Research Article

Evaluation of Production Performance and Marketing of Small Ruminants in District Dukki, Balochistan

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Abstract | The study was carried out to investigate the production patterns and marketing of small ruminants during the year 2018. The information on various aspects was collected from the small ruminants farmers of five union councils i.e. Vialla Dukki, Thal, Nana Sahib, Sadar and Nasar Abad of district Dukki of Balochistan. The sample size was composed by producer (50), wholesalers (50) and retailer (50) for convenient sampling contribution of each selected producer involved in the business area. The result showed that in the study area (60.00%, 24.00% and 16.00%) farmers have kacha, pacca and semi pacca housing type. flock size in average was 193.33 in Vialla Dukki, 241.42 in Thal, 390.00 in Nana Sahib, 493.33 in Sadar and 610.00 in Nasar Abad, respectively. Total cost of animals in Villa Dukki was (1131000 Rs), Thal (1352000 Rs), Nana Sahib (1092000 Rs), Sadar (1124800 Rs) and Nasar Abad (1037000 Rs), respectively. Per animal feeding, vaccination, shepherd, marketing and miscellaneous charges was 59256, 3838, 139440, 50202 and 29186 rupees. An amount of 1370, 53.47 and 12.84 rupees per animal received from sale of animal, wool / hair and manure, respectively. Net return of 1450.18 rupees per animal was received from total expenditure (729.10 per animal) and gross revenue (737.26 per animal). The input output ratio in Vialla Dukki was 1:2.03, in Thal was 1:2.01, in Nana Sahib was 1:1.99, in Sadar was 1:1.99 and in Nasar Abad was 1:1.20, respectively. The cost benefit ratio in Vialla Dukki was 1:1.03, in Thal was 1:1.02, in Nana Sahib was 1:0.99, in Sadar was 1:0.99 and in Nasar Abad was 1:1.02, respectively. Maximum net margin (95.05 rupees) were obtained by butcher by sharing (41.81 rupee), than farmer with net margin (61.44 rupees) on share of 27.02 rupee. However, wholesaler earn net margin of 49.11 rupees by sharing 21.60 rupees and middlemen received net margin (21.74 rupees) by share of 9.56 rupee. Maximum cost benefit ratio (1:1.08) were obtained by butcher than wholesaler with cost benefit ratio (1:0.61), wholesaler received cost benefit ratio of (1:0.61) and farmer received (1:0.08) cost benefit ratio. It was concluded that the small ruminant butcher had greater share in the earnings followed by middlemen and wholesaler, while the farmer had the lowest share in the marketing chain.

1. Introduction

Livestock providing milk, meat and eggs. It also gives foreign earning as net source. Almost 9.4 million rural families have been engaged in livestock raising. Livestock is the major livelihood of the rural mass families in the country to alleviate the poverty and uplift the socioeconomic condition of rural families. According to the Latest Economic Survey of Pakistan (2018-19) in the country the population

of sheep is 30.5 million heads and the share of livestock in agriculture value added is (58.92%) and in national GDP (11.11%) (GOP, 2018). Small ruminants serve as the major income source for rural farmers in the country. The production of small ruminants in Baluchistan province is lacking modern scientific training facilities and the situation is mainly associated with lack of technical knowledge of the farmers and associated marketing agents. Baluchistan province is considered as a center of livestock business since ancient times and even still when global business trends are in big change; the people of this area find their livelihood in business of livestock and its byproducts (Kakar *et al.*, 2013). Among environmental factors, seasonal difference (year to year) and climate significantly influenced the entire flocks production. Therefore, it is necessary to estimate the magnitude of these factors so that genetic variation for economic important traits and animal breeding values can be precisely estimated (Saghi *et al.*, 2007; Selvaggi *et al.*, 2011). There are three types of housing management systems. First intensive management system in which sheep did not allowed for grazing and fed concentrated ration such as green fodder and concentrates mixture. Secondly semi intensive management system in which the sheep are grazed for only 02 hours afterward they kept at the shed where they fed mostly on cut forage such as cereal-legume hay mixture, cereal hay, legume hay) and conserved hay (sudex or alfalfa) and baled straw. Thirdly extensive management system in which sheep only depend upon the cut forages and did not provided concentrated feed at all (Kaleri *et al.*, 2017a). Mostly the small ruminants are maintained in small and large flocks, mixed flocks are common; although separate flocks of sheep and goat are also maintained. Goats are able to browse on plants that would normally not been eaten by other livestock species due to grazing habits and physiological characteristics. Thus the presence of goats in mixed species grazing systems can lead to more efficient use of the natural resource base and add flexibility to the management of livestock. Sheep are rarely stall-fed; they subsist on extensive grazing in the rangelands (Kaleri *et al.*, 2017b). Due to in touch bordering with district Ziarat and Punjab. District Dukki has great valuable for sheep goat production and marketing. Large animals come from Balochistan and Punjab. Small ruminants 250 animals enters daily in different markets, while the local farmer always sell 100 animals in the market (Sattar *et al.*, 2017).

