

## Research Article



## Market Marginal Analysis of the Peas Production in Hazara Division Khyber Pakhtunkhwa, Pakistan

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**Abstract** | The present study was conducted to examine the Peas production as well as their related promoting rehearses, categorize the scenario of socio-economic, methodical and marketing restraints faced by the farmers in augmenting and stimulating export of the country. The pea's cultivators and also market agents were quizzed by using structured questionnaires in two related districts that is Haripur and Mansehra in the year 2013-14. The data were analyzed by using SPSS Package version 22 for calculating marketing marginal analysis and cross-tabulation were also been employed. The studied statistics of the land size of chosen pea's farmers fluctuated amongst 0.878 to 31.26 acres having mean of 4.524 acres. Moreover, maximum merchants and Beoparis credited the output of peas from the farmers directly from the local market that is Mansehra and Haripur. It is worthwhile to mention that the public sale arrangement was not totally available in the local markets. Furthermore, the 68 percent in district Mansehra while, in the Haripur 46 percent farmers traded the pea's output in the local markets. The left over peas output in both the selected districts were offered for sale in the regional markets that is Rawalpindi and Peshawar markets. The 82 percent of the peas producers availed the price discrepancy at different stage, and the remaining of 18 percent have not gained profit from their prevailing price deviation, as at premature stage the pea's producers sold their output. The farmers can got maximum share that is 68 percent of the user's rupee tracked by the traders. The results showed that the seller got up to 23 percent having an average of about 18 percent of the buyer's rupee in the entire spell, and as well as the dealers can get a minimum share. The farmer can get 100 percent while the seller can get only 17.5 percent share in the marketing of peas production, comparatively high than the other markets.

**Received** | August 25, 2016; **Accepted** | October 07, 2018; **Published** | November 17, 2018

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**Citation** | Ali, S., S.A.A. Shah, J. Ali, M.N. Iqbal, A. Jadoon and Farmamullah. 2018. market marginal analysis of the peas production in Hazara Division Khyber Pakhtunkhwa, Pakistan. *Sarhad Journal of Agriculture*, 34(4): 827-833.

**DOI** | <http://dx.doi.org/10.17582/journal.sja/2018/34.4.827.833>

**Keywords** | Market Marginal Analysis, Marketing channels, Structured questionnaire, Beoparis, Net Margins, Pre-harvest contractor, Marketing cost

### Introduction

A Pea (*Pisum Sativum*) vegetable is botanically a fruit. It is usually used to label as the minor sphere-shaped seeds or described as the pods of legume. The pea is a green having pod-shaped fruit ex-

tensively grown as a cool-season vegetable crop. The pea seed can be planted at the soil temperature extents to 10°C and with the plants growing well at the temperatures of 13°C to 18°C. It does not grow well in the summer heat of warmer moderate and tropical weathers but grow well on cooler and high altitude

tropical areas. Many cultivars reach to maturity level at about 60 days after plantation. Moreover, Peas also grows well in to some extent acidic and well-drained soils. It is a cool season crop, grown in many parts of the world. The average pea weighs between 0.1 and 0.36 grams (Van Blommestein, J.A., 1980).

Nature has blessed Pakistan with abundant quantities and qualities of fruit and vegetables to compensate the deficiency of food items which are very essential in the routine diet of our people. For this purpose, peas play a major role and having a good source of vitamins C, E, B-complex, iron, and magnesium. Peas and other legumes are also good source for curing diabetics as it supports to normalize the flow of blood sugar. Fresh peas are generally one of the most digestible and having a laxative effect.

However, peas are grown in almost every country of the world. The largest producers of the pea are the US, Europe, and India. The majority of Peas are managed and stored in the forms as canned, frozen, and dried. Commercially, the peas are categorized as round, smooth, wrinkled and having edible pods.

In India and Pakistan, fresh peas are used in many dishes i.e. Aloo Matar (curried potatoes with peas) or Matar Paneer (cheese with peas) and can be deputed for with frozen peas. Peas can be cultivated throughout the country. In Khyber Pakhtunkhwa, peas occupy an area of 1942 hectares with a total production of 13418 tones. The sites of cultivation in Khyber Pakhtunkhwa province are Haripur, Mansehra, Swabi etc. province wise area and production of peas is given in Table 1.

