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Production and economic status of contract and independent broiler farming in Punjab (India)

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Abstract

There are two types of broiler farms in Punjab viz. independent private broiler farms and broiler farms under contract of various integrating companies. For determining the profitability of broiler farming, the market price of day old chicks and live saleable birds play important role as these prices fluctuate frequently according to seasonal demand and supply. The independent private farms are exposed to the market fluctuations and sometimes earn good profit and sometimes bear heavy losses. Whereas, on the other hand, integrating companies is promising fixed remuneration to the contract farmers on live weight basis, hence providing a cushion to the farmers against market price fluctuations. The present study has been undertaken in Punjab state during January, 2021 with sample size of 60 broiler farmers (30 contract and 30 non-contract). It has been observed from the study that both type of production systems of poultry are in distress in the state. The main reason for crisis of non-contract farming is the huge fluctuations in the market prices of live broilers which led to negative net returns in all the three categories. For the contract broiler farming, it was observed that the net returns were negative in small and medium categories, whereas these were positive for large category, but overall net returns were negative. The insufficient growing charges given by the contracting companies are responsible for the crisis. Hence, there is urgent need of policy interventions for safeguarding the interests of contract as well as non-contract broiler farmers in the state.

Keywords: Contract, net returns, non-contract, production traits, variable cost

Introduction

In Punjab, meat mostly comes from poultry, buffalo, sheep, goat and pigs. Total meat production during 2022-23 was 0.252 million tonnes, comprising 0.127 mt (51%) from poultry, 0.109 mt (43%) from buffaloes, and rest 0.016 mt (6%) from sheep, goats and pigs (GOI, 2023) ^[1]. Meat sector is always marginalized due to social, religious and political issues and hence has scattered growth, no structured production and marketing system except in case of poultry. The value chain of meat sector is unorganized and exceptionally long due to many intermediaries. Farmers get only 45-55% of the final price in comparison to dairying where producer gets 70-80% share of the final. Poultry meat is the most preferred meat in the state. Punjab has about 6.2 kg per capita per annum availability of poultry meat against national average of 3.5 kg. Poultry meat system includes broilers and culled layer birds. The average live weight of 1.8-2.2 Kg per broiler is achieved in 35-42 days. The broiler farming in the state increased exponentially due to popularity of poultry meat and faster returns. The poultry meat production increased from 42 thousand tons in 2007-08 to 125 thousand tons in 2018-19, at an annual growth rate of 17.96%.

The broiler population was 196.95 lakh as on 31st March, 2019 with annual production of 1126.45 lakh broilers during 2018-19 (GOP, 2020). There are two types of broiler farms in Punjab viz. independent private broiler farms (about 30%) and about 50% broiler farms under contract of various integrating companies (about 50 per cent mainly under IB, Suguna, Venky, Sampoorana etc.) and remaining approximately 20 per cent farms are under local integrators. There are 2770 broiler farms in the state with a varying farm size of 3,000-100,000 birds. Majority of the farms are concentrated in Gurdaspur, Pathankot, Ludhiana, Fatehgarh Sahib & S.A.S. Nagar districts. Punjab is also supplying live poultry birds for meat to adjoining states of Himachal Pradesh and Jammu & Kashmir.

For determining profitability of broiler farming, market price of day-old chicks and live marketable birds play important role as these prices fluctuate frequently according to seasonal demand and supply. The independent private farms are exposed to the market fluctuations and sometimes earn good profit, but inflicted with heavy losses at times of epidemics and other calamities. On the other hand, integrating companies are promising fixed remuneration to the contract farmers on live weight basis, hence providing a cushion to the farmers against market price fluctuations. The profit margin in a period of eight weeks has been found much higher (almost double) for contract farmers than non-contract farmers (Navadkar *et al.* 2012) [4]. There are several advantages of contract farming like marketing of produce, price incentives in the case of fluctuation a producer can get by entering into contract with a major company (Reddy *et al.* 2010) [6]. Yet, the contract farmers are not always happy with one-sided contract policies favouring the integrating companies as well as high-headedness of these companies like illegally getting blank signed cheque from every contract farmer. According to contract farmers, various types of penalties are imposed upon them, hence siphoning away their profits and many a times they are unable to cover their cost of labour and other aspects related to production.

