



Study on Marketing Performance and Constraints of Pea (*Pisum sativum*) Output in High Hills Wet Temperate Zone of Himachal Pradesh, India

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Abstract: The purpose of the study is to identify the output marketing channels of pea crop, evaluate the marketing performance and constraints in the marketing. A multi-stage random sampling procedure was employed to select 200 sample farmers. Both qualitative and quantitative data were collected from primary and secondary sources by using structured questionnaires. The data were analysed using Acharya marketing approach and descriptive statistics. The finding of this study reveals that there are five output marketing channels used by pea growers in the study area, producer-retailer-consumer (1.50%), producer-retailer-consumer (8.00%), producer-commission agent-retailer-consumer (59.50%), local trader-wholesaler-retailer-consumer (19%) and producer-wholesaler-retailer-consumer (12%). The total gross market margin and profit margin was highest when farmers sold pea produce directly to consumers and lowest when they sold pea produce to local traders across channel. It has been observed that producer-consumer Channel was most efficient channel among all five output marketing channels. Lack of all-weather roads followed by lack of market consultancy services and high commission charges during marketing are the major constraints faced by the farmers. Therefore, policy initiatives should aim at increasing farmers access to market, strengthen government extension services, improving market infrastructure, reducing unfair profit distribution and disseminating reliable market information.

Keywords: Pea, Marketing channel, Marketing performance, Efficiency, Constraints

Vegetable plays significant role in Indian agriculture by producing higher returns per unit area and time, while providing nutritional and economic security. Vegetable cultivation is an important source of income for smallholder farmers and demand for the products is raising in both domestic and international markets thus increase smallholder farmers' participation in the market (Thakur et al 2022). Moreover, market is crucial for economic growth and sustainable development of any country. Researchers emphasized that efficient markets are the essential tool for lifting farmers out of poverty and enhancing food security in developing countries (Chand et al 2020, Ankita 2021). Additionally, literature on agriculture marketing has indicated that favorable marketing performance could encourage farmers to produce, adopt improved technologies and increase the share of prices received by the farmers (Thakur et al 2021). However, farmers with small landholding face various problems to participate in markets. The significant increase in productivity and profitability of farms mainly depends on the marketing system. The imperfect market of

agricultural products largely dominated by intermediaries and farmers are deprived of getting remunerative value of their farm produce resulting to less revenue (Mishra et al 2014). The efficient agricultural market acts as bridge between the farmers to consumer. Efficient marketing in term of both technical and pricing efficiency ensures the farmers to get better price of their farm produce and also consumers to obtain true worth of the money which maximize social welfare (Chand 2012, Balkrishna et al 2022). The marketing of vegetable crops is inflicted often with high marketing cost and low produces shares. This could be due to numerous reasons such as lots of intermediaries exist between the channels and cost of various market functions rendered by these intermediaries. The price spread is one of the important measures of market efficiency and indicates the increases in the price of a farm produce with change in control from one intermediary to another in the whole marketing system. Vegetable crops such as Pea (*Pisum sativum*) play significant role in hill farming, both in income and social spheres for improving income and nutrition (Bala et al 2011).

In Himachal Pradesh, particularly high hills zone has good potential of off seasonal vegetables production for which smallholder farming have diversified from staple food subsistence production into more market oriented and higher value produce (Arya 2001). Despite this production potential and importance of pea crop for the state as well as the study area, there has been limited study with regard to the performance and constraints in pea marketing. This study seeks to close this gap by analyzing output marketing

channel in high hill wet temperate zone of Himachal Pradesh. The present study aimed at observing marketing performance and identification of constraints in market.

MATERIAL AND METHODS

Study area: The study was conducted in high hills wet temperate zone of Himachal Pradesh, which is located in the foot hills of the North-Western Himalayas, India and lies between 30°22'40" to 33°12'20" N latitude and 75°45'55" to 79°04'20" E longitude. Its altitude ranges from 350 meters to 6,975 m above mean sea level (amsl), and is endowed with a myriad of climatic niches. The entire State of Himachal Pradesh has been divided into 4 agro-climatic zones whose elevation ranges from less than 650 to more than 2200 m amsl (Fig. 1). The high hills wet temperate zone was selected purposively because of its wider adaptability to produce off seasonal pea which is major source of income for the farmers.

