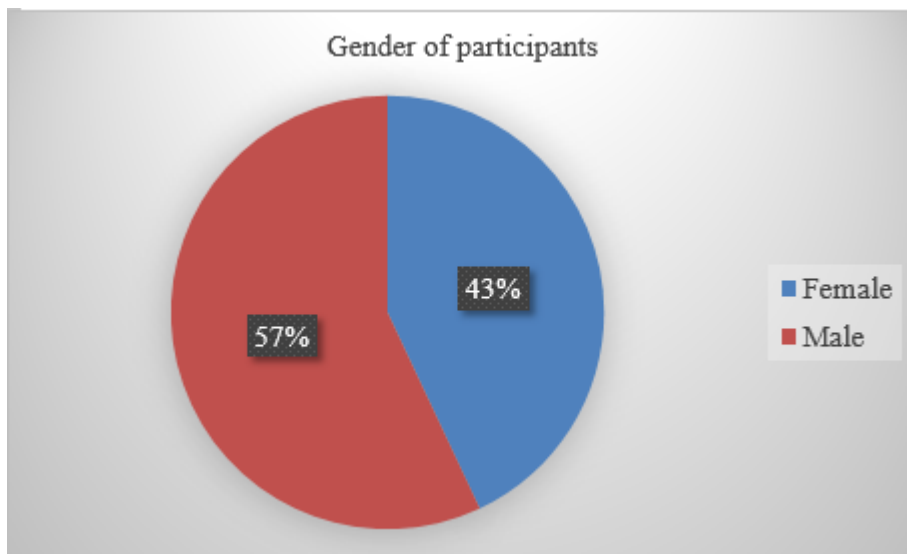
4.2 Demographic and Socio-Economic characteristics of participants

Table 4.2 1 Respondent's demographic and socio-economic characteristics

Column1	Variable	Frequency	Percentage
Gender	Female	13	43%
	Male	17	57%
Age	less than 30	6	20%
	30-39years	9	30%
	40-49 years	10	33%
	50-59 years	3	10%
	60+	2	7%
Educational level	Primary	6	20%
	Secondary	13	43%
	Tertiary	10	33%
Experience years	<5years	7	23%
	5-10 years	16	53%
	10years +	6	20%
Training in broiler production	Yes	18	60%
	No	12	40%

Source: Survey data 2024

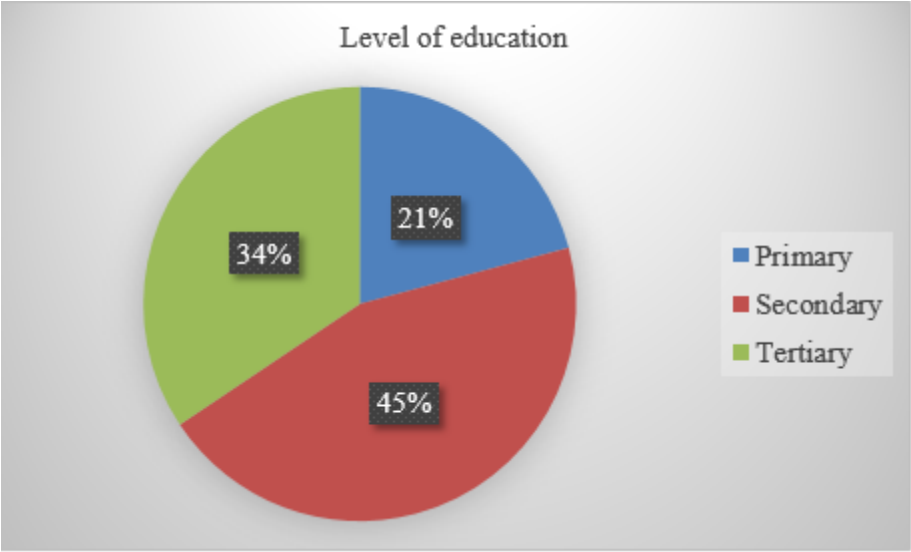
The analysis of demographic and socio-economic characteristics of the participants in broiler production at Hillview Farm revealed that 57% of participants who participated in broiler production are male while 43% are female. Therefore the results indicate that, males are dominant in broiler production as supported by (Olorunwa, 2018). The pie chart below shows the gender of participants in broiler production.