Due to consumer preference for hot meat, most of the poultry slaughter is in unorganized sector on the roadside butcher shops lacking mandatory veterinary inspection and hygiene. In case of this dry slaughter, feathers are removed along-with skin leading to lower carcass yield and non-utilization of by-products. There is a strong need to draw a policy framework on unhygienic, unorganized slaughtering practices to transform the sale of poultry meat from wet market (which sell fresh meat of live birds) to clean, safe, wholesome frozen authentic poultry meat with complete traceability. At present there are 5 modern poultry processing plants (Kharar, Batala, Larlu, Derabassi and GADVASU, Ludhiana) which process around 10-12% of poultry birds.

The independent private farms allege that the corporates have controlled the broiler sale market and indulge in unfair competition. They have advantage of volumes, huge institutional finances and large marketing networks spread over several states. The contract broiler farmers rue the one-sided agreement where they are expected to sign dotted line after making huge investments in raising the poultry farm buildings but bereft of finances to continue further enduring the costs of raising the birds on their own, thus they get sucked into signing the contract agreements.

Further, these companies dump their produce in the raw/wet market at their prices so as to force the private farms to exit their business and monopolize the whole broiler farming industry. There is need to address the issues of poultry production system in the state. There is need to understand that after the introduction of contract farming, whether there is improvement in farm income of contract and independent farmers. There is need to look critically that after introduction of these companies, whether there is any improvement in consumer affordability or not. Moreover, over the years whether these companies have shown any investment on any infrastructure development with regard to value chain in the state. Keeping the above points in view, the present study has been undertaken to study the scenario of contract and non-contract broiler farming in the state. The

findings of the study will be useful for the policy planners and other stakeholders in the broiler farming.

Material and Methods

Keeping in view the prevalent conditions of broiler contract farming, the survey of sixty farmers (30 contract and 30 non-contract independent broiler farmers) was conducted during January, 2021 randomly in the Punjab state. The data were collected on a specially designed and pretested schedule for the year April 2019 to March 2020. The actual prices prevailing in the market were considered for inputs and output. The analyzed data were presented in tabular form. Simple statistical techniques of averages and percentages were used for the analysis.

Concepts used

Categorization of broiler farms

The boiler farms were divided into different following categories

Small- having birds <10,000

Medium- having birds 10,000 to 20,000

Large – having birds >20,000

Cost components

Fixed cost (FC): Rent of shed, depreciation of shed, depreciation on equipments and interest on fixed capital

Variable cost for non-contract farms: (VC): Cost of day old chicks, feed, labour, medicines and veterinary expenses, and other miscellaneous expenses

Variable cost for contract farms: (VC): Labour and other miscellaneous expenses

Total cost (TC): $TC = FC + VC$

Return components

Gross Returns (GR) included returns from the sale of live broilers + sale of manures + sale of empty gunny bags

Returns Over Variable Cost (ROVC): $ROVC = GR - VC$

Net Returns (NR): $NR = GR - TC$

Straight line method of depreciation

Annual depreciation = $(\text{Purchase price of asset} - \text{Junk value}) / \text{expected useful life in years}$

Results and Discussion

Information about contracting company and contract period

The information pertaining to the contracting company and contract period has been shown in Table 1. A perusal of the table revealed that out of total 30 contract farmers, a majority (nine) of the farmers were having contract with Suguna company followed by IB with eight farmers, Venky with 7 farmers. Hence, Suguna, IB and Venky are the three the main contracting companies which goes for contract farming in broiler production. A majority of the farmers (fifteen) had contract period length in the range of 3 to 5 years. Regarding the source of motivation for contract farming, a huge majority (25) of the farmers got motivation from neighbours, relatives and friends. Further, eighty per cent of the farmers reported that no extension service and

technical guidance was provided by the company to them. Without technical guidance, it is difficult for them to produce efficiently.