Sampling design: A multistage random sampling technique was used for the selection of sample households. At the first stage of sampling, a complete list of blocks in the selected agro-climatic zone was prepared and out of which 5 blocks were selected on the basis of maximum cultivated area under vegetable cultivation. At the second stage of sampling, a complete list of Gram Panchayats in the selected blocks was prepared and out of which, 4 Gram Panchayats from each selected block were selected randomly. At the final stage of sampling, 10 farmers from each Gram Panchayats were selected randomly to constitute a sample size of 200 farmers in total (Fig. 2).

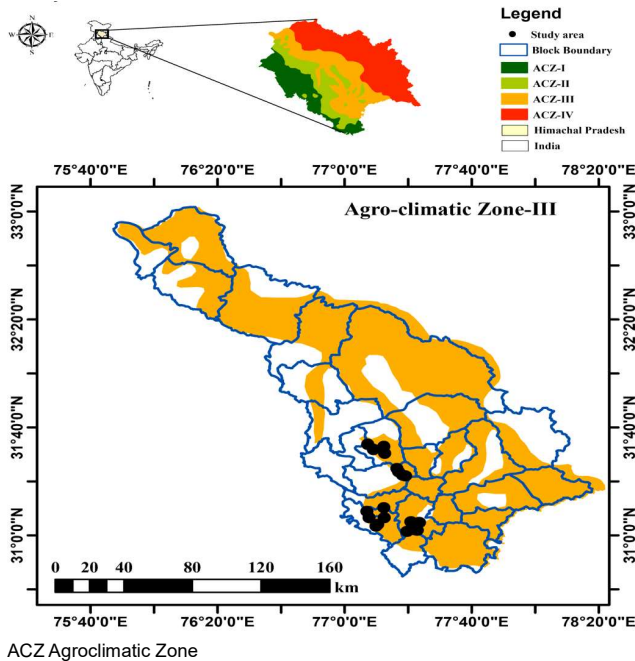


Fig. 1. Location map of h study area

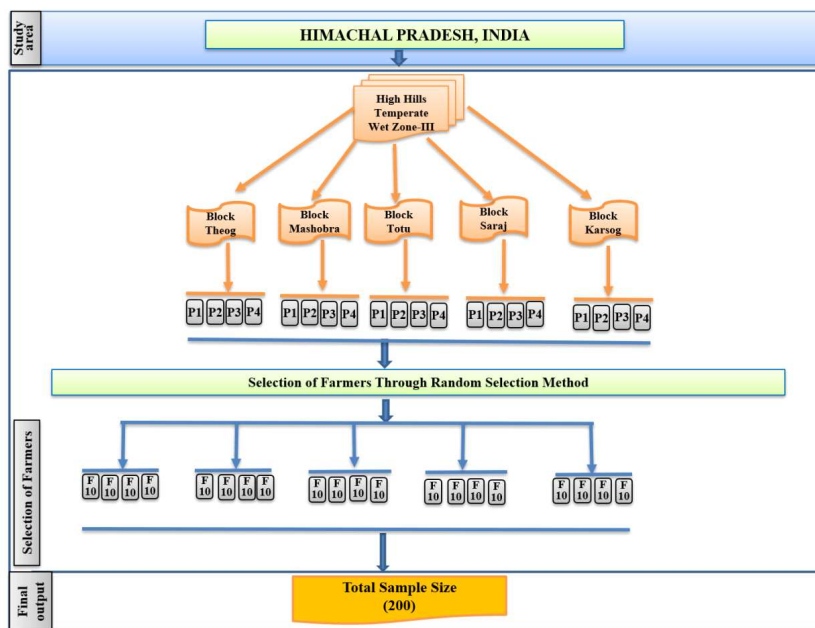


Fig. 2. Flow chart of sampling strategy

Selection of market and market intermediaries: In high hills temperate wet, Zone-III the Dhali (Shimla) and Theog market were selected to study the functioning of agricultural markets in Himachal Pradesh. Further, to examine the various aspects related to pea output marketing, a sample of 5 local traders, 5 commission agents, 5 wholesalers and 5 retailers were selected randomly from each selected markets of selected agro-climatic zone.