Keeping in view the facts and figures of the present research conducted in Haripur and Mansehra districts, in order to generate information regarding the market of the peas. The objectives of the study are as follows.

- To study the socio-economic constraint in peas production and marketing system which have an impact on the expansion of marketing system.
- To explore the present marketing channels used by the producer and determine the structure conduct and performances of existing marketing system.
- To quantify the marketing margins of growers and other market intermediaries and assess ways to increase the grower share.

**Table 1:** Peas area and production in Khyber Pakhtunkhwa.

District	2013-14		
	Area in hectares	Production in tones	Yield in Kg/ hectares
Peshawar	31	110	3548
Mardan	44	241	5477
Swabi	157	644	4102
Kohat	1	12	12000
Abbottabad	5	88	17600
Haripur/Mansehra	10	128	12800
Malakand	25	58	2320
Swat	1280	10200	7969
Shangla	5	40	8000
Dir Lower	30	126	4200
Dir Upper	20	19	950
Chitral	202	1266	6267
D.I Khan	33	91	2758
Tank	5	18	3600
Bannu	13	12	923
Lakki Marwat	4	5	1250
KP	1942	13418	6909

Source: Crop Reporting Service Khyber Pakhtunkhwa, 2013-14.

## Materials and Methods

An information survey was conducted by the researchers in Haripur and Mansehra districts of Khyber Pakhtunkhwa in the first week of May, 2014. Interviews were conducted informally with individual pea growers, market intermediaries without using questionnaires. An effort was made to create a relaxed atmosphere in which respondents would feel free to express themselves. A comprehensive questionnaire was designed on the basis of information obtained in the informal survey. For examining the validity and accuracy of the interview schedule, it was pre-tested in the field. After pre-testing, changes and modification were incorporated and interviewing schedule was finalized for the collection of data.

During the interview efforts were made to explain question and their purpose so that correct and reliable information could be gathered. Given the limitation in term of grower availability, cost, efforts, data management, traveling and time, it was decided to interview 20% of the growers and other market agents. To achieve the specific objectives 60 growers, 20 contractors, 10 wholesalers and 10 retailers were interviewed as mentioned in Table 2.

**Table 2:** Distribution of sampled respondents for peas marketing survey, 2013-14.

Variables	Districts		
	Haripur	Mansehra	Total
Peas growers	30	30	60
Contractors	10	10	20
Wholesalers	05	05	10
Retailers	05	05	10
All	50	50	100

Face to face interview were conducted on marketing system in a specific field as well as general characteristic such as land owner-ship, respondent's age, education level and experience in peas growing and marketing.

*Analytical frame work*

**Market margins analysis:** Market margins elaborate the differences between prices at two different market levels. Marketing margins were estimated by collecting prices at various phases of the marketing sequence. It can also be calculated by the absolute margin or prices flow, which is the change between the prices, paid and received by each marketing organization. In literature different studies regarding marketing margins were made by Scarborough and Kydd, 1992, Swarup et al. 1985 and M. Ibrahim Lashari et al. 2003. The formula for Market Marginal Analysis can be written as;

$$M_m = (P_s \times 100) / S_p$$

Where; 'M<sub>m</sub>' represents the marketing margins, 'P<sub>s</sub>' stands for price spread or absolute margins and 'S<sub>p</sub>' is sale price of the same organization.

**Marketing costs:** Marketing costs are the costs acquired by market intermediaries from farm to targeted consumer. The main modules of marketing cost including grading, loading, unloading, transportation, market commission and market charges. These costs were calculated in a per Kg form. The formula can be represented as;

$$MC = A_s / q_b$$

Where; MC = Marketing cost of a specific unit quantity; A<sub>s</sub> = Actual amount spent; q<sub>b</sub> = quantity handled.

To estimate commission charges, the following formula can be used

$$Cc = (S_p \times R) / q_m$$

Where; Cc = commission charges; S<sub>p</sub> = sale earnings; R = rate of commission; q<sub>m</sub> = quantity marketed.

*Net margin*

The net margin is the net earnings after subtracting all marketing expenditures. Net earnings of peas were calculated by using the formula as under;

$$N_m = P_s - M_c$$

Where; N<sub>m</sub> indicates net margins, 'P<sub>s</sub>' represents absolute margins and 'M<sub>c</sub>' is the marketing cost including grading, loading, unloading, transportation, commission charges and market taxes. These costs were computed on per kg basis for producers and other market agents.