2. Materials and Methods

It was a survey report to assist the production and marketing system of small ruminants, their importance, uses of advanced live stock technology in district Dukki, in the year 2018. The data was collected on specially designed proforma for this study. The investigation was followed by their housing, feeding, and marketing system. The interviewed were done from all 150 selected represents from five union councils of district Dukki. That five union councils were, Villa Dukki, Thal, Nana Sahib, Sadar and Nasar Abad of district Dukki of Balochistan. The data was collected on basis of questionnaire included farm structure, farm and flock size, sale value, recurring and fixed cost. Data was collected from 150 selected represents through an interviewed. That interviewed comprises on producer (50) Wholesalers (50) and Retailers (50) for convenient sampling. Contribution of each selected producer involved in business area. The represents were selected on the basis of their own represents. They were producer, Wholesaler, and retailer. The data which was collected from production, feeding, housing cost, size and structure of farm, from selected farmer in the study area.

3. RESULTS

3.1 Farm structure
The data (Figure 1) indicates that 33.33%, 3.33%, 13.33%, 13.33% and 6.66% farmers were found kacha house in union councils Vialla Dukki, Thal, Nana Sahib, Sadar and Nasar Abad, respectively. In similar way, 33.33%, 16.66%, 16.66%, 16.66% and 16.66% farmers were found pacca house in union councils Vialla Dukki, Thal, Nana Sahib, Sadar and Nasar Abad, respectively. However, 50.00%, 25.00% and 25.00% farmers were found semi pacca house in union councils Vialla Dukki, Thal and Nana Sahib, respectively.

3.2 Size of flock
The result (Figure 2) showed that the flock size in average was 193.33 in Vialla Dukki, 241.42 in Thal, 390.00 in Nana Sahib, 493.33 in Sadar and 610.00 in Nasar Abad, respectively. Flock size was higher in Nasar Abad than Sadar, Nana Sahib and Thal and the lower flock size was observed in union council Vialla Dukki.

3.3. Investment on animals
The data (Figure 3) indicated that cost/animal in Villa Dukki was (39298 Rs), Thal (42814 Rs), Nana

Sahib (24228 Rs), Sadar (32800 Rs) and Nasar Abad (27911 Rs), respectively. Total cost of animals in Villa Dukki was (40180 Rs), Thal (41790 Rs), Nana Sahib (24750 Rs), Sadar (32000 Rs) and Nasar Abad (27285 Rs), respectively. It was observed that maximum investment was made in Villa Dukki (40180 Rs) and lowest in Nana Sahib (24750 Rs)
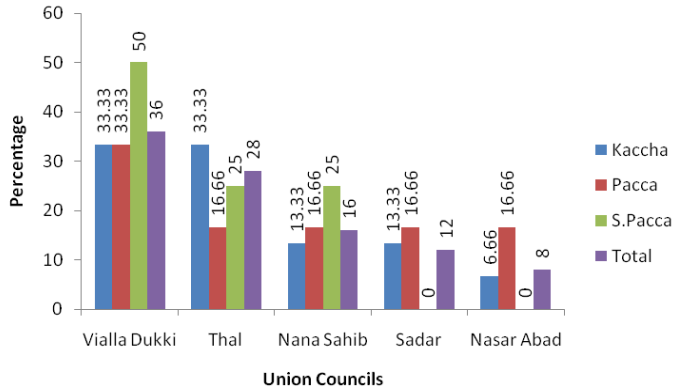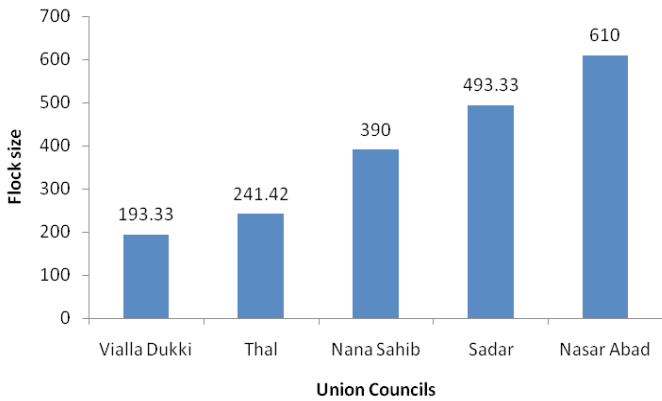

