

The marketing system of live-camels and camel products in the desert ecologies of Pakistan

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Abstract

This study was designed to examine the marketing systems of live-camels and camel products in the desert ecologies of Pakistan. Two hundred and twenty camel farmers and forty market intermediaries were randomly interviewed during April – May 2011 for data collection. The data were analyzed using Statistical Package for Social Sciences (SPSS). During the span of the past one year, sale of live camels was reported by more than half of the camel farmers as, on average, two camels per farm to meet family cash needs. Mean ages of adult male, milking female and non-milking female, male young stock and female young stock at the time of sale were 8.3, 10.8, 12.3, 1.8 and 2.3 years with average sale price of 102523, 84643, 57800, 43215 and 45833 rupees, respectively. High marketing costs and lack of proper market infrastructure/facilities compel farmers to sell camels at village level to the village dealers and fellow farmers at relatively low prices. Percent difference in prices at wholesale market and village levels were 28.6, 12.9, 6.0 and 0.5 for adult male, milch female, non-milking female and young stock respectively. Most of the camel byproducts are either consumed at home or exchanged. Thus proper camel-milk, meat, hide and hair markets do not exist in the country. However, there is huge difference in prices of camel by-products in cases of sales to village dealers and direct sales to town shopkeepers. The prevailing marketing situation of live camels and its products is indicative of exploitation of the camel farmers at the hands of the village dealers/market intermediaries. It is therefore recommended that the proper marketing system and structure for live camels and camel products should be developed to benefit the poor camel farmers.

Keywords: Live camel, Herders, Camel products, Marketing, Desert, Pakistan

Introduction

The agriculture sector continues to be an essential component of Pakistan's economy. It presently contributes 21 percent to Gross Domestic Product (GDP). Agriculture generates productive employment opportunities for 45 percent of the country's labour force and 60 percent of the rural population depends upon this sector for its livelihood. It has a vital role in ensuring food security, generating overall economic growth, reducing poverty and in the transformation towards industrialization. The livestock sector, which has a 55.1 percent share in the agriculture, grew by 4.0 percent in 2011-12 (GOP, 2012). Livestock is central to the livelihood of the country's rural poor, and can play an important role in poverty alleviation. It can help to raise the socioeconomic condition of Pakistan's rural masses. Historically livestock has been the subsistence sector dominated by small holders to meet their needs of milk, food security and daily cash income. Pakistan is vulnerable to severe external shocks, including floods and drought that negatively affected the growth and development of the agricultural sector in general, and of the livestock sub-sector in particular. Population growth, increases in per capita income and in the potential for export are fueling the demand for livestock and livestock products.

The camel has a vital role in the subsistence economy of rural pastoral communities. It is an important animal in the country's livestock herds and is of great socio-economic importance for camel farmers. Camels are mainly used as pack/draft animal, with milk, meat, hair and hides as minor by-products. Camels are however, kept for multiple purposes in the arid areas, deserts and mountainous regions of the country (Ahmed *et al.*, 2010). The

total population of camels world-wide is about 25.9 million, of which around 85% are found in Africa, and the rest in the Indian subcontinent and the countries of the Middle East. Pakistan, with a camel population estimated at one million, ranks 8th in the world after Somalia, Sudan, Ethiopia, Nigeria, Mauritania, Chad and Mali; and first in Asia (FAOSTAT, 2011). In Pakistan, the highest population of one-humped camels (dromedaries) is in Balochistan (41%), followed by Sindh (30%), Punjab (22%) and Khyber Pakhtunkhwa (7%). The camel population is unevenly distributed over the country mainly in the four different ecological zones of Pakistan. About 42.8% of the camel population is concentrated in Cholistan, Thal, Thar and Kharan deserts of Pakistan; 27.7% is in mountainous regions; 23.2% is in the plains; and 6.4% percent lies in coastal areas (GOP, 2006).

A total of 0.32 million households is engaged in camel farming in Pakistan. Though the camel population increased at a positive growth rate of 1.23% per annum from 1996-2006, the number of camel farming households declined slightly by 0.24% during the same period. These dynamics have led to an increase in the average number of camels per camel farming household, from 2.2 heads/household in 1986 to 2.5 heads/ household in 1996, and further to 2.9 heads/household in 2006 (Aujla, *et al.*, 2012). During 1996-2006, positive camel population growth rates were estimated as 23.9% in Sindh, 12.1% in Balochistan, 6.3% in Punjab, whereas the camel population declined by 1.6% in Khyber Pakhtunkhwa (GOP, 1986; 1996; 2006).

Pakistan occasionally exports camels to Afghanistan, Iran and the United Arab Emirates (UAE). According to FAO statistics, exports of live camels from Pakistan during the period 1961-81 and 2003-2008 were zero. However, the mean value of annual exports of camels from 1982 to 2002 was US \$813,000. The contribution of camel milk to the country's total milk production is 1.8 percent (818 thousand tons). Camel meat is also exported by Pakistan along with beef and mutton. The export of meat (beef, mutton and camel meat) increased from US \$108.54 million (2010-11) to US \$123.61 million in 2011-12, showing an increase of 13.9 percent (GOP, 2012).

