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An Assessment of Commercial Broiler Value Chain in South Punjab Pakistan

Muhammad Hamza[1], Shaista Maken[1], Talha Riaz[2], Muhammad Siddique[1], Arsal Ali[1]
Tahseen Ullah[1], Zohaib Saeed (Ph.D)[3] & Rimsha Sakahwat[4]

[1] *College of Economics and Management, Northwest A&F University, Xianyang – China*
[2] *Department of Economic & Management Science, University of Okara, Okara – Pakistan*
[3] *Faculty of Veterinary Sciences, Multan College of Veterinary Science, Multan – Pakistan*
[4] *Department of Mathematics, Emerson University, Multan – Pakistan*

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ABSTRACT

This study aimed to map and characterize the value chain of commercial broilers, associated marketing structure, different actors, and their functions along the value chain. The questionnaire was prepared for different stakeholders from the chosen districts in South Punjab, Pakistan. The findings revealed that controlled farmers' total cost of production was Rs.466110.7 per one-thousand birds and sold the broiler birds for an average of Rs.560114.3 and gained 16.78% profit, while in the case of Traditional farmers, the total cost of production was Rs.494898.5 per one-thousand birds while average sale price was Rs.537148.5 and they gained 7.86% profit. The total marketing margin of the wholesaler was Rs.808/mond out of this marketing cost was Rs.202/mond; therefore, the net margin was Rs.606/mond. The profit as a percentage of the sale price was 6.20%. On average, the retailer's marketing margin in broiler birds was Rs.675/mond, and the marketing cost was Rs.231/mond. The net profit margin was Rs.443/mond. It was further estimated that the retailer's profit as a percentage of the sale price was 4.35%. Government should promote and educate farmers and other stakeholders in the field of value chain for better understanding and production.

INTRODUCTION

In the value chain, products are produced, marketed, and distributed from their conception to their end user, which can be located in a particular geographic region or spread across a broad area (Porter & Advantage, 1985; Miao, 2021). Value chain analysis is essential for understanding the poultry production system, channels of marketing, and their relationships, as well as actors' engagement and key constraints. In the current system, farmers receive only a small portion of the final value of their product. Although in theory, risks and profits should be shared across the chain

***Corresponding author:**
Zohaib Saeed (Ph.D) | Faculty of Veterinary Sciences, Multan College of Veterinary Science, Multan – Pakistan
e-mail: zohaibsaeedahmad@gmail.com

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Author Biographies

Muhammad Hamza is a Research Scholar at the College of Economics and Management, Northwest A&F University in Xianyang – China. He received his Master in Management Specialization in Agribusiness from the University of Agriculture Faisalabad in Faisalabad – Pakistan.

Shaista Maken is a Research Scholar at the College of Economics and Management, Northwest A&F University in Xianyang – China. She received her Master in Agricultural Economics from the University of Agriculture Faisalabad in Faisalabad – Pakistan.

Talha Riaz is a Research Scholar at the Department of Economic & Management Science, University of Okara in Okara – Pakistan. He received his Master in Economics from the University of Okara in Okara – Pakistan.

Muhammad Siddique is a Research Scholar at the College of Economics and Management, Northwest A&F University in Xianyang – China. He received his Master in Agricultural Economics from the University of Agriculture Faisalabad in Faisalabad – Pakistan.

Arsal Ali is a Research Scholar at the College of Economics and Management, Northwest A&F University in Xianyang – China. He received his Master in Agricultural Economics from the University of Agriculture Faisalabad in Faisalabad – Pakistan.

Tahseen Ullah is a Research Scholar at the College of Economics and Management, Northwest A&F University in Xianyang – China. He received his Master in Agricultural Economics from the University of Agriculture Faisalabad in Faisalabad – Pakistan.

Zohaib Saeed (Ph.D) is an Assistant Professor at Faculty of Veterinary Sciences, Multan College of Veterinary Science in Multan – Pakistan. He obtained his Doctorate in Veterinary Parasitology from the University of Agriculture Faisalabad in Faisalabad – Pakistan.