Data collection: Both primary and secondary data were collected to meet the objectives of the present study. Primary data were collected with the help of well-designed pre-tested schedule through survey method by interviewing the selected farmers directly pertaining to agricultural year 2020-21. Further, the market related information was also collected using pre-tested schedule through personal interview method from selected local traders, commission agents, wholesalers and retailers. The required secondary data related to the present study were collected from various publications and government departments like agriculture, horticulture, directorate of economics and statistics, land Records, books, journals and university reports.

Analytical Framework

Market analysis: The total costs, incurred on marketing by the farmers were calculated as:

$$TC_m = C_g + \sum_{i=1} MC_i$$

Where,

TC_m = Total cost of vegetable marketing,

C_g = Cost paid by the grower in the marketing of his/her produce

MC_i = Marketing costs incurred by i^{th} middleman.

The following formula is used to compute percentage-marketing margins as earned by each market intermediary in the marketing of farm products:

$$A_{mi} = P_{Ri} - (P_{pi} + C_{mi})$$

Where

A_{mi} = Absolute margin of middlemen

P_{Ri} = Total value of receipts per unit (sale price)

P_{pi} = Purchase value of goods per unit

C_{mi} = Cost incurred on marketing per unit.

$$TGMM = \frac{\text{Consumer's Price} - \text{Producer's Price}}{\text{Consumer's Price}} \times 100$$

Where, TGMM is the total gross marketing margin. It is useful to introduce the ides of producers' gross margin (GMM_p) which is the portion of the price paid by the consumer that goes to the producer. The producers' margin is calculated as:

$$GMM_p = \frac{\text{Consumer's Price} - \text{Gross Marketing Margin}}{\text{Consumer's Price}} \times 100$$

Where, GMM_p = the producer's share in consumer price.

The net marketing margin (NMM) is the percentage of the final price earned by the intermediaries as their net income after their marketing costs are deducted.

The percentages of net income that can be classified as pure profit (i.e., return on capital), depends on the extension to such factors as the intermediaries' own (working capital) costs. The equation tells us that a higher marketing margin diminishes the producer's share and vice versa. It also provides an indication of welfare distribution among production and marketing agents.

$$NMM = \frac{\text{Gross Margin} - \text{Marketing Cost}}{\text{Consumer's Price}} \times 100$$

Where, NMM is the net marketing margin

Further, marketing efficiency of various channels in the study area has been computed by using Acharya's approach (2001).

$$\text{Marketing Efficiency} = \frac{FP}{MC + MM} - 1$$

Where

FP = Price received by the farmer

MC = Total marketing cost

MM = Net market margins.

Whereas, price spread refers to the difference between the price paid by the consumer and price received by the producer.

$$PS = \frac{PF}{PR} \times 100$$

Where

PS = Producer's share in consumer's rupee

PF and PR will be the farmer's price and retail price (consumer's price)/kg respectively.

Garrett's ranking technique: To examine the constraints experienced by farmers in pea output marketing channels in the study area, Garrett's ranking method was used (Kumar et al 2019). As per this method, the farmers were asked to assign the rank for each category of the constraints proposed to them. The per cent position for each rank was calculated.

$$\text{Per cent position} = \frac{(R_{ij} - 0.5)}{N_j}$$

Where

R_{ij} = Rank given to i^{th} position by the j^{th} individual

N_j = Numbers of problems ranked by j^{th} individual

The per cent position was converted into scores by referring to the table (Garrett ranking conversion table). The mean scores for all the factors were arranged in descending order. The-influencing factors were identified through the ranks assigned as the factors having the highest mean value score was considered to be the most severe problem faced by the farmers in the study area (Guleria et al 2022).