Table 1: Information about contracting company and contract period

Sr. No.	Particulars	No. of farmers
I	Name of present contracting company	
i	Suguna	9
ii	IB	8
iii	Venky	7
iv	Sampurna	4
v	Shalimar	1
vi	CP	1
II	Total contract period (Years)	
i	Up to 2	11
ii	3-5	15
iii	>5	4
III	Source of motivation for contract farming (multiple response)	
	Neighbourer/relatives/friends	25
	Advertisement in Newspaper/TV/Radio	6
IV	Whether extension service/technical guidance provided by company	
	Yes	6
	No	24

Level of satisfaction of the contract farmers

The level of satisfaction of the contract broiler farmers is presented in Table 2. The table revealed that regarding the quality of the chick, only five farmers were fully satisfied, seventeen were partially satisfied and eight were dissatisfied. Regarding the quality of feed, five farmers were

fully satisfied, twenty were partially satisfied and five were dissatisfied. Regarding timely availability of feed, vaccination of chicks and supervision, fifteen, 24 and twenty farmers were fully satisfied respectively.

Table 2: Level of satisfaction of the contract farmers about broilers' contract farming

Parameters	Partially satisfied	Fully satisfied	Dissatisfied	Total
Quality of chicks	17	5	8	30
Quality of feed	20	5	5	30
Timely availability of feed	6	15	9	30
Vaccination of chicks	5	24	1	30
Supervision	9	20	1	30

Economics of non-contract independent broiler farming

The cost and returns structure for non-contract independent broiler farmers is presented in Table 3. A perusal of the table revealed that for non-contract (Independent) broiler farming, the overall variable cost and total cost of production per kg live weight were Rs. 74.21/kg and Rs. 76.85/kg, respectively. The gross returns were Rs. 75.64/kg live weight. The return over variable cost (ROVC) was Rs. 1.43/kg and net returns were negative i.e. Rs. -1.21/ kg live weight. In a category-wise analysis, it was observed that the ROVC as well as net returns were negative in small and medium categories, whereas these were positive for large category indicating the scale economies. The reasons for uneconomical returns in broiler farming may include increased input costs related to feed ingredients like maize, bajra and alike; high tariffs for electricity or diesel costs; increasing labour scarcity and costs, besides others.

Table 3: Economics of non-contract Independent broiler farming (Rs/farm/annum)

Sr. No.	Particulars	Amount per kg live weight	% share in total cost	Amount per kg live weight	% share in total cost	Amount per kg live weight	% share in total cost	Amount per kg live weight	% share in total cost
		Small (<10,000) N=13 Av size = 6,192 birds		Medium (10,000 to 20,000) N=12 Av size = 12,167 birds		Large (>20,000) N= 5 Av Size = 49,000 birds		Overall N=30 Av Size = 15,717 birds	
i	Total Fixed Cost	3.80	4.56	3.22	4.01	1.99	2.67	2.64	3.43
ii	Total Variable cost*	79.54	95.44	77.14	95.99	72.49	97.33	74.21	96.57
iii	Total cost	83.35	100	80.36	100	74.48	100	76.85	100
iv	Gross returns	75.58		75.14		77.50		75.64	
v	ROVC	-3.97		-2.00		5.01		1.43	
vi	Net Returns	-7.77		-5.23		3.02		-1.21	

*Includes electricity, diesel, litter, sawdust, whitewashing, insecticides/disinfectants, curtains, repair and maintenance expenses etc.

Production traits of non-contract broiler farming

The various production traits of non-contract independent farmers have been presented in Table 4. A scrutiny of the table brought out that the average number of the birds raised were 14890 in the state with 94.74 per cent capacity utilization of the existing capacity showing declining trend with increase in farm size. The average number of lots

raised per year was 6.03. the mortality showed a declining trend with increase in farm size which may be on account of better management on larger farms. Further, the Feed Conversion Ratio (FCR) showed declining trend with increase in farm size which indicate higher efficiency of larger farms that may also be a reflection of their greater experience and knowledge.

