

Research Article



Economic Assessment of Seasonal Variations in the Poultry Farming: The Case of District Nowshera, Khyber Pakhtunkhwa

Muhamamd Naeem¹ and Murad Khan^{2*}

¹Assistant Professor, University of Swabi, Swabi, Khyber Pakhtunkhwa, Pakistan; ²Economist (consultant in a project of World Bank) at Federal Board of Revenue, Islamabad.

Abstract | The study was conducted in district Nowshera during August-September 2010 to make an economic assessment of seasonal variations in the poultry industry. There were 400 poultry farms in district Nowshera but the preliminary survey showed 127 operational poultry farms scattered over in the study area. Out of total farms, 60 farms were selected randomly. To capture the seasonal variation and effects of different factors on seasonal fluctuations in the poultry industry, a descriptive statistic as well as OLS technique was used. The main cost of winter season consists of feed cost, lighting cost, the price of day old chicks, breeding cost, medication and vaccination cost. These costs were high in the winter season than the summer season. The mortality rates were also high in the winter season. The lighting cost was comparatively less in summer season. Broiler and breeding cost was also low. The consumption of breeding was less and the price of broiler was low in the summer season as compared to winter season but revenue and production were higher due to high demand and consumption in winter season than the summer season. The paper also show major factors that affect poultry production. Poultry business should be encouraged through the provision of inputs on subsidised prices.

Received | March 04, 2016; **Accepted** | February 14, 2019; **Published** | April 04, 2019

***Correspondence** | Murad Khan, Economist (consultant in a project of World Bank) at Federal Board of Revenue, Islamabad; **Email:** dr.khanzai@yahoo.com

Citation | Naeem, M. and M. Khan. 2019. Economic assessment of seasonal variations in the poultry farming: The case of district Nowshera, Khyber Pakhtunkhwa. *Sarhad Journal of Agriculture*, 35(2): 408-416.

DOI | <http://dx.doi.org/10.17582/journal.sja/2019/35.2.408.416>

Keywords | Gross domestic product (GDP), Operational poultry farms, OLS technique, Seasonal variations, Winter season, Summer season

Introduction

Poultry farming is an emerging sub-sector of Pakistan's economy. In 2013-14 it contributed 1.3 percent to the Gross Domestic Product (GDP) of the country. This sector has grown at an annual rate of 8-10 percent which reflects its enormous potential (PES, 2014). Growing of poultry in Pakistan has established a profitable activity/business. Poultry sector generates employment and income for about 1.5 million people. Its contribution to agriculture growth is 4.81 percent and within livestock sectors its growth is 9.84 percent. In Pakistan, poultry business had made a significant contribution to food

production. Poultry meat contributes 28% of the total meat production in the country. The current investment in the poultry industry is about Rs. 200 billion (Govt. of Khyber Pakhtunkhwa, 2000).

Pakistan has been experiencing a persistent shortage of beef and mutton for the last six decades. Rapid growth in population requires the supply of more and higher quality animal protein to cope with the ever-increasing demand (Islam, 1998). The two-meatless days, the rising prices of beef and mutton and more importantly the introduction of broiler production system have been instrumental in producing pressures as well as incentives to undertake commercial-scale

poultry production in Pakistan. Poultry sector offers a valuable repository to bridge the gap between growing demands and availability of balanced nourishment. The poultry sector has widespread and deep impact on income and employment in the country, benefiting millions of people in rural and urban areas. Any upheaval in this sector is, therefore, bound to have a far-reaching impact on the country's overall income and employment situations. A rapid expansion in poultry farming occurred in the early sixties of the last Century. Ever since, then poultry farming has emerged as a full-time enterprise. The poultry industry has now become the second largest industry after the textile in Pakistan and 50 percent of the demand for meat is now met from the poultry sector. (Islam, 1998; Khan and Khan, 1996; Siddiqui, 1989; Shamsuddoha and Shoal, 2007). This sub-sector of agriculture still needs developed trained work force, latest innovation and new poultry farming technique (Shamsuddoha and Shoal, 2007).