RESULTS AND DISCUSSION

Agricultural output marketing channels of pea: In study area there was five agricultural output marketing channels used by sampled farmers for the marketing of pea crop (Table 1). The most preferred channel for the marketing of pea crop in Zone-III was channel- C i.e., Producer → Commission Agent → Retailer → Consumer (P—CA—R—C) accounted for 59.5 per cent of the total quantity transected among the channels followed by 19.5, 12 and 1.5 t per cent in Channel- D, B and A, respectively.

Marketing costs and margins of different functionaries: The total marketing cost incurred by producer among output marketing channels were Rs. 65 per quintal in Channel-A where the produce was directly sold to the consumer followed by Channel-B (Rs. 75 per quintal) where produce sold to the retailer, Channel-C (Rs. 120 per quintal) where produce sell to commission agents (Table 2). The marketing cost incurred by the farmers in the study includes the packaging, loading/unloading and transportation cost. In the study area, the retailers appeared in four marketing channels i.e., Channel-B, Channel- C, Channel- D and Channel- E. The retailer was the only market functionary apart from the producer who was selling the produce directly to the consumer. The commission charges, transportation cost, loading/unloading cost, *Mandi* tax, were the important marketing cost incurred by them. The total cost incurred by retailer in Channel-B, Channel-C, Channel-D and Channel - E was worked out to be Rs 516.14, Rs. 554.24, Rs. 601.06 and Rs. 560.23 per quintal respectively. Further, retailer margin per quintal in Channel B Rs. 158.5 followed by Channel-C (, Channel-E, and highest in Channel-D (Rs. 180).The commission agent was important market functionary in the marketing Channel-C. The total marketing cost incurred by commission agent in Channel- C was Rs. 446.2 whereas margin was Rs. 135.5 per quintal.

The local trader was found in only one output marketing channel i.e., Channel-D. The major components of this

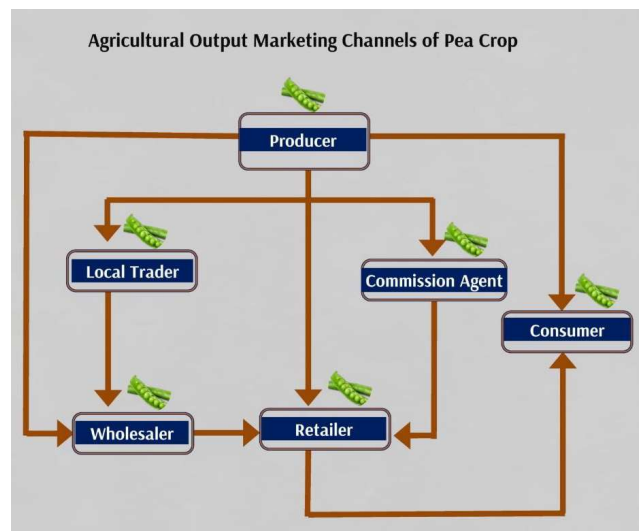
marketing cost were found to be the commission charges, transportation cost, loading/unloading and *Mandi* tax. The total marketing cost incurred by local trader was Rs 476.74 per quintal. The local trader further sold the produce to the wholesaler. In present study, no local trader was found to be dealing with the consumer directly. These results are in conformity with the findings of Ankita (2021). The wholesaler was one of the important market functionaries which was found in output marketing Channel-D and Channel-E. In marketing Channel-D and Channel-E, the marketing cost incurred by wholesaler was Rs. 539.78 and Rs. 501.60 per quintal respectively out of which commission charges, *Mandi* tax, and transportation constituted the important components of marketing cost. The Channel-D was operate through the local trader whereas in Channel-E wholesaler receives produce from the farmers. But in both the channels the produce was sold to the retailer.