Rimsha Sakahwat is a Research Scholar at the Department of Mathematics, Emerson University in Multan – Pakistan. She received her graduation in Mathematics from the Emerson University in Multan – Pakistan.

(Rota & Sperandini, 2009). Mapping of production systems can provide an understanding and overview of several steps involved in production, harvesting, and distribution, as well as actors and products involved and their hierarchy in the production system (Leng et al., 2021).

The poultry business is one of the most significant subsectors of the livestock industry. Over 1.5 million people (directly & indirectly) are employed in this sector (Hussain et al., 2015). Today, poultry has played an essential role in keeping mutton and beef prices in check. Currently, there is an investment of more than 750 billion rupees in the poultry sector. For the year 2020-21, poultry meat production is 1.80 million tons. The poultry sector has been growing at an incredible rate of approximately 7.5 percent per annum over the previous decade. The goals of the Poultry Development Strategy include control over disease, hi-tech poultry production, processing, addition, and improvement of poultry husbandry practices in addition to product diversification. In addition to encouraging commercial and rural poultry production, the government has adopted farmer-friendly policies.

The poultry industry in Pakistan, particularly the broiler industry, dominates. Pakistan produces 1.02 billion broilers annually, making it the 11th largest poultry producer in the world. 30% of total meat production came from this sector, which grew at an 8-10% rate annually, illustrating the sector's intrinsic potential. Large-scale poultry farms, on the other hand, are most prevalent in Punjab and northern regions (Arshed Bashir et al., 2015). Chicken meat has an advantage over red meat in terms of its low-fat content, compared to beef and mutton, and is therefore considered non-fattening and linked to a reduced risk of heart disease (Khan et al., 2022). Regarding consumption (selected meat categories), poultry meat now has a dominant share. In 1990, poultry meat accounted for 37.4% of all meat consumption and is now approaching two-thirds, 59.3% in 2019 (Memon et al., 2021; Saeed & Alkheraije, 2023). Modern broiler industries are defined by mass production, high investment turnover, and low earnings per broiler. The capability of businesspeople to regulate production costs has a significant impact on business success. Farmers and researchers need to assess how each management factor affects profitability in international markets where the profit margins are decreasing to fine-tune the poultry business (Saeed et al., 2023).

In the poultry industry, there are more and more job opportunities. A key factor in reducing the gap between animal protein availability and demand is chicken meat production. In poultry farming, high-quality birds can be produced in the shortest possible time with a great deal of efficiency. Breeders of modern commercial broilers deserve credit for developing these birds, which reach marketable weight after only 6 to 7 weeks (Mohsin et al., 2008). This paper focuses on the estimation of broiler production in south Punjab so the net worth of the business may be estimated and its contribution to the national and individual worth be presented so that this sector may be developed as it deserves. The literature sufficiently highlights the importance of broiler and the economics of ten region so its necessary to find out the value and options of value edition of broiler market in Pakistan.

Data Collection

The research was based on the primary data collected from different actors in the Multan and Khanewal districts of South Punjab, Pakistan. The actors of the study were input suppliers, farmers (Traditional, Controlled), brokers, wholesalers, retailers, and consumers. There were 60 consumers, 10 input suppliers, 40 farmers, 40 brokers, 40 wholesalers, and 40 retailers. The data were analyzed through descriptive statistics tools. The socio-economics factor was obtained in the form of frequencies (f) and their percentages.

Descriptive Statistics

To assess the findings of this study, descriptive statistics were employed to determine the average and frequency of various members of the poultry value chain. This formula was employed to aid interpretation.

$$F=X/N *100$$

Where F= Frequency Distribution, X= Observed Value, Average was calculated using the following formula, AM= ΣX/N. Where AM= Arithmetic mean, X= Values of observations, N= Total numbers of observations, Σ= Total sum of variables.