The camel has a potential for satisfying the future meat and dairy needs of the country, mainly because, unlike other dairy and meat animals, camels require meagre essentials for survival, and hence are cost effective. Dairy products produced from cow or buffalo milk are becoming costlier because livestock farming has not scientifically developed. The supply cannot match the increase in population and the pace of urbanization. The country is still spending \$129.4 million on import of milk and milk food annually (GOP, 2011). In addition, research is also in progress to ascertain the health benefits of camel products, mainly as regards milk and meat. Accordingly to an FAO estimate, the global market potential of camel milk could be billions of dollars in the near future, as and when the product reaches the European markets as a health food. Under the changing ecological and socio-economic conditions, camels can be considered as a white gold, and indeed rearing camels to produce milk and other dairy products along with meat is a good option to earn foreign exchange.

The marketing of camels and its products is poorly developed and is dominated by the private sector. The marketing infrastructure is not properly established. Hence, for ensuring reasonable returns to the producers, as well as for protecting consumers' interests, an efficient marketing system is required to promote camel production. Information about the marketing of camels and its products is necessary for knowing the current status and for reorganizing these markets to increase their efficiency. In the past, relatively more emphasis has been placed on enhancing the production and productivity of the camels; ignoring the marketing aspects. Any lopsided production augmentation strategy would not

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be fruitful unless the marketing aspects of camel are adequately addressed. This study has been designed to examine the marketing systems of camels and its products in the country with the following specific objectives:

- * To examine the existing market system of live-camels and camel products in the desert areas of the country;
- * To study the price mechanism, marketing channels and margins of camels and camel products;
- * To identify the constraints regarding various aspects of marketing of camels and its products; and
- * To suggest policy measures for improving the marketing systems of camels and camel products.

Material and methods

A set of questionnaires was prepared to collect data from camel producers and live camel market intermediaries. The data for this study was collected in April 2011. Seven districts from all provinces of the country were surveyed for data collection, viz. Bahawalpur and Layyah districts from Punjab, Tharparkar and Umarkot districts from Sindh, Chagai and Kharan districts from Balochistan, and Dera Ismail Khan district from Khyber Pakhtunkhwa (KP). The technique of simple random sampling was used to gather the desired information. The sample size for this study consisted of 220 camel farmers in total: 63 from Punjab, 50 from Sindh, 37 from KPK and 70 from Balochistan. The farmers belonged to Yazman, Chobara and Layyah talukas in Punjab; Mithi, Diplo, Umarkot, Chachro, and Nagarparkar in Sindh; Daraban, Darazind and Paharpur in KP, and Chagai, Dalbadin and Kharan in Balochistan.

Descriptive analysis is carried out to calculate the frequencies of the demographic characteristics and for other variables which happen in the categorical form. Numerical operations are applied to all the other variables that are unconditional and their respective means and standard deviations have been calculated. To check the significance of the differences between the averages of two or more variables, ANOVA F-test has been computed by using the following formula

$$F = S_1^2/S_2^2$$

Where S_1^2 is the variance of first group and S_2^2 is the variance of second group.

To conduct the marketing analysis of the live camels the marketing cost has been computed by the formula

$$MC = TC + MT + MF$$

Here, TC represents the transportation cost, MT stands for market tax and MF denotes the market fee. At the next step, the net price received by the intermediary at primary market level is calculated by the formula

$$NP = PP - MC$$

NP is the net price received by the intermediary, PP is the primary market price and MC is the marketing cost. Further the difference between the net price received by the intermediary in the primary market and price received by the farmers at the village level has

been estimated, to arrive at the percent variation between the primary market and village level prices.

This estimation has been done by the following formulas

$$DP = NP - VP$$

Here DP is the absolute price difference, NP is net price received by the intermediary, and VP is the village level price of live camels received by the farmers.

$$DP/VP*100$$

The percentage difference is thus calculated by the division of price differences at village and market levels by the prices received by farmers at the village level.

Results and discussion

Socioeconomic characteristics of respondents

The mean age of the camel farmers was 48.2 years, with a camel farming experience of 31.9 years and formal schooling of about two years (Table 1). Average household size of camel farmers was 13.4, with engagement of two members in camel farming. Mean household size and number of family members engaged in camel farming, and land holding of the camel farmers, were significantly different across provinces. In Khyber Pakhtunkhwa (KP) and Balochistan, mean family sizes were higher than in Punjab and Sindh. In KP two to three, in Sindh two and in Punjab and Balochistan one or two members of camel rearing households were engaged in camel farming. Out of total 220 camel farmers interviewed, 77 (35%) were landless farmers. Whereas mean land holding of the remaining camel farmers (65%) was 50.8 acres. The mean age of the live camel market actors was 41.0 years, with camel marketing experience of 12.4 years and formal education of 3.8 years.