Source: Survey data

Figure 4.2 1 Gender

Furthermore, the result shows that the all of participants acquired primary-level education. 45% of respondents attended secondary school while 21% reached tertiary education as shown by the pie chart below.



Source: Survey data 2024

Figure 4.2 2 Level of education

Among the respondents, 20% are less than 30 years old while 80% are above 30 years. The result further indicated that the majority of respondents have more than 5 years of experience in broiler production while 23% have less than 5 years. In addition, 60 % of respondents received training in broiler production while few did not receive any training.

4.3 Objective number 1: To estimate the cost and returns of broiler production at Hillview Farm. (Gross Margin analysis)

The gross margin budget analysis of broiler production at the farm reveals promising results. With a total of 8,000 birds produced and current prices set at \$6 per bird, the gross income amounted to \$43,080. After accounting for variable and fixed costs totalling \$30,604.24, the gross margin was calculated at \$12,475.76. Below is the table summarizing gross margin analysis for broiler production (December 2024)

Table 4.3 1 Gross Margin Analysis

ITEMS	UNITS	QUANTITY	PRICE PER UNIT	TOTAL BALANCE	Percentages
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Day-old chicks (COBB 500)	Bird	8000	\$0.90	\$7,200	24%
Starter crumbles	50kg	80	\$34	\$2,720	9%
Grower crumbles	50kg	80	\$32	\$2,560	8%
Grower pellets	50kg	160	\$32	\$5,120	17%
Finisher pellets	50kg	320	\$31	\$9,920	32%
Alyseryl(stress pack and antibiotic)	1kg	8	\$34	\$272	1%
ESB3	1kg	8	\$150	\$1,200	4%
Quartermert (disinfectant)	5kg	1		\$88	0%
Interflox	1litres	8	\$6.28	\$50.24	0%
Vaccines(for Newcastle and IBD)	ml	32	\$7	\$224	1%
Cost of labour	42 days	4	\$4	\$672	2%
cost of electricity	KW			\$368	1%
Packaging cost	\$			\$30	0
Transport cost to transport inputs	\$			\$180	1%
Total costs	\$			\$30,604.24	100%
Break Even price @ 10% mortality			\$4.26	\$30,604.24	
Gross income/birds sold@1.8 to 2kgs of weight	Birds	7180	\$6	\$43,080	
Return per \$ invested or Cost benefit ratio (Gross income÷ TVC)	\$			\$1.41	
Gross margin	\$			\$12,475.76	
Gross margin percentage	%			29%	

Source: Survey data 2024

As shown by the table above, a positive gross margin indicates that the broiler production venture is profitable. The farm can cover its total costs and still achieve profits from the sale of broilers. Furthermore, the gross margin of \$12,475.76 suggests a healthy financial performance, underscoring the viability of the business. However, 10% or 820 of the total number of broilers were lost due to mortality.

The profitability of the venture is further highlighted by the gross margin ratio, which stands at \$1.41 for every \$1 invested in broiler production. This indicates that for each dollar spent on variable costs, the farm realizes a profit of \$1.41, emphasizing the potential returns generated from broiler sales. The cost-benefit ratio (CBR) is 1.41:1 or 141%. Therefore, the result portrays that the farm is generating revenue and broiler

Overall, the positive gross margin and favourable gross margin ratio affirm the profitability and financial viability of broiler production at the farm. These results underscore the potential for sustainable growth and profitability within the poultry farming enterprise.

4.3.1 Break-even analysis

Break-even analysis is a technique used to assess where the firm is either making profit or loss so the total cost is equal to the total revenue. BEP analysis is used to determine the point at which sales break even and cover the expenses incurred by farmers (LBN Gultom, 2018). Therefore, it is a situation where a firm is working towards continuity because it is either making a profit or a loss in the case of Hillview the breakeven price is \$4.26. The farm can sell each bird at \$4.26 and still be able to cover the total costs but attain no profits. It was calculated using the formula below