Percentages

To make comparisons, percentages were calculated in simple tables. The formula for calculating percentages is as follows:

$$P = F/N*100$$

Where F= Frequency of a class and N= Total number of observations

Margin Analysis

The entire value chain's margins are spread across the system, and different actors receive different margins depending on the services they provide. After eliminating the marketing cost, profit or margin is the difference between the sale price of the product and the purchasing price of the product.

$$\text{Gross Margin} = SP - PP$$

Where, SP= Sale Price, PP= Purchase Price

$$\text{Percentage Marketing} = PS/SP \times 100$$

Where, PS= Price Spread, SP= Sale Price

$$\text{Net Margin} = GMM - MC$$

Where GMM= Gross Marketing Margin, MC= Marketing Cost

$$\text{Net profit as percentage of margin} = (NM \div GMM) \times 100$$

Where, NM= Net Margin, GMM= Gross Marketing Margin

$$\text{Net profit as percentage of sale price} = (NM \div ASP) \times 100$$

Where NM= Net Margin, ASP= Average Sale Price

Discussion

The description of data analyzed is important and somehow tough step in business and other research wings. The study is useless if recommended steps are ignored. After applying steps to research, we can take the actual result based on data analysis. The basic purpose of this study is to identify the actor and their role in the broiler value chain in sense of their offered services, cost and behavior towards commercial broiler. This article is divided into three parts. The first part is the socio-economic characteristics of all actors. Second part consists of the practices and major problems of different stakeholders. Third part is consisted of study of the cost and margins of different actors involved in the commercial broiler value chain and suggested recommendations. Before evaluating the value/esteem chain of commercial broiler, it is better to know about the existing value chain of Commercial broiler. The poultry farmers sell their product, i.e., Broiler, to different actors, i.e., brokers, wholesalers, and retailers, and they get different margins.

Before evaluating the value chain system of commercial broiler, it is necessary to understand the existing value chain system. The producers sold their commodities to different actors like wholesalers and retailers and charged different margins by providing different services. Figure 1 shows the map of the value chain of the Commercial broiler through which the product moves from farmer and is consumed at the consumer level. In the chain, many activities were performed; some activities added value to the product and increased its value, while some activities were essential, but they did not add value to the product, and the actors did some activities; these activities caused wastage in the value chain, but still these practices are done by the actors. These findings were in line with Khasyap and Kuttippurath (2024) who estimated the food supply chain in India. Similar results have been reported in Pakistan, India and South Asia respectively (Horst, & Watkins, 2022; Sequeira, 2022; Bhagat, & Dwivedi, 2022). Figure 1 shows the map of the value chain of commercial broiler, starting from the input supplier, moving from the farmer and consuming at the consumer level. At the same time, the information moves in both ways, supplier to consumer or consumer to supplier, while money flows backward from consumer to supplier. In the chain, many activities were performed; some activities add value to the product and increase its value, while some activities are essential but they not add value to the product. While the actors do some activities, these activities cause wastage in the value chain, but still, these practices are done by the

actors. All these results align with the previous studies (Umair et al., 2021; Khan et al., 2022).