Table 1. Socioeconomic characteristics of camel farmers

Characteristics	Punjab	Sindh	KP	Balochistan	Pakistan
Age (Years)	50.1 (15.6)	45.8 (15.3)	31.7 (13.0)	57.0 (11.4)	48.2 (16.2)
Education (Years)	1.4 (3.4)	3.6 (5.0)	2.57 (4.0)	0.5 (2.1)	1.8 (3.8)
Camel Farming Experience (Years)	34.6 (16.9)	28.0 (15.4)	16.4 (10.1)	40.6 (11.9)	31.9 (16.3)
Household Size (No.)	11.1 (6.3)	11.7 (6.4)	15.0 (10.0)	15.7 (7.2)	13.4 (7.6)
HH members engaged in Camel	1.8 (1.6)	2.0 (2.4)	2.6 (1.7)	1.6 (0.6)	1.9 (1.6)
Land-Holding (Acres)	17.3 (18.5)	31.5 (41.5)	35.7 (94.8)	130.1 (294.4)	50.8 (155.2)

Note: Figures in parenthesis are standard deviations

Livestock resources

In the country, camels are kept in mixed herds of livestock and farmers' ownership of different types of livestock is significantly different across provinces (Table 2). According

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to the survey findings, average livestock ownership of the camel producers was highest in Sindh, followed by Balochistan, Punjab and KP. In Punjab, camels are kept along with goats, sheep, cows and buffaloes. In Sindh and KP camels are reared along with goats, sheep and cows; however, some of the camel producers also keep buffaloes. Whereas in Balochistan camels are raised in mixed herds of goats and sheep. Camel ownership of the respondents was significantly different across provinces. On the whole, herd of camels comprised about twenty-two camels; two males, fourteen females (five milking and nine non-milking), and six young stocks. Mean camel herd size was largest in Balochistan followed by in Punjab, Sindh and KP (Table 2).

Table 2. Livestock account of camel producers (Numbers)

Species	Punjab	Sindh	KP	Balochistan	Pakistan
A. Livestock Inventory of Camel Producers					
Camels	26.1 (29.5)	15.5 (12.6)	2.0 (1.8)	32.9 (31.1)	21.8 (26.6)
Buffaloes	2.1 (7.0)	0.5 (3.7)	0.2 (0.9)	0.0 (0.0)	0.8 (4.2)
Cows	16.9 (18.1)	10.3 (10.8)	4.3 (5.1)	0.0 (0.0)	7.9 (13.0)
Goats	29.4 (47.0)	71.4 (91.6)	17.0 (26.3)	34.6 (33.8)	38.5 (57.7)
Sheep	21.2 (35.7)	34.2 (44.1)	4.4 (14.3)	34.2 (41.8)	25.5 (38.8)
Total	95.8 (93.0)	133.6 (142.8)	29.5 (39.6)	103.2 (89.6)	95.6 (89.6)
B. Camel Herd Composition					
Male	1.3 (1.7)	2.3 (1.3)	0.6 (1.0)	3.6 (3.2)	2.1 (2.4)
Wet Female	4.4 (4.3)	4.3 (3.6)	0.3 (0.5)	8.4 (6.7)	5.0 (5.5)
Dry Female	16.3 (23.0)	5.7 (7.3)	0.8 (1.3)	7.4 (12.4)	8.4 (15.5)
Young stock	4.0 (3.7)	3.2 (2.7)	0.3 (0.5)	13.6 (13.0)	6.3 (9.2)
Total	26.1 (29.5)	15.5 (12.6)	2.0 (1.8)	32.9 (31.1)	21.8 (26.6)

Note: Figures in parenthesis are standard deviations

Market Structure

Historically camels have not been marketed on a regular basis for income as a commercial endeavour but have been sold periodically to meet family cash and basic needs. There is a custom of selling larger sized, old and unproductive camels. Marketing of livestock/camels for both domestic and export is essentially organized by the local administration or by the private sector. Camel markets are organized at different levels such as sub-tehsil, tehsil and district levels on daily, weekly, fortnightly, monthly and sometimes on yearly bases. These markets are traditional; therefore both buyers and sellers are well informed about these market days as they have remained unchanged over the ages. In addition, some special markets are also organized during provincial/regional festivals. Daily-based special markets are also organized in big cities, offering camels as sacrificial animals 1–2 weeks ahead of Eid-ul-Azha, the Muslim festival. Livestock marketing is a completely neglected field. The

existing legislation provides for the establishment and supervision of primary markets for farm products. The livestock has not been added to the list of commodities covered by the existing regulations. The livestock markets are, therefore, poorly equipped, loosely controlled and are operated in an old-fashioned way. The facilities in camel markets are very primitive. There is no grading or classification system of camels and camel products in the surveyed areas. Therefore there is a lot of variation in the prices of camels and camel products within the same market. To understand the functioning of camel markets across the provinces, the profiles of village level, primary and secondary level markets reported by the respondents are as follows:

A. Village level markets

In spite of relatively low prices at village level, resource-poor farmers usually prefer to sell camels at their door steps to fulfill their urgent cash needs and to avoid high marketing costs (Mahmood and Rodriguez, 1993). Fellow farmers and village *beoparies* are major actors at village level camel transactions. Most of the transactions in live camel markets are made on a cash basis. However sometimes village *beoparies* also purchase camels from farmers on credit at village level markets.

B. Primary markets

Primary markets are held on a daily or weekly basis on specific days at tehsil levels. Primary markets in Punjab, Sindh and KP provinces are held weekly, while in Balochistan camel markets are held on daily basis. Major market players at primary level include farmers, local dealers/*beoparies* and butchers. Size of primary markets range from 300-350 camels. Average distance of camel markets from the camel farms was highest in the Punjab (96 km), followed by in Sindh (45.6 km) and KP (33.3 km). Average contract amount of these markets varied from about Rs.2 lac per annum to Rs. 45 lac per annum depending upon the size and location of the market. Camels are trekked to primary markets on hoof by farmers themselves or by hiring pedestrian labour. Pedestrian labour costs them Rs.400 to Rs.500 per man-day. In camel markets, prices are generally settled through bargaining. The market managing authority determines and collects the market fees and taxes. Market fee at the rate of 5-6% and market tax of Rs.100 to Rs.500 per animal is charged on all camel transactions in these markets. Most of the transactions in live camel markets are made on a cash basis.