Factors influencing the profitability of broiler fattening assessed that profitability of broiler fattening depended on the product selling price, chick price, feeding cost, capital depreciation, interest on buildings and overheads (Frankart, 1982). Shahidullah and Islam (1990) showed that poultry production had a positively significant relationship with education, occupation, income, communication, exposure and knowledge in poultry keeping. Masad (2010) used the profit function regression model for commercial broiler production and examined the impact of a sale price of broiler and other inputs on the profit of broiler producers. The study results further showed that the correlation matrix of the different variable in the regression model revealed greater negative relation among dependent variables. Bamiro (2008) analysed the economic performance of commercial poultry farming and showed that profitability of the farm is determined by the scale of production. The results further showed that flock size, feed and labour have positive effects on the price of output. Mohsin et al. (2008) examined the profitability of broiler production. It was revealed that the cost of production was more in small farms as compared to medium farm. Binici et al. (2013) assessed production efficiency of poultry while economic analysis of various size of and types of firms were also carried out by various researchers (Demircan et al., 2012 and 2010; Khan and Afzal, 2017; Afzal and Khan, 2018).

Usman and Diarra (2008) found the role of mortality in the profitability of egg type layers. The study found an inverse relationship between mortality and net profit. The higher mortality was found due to infectious and non-infectious disease, accidental deaths and poor quality of chicks and feed. Ahmad et al. (2008) revealed that variation in prices of input and output were found in the study area. Costs savings can be increased by modern meat-packing technologies have declined the actual margin and it has a direct impact on real poultry prices. Farooq et al. (2004) evaluated the backyard poultry. According to the survey, the human and backyard poultry production were 0.295 and 0.747 million respectively. A different breed of poultry was reared for generation of family income. Jan (2000) found that feed and day-old chick cost was greater than other inputs costs and prices of feed were very high that created problems for poultry producers. Dwinger et al. (1999) showed that family poultry production is facing major problems like unavailability of medicine, feeding cost, simple housing structure etc. Unequal distribution of wealth is major hurdle in the way of poultry production (Abdullah, 2007). Cholan (2007) examined that if government want to raise the standard of living of people in the study area, the price of inputs must be controlled. Rani and Subhara (2009) found a lack of financial facility as the main problem faced by the poultry producers.

Literature also showed that production is affected by diseases like Newcastle and coccidiosis and these diseases were very common in the spring season while feed poisoning was mostly in summer (Anjum, 1990; Salamis et al., 1991). Kinung'hi et al. (2004) analysed the economic implication of poultry coccidiosis in different farms. It was found that Coccidiosis is the main culprit of all kind of losses. The losses were considerably higher in small scale as compared to large-scale farms. Anwar et al. (2004) revealed that the net loss in winter season was greater than the summer season.

Abdullah (2007) revealed that production increases the poultry business by lowering the price of poultry products at the consumer level. Parcel and Pierce (2000) examined that consumer increasing demand for poultry effect the price of poultry products. The study suggested that poultry producers should improve the quality and quantity of poultry products. Etim and Valerie (2010) said that rural business could play a vital role in reducing poverty.

This research work add to the current literature on poultry farming with specific objectives to: a) assess the cost and revenue of broiler poultry farming; b) examine price fluctuations in poultry products and c) identify the constraints faced by the broiler farms in both seasons (winter and summer) in the study area.

Materials and Methods

A sampling of the study area

The study was conducted in District Nowshera because up to now; there is no such research work available on economic assessment of seasonal variation (winter season and summer season) in poultry business in Pakistan. For obtaining the pre-targeted objectives of the study, the selection of suitable sample size is very important. According to the record of Livestock and Dairy Development Department, Khyber Pakhthunkhwa, there were 400 poultry farms in Nowshera District but the preliminary survey showed that the total numbers of operational poultry farms were 127 scattered over the study area. Due to lack of financial and transport facilities 10 villages were selected through purposive sampling technique. The reasons for selection of 10 villages have been the easy access to the area from Nowshera, availability of local transport, the density of poultry farms and appropriate representation of the district. Further disproportionate random sampling technique was used to get the required sample size from 10 villages. As the total numbers of farms in these selected villages were 75, 60 farms were selected randomly for the study purpose.