Table 4: Production traits of non-contract broiler farming

Particulars	Small (<10,000) N=13 Av size = 6,192 birds	Medium (10,000 to 20,000) N=12 Av size = 12,167 birds	Large (>20,000) N= 5 Av Size = 49,000 birds	Overall N=30 Av Size = 15,717 birds
Average number of birds	5876	11231	43953	14890
% Capacity utilized	94.89	92.31	89.70	94.74
No. of lots per year	6.00	5.83	6.60	6.03
Average mortality %	8.37	8.33	6.17	7.99
Average FCR (kg)	1.67	1.65	1.64	1.66

Economics of contract broiler farming

Regarding the contract broiler farming, in which the farmer bears labour cost and other miscellaneous costs, it was observed that the overall variable cost and total cost of production per kg live weight was Rs 5.12/kg and Rs 9.15/kg respectively (Table 5). The gross returns were offered @ Rs 6.00/kg live weight. The return over variable cost (ROVC) was Rs 0.87/kg and net returns were thus negative i.e. Rs -3.15/ kg live weight. In a category wise analysis, it was observed that the ROVC was positive for medium (Rs 0.51/kg) and large sized farms (Rs 1.42/kg) and negative for small farms (Rs - 0.02/kg), indicating scale economies. Further, to a surprise, the net returns were found to be negative in all the three categories which puts a question on the very success of contract broiler farming in

the state. Patil *et al.* (2017) [5] reported that with respect to net returns, company cornered large share of profit across all the three categories leaving meager profit to contract farmers. The share of profit reaped by the company hovered around 80 percent across all the categories. According to Sasidhar and Suvedi (2015) [7] all privileges and rights were in the hands of contract companies if there is no regulatory body. With meager rearing charges, stringent production cost incentives and penalties, there are chances that the agreements favored the contracting companies. The survey and FGD findings revealed that the value chain development and provision of inputs and extension advisory service (EAS) by large private poultry companies did not really result in a win-win situation for both integrators and farmers.

Table 5: Economics of contract broiler farming (Rs/farm/annum)

Sr. No.	Particulars	Amount per kg live weight	% share in total cost	Amount per kg live weight	% share in total cost	Amount per kg live weight	% share in total cost	Amount per kg live weight	% share in total cost
		Small (<10,000) N=9 Av size = 5,944 birds		Medium (10,000 to 20,000) N=13 Av size = 13,308 birds		Large (>20,000) N= 8 Av size = 31,500 birds		Overall N=30 Av size = 15,950 birds	
I	Total Fixed Cost	4.73	42.37	3.62	39.72	4.16	48.35	4.02	43.98
II	Total variable cost	6.43	57.63	5.50	60.28	4.44	51.65	5.12	56.02
III	Total cost	11.15	100	9.12	100	8.60	100	9.15	100
IV	Gross returns	6.41		6.00		5.86		6.00	
V	ROVC	-0.02		0.51		1.42		0.87	
VI	Net Returns	-4.75		-3.12		-2.74		-3.15	

*Includes electricity, diesel, litter, saw dust, whitewashing, insecticides/disinfectants, curtains, repair and maintenance expenses etc

Production traits of contract broiler farming

The average number of birds raised per lot were 13551 with 84.96 per cent capacity utilization which showed declining trend with increase in farm size. The average number of lots raised per year was 5.40 and it was the highest in medium

category (5.62). Like the non-contract broiler farming, the average mortality as well as feed conversion ratio followed declining trend with increase in size indicating better management at large farms (Table 6).

Table 6: Production traits of contract broiler farming

Particulars	Small (<10,000) N=9 Av size = 5,944 birds	Medium (10,000 to 20,000) N=13 Av size = 13,308 birds	Large (>20,000) N= 8 Av size = 31,500 birds	Overall N=30 Av size = 15,950 birds
Average number of birds raised	5689	12229	25109	13551
% Capacity utilized	95.71	91.89	79.71	84.96
No. of lots per year	5.33	5.62	5.13	5.40
Average mortality %	9.51	8.94	7.43	8.64
Average FCR (kg)	1.68	1.67	1.66	1.67

Production and marketing problems faced by the contract farmers

The various production and marketing related problems being faced by the contract farmers are presented in Table 7. An examination of the table showed that a majority (23) of the farmers reported poor quality feed provided by the company as main problem followed by 14 farmers reporting poor quality chick supply and 12 farmers blaming the contracting company for not providing the contract agreement copy to them. According to them, the agreement copy is kept by the company and they do not have any proof of the contract with them. The other problems faced included penalty being imposed by the company for poor feed conversion ratio, less rearing charges provided by the company and high chick mortality.