In Punjab and Sindh, primary camel markets are held separately and are organized by the tehsil municipal administrations (TMAs); however, in KP and Balochistan camels are marketed along with other animals. In KP livestock markets are organized by the TMAs; whereas in Chagai and Kharan areas of Balochistan province camel markets are held purely under private entrepreneurship. In camel markets, camels are brought for sale from the surrounding areas as well as from all over the country. Primary markets surveyed from all over the country for camels include: Islamkot, Adam Junejo, and Chell Bund from Sindh; Pull Qamar and Fatehpur from Punjab; Paharpur and Daraban from KP; and Chagai and Kharan from Balochistan province. The analysis indicates that the basic facilities in the livestock markets across provinces are very primitive and are not realigning with the changing needs and demands to enhance livestock marketing (Shafiq and Kakar, 2006). However, markets in KP province are better with respect to the availability of various facilities for the animals, farmers and intermediaries than in other provinces.

C. Secondary markets

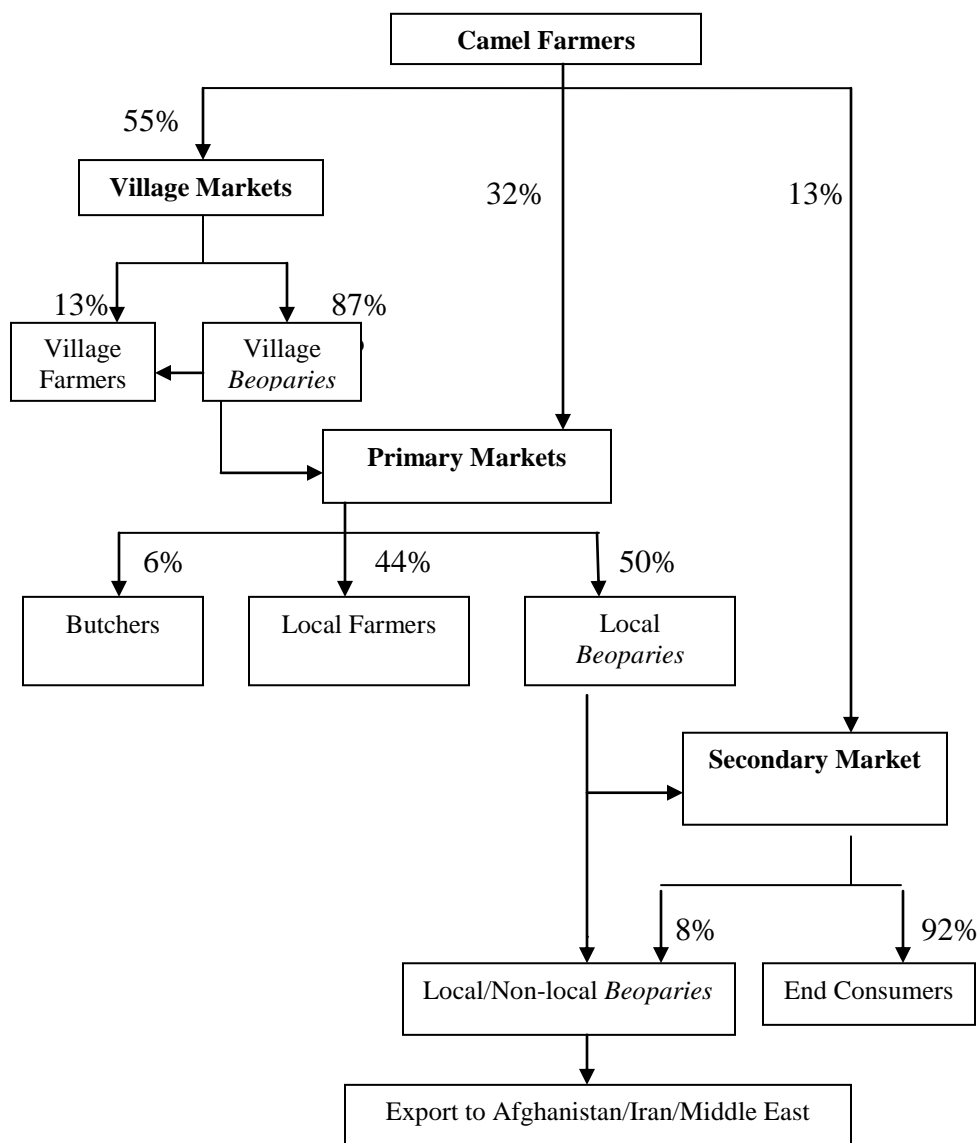
Secondary markets are held monthly or annually on specific days or festivals. These markets are located in large cities, often at divisional or provincial headquarters. The