The data were analyzed by using Statistical Package for Social Sciences (SPSS) software package. The replies of the respondents were codified and keeping in view the specific objectives of the study.

**Results and Discussion**

*Farm size and peas area of the growers*

Farm size affects the efficient utilization of resources, type of cropping pattern of the farmers and marketing strategies. According to Jairath M.S. (2008), Shergill, H.S. (2010) and Sidhu R.S., M.S. Sidhu and J.M. Singh (2010) and many other researchers reported that large farms have an advantage in marketing system over the small farms. On the other hand, Griffin (1970) found a positive relationship between farm size and productivity which are closely related to marketing strategies. The average farm size and area under peas of various districts of Khyber Pakhtunkhwa are tabulated as under.

The farm size of the selected growers ranged from 0.878 to 31.24 acres with the average of 4.524 acres in the study area. Data showed that 90% respondent had less than 10 acres, 8% falling between 10 to 25 acres and 2% had more than 25 acres. It is significant that more than half of the total cropped area is assigned to pea's crop which shows its importance in the targeted area.

*Pea's varieties and seed source*

There is collection of more than (12) recommended varieties of Peas in Khyber Pakhtunkhwa. From the available resources, numbers of varieties have been recommended for the growers with respect to their

quality and vigorous growth. It is remarkable that most of the growers (90%) in the study area grown Meteor variety (locally called Freshy). 96% percent of the pea's area is covered under Meteor variety followed by the local variety called Hara. It is commonly believed that farmers should use pure, clean and disease free seed to obtain optimum yield. Growers have a number of option available as a seed sources i.e. own seed, other farmers, seed purchase from market etc. the data shows that majority of the respondents (85%) purchased seed from market at Baffa, Mansehra, while the rest of the growers used own seed or obtained seed from other farmers.

**Marketing channels**

A network of distribution called a trade system in which commodities moves from the producer to the final consumer. It plays essential role for sustainable agricultural development. A marketing channel including both producer and the ultimate consumer for the commodities and all market agents inculcated in the title transfer. (Khan, 1999) also described marketing networks as: a linkage of collaborating establishments that collectively accomplish all the actions essential to link producers of goods and services to the targeted users. The existing pea's marketing channels are presented in Figure 1. Private organization and individuals carried out the peas marketing i.e. producers, commission agents, wholesaler and retailers were the principle market agencies in peas marketing system.

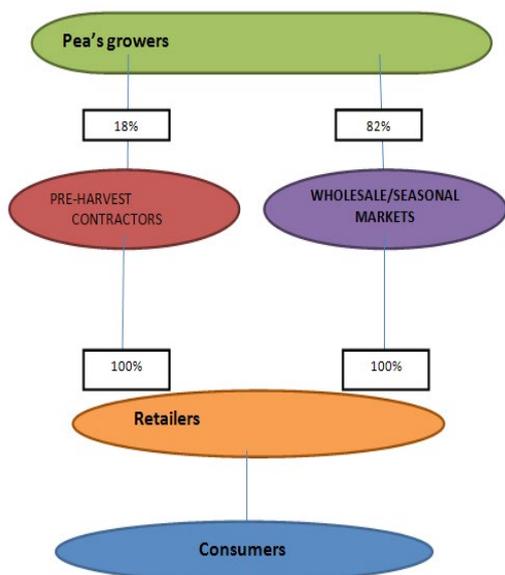


Figure 1: Marketing Channels of peas in Khyber Pakhtunkhwa.

**Sale of pea's produce**

Pea's farming is carried out by large number of growers, who were geographically scattered in many lo-

calities of Khyber Pakhtunkhwa. In research area, majority of the growers (82%) sold their produce in wholesale/seasonal markets such as Baffa, Mansehra (seasonal market), tube well No.18 Haripur (seasonal market) and Rawalpindi wholesale market. The remaining 18% sold their produce to pre-harvest contractors as shown in Figure 1.

**Reason for sale to pre-harvest contractors**

In the research area some of the pea growers (18%) sold their produce to pre harvest contractors at flowering or immature stage as depicted in Figure 2. Lack of financial resources for marketing cost, no manpower to handle and no knowledge regarding marketing system were the major reasons for sale to pre-harvest contractors.