Price spread and marketing efficiency of pea crop : In pea crop the producer's price received varied from Rs. 5175.50 in Channel-D to Rs. 5495 in Channel-A among different output marketing channels (Table 3). The total gross marketing margin was maximum in Channel-D (29.52%) and least in Channel-A (1.17%). Further, per cent share of producer in consumer's rupee was maximum in Channel-A (98.83%), when producer acted as a retailer in the sale of produce to consumers and lowest 70.48 per cent in Channel- D i.e., Producer → Local Trader→ Wholesaler→ Retailer → Consumer. Marketing margins varied from 0.00 per cent in Channel- A to 11.33 per cent in channel D. The marketing cost varied from 1.17 per cent in Channel-A to 23.25 per cent in Channel-D.

Table 1. Output marketing channels of pea crop in the study area (%)

Particulars	Channels	High hill region
Channel-A	P—C	1.50
Channel-B	P—R—C	8.00
Channel-C	P—CA—R—C	59.50
Channel- D	P—LT—W—R—C	19.00
Channel-E	P—W—R—C	12.00
		100

Source: Field Survey, 2020-21
C- Consumer; CA- Commission Agents; LT- Local Trader; P- Producer; R- Retailer; W- Wholesaler



Source: Author

Fig. 3. Output marketing channels of pea crop in Himachal Pradesh

Table 2. Marketing costs and margins of different functionaries in the output marketing channels of pea crop (Rs./Qtl)

Particulars	Output marketing channels of pea crop				
	A	B	C	D	E
Marketing cost incurred by producers					
Net price received by farmer	5495.00	5420.50	5270.00	5175.5	5275
Transportation cost	15.00	25.00	70.00	40.00	45.00
Packing material cost	35.00	35.00	35.00	35.00	35.00
Loading / unloading	15.00	15.00	15.00	15.00	15.00
Commission charge	-	-	-	-	-
Mandi tax	-	-	-	-	-
Total	65.00	75.00	120.00	90.00	95.00
Farmer's selling price	5560.00	5495.50	5390.00	5265.50	5370
Marketing cost incurred by local trader					
Gross price paid by local trader	-	-	-	5265.50	-
Loading / unloading	-	-	-	15.50	-
Transportation cost	-	-	-	40.00	-
Mandi tax	-	-	-	105.31	-
Commission charge	-	-	-	315.93	-
Total	-	-	-	476.74	-
Local trader margin	-	-	-	105.00	-
Wholesaler purchase price	-	-	-	5847.24	-
Marketing cost incurred by commission agent					
Gross price paid by commission agent	-	-	5390.00	-	-
Loading / unloading	-	-	15.00	-	-
Transportation cost	-	-	0.00	-	-
Mandi tax	-	-	107.80	-	-
Commission charge	-	-	323.40	-	-
Total	-	-	446.20	-	-
Commission agent margin	-	-	135.50	-	-
Commission agent selling price	-	-	5971.70	-	-
Marketing cost incurred by wholesaler					
Gross price paid by wholesaler	-	-	-	5847.24	5370.00
Loading / unloading	-	-	-	17.00	17.00
Transportation cost	-	-	-	55.00	55.00
Mandi tax	-	-	-	116.94	107.40
Commission charge	-	-	-	350.83	322.20
Total	-	-	-	539.78	501.60
Wholesaler margin	-	-	-	170.00	175.00
Wholesaler selling price	-	-	-	6557.02	6046.60
Marketing cost incurred by retailer					
Gross price paid by retailer	-	5495.50	5971.70	6557.02	6046.60
Loading / unloading	-	18.00	18.00	18.00	18.00
Transportation cost	-	58.50	58.50	58.50	58.50
Mandi tax	-	109.91	119.43	131.14	120.93
Commission charge	-	329.73	358.30	393.42	362.80
Total	-	516.14	554.24	601.06	560.23
Retailer margin	-	158.50	170.00	185.50	180.00
Retailer selling price	-	6170.14	6695.94	7343.58	6786.83
Consumer purchase price	5560.00	6170.14	6695.94	7343.58	6786.83