secondary camel markets are held on monthly basis at Haala in Sindh, Bahawalpur in Punjab and Quetta in Balochistan. Camel farmers/beoparies from Punjab, Sindh and Balochistan provinces reported to market camels in secondary camel markets of Mianwali, Cholistan, Quetta, and even to Islamabad for sale at the occasion of Eid-ul-Azha. In Pakistan the main markets for camel sales are festivals and fairs. In Punjab, a big annual camel market is held on the occasion of Annayatullah Shah Festival in the month of March in district Layyah wherein consumers, traders and agents of wholesalers/exporters purchased camels. This market is organized by the management of Annayatullah Shah Shrine in collaboration with Fatehpur tehsil administration. At the occasion of Annayatullah Shah Festival, 30000-35000 camels and 25000-30000 other livestock are brought for sales in the market from surroundings of Bahawalpur, from Sindh and also occasionally from Iran and Arab countries. Mostly the village dealers/beoparies brought camels to the secondary markets while the farmers less occasionally came to sell their camels in secondary markets, as the transportation charges are usually unaffordable for them. However, camels are transported to secondary markets of Islamabad, Mianwali and Cholistan on the special occasions of Eid and annual festivals through trucks and Mazdas/mini trucks. The transportation cost varies from Rs.10000 to Rs.15000 per animal depending upon the availability of transport and distance. Mangrota camel fair/mela in Dera Ghazi Khan district of Punjab, is also very famous among camel breeders and is the main market for their camels. The Mangrota camel Mela is held every year in the month of October and is the largest event of the year for the pastorals and traders of the region. Camels come here range from 8,000 to 10,000 every year. In Mela some traders/businessmen from the Southern and Central Balochistan, Central Punjab and Karachi buy camels and slaughter them in abattoir and export the beef to Iran and the Gulf States. The inflated prices of camels were due to export of camel meat.

Live camels marketing channels

Live camel marketing channels are shown in Figure 1. Camel markets are generally located in major cities or towns and are far away from the villages. Thus, farmers prefer to sell their animals to village dealers. Accordingly, majority of the farmers (55%) reported to sell camels at village level; either, to village *beoparies* (87%) or to fellow farmers (13%). About one-third of the farmers (32%) reported to sale camels in primary markets and thirteen percent of the farmers reported to market camels in secondary markets. Besides farmers, village *beoparies* also market camels in primary camel/livestock markets. Local *beoparies* are also the main market actors at primary market level, fifty percent of the respondents reported to sale camels to local *beoparies*, followed by local farmers (44%) and butchers (6%). Butchers purchase only physically injured and weak animals from primary markets. Most of the respondents reported that camels marketed at secondary markets (92%) are purchased by end consumers for sacrificial purposes. At secondary market level, few respondents (8%) reported to sell camels to non-local/ local *beoparies*. These *beoparies* sometimes also purchase camels directly from local *beoparies* acting at the second tier of the market (primary markets) and export them to Afghanistan and Iran. Though, sometimes non-local traders or their representatives from these countries also visit secondary markets and directly purchase camels from these markets. Village dealers and fellow farmers were reported as the main sources of information about prices of live camels by the respondents. It has been observed that the village dealer/*beopari* is the main agent at all levels of camel marketing, from village level to primary and even up to secondary market level. While, at the village level the main buyers of the camels are village dealers and fellow farmers. However, at the primary level/town markets the camels are usually bought by the village dealers/*beoparies* and sometime by the farmers.

Figure 1. Live camel marketing channels



Prices of camels by breeds and seasons

Price determines the profit of any product. Hence, low producer prices for camels and camel products are major constraint to the adoption of more intensive production techniques. Although prices have risen in recent years, yet they are low as compared with the neighboring countries. The prices of camels are settled through negotiation, demand and supply position and bargaining skill. Camel prices depend on many factors such as phenotypic characteristics, age, sex, function, breed, type and location of market and time of sale. The urgent cash needs arising also play important role (Mahmood and Rodriguez, 1993). It is known that racing camels usually fetch the highest price. The riding camels are also more expensive than those sold for slaughter. Table 3 presents the insight of price variation by breeds, seasons and occasions across provinces.

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Table 3 shows that in Sindh and Punjab provinces, prices of adult male camels remain comparatively high in winter season than in summer due to increase in meat demand however, in other provinces price do not vary much across seasons due to taste preference of people for mutton. Adult camels fetch higher prices by about Rs.20000 to 50000 on the Eid-ul-Azha than in normal season. As is the case of prices of male camels, in Sindh province prices of female camels also remain high in winter season than in summer and remain almost same in other provinces. Since male or dry female camels are preferred for slaughtering on Eid-ul-Azha, thus price of wet female camels remains same, or differs slightly on the occasion of Eid than other seasons (For more details see Table 3).

Table 3. Prices of adult camels by breeds and season/occasion across provinces

Province	Breeds	Summer	Winter	Eid
A. Prices of Adult Male Camels (Pak Rs)				
Sindh	Dhati	75000 (70000-80000)	103750 (100000-115000)	132500 (105000-150000)
	Thari	77000 (65000-90000)	96000 (80000-120000)	109000 (85000-130000)
	Morani	72500 (60000-100000)	105000 (90000-150000)	102500 (80000-150000)
Punjab	Desi	250000	-	300000
	Sindhi	250000	-	300000
	Mareecha	175000	195000	220000
KP	Desi	100000	100000	-
	Domani	95000	85000	-
	Sindhi	100000	90000	-
Balochistan	Balochi	85625 (70000-110000)	83125 (70000-100000)	102000 (100000-110000)
B. Prices of Wet Female Camels (Pak Rs)				
Sindh	Dhati	80000 (70000-90000)	101667 (85000-130000)	101667 (80000-135000)
	Thari	68750 (40000-90000)	82500 (60000-100000)	92500 (80000-100000)
Punjab	Desi	120000	-	-
KP	Domani	85000	85000	-
	Sindhi	115000	115000	-
	Desi	100000	100000	-
Balochistan	Balochi	100000 (80000-120000)	97500 (75000-120000)	112000 (110000-120000)
C. Prices of Dry Female Camels (Pak Rs)				
Sindh	Dathi	50000 (40000-60000)	62500 (60000-65000)	75000 (70000-80000)
	Thari	40000	50000	90000
	Lori	50000	55000	75000
Balochistan	Balochi	53125 (50000-60000)	47500 (40000-65000)	55000 (50000-60000)
	Bapanpur	70000	70000	80000