Percent share in consumer's Rupee of pea's Producers and other market Agents

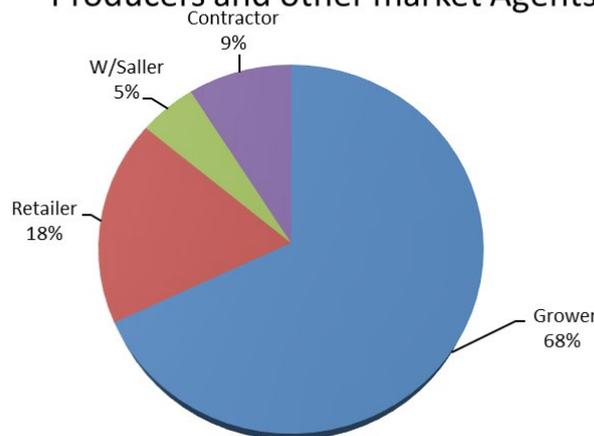


Figure 2: Pie Chart of Percentage share of Consumer's Rupee of Pea's growers and other market Agents.

**Sale through wholesale/seasonal markets**

Most of the wholesalers and Beoparis bought pea's produce from the growers directly at the seasonal markets such as Baffa (Mansehra) and Tube-well No. 18 (Haripur) and sold at different wholesale markets of the country. It is noteworthy that auction system was not existed in these seasonal markets, because the markets take place on the road side during the season.

Data showed that 68% and 46% of the growers in the both districts sold their pea's produce in seasonal markets such as Baffa (Mansehra) and Tube-well No.18 (Haripur) respectively. The remaining 54% of the growers in Haripur districts and 32% in Mansehra districts sold their produce at the local seasonal markets as well as at Rawalpindi wholesale market as depicted in Table 4.

**Table 3:** Average farm size and area under peas in both districts of Hazara Division, Khyber Pakhtunkhwa.

Variables	Districts		
	Haripur	Mansehra	All
Operation land holding (acres)	5.92	3.11	4.52
Peas area (acres)	3.43	1.76	2.59
Peas area in %	56.78	58.10	57.30

**Table 4:** Sale of pea's produced through different wholesale/seasonal markets in both districts of Hazara Division, Khyber Pakhtunkhwa.

Selling point	Districts		
	Haripur (%)	Mansehra (%)	All (%)
Baffa (Mansehra) (local)	0	68	35
Tube-well (Haripur) (local)	46	0	22
Rawalpindi/Baffa (Mansehra)	0	32	16
Rawalpindi / Haripur	54	0	27

*Purchasing point of retailers*

Data represent that majority of the pea retailers bought peas from growers directly at seasonal markets and settled prices among themselves, because auction system is not existing in these seasonal markets.

*Marketing margins analysis*

Margin analysis, as a proportion of buyer's price, is commonly used to measure the degree of customers prices transferred back to the producers. Marketing margins rest on the duration of marketing channels and the amount at which the output is kept or treated (Shepherd, 1993). Marketing margin can be described in two ways: absolute cash margins and percentage margins. Moreover, the absolute cash margins can be considered as a good sign of trend marketing costs (Swarp et al., 1985).

*Peas prices*

The value of peas was estimated on the basis of 35 kg per bag. Simple analyses of mean pea's prices on per bag (35 kg) basis by stages of season are presented in Table 5.

Majority of the growers (82%) enjoyed the price variation at each level because they sold their produce in the markets, while the rest (18%) were not benefited from price variation, because they sold their peas crop to pre-harvest contractors at immature stage.

**Table 5:** Average sale price of peas at different market intermediaries by various districts of Hazara Division.

Marketing Agents	Price Rs./35kg pack			
	Early season	Mid-season	Late season	All season
Grower	1500	800	1000	1100
Beopari	1650	900	1200	1250
Wholesaler	1725	950	1300	1325
Retailer	2100	1225	1500	1608

*Share in consumer's rupee*

The consumer's one rupee expense on Peas product is divided among the market agents and growers. It shows that share of consumer's rupee, which is actually split among Producers and other market agents. The Results showed that the pea's growers received a highest portion (68%) of the consumer's rupee followed by the retailers as depicted in Figure 2. Data also indicated that the retailer realized 13% to 23% with an average of 18% of the consumer's rupee in the whole season, while wholesaler received a minimum portion of the consumer's rupee.