Table 7: Production and marketing problems related to contract faced by the contract farmers (Multiple responses)

Sr. No.	Problem	No. of farmers
i	Poor quality feed	23
ii	Poor quality chick	14
iii	Contract agreement copy not provided	12
iv	Penalty for poor FCR	6
v	Less rearing charges provided	6
vi	High chick mortality	5
vii	Less number of lots	5
viii	Feed supply not on time	5
ix	Blank cheque taken by company	3
x	Medicines cost borne by the farmer	3
xi	Underweight chicks	3
xii	Poor veterinary services	3
xiii	Payments not on time	2

Conclusions

Economic analysis clearly indicated that both type of production systems of poultry are in distress in the state. The main reason for the crisis of non-contract farming is the huge fluctuations in the market prices of live broilers which vary from Rs 35 to Rs 110 per kg of live weight which led to negative net returns in all the three categories. For the contract broiler farming, it was observed that the net returns were negative in small and medium categories, whereas these were positive for large category, but overall net returns were negative. The insufficient growing charges given by the contracting companies are responsible for the crisis. The growing charges need to be revised considering the actual cost of production born by the farmers.

Based on survey results, some recommendations are being made for the betterment of broiler farmers in the state. For safeguarding and balancing the interests of both the parties i.e. contract farmer and contracting company, there is urgent need of establishing some Nodal / Monitoring or Regulatory Board. This board will have members i.e. representatives from government, companies and farmers. Board should ensure the implementation of Model Agreement as unilateral contract agreement gives absolute rights to companies to penalise farmers for poor performance in terms of FCR, mortality percentages etc besides the provision of inferior inputs (chicks, feed & medicine) by the company sometimes. This board should ensure labelling of feeds, feed quality, medicine and vaccine status and also proper qualification of line supervisors of companies.

For termination of contract, the criteria of timeline should be uniform for both the parties. The schedule of payments should be predefined and strictly followed by the company. Payment should be made within 10 days of the lifting of the broilers and after that company should pay market rate of interest on payment. The contracting companies should ensure that they will not sell/dump the broilers in open market and they will go for sale only after processing and hundred per cent value addition of the produce. There is need to understand whether after introduction of contract farming, there is improvement or not in the farm income of the contract as well as independent farmers. Monitoring board need to look very critically that after introduction of contract by these companies, there is neither improvement in end consumer affordability nor any investment by these companies on any infrastructure development with regard to value chain in the state.

To encourage independent farmers, easy access to loans/subsidies should be there with minimum paper work and at low rate of interest. Board should study the field conditions and suggest introducing required support / subsidies to this sector. Independent poultry farmers should be encouraged to unite in the form of FPOs. The independent private farms are exposed to market fluctuations earning good profit or suffering heavy losses at times. FPOs with organized procurement of inputs and better direct reach to consumers, can provide much needed cushion. It is further submitted that if all these measures are to be taken to improve the broiler contract farming, then the strengthening of hatcheries is imperative by the state to keep the broiler industry on sound footing.

Author Contributions

Conceptualization, I.K., H.S.D., V.P.S., I.K., P.P.D., S.K.D. and H.S.; methodology, I.K., H.S.D., V.P.S., I.K., P.P.D.,

S.K.D. and H.S.; data curation, V.P.S. and H.S.; formal analysis, I.K. and V.P.S.; writing—original draft preparation, I.K. and V.P.S.; supervision, data analysis guidance, writing—review and editing, I.K., H.S.D., V.P.S., I.K., P.P.D., S.K.D. and H.S.

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Declarations

Data publicly available in a repository: The datasets generated by the survey and/or analysed during the study are available on demand.

Competing interests: No conflicts of interest have been declared in relation to the research and its findings.

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