Note: Figures in parenthesis are price ranges.

Mean prices of male young stock were higher on the occasion of Eid-ul-Azha by Rs.15000 to Rs.25000 in Sindh markets and by Rs.7000 to Rs.10000 in Balochistan markets. However, data of camel prices at Eid-ul-Azha was not available for Punjab and Khyber Pakhtunkhwa markets. Prices of female young stock were comparatively higher than that of male young stock for all breeds. For more details see Table 4.

Table 4. Prices of young stock by breed and season/occasion across Provinces

Province	Breeds	Summer	Winter	Eid
A. Prices of Male Young Stock (Pak Rs)				
Sindh	Dhati	52000 (40000-60000)	60000 (50000-65000)	72000 (70000-80000)
	Thari	38750 (30000-50000)	45000 (35000-70000)	55000 (40000-85000)
	Lori	47500 (45000-50000)	57500 (55000-60000)	72500 (70000-75000)
Punjab	Mareecha	-	50000 (37500-70000)	-
KP	Domani	40000 (35000-45000)	30000	-
	Desi	35000	35000	-
	Sindhi	40000	-	-
Balochistan	Balochi	36000 (30000-45000)	33000 (30000-42500)	40000
	Bapanpuri	60000	50000	70000
B. Prices of Female Young Stock (Pak Rs)				
Sindh	Dhati	50000 (45000-55000)	62500 (55000-70000)	72500 (65000-80000)
	Thari	25000	35000	40000
	Lari	45000	60000	70000
KP	Domani	45000	-	-
Balochistan	Balochi	42500 (40000-50000)	41250 (30000-50000)	48000 (40000-50000)
	Bapanpuri	50000	40000	50000

Note: Figures in parenthesis are price ranges.

Marketing margins/differences in prices at village and primary market levels

The marketing margin is the difference between the price paid by the ultimate consumer and the price received by the producers. The number of intermediaries involve in various channels of marketing has strong effect on marketing margins. The high marketing margins reflect high profit to the intermediaries and less income to the producers. The marketing of camels and products involves commission charges, labor cost, transportation cost. Mean primary market prices of different camel types, marketing cost, village level prices and differences in prices at primary market and village levels are given in Table 5. Average prices of adult male, wet female, dry female and young stock irrespective of breed and selling time at whole sale market level were Rs.132784, Rs.110265, Rs.58782.1 and Rs.46340 respectively. Net prices received by the village dealer after payment of transportation cost, market tax and fee on sale of adult male, wet female, dry female and young stock, were Rs.125245, Rs.103852, Rs.54943 and Rs.42895 respectively.

Table 5. Prices at primary market and village levels

	Adult Male	Milch Female	Non-milking Female	Young stock
Primary market price (WP)	132784.4	110265.2	58782.1	46340.2
Transportation Cost (Rs.)	400.0	400.0	400	400
Market Tax (Rs.)	500.0	500.0	500	500
Market Fee @ 5%	6639.2	5513.3	2939.1	2317.0
Marketing Cost	7539.2	6413.3	3839.1	3217.0
Net price received by market intermediary (Rs.) (NP=WP-MC)	125245.2	103851.9	54942.9	43123.2
Village level price (VP)	97388.9	92000.0	51833.3	42894.7
Difference in prices at primary market and village level (Rs.) (DP=NP-VP)	27856.3	11851.9	3109.6	228.5
Percent difference in prices at primary market and village level (Rs) (DP/VP*100)	28.6	12.9	6.0	0.5

While, mean prices paid by the village dealers to the farmers at village level were Rs.97389, Rs.92000, Rs.51833 and Rs.42895 for adult male, wet female, dry female and young stock respectively. So, the differences in prices at primary market and village levels were Rs.27856, Rs.11852, Rs.3110 and Rs.229 for adult male, wet female, dry female and young stock respectively. Thus, percent difference in prices at primary market and village levels were 28.6, 12.9, 6.0 and 0.5 for adult male, wet female, dry female and young stock respectively. This is an indicative of exploitation of the camel farmers by the village dealers. Mahmood and Rodriguez, 1993 estimated that various intermediaries obtain about one-third of the final price as the services rendered by them. The profit margins in camels and its products are almost similar across the country with some variation.