Research instrument

The interview schedule was used as a research instrument for this study. The interview schedule was of a comprehensive nature and it covered every aspect of the problem under investigation. The schedule was pre-tested in the field for relevance and accuracy and was modified in the light of the pre-test.

Data analysis

Simple partial budgeting techniques were used to find out the costs and revenues from broiler farming. For further analysis descriptive statistics were used. The details of modeling and analytical procedure for estimating different factors of poultry output are given below.

Cobb-Douglas production function

For further analysis and to capture the effect of

various factors affecting broiler production, the Cobb-Douglas production function is estimated (Vineta and Narnicka, 2003).

$$Y = AL^\alpha K^\beta Z^\gamma \dots (1.1)$$

Where:

Y= Poultry output; L = Labour; K = Capital; Z = Vector of poultry inputs; A, α , β , γ are parameters μ is disturbance term.

A measure of the efficiency of production function or the scale of production that how much output is possible to create if one unit of each input is used. Parameters i.e. α , β and γ measure how the amount of output responds to the changes in inputs (Varian, 1993).

The relationship between output and input variables in Cobb-Douglas production function (1.1) is nonlinear. However, if it is log-transformed, the following linear function is obtained.

$$\ln Y = \ln A + \alpha \ln L + \beta \ln K + \gamma \ln Z \dots (1.2)$$

It can also be written as:

$$\ln Y = \beta_0 + \beta_1 \ln L + \beta_2 \ln K + \beta_3 \ln Z + \mu \dots (1.3)$$

The above function (1.3) is linear in its parameters β_0 , β_1 , β_2 , β_3 and therefore is a linear regression model. Now it is possible to use the Ordinary Least Square (OLS) method to estimate the regression.

β_i are the partial elasticity of output with respect to a particular input. It measures the percentage change in one input, holding the other input levels constant. Furthermore, the sum of β_1 , β_2 , and β_3 gives information about the return to scale, i.e., the response of output to a proportionate change in the inputs. If $\beta_1 + \beta_2 + \beta_3 = 1$, then there is a constant return to scale. If $\beta_1 + \beta_2 + \beta_3 < 1$, then there is a decreasing return to scale and if $\beta_1 + \beta_2 + \beta_3 > 1$, there is an increasing return to scale (Guajarati, 1995, p. 215).

The poultry production depends on a number of factors like the experience of the poultry farmer, quantity and price of feed, vaccination cost, brooding cost, the price of broiler and farm capacity. By introducing other inputs of the poultry production, the model for estimation becomes.

$$Y = \beta_0 + \beta_1 \ln L + \beta_2 \ln K + \beta_3 \ln V + \beta_4 \ln F + \beta_5 \ln PFB + \beta_6 \ln PB + \beta_7 \ln BC + \mu \dots (1.4)$$

Where;

L= Labour Experience of poultry farming; K= Capital (Farm Capacity); V= Vaccination/Medication Cost
 F= Feed per flock; PFB= Price of Feed Bag; PB= Price of Broiler; BC= Brooding cost.

Diagnostic tests

Before going for the model estimation, the normality of data was checked. After finding that the data is normal through histogram, variance inflation factor test (VIF) was conducted to know the multicollinearity problem in the data and the entire variables were observed with having values of less than 10, indicating no signs of multicollinearity. As for the heteroscedasticity problem is concerned, the log was used to remove the variations in data prior to that which not only solved the problem of variation but heteroscedasticity as well (Guajarati, 1995). From Table 13, it is clear that the values of Durbin Watson test fall in the no autocorrelation zones for both the models.

Results and Discussion

In the present study, two seasons' i.e. winter and summer were taken into consideration. In winter season the weather mostly is cold in the study area and poultry business needs very much attention, because in the winter season poultry farming needs more feed, heating capacity, medication and vaccination as compared to the summer season. The other disadvantage in winter season is the rate of mortality, which is almost high as compared to summer. In summer, the cost of feed, medication, lightening and death cases are less than as compared to the winter season.