Figure 1: Housing type of animals.

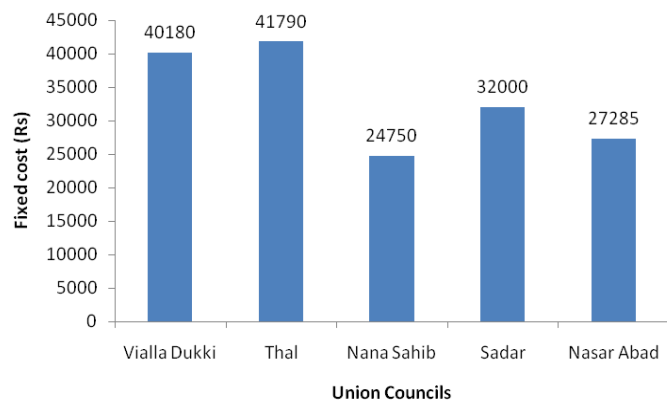

Figure 2: Flock size.

Figure 3: Fixed cost.

3.4 Recurring costs

The data (Figure 4) showed that per animal feeding, vaccination, shepherd, marketing and miscellaneous charges was 59256, 3838, 139440, 50202 and 29186 rupees.

3.5 Gross revenue

The data (Figure 5) indicated that an amount of 1370, 53.47 and 12.84 rupees per animal received from sale of animal, wool / hair and manure, respectively.
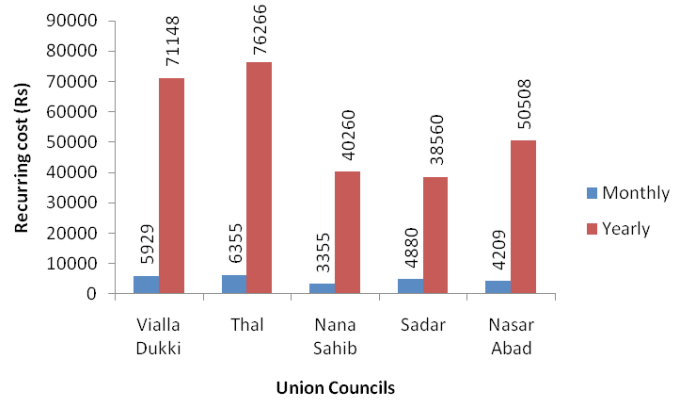

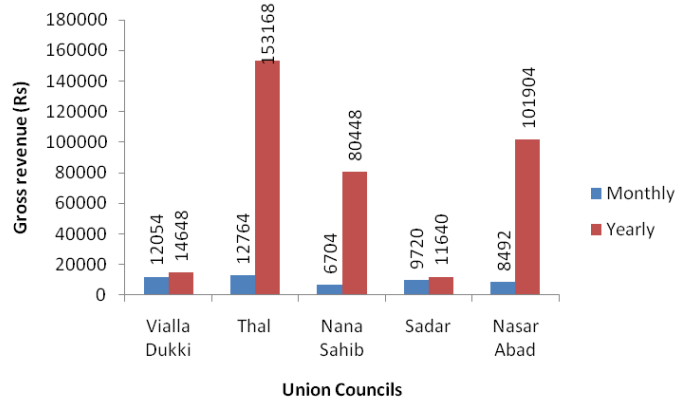**Figure 4: Rrecurring expenditure.**

Figure 5: Gross revenue.