Camel products marketing

Camels have a potential for satisfying the future meat and dairy needs of the country, mainly because, unlike other dairy and meat animals, camels require meager essentials for survival, hence cost effective. A normal dairy cow uses 9.1kg of dry matter of feed to produce one liter of milk whereas a camel only consumes 1.9kg. The need is to realize the potential of this animal at both national and provincial levels, together with the livestock sub-sector. Markets for camel products are poorly developed and dominated by private sector. Information about the marketing of camel products is necessary for knowing the current status and to improve these markets.

i. Milk marketing

Pakistan produced 829 thousand tons camel milk during the financial year 2011-12 (GOP, 2012). The marketing of milk, surplus to family and farm needs, improves farm income, creates employment in processing, marketing and distribution, adds value and contributes to food security in rural communities. Marketing of camel milk is particularly difficult for small-scale producers scattered in desert areas. Average production of camel milk per household was 5.4 liters per day in summer and 6.5 liters per day in winter season. None of the farmers reported milk sale or its use for preparing milk products. Thus, most of the

camel milk is used for drinking or by-products making and about half liter in summer season and one liter in winter season is used for making tea. Similar milk disposal pattern was also reported by Jasra *et al.* (1999) in their study conducted in the mountainous areas of Balochistan.

The camel milk produced in the far-off mountainous and desert areas cannot reach the urban markets and is utilized locally. Furthermore, camel-milk is not cherished in Pakistan and there is practically very little market for camel's milk and meat (Afzal and Naqvi, 2004). However, camel milk is sold in big cities as pure milk, or mixed with milk of cows and buffaloes, especially when the supply of cows and buffaloes milk does not meet the market demand (Yaqoob and Nawaz, 2007). Usually, camel milk is utilized at subsistence level due to the lack of proper transportation facilities and unaffordable expenses of transportation. Milkmen (*Dodhees*) buy this milk from the producers and mix it with buffalo/cow milk and sell it in the city. (Aujla *et al.*, 1998).

Formal camel milk marketing system does not exist in any of the provinces of the country. However in Bahawalpur district of Punjab, some shopkeepers reported to sale camel milk. Thus, two camel milk sellers were interviewed to study the milk marketing. Milkmen were the suppliers of milk to the milk shopkeepers. Mean daily sales of cow & camel mixed milk and cow milk at these shops were 520 and 340 kg respectively. Average purchase prices of camel milk were Rs.900 per 40 kg and that cow milk were Rs.1100 per 40 kg and mean sale prices of cow & camel mixed milk and cow milk were Rs.1200 and Rs.1320 per 40 kg respectively. Thus net margins per 40 kg of cow & camel mixed milk and cow milk were Rs.200 and Rs.220 respectively.

ii. Meat marketing

Camel meat is marketed in all the surveyed districts along with other meats. Eighty percent butchers reported to sell camel meat along with buffalo and goat/sheep meat. One-third butchers reported to slaughter their own camels while two-third butchers kept share with others for camel meat. Only one-third butchers slaughtered camels at private or public slaughter houses. Thirty-five percent butchers slaughtered camels daily except two official ban days or twice a week or a month depending on the availability of camels.

Butchers shared 20 to 160 kg camel meat with a mean of 75 kg at a purchase price of Rs.120 per kg on cash payment or credit. Respondents, who reported to slaughter camels on their own, reported to purchase camels directly from farmers with a mean price of Rs.60000 per animal and transportation cost of Rs.1875. The male dromedary (one-humped) carcass can weigh 400 kg or more (Wikipedia, 2011) Thus, one kg camel meat costs Rs.154.7 to them. Sale price of camel meat ranges from Rs.190.0 to 250.0 with a mean of Rs.212.0 per kg. While average beef and mutton prices in the study areas at the time of survey were Rs.207.5 and Rs.287.5 per kg. Most of the camel butchers (83.0%) had price lists display on their shops. Gross margin for the butchers who reported to slaughter camel on their own were about Rs.57.3 per kg and for the one who keep share were Rs.92.0 per kg. Gross margins were higher for share keeping butchers as they were not to pay transportation cost from the camel/livestock markets to the shops instead they were to pay nominal local transportation charges. On the other hand, farmers who slaughtered camels on their own were not only to pay transportation charges but also various marketing costs including market tax and fees.

Share keeping butchers have always edge in bargaining prices with both the buyers and meat suppliers. As they purchase meat from suppliers keeping in view the demand in their locality and are to deal with less quantity of meat than the main share keeping (camel

slaughtering butcher) and sole slaughters. Average daily sales of sole camel slaughtering butchers were 329.0 kg and that of share keeping butchers were 64.3 kg. Marketing costs for sole slaughtering and share keeping butchers including shop rent, electricity & telephone bills, salaries and transportation expenditures were Rs.29.8 and Rs.62.2 per kg. While net margin for sole slaughtering and share keeping butchers were estimated at Rs.31.1 and Rs.29.8 respectively.

iii. Hair marketing

Camel hair produced in Pakistan amounts to 23.8 thousand tons and is used for manufacturing blankets, floor mats, carpets, tent cloth, bags, ropes and rugs at domestic level. In the study area, mean hair production was 2.0 kg per adult camel per annum and 1.2 kg per annum per young camel. Sale of camel hair was reported by 5.5 percent of the farmers. On the average, each farmer reported to sell 19.8 kg hair in the past one year. Most of the farmers reported to sell camel hair to village *beoparies* (72.7%), followed by to fellow farmers (18.2%) and village shopkeepers (9.1%). Thus, hair transportation cost was zero. Mean price of hairs reported by farmers was Rs.14 per kg with highest in Punjab (Rs.16/kg) and lowest in Balochistan (Rs.11/kg). Shopkeepers reported that hairs were solely supplied by the camel farmers without the involvement of market intermediaries. Shopkeepers bargain hair prices with the farmers and pay them in cash. Shopkeepers reported sale of about 4000 kg of camel hair during last one year. Mean sale price of camel hair was Rupees 43 per kg with a gross margin of Rupees 10.0 per kg and net margin of Rupees 8.0 per kg. The analysis revealed that the camel hair producers' share in consumer rupee was about 32 percent. But no proper camel hides/hairs markets exist in the surveyed areas of the country.