Farm ownership

As the poultry farming can be started with comparatively small capital, 93.33 percent of producers were sole proprietors. Only 6.67 percent of the poultry farms were established with the partnership as shown in the following Table 1.

Table 1: Ownership of poultry farm.

| Category | No. of Respondents | percentage |
|------------------|--------------------|------------|
| Sole proprietors | 56 | 93.33 |
| Partnership | 04 | 06.67 |
| Total | 60 | 100 |

Source: Field Survey.

Size of farm (Square Feet)

Table 2 shows the size of farm which identifies that

most of the farms are 1000 ft². It is examined from the study that for single day old chick one ft² area is required. The survey further shows that 3.33 percent of poultry producers have 500 ft² capacity for poultry farming, 81.66 percent of poultry producers have 1000 ft² capacity and 15 percent producers have 2000 ft² area for poultry purpose.

Table 2: Farm Capacity/Size of Farm Square feet.

| Size of Farm Square feet/Marla | No. of Respondents | Percent |
|--------------------------------|--------------------|---------|
| 500.00 | 02 | 3.33 |
| 1000.00 | 49 | 81.66 |
| 2000.00 | 9 | 15.00 |
| Total | 60 | 100.0 |

Source: Field survey.

Total number of Birds flock per season

Table 3 show that almost two flocks per season were handled easily meaning that four flocks annually. Most of the farms, 98 percent poultry producers were handling two flocks in each season while four flock on an annual basis.

Table 3: Total number of birds flock per season.

| Total Number of Birds Flock per Season | No. of Respondents | Percent |
|--|--------------------|---------|
| 1.00 | 01 | 1.66 |
| 2.00 | 59 | 98.33 |
| Total | 60 | 100.0 |

Source: Field survey.

Brooding cost per flock

The brooding cost is that type of cost which is done on day old chicks in initial stages and for this purpose poultry producers purchase starter (type of feed which is rich in protein). Brooding cost per flock is divided into two segments i.e. per flock cost of brooding in the winter and the summer season. The survey shows that the limit of brooding cost ranges from 1000 to 7000. In the summer season, cost of brooding per 1000 birds has recorded 3000 to 4000 rupees and the percentage of it is 50 percent and 22 percent respectively (Table 4). The table further shows that at 1000 birds, the brooding cost during the first week is recorded as 3100 to 4000 rupees and the percentage of this statement given by the farmer is 40 percent and 26 percent respectively.

Feed of birds

Feed played a major role in poultry production and

considered an important factor in poultry production. No one, during the survey, reported any shortage of feed. Majority of producers make observations about the quality and prices of feed. The range of feeding cost starts from 1000 rupees and goes to 1400 rupees per bag of 50kg (Table 5).

Table 4: Brooding cost per flock in both seasons.

| Brooding Cost | Winter season (%) | Summer season (%) |
|---------------|-------------------|-------------------|
| 1000-2000 | 10.0 | 16.0 |
| 2001-3000 | 14.0 | 22.0 |
| 3001-4000 | 40.0 | 50.0 |
| 4001-5000 | 26.0 | 06.0 |
| 5001-6000 | 6.0 | 02.0 |
| 6001-7000 | 4.0 | 02.0 |
| Total | 100.0 | 100.0 |

Source: Field survey.

Table 5: Price per 50 kg feed/bag.

| Price per 50 kg feed/bag | Percent |
|--------------------------|---------|
| 1000-1050 | 04.0 |
| 1051-1100 | 04.0 |
| 1101-1150 | 02.0 |
| 1151-1200 | 12.0 |
| 1201-1250 | 14.0 |
| 1251-1300 | 40.0 |
| 1301-1350 | 18.0 |
| 1351-1400 | 06.0 |
| Total | 100.0 |

Source: Field survey.

Vaccination/medication/flock

Vaccination/medication are classifying into two categories i.e. winter season vaccinations and summer season vaccinations. The range of cost on vaccination is from 100 to 4000 rupees per season. In the cost of vaccination/medication, there were no considerable variations in both seasons but the share of the cost incurred on vaccination and medication was high (Table 6).