3.6 Net returns

The data (Figure 6) revealed that net return of 1450.18 rupees per animal was received from total expenditure (729.10 per animal) and gross revenue (737.26 per animal).
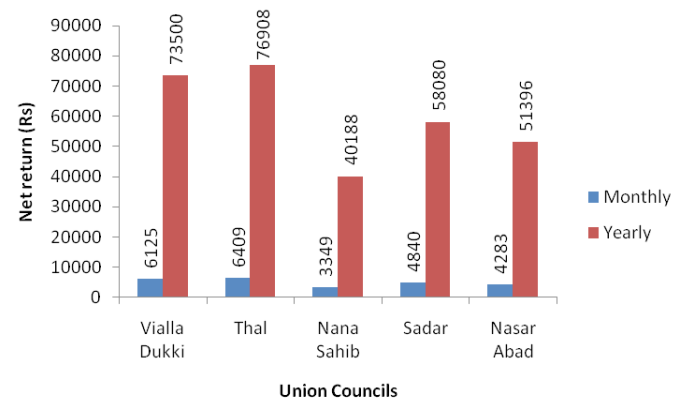

Figure 6: Net returns.

3.7 Input and output ratio

The result (Table 1) showed that the input output

ratio in Vialla Dukki was 1:2.03, in Thal was 1:2.01, in Nana Sahib was 1:1.99, in Sadar was 1:1.99 and in Nasar Abad was 1:1.20, respectively. Relatively more input output ratio was recorded for Vialla Dukki and Thal than Nana Sahib, Sadar and Nasar Abad.

Table 1: Input: Output ratio.

S. No.	Union Council	Input ratio : Out ratio	Cost benefit ratio
1	Vialla Dukki	1:2.03	1:1.03
2	Thal	1:2.01	1:1.02
3	Nana Sahib	1:1.99	1:0.99
4	Sadar	1:1.99	1:0.99
5	Nasar Abad	1:1.20	1:1.02

3.8 Cost–benefit ratio

The data (Table 1) showed that the cost benefit ratio in Vialla Dukki was 1:1.03, in Thal was 1:1.02, in Nana Sahib was 1:0.99, in Sadar was 1:0.99 and in Nasar Abad was 1:1.02, respectively. Relatively more cost benefit ratio was recorded for Vialla Dukki, Thal and Nasar Abad than Nana Sahib and Sadar.

3.9 Price paid

The data (Figure 7) showed that price paid by wholesaler, middlemen and butcher was 1314.40, 1443.13 and 1543.05 rupees per animal in various union councils of district Dukki. Relatively more price paid by butcher than middlemen and wholesaler.
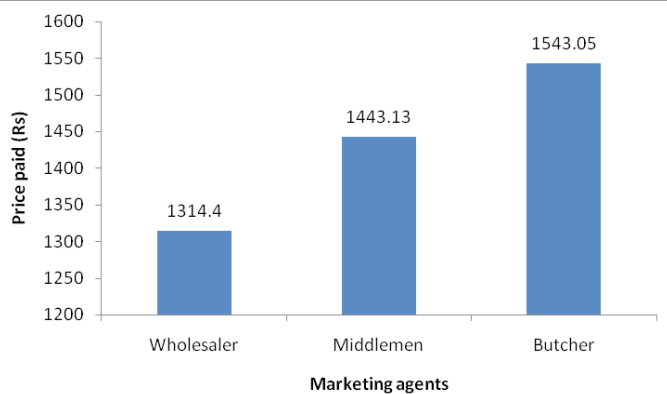

Figure 7: Price paid.

3.10 Price received

The data (Figure 8) showed that price received by wholesaler, middlemen and butcher was 1777.39, 910.02 and 1716.26 rupees per animal in various union councils of district Dukki. Relatively more price received by wholesaler than butcher and middlemen.