BEP= Total cost ÷ total number of broilers sold

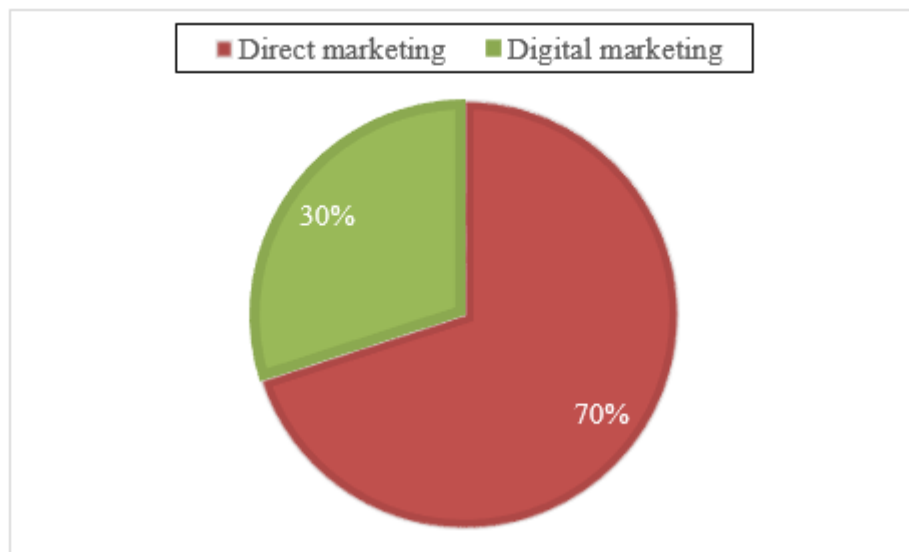
BEP=\$30,604.24÷7180 broilers

= \$4.26

4.4 Objective number 2: To examine the marketing system and its performance at Hillview Farm (Marketing margin analysis and value chain mapping analysis)

4.4.1 Market channel

The marketing channels utilized by Hillview Farm primarily comprised direct marketing and digital marketing strategies. Direct marketing was the dominant approach, employed by 70% of the participants, while the remaining 30% opted for digital marketing methods. Below is the pie chart summarizing the marketing channels.



Source: Survey data 2024

Figure 4.4 1 Marketing channel used

Direct marketing involves selling broilers directly to consumers without intermediaries, often through channels like farmer's markets, roadside stands, and direct sales to restaurants and individuals. This approach allows farmers to establish direct relationship with customers, potentially increasing profitability and fostering brand loyalty.

On the other hand, digital marketing encompasses various online strategies such as social media marketing through WhatsApp and Facebook. Digital marketing offers farmer's opportunities to reach a broader audience, engage with customers in real-time, and leverage data analytics for targeted marketing campaigns.