*Absolute cash margin (ACM) and marketing cost (MC)*

The absolute cash margin of growers was estimated as the sale price of peas per 35kg bag. Generally, the absolute margin of the commission agents is the commission charged on sale income but in peas marketing, auction system is not existed in the seasonal markets. The absolute cash margin was calculated for each functionary as below.

Marketing costs are comprised of all the costs experienced on marketing of pea's outputs. The marketing cost of producers and other Market agents are detailed in Table 6.

**Table 6:** Absolute cash margin (ACM) and marketing cost (MC) of growers and other market agents.

Marketing Agents	Early season		Mid-season		Late season		All season	
	ACM	MC	ACM	MC	ACM	MC	ACM	MC
Grower	1500	65	800	65	1000	64	1100	65
Contractors/Beopari	150	55	100	48	200	50	150	51
Wholesaler	75	11	50	12	100	12	75	12
Retailer	375	65	275	65	200	64	288	65

The average marketing cost of peas was estimated at per pack (35kg) basis for different market intermediaries. The producer and contractor costs were estimated

to be a maximum Rs.65 and 51 respectively in all Season. The wholesaler and retailer had cost of Rs. 12 and Rs.15 per 35 kg bag respectively as show in Table 6. The cost includes transportation of Peas from market to selling point, rent of shop and hawkers (consist of wooden platform mounted on three cycle wheel) etc.

**Table 7: Marketing margins for grower and other market agents.**

Marketing Agents	Early season	Mid season	Late season	All season
Grower	100.0	100.0	100.0	100.0
Contractor	9.1	11.1	16.7	12
Wholesaler	4.4	5.2	7.7	5.7
Retailer	17.9	22.4	13.3	17.6

*Marketing marginal analysis*

Marketing margins are calculated for different marketing agents involved in Peas marketing in the research area are calculated by using formula as;

$$M_m = (P_s \times 100) / S_p$$

Where; ‘M<sub>m</sub>’ represents the marketing margins, ‘P<sub>s</sub>’ stands for price spread or absolute margins and ‘S<sub>p</sub>’ is sale price of the same market intermediary. Moreover, absolute margin or prices spread, which is the change between the prices, paid and received by each marketing organization.

The marketing margins are presented in the tabular form as;

The above estimates reveals that the grower and retailer got 100% and 17.6% margin, respectively in the one step promotion of peas produce, which are high as compared to other market intermediaries such as contractor and wholesaler.

**Table 8: Net margin of pea’s grower and other market agents.**

Marketing Agents	Early season	Mid sea-son	Late season	All season
Grower	1435	735	934	1035
Contractor	95	52	150	99
Wholesaler	64	38	88	63
Retailer	361	259	184	168

*Net margin*

The net margin is the net earnings after subtracting all marketing cost. Net margins are calculated for

different marketing intermediaries involved in Peas marketing in both targeted area is as below;

The above estimated reveal that the net margins for producers and retailer is high as compared to other market agents as depicted in Table 8.

**Conclusions and Recommendations**

It is concluded that pea’s farming is a profitable profession. Majority of the growers wanted to increase the acreage of pea’s crop. Hazara division enjoyed the central position in Khyber Pakhtunkhwa by supplying peas. Marketing system analyses illustrated that marketing of peas is completely performed privately without government intervention. It revealed that marketing structure is not entirely competitive to prevent market traders from accumulating too much margins. However, no marketing agents were able to handle prices, but statistics stream of market and prices was fast in between the market intermediaries including producers. In the current environment, it is suggested that government should make venture on substructure growth specifically in establishment of assemble markets, communication network and institution credit system to reduce post-harvest losses and to enhance the bargaining power of the growers in the market.

**Author’s Contributions**

**Sajad Ali:** Designed the research and wrote the first draft.

**Syed Asghar Ali Shah:** Conducted the research

**Jaffar Ali:** Helped in data collection.

**Muhammad Nadeem Iqbal:** Helped in experments and data analysis.

**Arshadullah Jadoon:** Prepared the reports and did field work.

**Farmanullah:** Helped in environmental location and sampling.

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