Cost of cleaning

Cleaning cost is an important variable that should be kept under consideration. Poultry farming needs a fair environment, which helps in rearing and caring of poultry production from different diseases. During the survey, it is realised that cleaning cost is greater in winter as compared to summer. The range of cleaning cost started from Rs 300 to Rs 2500. It was examined

that 46 percent poultry producers allocate Rs.1000 per month on cleaning purposes which is the highest percentage. 10 percent poultry producers allocated Rs.1500 on cleaning cost which is considered the second highest figure. It was observed that the cost of cleaning in summer is less than that of winter. The range of cleaning cost in summer started from Rs. 100 to Rs. 1000. It was examined that 26 percent of poultry producers allocate Rs. 500 to 600 for cleaning purpose which was the highest percentage recorded. The second highest figure for cleaning cost is Rs. 500 and 20 percent poultry producers allocate this amount (Table 7).

Table 6: Vaccination/medication per flock.

| Vaccination/Medication/Flock | Percent |
|------------------------------|---------|
| 100-500 | 10.0 |
| 501-1000 | 12.0 |
| 1001-1500 | 14.0 |
| 1501-2000 | 50.0 |
| 2001-2500 | 04.0 |
| 2501-3000 | 06.0 |
| 3001-3500 | 02.0 |
| 3501-4000 | 02.0 |
| Total | 100.0 |

Source: Field survey.

Table 7: Cleaning cost of poultry farm.

| Cleaning Cost (Winter season) | | Cleaning Cost (Summer season) | |
|-------------------------------|-------|-------------------------------|-------|
| Categories | % | Categories | % |
| 100-500 | 12.0 | 100-300 | 06.0 |
| 501-1000 | 46.0 | 301-500 | 36.0 |
| 1001-1500 | 22.0 | 501-700 | 48.0 |
| 1501-2000 | 16.0 | 701-900 | 08.0 |
| 2001-2500 | 04.0 | 901-1100 | 02.0 |
| Total | 100.0 | Total | 100.0 |

Source: Field survey.

Cost of oil and gas

Oil/gas cost for lighting for the winter season is also considered is one of the major costs in poultry production. The study shows that the cost of lighting is high in winter as compared to summer. The survey examined that the average monthly cost of lighting in winter starts from 1000 to 5000 rupees per month because in winter lighting is essential for the rearing and clearing of poultry production. Oil/gas cost for lighting for summer seasons is far below than winter

season costs. It starts from one hundred and ranges to 3000. The study shows that the cost of lighting is high in winter as compared to summer. In winter season the highest percentage ranges from 3001-3500 while for summer season it ranges from 1201-1600 (Table 8).

Table 8: Oil/gas cost for lighting per flock.

| Winter season | | Summer season | |
|---------------|-------|---------------|-------|
| Categories | % | Categories | % |
| 1000-1500 | 04.0 | 100-400 | 04.0 |
| 1501-2000 | 10.0 | 401-800 | 10.0 |
| 2001-2500 | 18.0 | 801-1200 | 22.0 |
| 2501-3000 | 22.0 | 1201-1600 | 34.0 |
| 3001-3500 | 30.0 | 1601-2000 | 16.0 |
| 3501-4000 | 08.0 | 2001-2400 | 10.0 |
| 4001-4500 | 06.0 | 2401-2800 | 06.0 |
| 4501-5000 | 02.0 | 2801-3200 | 02.0 |
| Total | 100.0 | Total | 100.0 |

Source: Field survey.

Table 9: Average price per kg live broiler.

| Winter season | | Summer season | |
|---------------|-------|---------------|-------|
| Categories | % | Categories | % |
| 101-105 | 02.0 | 115-120 | 05.0 |
| 106-110 | 04.0 | 121-125 | 12.0 |
| 111-115 | 11.0 | 126-130 | 18.0 |
| 116-120 | 28.0 | 131-140 | 39.0 |
| 121-125 | 34.0 | 141-145 | 26.0 |
| 126-130 | 21.0 | 145-160 | --- |
| Total | 100.0 | Total | 100.0 |

Source: Field survey.