4.4.2 Marketing Margin Analysis

Table 4.4 1 Marketing Margin Analysis

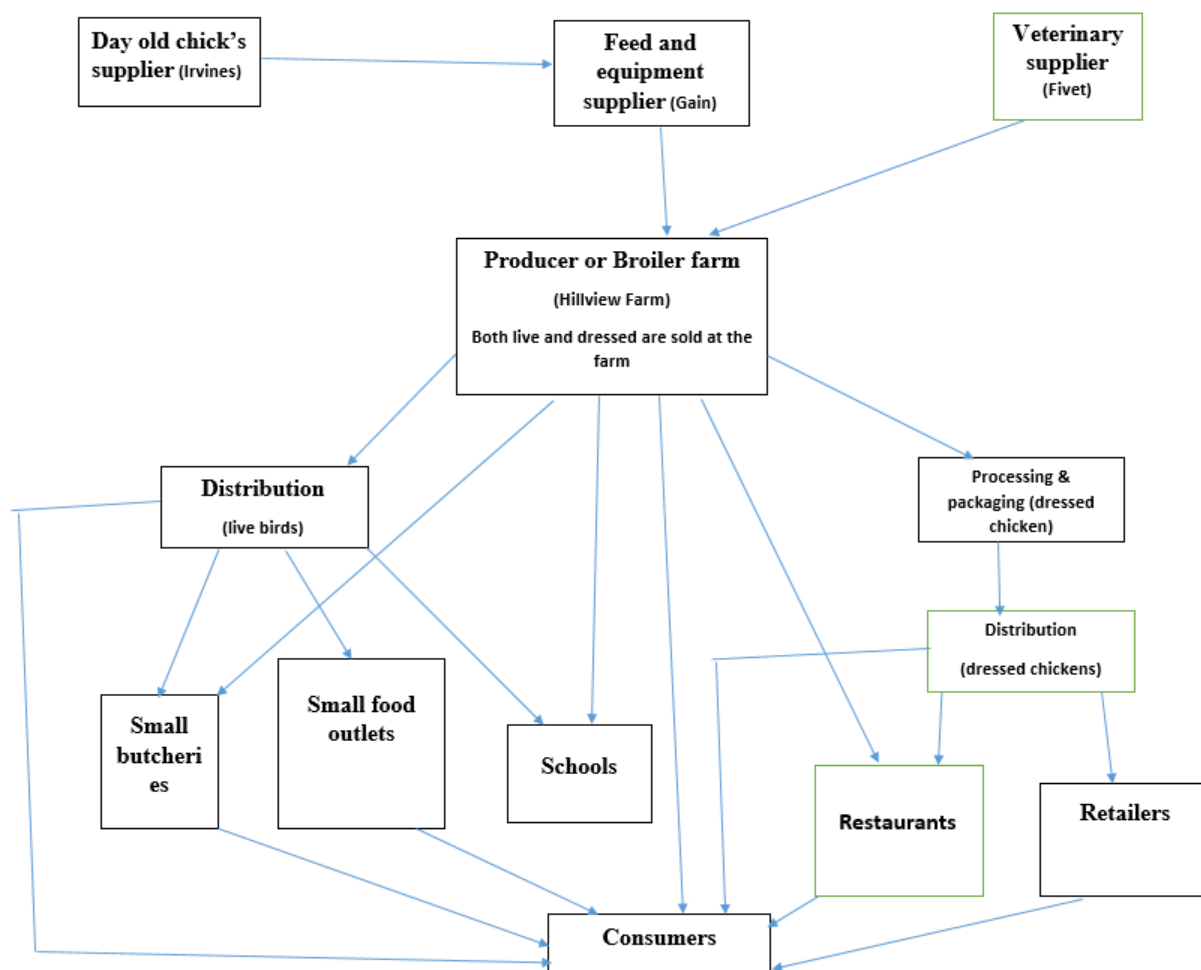
Description	Value
Gross Margin	\$12,475.76
Marketing costs	
Transport cost of marketing and distributing	\$200
Advertising	\$40
Commission on selling 2%	\$861.60
Marketers food	\$60
Total Marketing Costs	\$1,161.60
Marketing margin	\$11,314.16
Marketing margin percentage($MM \div GM \times 100$)	91%

Source: Survey data 2024

The result from the analysis revealed that the marketing margin for broiler is 91% or \$11314.16. This indicates that the marketing system and performance at Hillview are highly effective as the farm can cover the marketing cost and still attain profits after selling broilers. The analysis shows that the marketing expenses including transport cost, commission, and money for food account for \$1161.60 or 9%. The high marketing margin indicates that Hillview Farm has strong marketing strategies for example the farm provides free transport to customers that purchase more than 50 birds, availability of market information, directing marketing, value addition, and strong relationship with customers. More so, the 91% marketing margin shows that the farm has a competitive advantage in the market which enables the farm to sustain profitability. Moreover, marketing margin analysis indicates that the broiler marketing system is performing exceptionally well.

4.4.3 Value chain mapping analysis

The farm should develop and implement effective marketing strategies to increase demand and access new markets. The farm should access market information to make informed decisions about production and marketing.



Source: Survey data 2024

Figure 4.4 2 Value Chain Mapping Analysis at Hillview Farm

Value chain mapping results above indicate the movement of goods along the broiler value chain. The chain starts with feed supplier, DOD supplier and veterinary distributor that supplies inputs to farm, and then moves to the producer which is Hillview Farm where the chicks are being reared until the broiler reaches the slaughtering weight or maturity time. The chain moves on to processing and packaging of dressed chicken, following the distribution path they distribute it to retailers then to final consumers. Another chain moves on to the distribution of live birds to small butcheri es, small food outlets, and schools. Some may order it from the Farm directly which may reduce transport costs to the marketing. Some follow the processed path and move to restaurants or directly to the final consumer