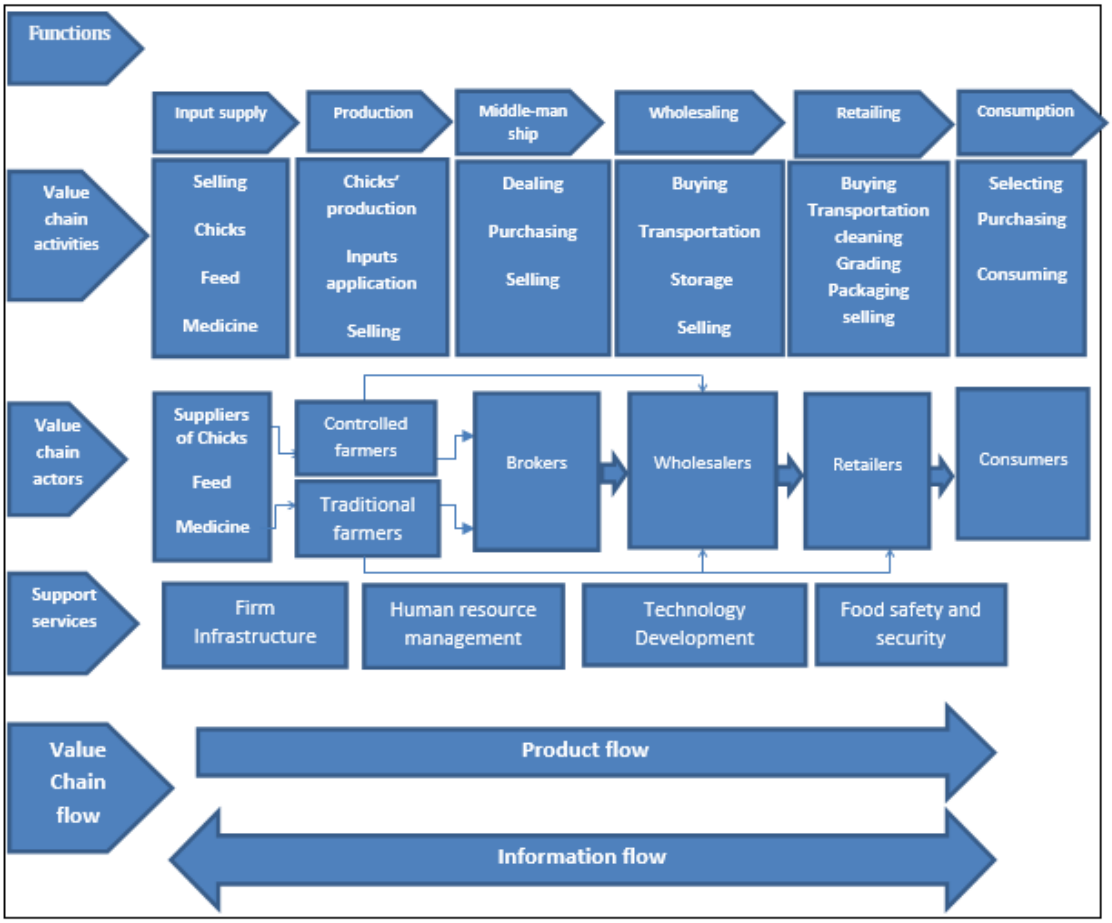

Fig. 1. Value Chain flow mapping of Commercial broiler in South-Punjab Pakistan

Margins Analysis of Value Chain Actors

Figure 1 describes the margins of different value chain actors. Margin analysis of broiler value chain actors was calculated in Rs/month. According to Table 1, the average sale prices of controlled broiler value chain farmers, brokers, wholesalers, and retailers were Rs.9335, 9495, 9854, and 10529/mond, respectively. In contrast, average sale prices of traditional broiler value chain farmers, brokers, wholesalers, and retailers were Rs.8952, 9112, 9473, and 10113, respectively, per mond of live broiler. The average sale price of controlled farmers was more than traditional farmers. In controlled broiler value chain, gross margins of farmers, brokers, wholesalers, and retailers were Rs.1642, 160, 359, and 675/mond, respectively, while in case of traditional broiler value chain, gross margin of farmers, brokers, wholesalers, and retailers were Rs.858, 160, 360 and 640/mond. In controlled broiler value chain, net margins of farmers, brokers, wholesalers, and retailers were Rs.1566, 100, 287, and 443/mond, respectively, while in case of traditional broiler value chain, net margin of farmers, brokers, wholesalers, and retailers were Rs.704, 100, 259 and 485/mond respectively. Gross and net margins of controlled farmers were higher than traditional farmers.

Table 1
Margin Analysis of Value Chain Actors

	Variables	Avg. purchase price	Avg. Sale Prices	Gross Margin	Avg. cost	Net Margin	% Marketing Margin	Net profit % of sales
Controlled Farms	Farmers	7692.47	9335.24	1642.77	76.04	1566.73	17.6	16.78
	Brokers	9335.24	9495.24	160	60	100	1.68	1.05
	Wholesalers	9495.24	9854.64	359.4	71.88	287.52	3.64	2.92
	Retailers	9854.64	10529.64	675	231.37	443.63	6.41	4.21
Traditional Farms	Farmers	8094.14	8952.47	858.33	154.17	704.16	9.6	7.86
	Brokers	8952.47	9112.47	160	60	100	1.75	1.1
	Wholesalers	9112.47	9473.32	360.85	101.04	259.81	3.81	2.74
	Retailers	9473.32	10113.32	640	154.17	485.83	6.33	4.8