Average price per kg of live broiler

It means, the selling price at the market level. The Price is also considered as the main determinant, which has key role in the outcome of the poultry business. Greater the prices of poultry products, greater will be reward toward poultry farmers and it attracts new comers toward poultry business. In all businesses price stability in the market has great role in the development of the business. During the survey, it was realised that the prices in the winter season ranges between Rs105 to Rs130 per kg. There is continues inflation in Pakistan from past several years which has a worse effect on the raw materials related to poultry business, it also has a negative impact on the prices and it effect both the consumers as well as producers. The range of prices of broiler in summer seasons starts from Rs115 to Rs145 per kg live broiler. The

average price was observed a bit higher in the summer season as compared to the winter season (Table 9).

The table shows the marketing side of the poultry business. The survey shows that majority of producers himself sells their poultry in the market and the percentage of those were 76 percent and one percent poultry producers sold their poultry on the collectors. Source of market information plays an important role in the poultry farming business. During the survey, it was observed that 64 percent of farmers visited market himself to get valuable information about poultry farming. The survey further showed that 32 percent producers get information from commission agents available in the poultry markets (Table 10).

Table 10: Market information and sale of poultry.

| Market Information | % | Sale of poultry | % |
|-----------------------|-------|-----------------|-------|
| Commission agents | 32.0 | Market Himself | 76.0 |
| Neighboring producers | 04.0 | Collector | 18.0 |
| Personal visit | 64.0 | Contractor | 6.0 |
| Total | 100.0 | Total | 100.0 |

Source: Field survey.

Table 11: Marketing cost of poultry.

| Marketing Cost | Percent |
|----------------|---------|
| 500-1000 | 17.0 |
| 1001-1500 | 12.0 |
| 1501-2000 | 41.0 |
| 2001-2500 | 22.0 |
| 2501-3000 | 08.0 |
| Total | 100.0 |

Source: Field survey.

Table 12: Causes of price variations and investment status.

| | | |
|--------------------------|-----------------------|-------|
| Cause Of Price Variation | Marriage season | 28.0% |
| | Seasonal variations | 34.0% |
| | Disease attack | 38.0% |
| Investment status | Borrowed money/assets | 16.0% |
| | Own money/assets | 84.0% |

Source: Field survey.

Marketing cost

Marketing cost is also considered an important variable in poultry production. The survey showed that the range of marketing cost started from Rs. 500 to Rs. 3000. During the survey, it was estimated that 17 percent farmers were of the view that marketing cost

Table 13: Estimation of farm poultry production (winter season and summer season).

| Dependent Variable: Poultry Farm Production | | Winter season | | | | Summer season | | | |
|--|----------------------------|---|------------|-------------|---------|---|------------|-------------|---------|
| Independent variables | | Co-efficient | Std. Error | t-Statistic | P value | Co-efficient | Std. Error | t-Statistic | P value |
| L | Poultry farming experience | 16025.052* | 198.409 | 5.03 | 0.000 | 1206.046* | 2658.901 | 4.01 | 0.000 |
| K | Capital (farm capacity) | 14.036* | 5.1267 | 9.32 | 0.000 | 4.629* | 7.730 | 8.77 | 0.000 |
| V | Vaccination/medication | 6874.356 | 854.313 | 3.06 | 0.003 | 5969.786* | 458.0313 | 3.87 | 0.000 |
| F | Feed per flock | 4747.381* | 167.366 | 4.87 | 0.000 | 447.038 | 3657.366 | 2.99 | 0.004 |
| PFB | Price of feed bag | -6067.228* | 1991.645 | -3.69 | 0.000 | -9864.412 | 4527.546 | -2.49 | 0.019 |
| PB | Price of broiler | 185.588* | 31.479 | 8.95 | 0.000 | 588.581* | 131.947 | 5.69 | 0.000 |
| BC | Brooding cost | -7.589 | 10.616 | -3.29 | 0.001 | -87.589 | 56.616 | -3.03 | 0.003 |
| C | Constant | -1366.921 | 354.170 | -2.93 | 0.006 | -1366.921 | 354.170 | -2.93 | 0.006 |
| *Highly Significant | | R ² =0.74562; Adj. R ² =0.73521; DW test=1.87; F ratio= 24.343(0.000) | | | | R ² =0.72841; Adj. R ² =0.71890; DW test=1.82; F ratio= 19.376(0.000) | | | |