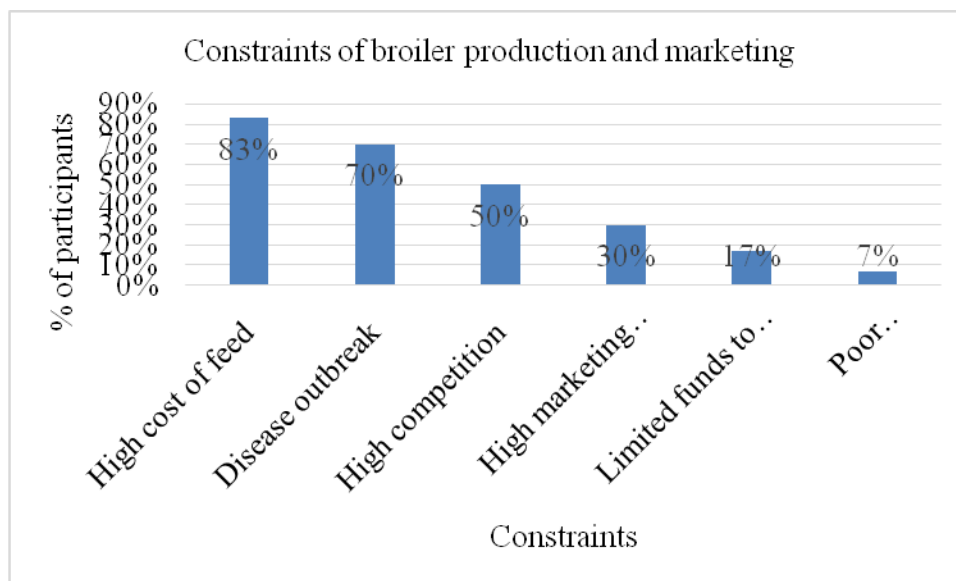
4.5 Objective number 3: To identify constraints and opportunities in broiler production and marketing at Hillview Farm (SWOT Analysis)

Table 4.5 1 SWOT Analysis

Strength	Weakness
-Diversification of projects like poultry, horticulture, and livestock production. -Availability of skilled labour and experience -Strong relationship with customers -Availability of bedding and water at the site -Value Addition	-High costs of broiler feeds -Limited funds to increase production during peak periods and improve on value addition -Outbreak of disease -Poor management practices -High marketing costs
Opportunities	Threats
-Access to new markets -Increased demand	-increased competition from other broiler producers

Source: Survey data 2024

4.5.1 Constraints in broiler production and marketing at Hillview farm



Source: Survey data 2024

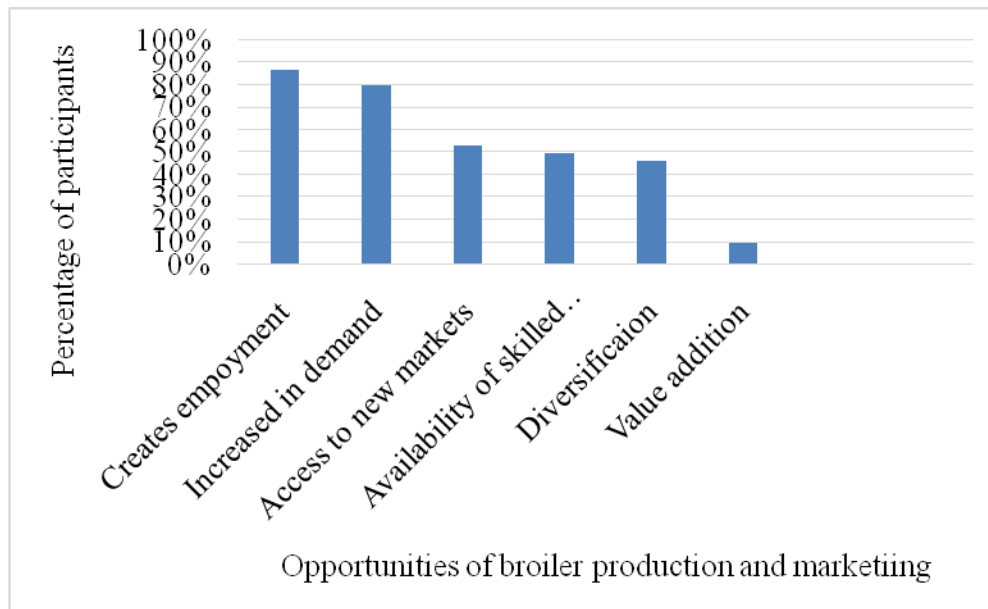
Figure 4.5 1 Results of constraints in broiler production and marketing at farm

Among the constraints results, feed cost was the most prevalent concern, mentioned by 80% of the participants. The result revealed that Hillview Farm experienced fluctuating feed prices and access to quality feed inputs that significantly influence production costs and profitability, necessitating careful cost management and exploration of alternative feed sourcing options. Additionally, disease outbreak was highlighted as a significant challenge affecting broilers as revealed by 70% of the respondents as it influences production at the farm.