Table 1 shows the margin analysis of controlled and traditional broiler value chain actors. It can be shown that according to the graphs given below, Avg. purchase price of controlled broiler farmers is less than Avg. purchase price of traditional broiler farmers, while purchase prices of other controlled broiler value chain actors are higher than the purchase prices of traditional broiler value chain actors. Avg. sale price of both value chains of broiler increases from farmers to retailers throughout the chain. In case of both value chains, controlled broiler value chain farmers and wholesalers have more net margin than traditional broiler farmers and wholesalers, brokers of both value chains have the same net margin while retailers of traditional broiler value chain are with higher net margin than controlled broiler value chain retailers. Farmers have more gross and net margins in both commercial broiler value chains than the other actors in their value chain.

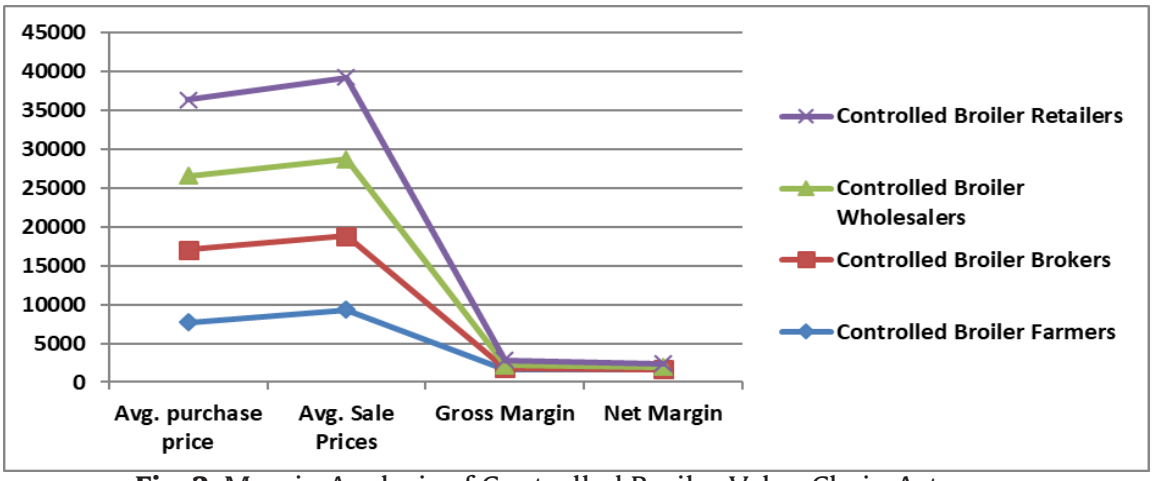

Fig. 2. Margin Analysis of Controlled Broiler Value Chain Actors

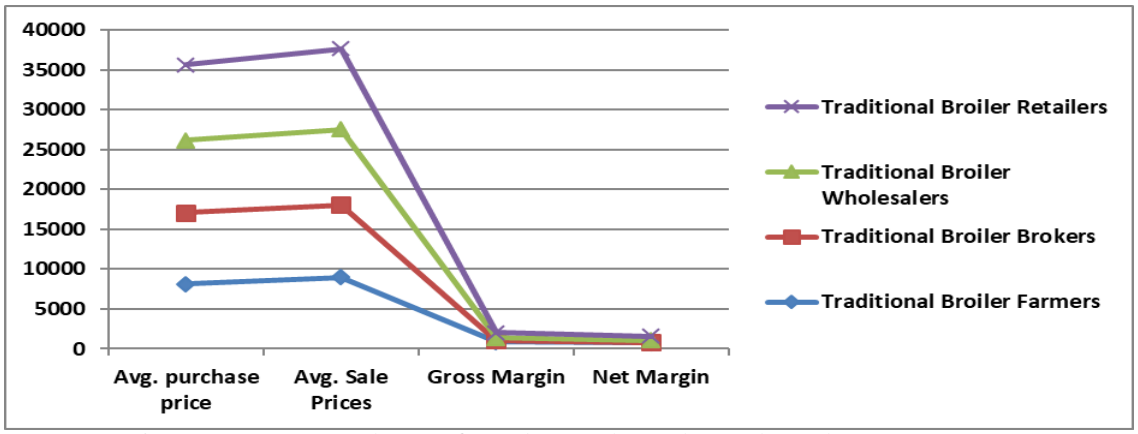

Fig. 3. Margin Analysis of Traditional Broiler Value Chain Actors