Table 3. Price spread and marketing efficiency of pea crop

Particulars	Output marketing channels of pea crop				
	A	B	C	D	E
Price spread					
Producer price (Rs./quintal)	5495.00	5420.50	5270.00	5175.50	5275.00
Consumer's price (Rs./quintal)	5560.00	6170.14	6695.94	7343.58	6786.83
Gross marketing margin (GMM) (Rs./quintal)	65.00	749.64	1425.94	2168.08	1511.83
Net marketing cost (Rs./quintal)	65.00	591.14	1120.44	1707.58	1156.83
Net market margin (Rs./quintal)	0.00	158.5	305.5	832.24	450.00
Total gross marketing margin (%)	1.17	12.15	21.30	29.52	22.28
Marketing cost (%)	1.17	9.58	16.73	23.25	17.05
Marketing margin (%)	0.00	2.57	4.56	11.33	6.63
Producer's shares (%)	98.83	87.85	78.70	70.48	77.72
Marketing efficiency	A	B	C	D	E
Net marketing cost (Rs./quintal)	65.00	591.14	1120.44	1707.58	1156.83
Consumer's price (Rs./quintal)	5560.00	6170.14	6695.94	7343.58	6786.83
Net marketing margin (Rs./quintal)	0.00	158.5	305.5	832.24	450
Marketing efficiency	84.54	7.23	3.70	1.89	3.22

The Channel-A (84.54%) was most efficient channel and Channel-D least efficient (1.89%). But this channel was not preferred as the quantity of produce sold was less as compared to others channel. Furthermore, Channel-B was most efficient from the remaining four channels as the price paid by the consumer (Rs. 6170.14) were the least and the prices received by the farmers (Rs. 5420.50) were the maximum.

Table 4. Constraints faced by farmers in output marketing channels of pea

Constraints	High hills region	
	Average per cent score	Rank
Delay in payment	54.84	VI
Lack of market consultancy service	62.40	II
Distant Market	51.37	VII
Lack of technical knowledge	44.94	X
Shortage of packing material	31.20	XV
Exploitative practices by intermediaries	49.90	VIII
High commission charges	59.29	III
Non remunerative price for the produce	57.93	V
Inadequate storage facility	49.19	IX
Vehicle not available in time	58.79	IV
Lack of all-weather roads	62.75	I
High transportation charges	39.23	XIV
Price Instability	43.50	XI
Inadequate market information	42.60	XII
Inaccurate weighing instruments	41.12	XIII

Constraints faced by farmers in output marketing channels in pea crop: The constraints faced by the farmers in marketing of pea crop in high hill temperate wet zone was mainly lack of all-weather road with 62.75 score of Garrett ranking followed by market consultancy services (62.40), high commission charges (59.29) (Table 4). These results are in line with the findings of Devi et al (2020).

CONCLUSIONS

The farmers of study area were using five majors output marketing channels for marketing their pea produce. These channels were Channel-A (P—C), Channel-B (P—R—C), Channel-C (P—CA—R—C), Channel-D (P—LT—W—R—C) and Channel-E (P—W—R—C) in high hills temperate wet zone of Himachal Pradesh. In pea crops farmers mostly used the output marketing Channel-C to market their crop produce. The Channel-A was most efficient among five marketing channels. Among all the five output marketing channels Channel D was most efficient and Channel E was least. This was due to various marketing participants included in these channels and price profit are distributed till it reaches to the consumer eventually increase the price to a great extent. Therefore performance of any marketing channel depends upon the marketing efficiency at large. Channel-A was efficient but the volume transacted was very less. Since, farmers larger focus on remains on the production thereby in spite of having this channel a higher market efficiency, the farmers may not able to use this channel on account of lacking of requisite market infrastructure. The lack of all-weather roads followed by lack of market consultancy services and high commission

charges levied upon the farmers through various were the major constraints faced by the farmers during marketing of pea.

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