Then it was followed by increased competition in the broiler market with other broiler producers another major challenge indicated by 50% of the respondents. The broiler farm faces challenges of increased competition which influences the profitability of the broiler industry, as increased competition may drive down prices and reduce margins.

Also, limited funds to increase production during peak periods and to improve value addition was another constraint encountered by Hillview Farm broiler production as highlighted by 17% of participants. Without sufficient funding, the farm may be unable to increase production capacity and invest in new technologies that improve the quality and appeal of their products, limiting their ability to compete in the market. Additionally, poor management practices account for 5% of participants meaning that it's a notable yet manageable constraint.

4.5.2 Opportunities of broiler production and marketing at Hillview Farm



Source: Survey data 2024

Figure 4.5 2 Results of opportunities in broiler production and marketing

As the results show, participants identified distinct opportunities for growth and improvement within the broiler production and marketing. Notably, increasing demand for broilers was seen as a promising opportunity by 80% of participants, reflecting market dynamics and consumer preferences favouring poultry products. In addition, accessing new markets was seen as a potential avenue for growth as indicated by 53% of the participants, signalling a desire to diversify sales channels, explore niche markets, and expand market reach beyond traditional boundaries.

Availability of skilled labour and experienced candidates were other opportunities highlighted by 50% of respondents, skilled labour helps the farm to design and implement more efficient processes leading to a reduction in production costs and higher quality products at the farm. Skilled labour provides new ideas and innovative solutions to the farm's challenges, helping the farm to stay ahead of the competition and improve its products and services. Moreover, diversification was seen as an avenue for growth at farms by a few participants, as it helps to spread risk across different products and markets, reducing the impact of potential losses in any

one area. For example, if broiler sales decline due to market changes, the farm can rely on other backyard enterprises to gain profitability.

More so, value addition influences profitability and competitiveness. Adding value to through marinating, branding, and packaging helps the farm differentiates its products from competitors creating a unique product that can attract and retain customers.

4.6 Results chapter summary

The gross margin analysis results portray that the farm is productive and efficient. Based on marketing margin analysis results, the farm is competitive in the market as indicated by high margins. Furthermore, value chain mapping analysis depicts how the products move along the value chain. Additionally, SWOT analysis results revealed the constraints and opportunities in broiler production and marketing.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter looks at the conclusion of the study, recommendations, and suggestions for future research.

5.2 Conclusion

Based on the findings of gross margin analysis, it was concluded that broiler production at Hillview Farm is profitable since the farm can cover the variable cost incurred in the production of broilers. The study on the economics of broiler production at Hillview Farm has provided valuable insights into the financial dynamics of the enterprise. The findings indicate that the farm is profitable, with a positive gross margin. The marketing system and performance are also effective, with a high marketing margin percentage. However, the study has also identified constraints and opportunities in broiler production and marketing. The results revealed the farm is efficient, though other factors influence profitability, including high feed cost, poor management, and market fluctuations.

Furthermore, the analysis of the marketing margin revealed that, the marketing systems of broiler since the marketing margin is 91% which shows that Hillview farm incurred 9% marketing costs. From the results of value chain mapping, we can map the broiler value chain at Hillview Farm. Among them, the broiler chicken farm relies on various suppliers of raw materials including broiler feed, day-old chicks, and veterinary distributors. More so, based on the result of the SWOT analysis, the key challenges faced by broiler production and marketing at Hillview Farm are high feed costs, poor management, outbreaks of diseases, and increased competition. However, the farm has opportunities like the creation of employment, increased demand, and availability of new markets. Their farm has got opportunities which includes diversification, availability of skilled labour and increased demand for broilers

5.3 Recommendations

Based on the findings, the following recommendations are made for Hillview Farm:

Feed Cost Management: The farm should explore alternative feed sourcing options and implement cost management strategies to reduce the impact of fluctuating feed prices. The results of the gross margin analysis revealed that 66% of the variable costs come from feed. The farm should prioritize cost management, particularly regarding feed costs by considering formulating the feeds on the farm to control the cost of feeds better. I recommend the farm to advocate government subsidies for the production of sunflower, maize, and beans, which are the primary ingredients in broiler feeds. Availability of these ingredients at a lower price, the broiler feed supplier can produce at least cost of production hence selling feeds at a lower cost. Therefore, the broiler farmers can increase productivity in the broiler value chain. In addition, the researcher recommended the farmers improve feeding efficiency by ensuring proper feeding monitoring feed conversion ratio practices and applying the best feeding technique that minimizes wastage and maximizes profits