iv. Hide marketing

Pakistan produced 13.9 million hides during the financial year 2011-12 (GOP, 2012). Number of camel hides in the total hides' production is very nominal. About 22,500 camel hides are produced annually in Pakistan that are used to manufacture table lamps, flower vases, saddlers, shoes/sandals and beautiful decorative articles, some of which are also exported (Khan *et al.* 2003). Camel farmers and hide shopkeepers reported that proper camel hide markets do not exist in the surveyed areas except a few shops in the nearby city areas. On the producer side, sale of camel hides was reported by 6.4 percent of the farmers in the surveyed areas of the country. All the farmers in Punjab and Balochistan and 60% farmers in Sindh province reported to sell camel hides to butchers and the remaining 40% farmers to village dealers at the price settled through bargaining.

The price of camel hide is influenced by a number of factors like type of leather to be made, weight, type of curing, quality, season, etc. The sale volume of the camel hides reported by the shopkeepers ranged between 250-300 hides per annum in the study area. Mean purchase prices of camel hides reported by shopkeepers were Rs.810 per hide as against the mean price of Rs. 464 per hide received by the farmers at the village level. So, there is a difference of about 74.5 percent between the village level prices of camel hides and prices paid by the shopkeepers to farmers in case of direct sale of hides to them. This is an indicative of camel farmers' exploitation by the village middlemen. With the purchase price of Rs.810 per hide, gross margins earned by shopkeepers were about Rs.100 per hide with net margin of Rs.60 per hide. Increase in farmer share in consumer rupee for camel hide marketing is about 52 percent in case of direct sale to the shopkeepers incorporating the mean marketing cost of Rs 44 per hide.

Marketing constraints

Although live camels and camel products marketing is not well established in Pakistan, however, camel markets are scattered throughout the country; but having very limited basic facilities for farmers, market traders and animals. The major constraints impede the efficient marketing of camels are poor marketing infrastructure, lack of market intelligence, lack of a grading system and absence of marketing extension services and regulations. Markets of camels and camel products are generally located in major towns or cities and are far away from the villages. Moreover, proper market infrastructure and facilities are lacking in the markets. Lack of transportation, communication and information systems result in seasonal and spatial price fluctuations. Existence of limited markets and the absence of any pricing system linked to weight and quality are the major disadvantages in the current marketing system. Local producers cannot afford to stay in the market for a long period. The situation compels farmers to sell camels to the village dealers/*beoparies* and fellow farmers at relatively low prices. Similarly, proper camel meat, milk, hide, hairs and hair products markets do not exist in the country. There is no proper market access and value addition to the camel products in the deserts. Thus, camel farmers are facing exploitation from the village dealers/businessmen who purchase camels and camel products at low prices. Illegal export of camel is also common, in which the income goes in the pockets of smugglers and the real farmers are ignored. Hence, government is also facing a lot financial loss in this context.

Conclusion and recommendations

The study mainly focus on the marketing of live camels and camel products to develop the consensus about the importance of proper marketing system/channels in order to gain the full potential benefits from this precious animal. A growing awareness that the camel can serve as a major food (meat and milk) producers in semi-arid and arid areas has supported change its image from “ship of the desert” to ‘a food security animal’. Marketing influences the productivity and re-productivity of animals. It is concluded that the proper marketing system for camels is not available and infrastructure of camel markets is in poor shape. The live camel markets are usually not more than open grounds, with no facilities available for the farmers, market intermediaries and animals. Transportation and transaction costs involved in pastoral marketing process are high due to long distances, poor infrastructure and limited facilities. Similarly, the markets for camel meat, milk, hides and hairs and hair products are not well established in the country. Camel farmers usually prefer to sell their live camels and camel products to the village dealers due to lack of access to these markets. Thus, village dealers act as the main player to bring camels and its products in the markets. Village dealers and fellow farmers were the main source of information about prices of live camels and products. Camel farmers depend on this animal as the major source of their family income and livelihood depends on the sale of this animal and its products, but due to absence of proper camel markets in nearby areas they are deprived to fetch good price for their animals and products. Livestock marketing is a completely neglected field. Improving market condition may resolve the prevailing problems. Therefore, it is highly recommended that the proper marketing system and structure for live camels and camel products should be developed in suitable premises to benefit the poor camel farmers where water, shelter, feed stores, veterinary facilities, weighing scales, etc. are made available on nominal charges. There is a need to design some regulatory framework/reforms also for livestock/camel marketing system in the country in order to increase due returns for camel producers and attracting investment for promoting camel farming on commercial lines for poverty alleviation and combating the issue of food security. This would provoke a healthy competition in these markets and result in better prices for the camel farmers. This action will not only help in stabilizing the prices of meat and milk but also elevate the socioeconomic conditions of camel farmers.

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