3.11 Marketing costs

Wholesaler: It was observed that cost of 15.33, 33.01 and 27.35 rupees per animal were spent by wholesaler for marketing, transportation and miscellaneous. The gross expenditure per animal spent by wholesaler was 78.89 rupees (Figure 9).

Figure 8: Price received.

Middlemen: It was observed that cost of 6.42, 39.87 and 20.61 rupees per animal were spent by middlemen for marketing, transportation and miscellaneous. The gross expenditure per animal spent by middlemen was 68.37 rupees (Figure 9).
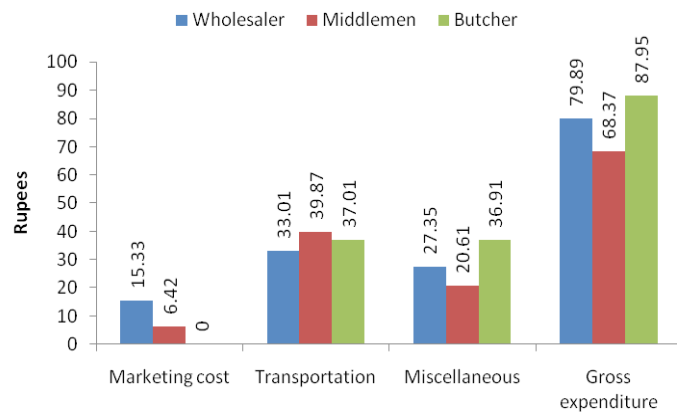

Figure 9: Cost incurred by wholesaler, middlemen and butcher on marketing of small ruminants in district Dukki.

Butcher: It was observed that cost of 37.01 and 36.91 rupees per animal were spent by butcher for transportation and miscellaneous. The gross expenditure per animal spent by butcher was 87.95 rupees (Figure 9).

Price spread: The data (Figure 10) showed that priced spread by wholesaler, middlemen and butcher was 129, 100 and 173 rupees, respectively. The higher percentage of price spread (43.03%) was received by butcher than wholesaler (32.09%) and middlemen (24.88%).
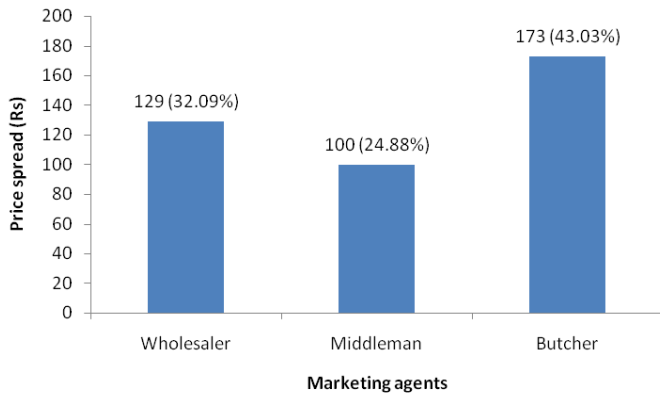
Figure 10: Price spread on sale of small ruminants for various intermediaries.

Marketing margins: The data (Figure 11) showed that marketing margins obtained by wholesaler, middlemen and butcher was 8.94%, 6.48% and 10.08%, respectively. The higher marketing margin was obtained by butcher than wholesaler and middlemen.
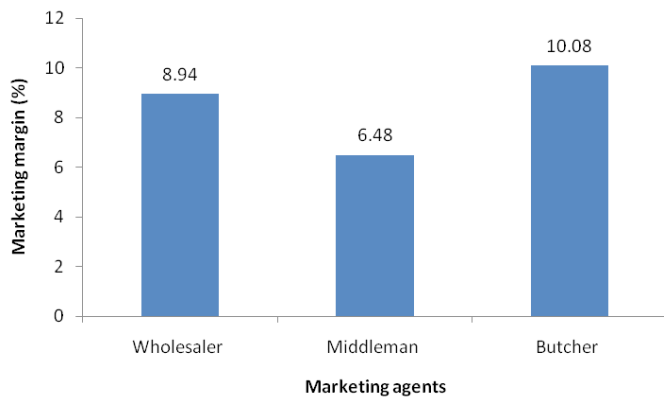

Figure 11: Marketing margins.