Value Addition: The farm is recommended invest in value-addition activities such as marinating, branding, and packaging to differentiate its products from competitors and increase profitability. Other options include broiler products like polon and pies. This practice can help differentiate products in the market, attracting more customers and increasing competitiveness. There is a need for market analysis, this helps to understand the market system of the broiler value chain. By knowing the market dynamics and marketing strategies, the farm can able to analyze the marketing margins and know the best market channels to sell their broiler to attain higher margins. Additionally, the researcher recommended the farm to explore new market and expand its market to increase sales. The farm should monitor and respond to increased competition from other broiler producers by differentiating its products and services. Such product development initiatives may need some additional capital investment. As such, the farm should explore funding options to increase production during peak periods and improve value addition.

Form cooperative groups: I recommend that small to medium broiler farmers form cooperative groups. This collaboration can facilitate the sale of broilers in large quantities sell their produce in large quantities that meet the requirements of large value chain markets. By doing so there will be sharing of ideas, reduced marketing costs, and profit maximization.

Diversification: The farm should consider diversifying its products and markets to reduce the impact of potential losses in any one area. The farm should consider diversification with other enterprises like livestock production and crop production. Therefore, helps to spread risk and increase profitability in the value chain.

Skilled Labour: More so, I recommend the farm invest in skilled labour through training therefore improving operational efficiency and productivity contributing to farm productivity. The farm need to invest in skilled labour and experienced candidates to design and implement more efficient processes, reduce production costs, and improve product quality.

Technological adoption: The farm should consider adopting new technology for instance use of artificial intelligence to make data-driven decisions about broiler production that can result in a healthier and more productive growing environment (Gowda, 2024). I suggest that the farm should employ the use of nipple drinker technology which is hygienic and reduces water wastage hence bedding management will be easy to maintain it dry and also help to eliminate the spread of diseases like coccidiosis in broiler production

Management Practices: The farm should implement effective management practices to reduce the risk of poor management practices, includes disease management. The farm should implement effective disease management practices to reduce the risk of disease outbreaks and minimize losses.

Marketing Strategies: The farm should develop and implement effective marketing strategies to increase demand and access new markets. The farm should access market information to make informed decisions about production and marketing.

By implementing these recommendations, Hillview Farm can improve its profitability, competitiveness, and sustainability in the broiler production and marketing industry.

5.4 Suggestions for the future research

Based on the conclusion and recommendations, the following suggestions for future research are proposed:

- Investigating the feasibility and impact of diversification on Hillview Farm's profitability and sustainability.
- Assessing the effectiveness of value addition activities on product differentiation and profitability.
- Analyzing the impact of alternative feed sourcing options and cost management strategies on feed cost reduction.
- Evaluating the effectiveness of disease management practices on disease outbreak reduction and loss minimization.
- Developing and testing marketing strategies to increase demand and access new markets.

There is also another potential future research to investigate the effectiveness of using by-products of broilers (used bedding) as manure to support other backyard enterprises like horticulture to improve waste management and generate additional revenue streams. These research suggestions aim to build upon the findings of the current study, address remaining gaps, and provide further insights into the economics of broiler production and marketing at Hillview Farm.

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ANNEX 1: POULTRY SECTION WORKERS' INTERVIEW QUESTIONNAIRE

Questionnaire

My name is Lyn Mangava B202914B, a student at Bindura University pursuing an undergraduate degree in Agricultural Economics and Management. I'm doing a research on "Economic analysis of broiler value chain. A case study of Hillview Farm in Masvingo Province, Ward 7 Zimbabwe". I humbly seek your assistance for this research as a respondent. This information is geared towards improving the profitability of broiler farmers. As respondents, you are kindly requested to answer the interview questionnaire and you are assured that any information shared will be strictly confidential.