Figure 4 shows the percentage margin analysis of controlled and traditional broiler value chain actors. It can be shown that according to the bars given below, in case of both value chains, percentage marketing margin of controlled broiler value chain farmer and retailer is greater than the percentage marketing margin of traditional broiler value chain farmer and retailer, while percentage marketing margin of controlled broiler value chain broker and wholesaler is lower than the percentage marketing margin of traditional broiler broker and wholesaler. Brokers of controlled and traditional broiler value chains have the least curve with the least %age market margin and % profit margin.

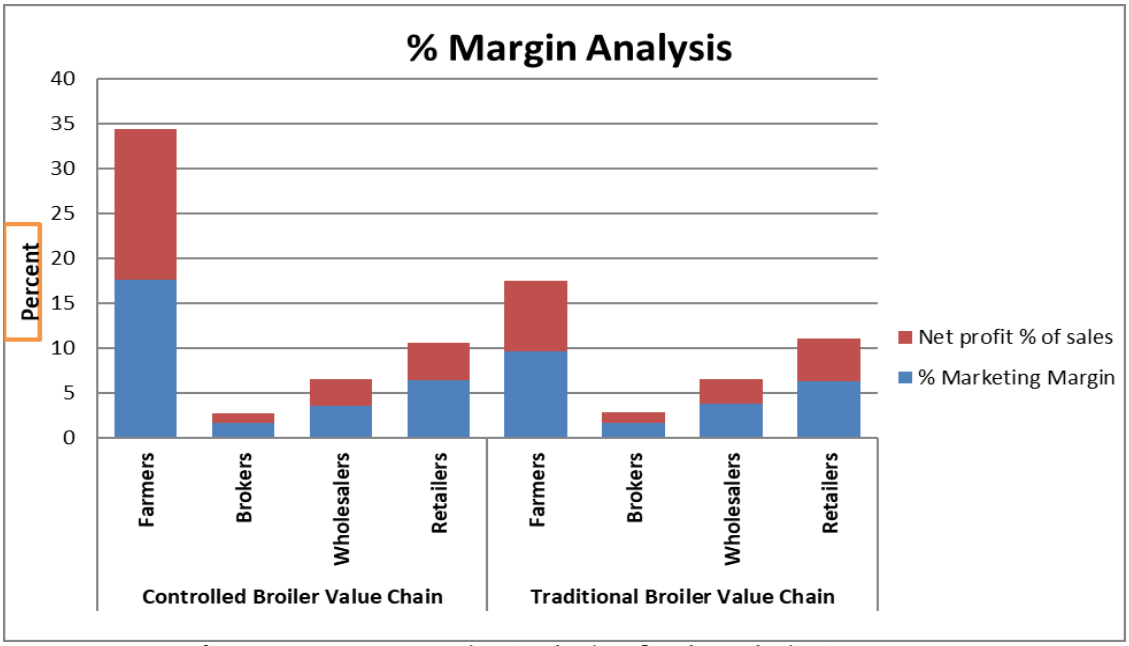

Fig. 4. Per Cage Margin Analysis of Value Chain Actors

CONCLUSION

Based on current findings following recommendations are to improve the outlined value chain of commercial broilers. The government should promote and educate poultry farmers and other stakeholders in the field of commercial broilers for better production. Government should establish policies and laws for protecting the farmers and promoting the Commercial broiler business. Government should create a body to monitor feed costs and standards. Poultry farmers should be able to get agricultural loans with collateral, surety, or security. Government should work as a bridge between farmers and research institutes so that farmers can easily access knowledge.

Competing Interests

The authors declared no competing interests.

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