Net margin or profit of agent: The data (Figure 12) showed that net margin obtained by wholesaler, middlemen and butcher was 49.11, 21.74 and 95.05 rupees, respectively. The higher net margin was received by butcher than wholesaler and middlemen.
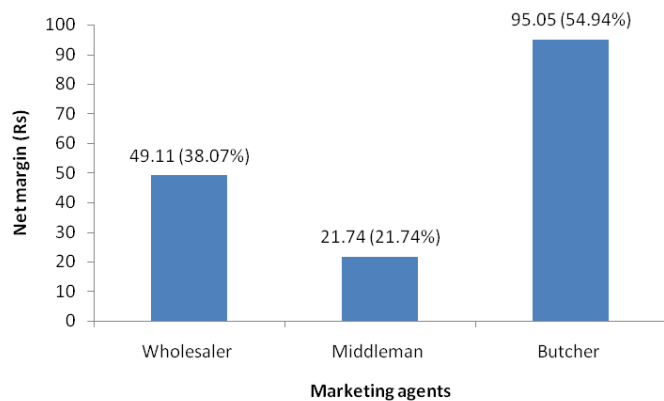

Figure 12: Net margin / profit.

Breakdown of consumer's rupee: The data (Figure 13) showed that maximum net margin (95.05 rupees) was obtained by butcher by sharing (41.81 rupee), then farmer with net margin (61.44 rupees) on share of 27.02 rupee. However, wholesaler earn net margin of 49.11 rupees by sharing 21.60 rupees and middlemen received net margin (21.74 rupees) by share of 9.56 rupee.
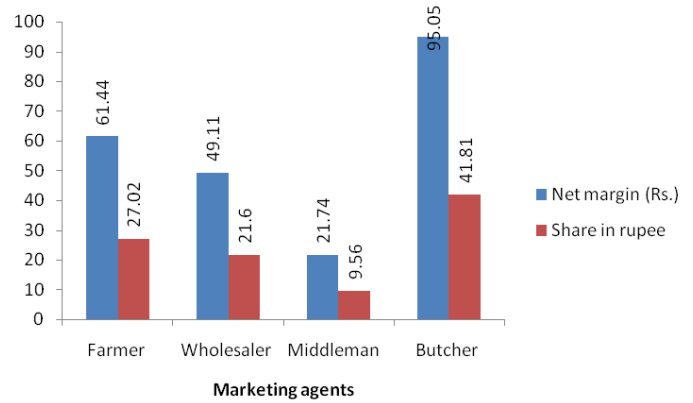

Figure 13: Breakdown of consumer's rupee.

Cost benefit ratio: The data (Table 2) showed that maximum cost benefit ratio (1:1.08) were obtained by butcher than wholesaler with cost benefit ratio (1:0.61), wholesaler received cost benefit ratio of (1:0.61) and farmer received (1:0.08) cost benefit ratio.

Table 2: Cost benefit ratio.

Agent	Net return (x) Rs.	Expenditure (y) Rs.	Cost benefit ratio (x) / (y) = z
Farmer	61.44	729.10	1:0.08
Wholesaler	49.11	79.89	1:0.61
Middleman	21.74	68.37	1:0.32
Butcher	95.05	87.95	1:1.08

DISCUSSION

The findings of the present study showed that the small ruminant butcher had greater share in the earnings followed by middlemen and wholesaler, while the farmer had the lowest share in the marketing chain. The above results are fully supported by Tebani (2006), who conducted similar studies in district Tando Mohammad Khan of Balochistan province the small ruminant farmers' feeding cost, vaccination charges, labour charges, marketing charges and miscellaneous charges per animal were Rs. 2395.78, 29.36, 26.84, 141.40 and 23.28 respectively, totaling recurring costs Rs. 2616.68/animal. The farmers received