Source: Field survey.

was from Rs. 500 to Rs. 1000. According to 41 percent of the farmers the marketing cost were between Rs 1500 to Rs. 2000 and 22 and 08 percent of the farmers were of the view that the range of marketing cost were recorded between Rs. 2000 to Rs. 3000 (Table 11).

Price variations

During the survey, it was observed that 38 percent of the poultry producers were of the view that price variation occurs due to various diseases related to poultry, which affects the outcome from poultry business. It is further examined during the study that 34 and 28 percent of the poultry farmers were replied that variations in price occur due to seasonal variations and marriage season. Mostly business depends upon capital and plays an important role in the development of the business. The survey showed that 84 percent of the poultry farmer starts their business by own money. The study further examined that 16 percent of the poultry producer's avail the facility of a loan from their friends, relatives etc. (Table 12).

Estimation of the factors of poultry production (winter season and summer season)

After discussing the descriptive statistics of the dependent and independent variables in the present study, the relationship between the total productivity of poultry and its determinants, which affect the level of productivity, is being explained. The techniques of Ordinary Least Square (OLS) has been employed to get the estimation results. The effect of various factors on poultry production was analysed. In order to find out the effect of these factors on the farms productivity and highlight the effects of seasonal variations, two

different models were used. The estimate reported in the table indicates that the regression coefficient of all the variables carries almost the correct expected signs. When two regression models were run on the data of the winter season and the summer season, it showed the significant relationship of yield with all the explanatory variables in the models for both seasons (Table 13). Similar results of most of the variables were reported by Frankart (1982); Shahidullah and Islam (1990); Masad (2010) in their studies.

Comparison of winter season and summer season variations in the models

From the regression analysis of both the models, it is clear that all the independent variables have a significant effect on poultry production while winter season model is highly significant than summer season. The t-statistics value of the estimators of winter season model is high, showing greater significance and confidence level than summer season model. The R-square value and Durbin-Watson test also were showed the more and close relationship in the model of the winter season than the model of the summer season. This may be due to high consumption of broiler, greater revenue and high poultry farm production in the winter season than the summer season. The co-efficient values of the winter season are large, while standard errors are small, which leads to high significance of the model of winter season.

Conclusions and Recommendations

The main cost of winter season consists of feed cost, lighting cost, medication and vaccination cost,

the price of day old chicks and breeding cost. These costs are more in the winter season than the summer season. The mortality rates are also high in the winter season. The cost incurred on poultry farming, like feed cost are low, medication and vaccination cost are less due to a fewer attack of diseases, the lighting cost are comparatively less in the summer season. The broiler and breeding cost are also low, because the consumption of breeding is less and the price of broiler is also cheap in the summer season as compared to the winter season. However, the revenue and production are higher in the winter season than the summer season, due to more demand and consumption of broiler in the winter season. Further, the prices of broiler are comparatively more in the winter season than the summer season which results in higher productions and revenue. The results of the present study highlight major factors, which effect the poultry production.

During survey it is observed that most of the farmers have the observation on the price and quality of feed as well as medication and vaccination. It was examined during the survey that there was more fluctuation in prices poultry of inputs and meat in the market. The rate of mortality is very high in the study area, which is not a good sign for poultry growers. The study recommended that steps should be taken in public as well as private entities to encourage and facilitate income-generating activities for enhancing poor people's income in the form of poultry through the provision of inputs on subsidised prices.

Author's Contribution

Muhammad Naeem: The paper belong to the MPhil thesis of the first author who collected the whole data for the paper, provided with literature review and have major role in the research.

Dr. Murad Khan: Worked on the conceptual framework, modeling, analysis and also in development of the paper.

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