Section A: Respondent characteristics

- 1 Age Years
- 2 Gender: 1 = female 2=male
- 3 Position: 1=Manager 2=Supervisor 3= general workers
- 4 Education: 1=Primary level 2= Secondary level 3= Tertiary level
- 5 Marital statuses: 1=Married 2=Divorced 3=Single
- 6 Household size
- 7 Experience in broiler production 0-5years 6-10years 10years and above

Section B: Farmer Owner and Farm Characteristics

- 8 Size of Farm (ha).....
- 9 Number of enterprises
- 10 Names of enterprises: 1= Broiler 2= Horticulture 3=other (specify)
- 11 Number of broiler houses
- 12 Size occupied by broiler houses.....
- 13 Total number of employees.....
- 14 Do you receive training in broiler chicken at the farm? 1= yes 2= no
- 15 If yes specify who provides training
- 1 =Government department specify.....
- 2 =Private services specify.....
- 3 =Others specify.....
- 16 How many employees in the broiler section have been trained (%).....
- 17 Does the farm have access to credit for broiler production? 1= yes = no

18 Does the farm have any contracts on broiler production 1=yes ☐=no ☐

19 If yes specify contract details (Company name, Number of birds, payment terms)

.....
.....
.....

20 Any challenge of the contractual agreements?

.....
.....
.....

21 What is the average number of broiler slaughtered annually?

22 What breed of broilers is raised on this holding?

.....

23 How many broilers do you normally produce per cycle?

24 How many cycles do you do per year?

25 Which companies supply day-old chicks to the farm?.....

25 Which companies supplyveterinary goods (medication and vaccines) and services to the farm?.....

25 Who supplies broiler equipments (water troops, feeders, scale, etc).....

.....

Section C: Production costs

26 What is the average selling price of broiler chicken?

27 Please complete the following gross margin budget in terms of production cost and returns

Items	Units	Quantity	Price per unit	Total balance
Cost of feed and chicks				
Day old chicks	Bird			
Starter crumbles	Kgs			
Grower crumbles	Kgs			
Growers pellets	Kgs			

Finisher pellets	Kgs			
Total				
Cost of medication				
(stress pack)	Kg			
ESB3 for coccidiosis	Kg			
Disinfectant	Litres			
Vaccines (Gambro and noblis)				
Total				
Cost of labour				
Electricity				
Cost of water	Free	Free		
Transport to inputs to the farm	\$			
Packaging cost	\$			
Transport to transport broilers to the market	\$			
Total variable cost and TFC	\$			
Fixed cost	\$			
Repairs				
Breakeven price @ 2% mortality	\$			
Gross income@ 1.8to 2kgs of	Birds			

weight				
Return per \$ invested (gross income/TVC)	\$			
Gross margin	\$			
Gross margin percentage %	%			

Section D: marketing and sales

Please kindly complete the marketing cost table below

Marketing costs	
Transport cost of marketing and distributing	
Advertising	
Commission on selling	
Marketers food	

36 Do you have the market for broilers? 1=Yes ☐ = No ☐

37 Specify the market by answering the table below

Broiler customers	response	Preferences(live birds, slaughtered or chicken cuts)
Individuals	1=yes ☐	
household customers	2=no ☐	
Schools	1=yes ☐	
	2=no ☐	
Restaurants	1=yes ☐	
	2=no ☐	
Small food outlets	1=yes ☐	
	2=no ☐	
Supermarkets	1=yes ☐	
	2=no ☐	

Small grocery shops	1=yes ☐	
	2=no ☐	

38 How long is the distance to the market? ☐

39 Who are your greatest customers? 1= youths ☐ 2= elderly people ☐ 3= all residents ☐

40 In what form do you sell your broilers? 1= cutlets ☐ 2= full slaughtered ☐ 3= live birds ☐

41 what type of advertising methods used to market broiler

1= direct marketing ☐ 2= digital marketing ☐

42 Distribution method used 1= direct distribution ☐ 2= retailers ☐ 3=other (specify) ☐

Section E: Constraints and opportunities of broiler value chain

43 What are the challenges and opportunities that you're facing in broiler production and marketing? Respond on the table below

Categories	Responds
Strength	
Weakness	
Opportunities	
Threats	

44 In your own opinion, what can you do to control all these challenges?

.....

.....

.....

.....

47 How do you dispose the used bedding (manure) from broilers? 1= selling ☐ 2= use as
organic manure in horticulture and dry land farming ☐ 3= cattle f ☐ 4= other
specify ☐

THANK YOU