Rs.4261.55 from sale of animals and the gross income with other byproducts was Rs. 4325.74/animal while in a recent study on production and marketing of small ruminants in district Musakhail, Baloch (2003) reported average cost on feeding Rs. 1600.68, vaccination charges Rs. 38.44, labour charges Rs. 104.27, marketing charges 28.83 and miscellaneous charges Rs. 16.76 per animal. The overall per animal recurring cost in the Musakhail district remained Rs. 1788.98 per animal. The revenue received from the sale of animal was Rs. 3682.22, from the same of wool and hair Rs. 61.33 and from the sale of manure Rs. 10.22 per animal. Hence, the gross revenue from all sources accumulated to the value of Rs. 3753.78 per animal. The variation in costs was mainly associated with the passage of time, because with the progress of time the cost of commodities and services are also increasing. In Dukki district, the input:output ratios of the farmer averaged 1:2.01 and cost benefit ratio 1: 0.37; while in Tando Mohammad district input:output ratios of the farmer averaged 1:1.32 and cost benefit ratio 1: 0.32 (Tebani, 2006). Moreover, Baloch (2003) reported input: Output ratio of 1:1.52 in district Muskhail of Balochistan. The variation in the figures is associated with national-wide change in price of commodities and services and the price of mutton was equal to the price of chicken has been doubled, thus this change has caused bigger variation in the associated costs of production and marketing of small ruminants. Similarly, the markup of wholesaler, middleman and butcher / retailer was 8.94, 6.48 and 10.08%, respectively. Supporting the above findings Tebani (2006) concluded that in Tando Mohammad Khan district wholesaler, middleman and butcher earned Rs. 176.41, 250.78 and 230.78/animal absolute margin, and Rs. 84.78, 181.83 and 139.02/animal net margin, respectively. Similarly, the markup of wholesaler, middleman and butcher was 4.14, 5.65 and 4.92%, respectively. Supporting the results of the present investigation, in a recent study Baloch (2003) reported 7.16% absolute margin of wholesaler, middleman 8.24% and butcher 6.43% per annum. He further showed that net margin of middleman were better than wholesaler and the butcher. However, Kakar (2006) observed that the price spread in Qila Abdullah was Rs. 660 from farmer to the butcher, wholesaler, middleman and butcher earned 4.72, 4.21 and 3.23 percent per annum as an absolute margin from price of Rs. 5456, 5686 and 5870, respectively. Cost benefit analysis indicated that the small ruminant farmer/farmer

pocketed the highest benefit i.e. Re. 0.61 while the lowest was for the farmer Re. 0.08 on investment of one rupee in the business of small ruminants in different areas of district Dukki. Supporting the present findings, Tebani (2006)reported from Tando Mohammad Khan district that farmer shared 61.64 paisa, wholesaler 10.28 paisa, middleman 14.61 paisa and the butcher 13.45 paisa from consumer's rupee; cost benefit analysis showed that farmer pocketed Rs. 0.32, middleman Rs. 0.22, butcher Rs. 0.12, while the lowest was for the wholesaler Rs. 0.07 on spending one rupee in the business of small ruminants in different Talukas of Tando Mohammad Khan district. In Musakhail district, the analysis of the breakdown of consumer's rupee revealed that the farmer received shared 57.40 paisa of the consumer's rupee, while the middleman received 16.04 paisa as share from the consumer's rupee (Khan, 2000). The study further revealed that the butcher shared 13.55 paisa from consumer's rupee while the lowest share of 13.00 paisa from consumer's rupee was recorded in case of wholesaler. Cost benefit ratio showed that farmer in district Musakhail pocketed the highest benefit i.e. Rs. 0.45, whereas, butcher received the lowest 0.20 (Magsi, 2005). The middleman earned Rs. 0.31 and the wholesaler Rs. 0.31 against the cost of one rupee in the business of small ruminants. However, it was observed that the variation in the values of various parameters under discussion is associated with the general change in price of commodities and services and the price of mutton was equal to the price of chicken has been doubled, thus this change has caused bigger variation in the associated price of production and marketing of small ruminants.

Conclusions

The butcher had greatest share in profit rather than middlemen and wholesaler. But the farmer had lower profit in this whole marketing system.

Authors Contribution

HUD and HR designed the experiment. HUD, KU and MU performed the experiment. RRK and MR wrote the paper. AK, DKB, MK and GJP analysed the data.

Conflict of interest
The authors have declared no conflict of interest.

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