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An Economic Analysis of Marketing and Disposal Pattern of Groundnut in Surguja District of Chhattisgarh, India

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

This study is confined to an economic analysis of marketing and constraints of groundnut in the Surguja district of Chhattisgarh, India. The 90 respondents were interviewed for the study during the year 2015-16. The main objective of the study is to analyze marketing cost, price spread and constraints in marketing of groundnut. Major findings of the study revealed that at their place three marketing channels identified for the groundnut marketing in Sarguja district viz., were Channel – I: Producer → Consumer, Channel – II: Producer → Village Merchants/ Retailers → Consumer, Channel – III: Producer → Commission Agents/ Wholesaler → Retailer → Consumer. The total marketing cost was higher in Channel III (Rs. 365.38) Compared to Channel I and Channel II. and

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the total marketing margin and price spread was also seen higher in Channel III Rs. (1457.22 and 635.00) because in the Channel III there were two intermediates, whereas in channel I and channel II there was only one Intermediates respectively. The producer share in the consumer rupee was higher in the channel I (97.55%). The market efficiency was higher in Channel I (40.98 %).

Keywords: Groundnut crop; economic analysis; marketing; price spread; marketing channel; marketing margin.

1. INTRODUCTION

The cultivated groundnut or peanut (*Arachis hypogaea* L.) originated in South America. The term *Arachis* is derived from the Greek word "arachos" meaning a weed and "*hypogaea"* meaning underground chamber i.e. in botanical terms a weed with fruits produced below the soil surface. The world's groundnut (in shell) harvested area in 2007 was 23.4 million ha with a total production of 34.9 million metric tons (Mt). The total harvested area in 2007 increased by 3.7 million ha when compared to 1990, while production increased by 11.7 million Mt. The world's average productivity in 2007 was about 1490 kg/ha. It is cultivated in as many as 90 countries. Groundnut is therefore an oilseed crop on a global scale [1-4]. The contribution of total oilseeds in Gross Domestic Product (GDP) was 4 per cent and it accounts for 10 per cent of the total value of Agricultural Commodities produced in the country. Oilseeds cover about 10 per cent of the total crop area engaging about 7 million cultivators in the production process and 50 lakh persons in processing industries. Besides a substantial workforce is employed in various other intermediate sectors like marketing and transportation etc [5]. Groundnut and rapeseed-mustard are two important crops which together account for about 78 per cent of the total oilseed production [6,7]. The groundnut ranks first with a 32.35 per cent contribution to total of 15 oilseed production followed by rapeseed-mustard (26.35 per cent), soybean (21.56 per cent) and sunflower (6.17 per cent) together accounting for 86 per cent of the total oilseed production in the country [8-10]. Because of its high dependence on the southwest monsoon, groundnut production in Kharif season fluctuates from year to year depending on the spatial and temporal distribution of rains, will rabi harvests hold fairly steady at 1.5 to 1.6 million tons. The Agriculture Ministry had maintained the minimum groundnut support price unchanged from the past season, at 23.2 US$/ton [11-14].

2. MATERIALS AND METHODS

Collection of data: The study is based on both primary and secondary data. The primary data was collected from 90 selected respondents with the help of pre-tested interview schedule by the personal interview method for the year 2015-16 and secondary data was collected from Chhattisgarh agriculture statistics, land record office, annual districts statistics and other published and unpublished reports.

Methodology: In this study Ambikapur block of Surguja district of Chhattisgarh was purposively selected. A multistage simple random sampling technique (SRS) was adopted to select the block market and different farmers involved in Groundnut marketing in Surguja district of Chhattisgarh. Guturma and Sitapur market was selected purposely for the present study. All market functionaries bring their commodities for sale from different parts of the Surguja district.

Marketable Surplus: The quantity of produce left after meeting the requirements of the producer for family consumption, cattle feed, paid as wages, used for seed purpose etc. In the mathematical equation, the marketable surplus may be expressed as:

$$\mathbf{MS = P– C \{Cp + Cf + W + S\}}$$

Where,
MS - Marketable Surplus
P - Total Production
C - total consumption
Cp - Family Consumption
Cf - Quantity used for cattle feed
W - Quantity used for wage
S - Quantity kept for seed

Price Spread: The price spread in marketing of groundnut data pertaining to cost and margins were analyzed as under:

Marketing cost:

$$\mathbf{C=CF+Cm_1+Cm_2+Cm_3+……..+Cm_n}$$

Where,
C = Total cost of marketing
CF = Cost borne by the produce farmer from the time at which the Produce leaves the farm till the scale of the produce and

Cmi = Cost incurred by the i^{th} middlemen in the process of buying and selling

Marketing cost : Per quintal marketing cost of groundnut is obtained as:

C = Cf + Cmi + Cmii + ….. + Cmn

Where,
C = Total marketing cost of produce (Rs/Qt)
Cf = Cost paid by farmer (Rs/Qt)
Cmi = Cost incurred by i^{th} middlemen in the process of buying and selling.

Market Margin:

(a) Gross margin

The following formula is used to work out the per kg gross margin for each marketing agency.

Mg = Si – Pi

Where,
Mg = Gross margin
Si = Sale value of produce for i^{th} intermediaries
Pi = Purchase value of i^{th} intermediaries

(b) Net margin

The net margin of i^{th} type of market agencies is calculated as under:

Nmi= Pri – (Ppi + Cmi)

Where,
Price = per kg price received of produce by ith type of intermediaries.
P_{pi} = per kg purchase price by the ith type intermediaries.
C_{mi}= per kg marketing cost incurred by i^{th} type of intermediaries.
N_{mi}= Net margin of i^{th} type of market intermediaries.

Producer's share in consumer's rupee: To calculate the producer's share in consumer's rupee, the following formula is applied.

Ps = (Pf ÷ Pc) x 100

Where,
Ps = producer's share in consumer's rupee
Pf = Net price received by the farmer
Pc = price paid by consumer.

Marketing efficiency: Marketing efficiency was measured through Shepherd's formula. The ratio of the total value of goods marketing to the marketing cost was used to measure efficiency. The higher the ratio, the higher efficiency and vice versa.

Marketing efficiency = (V/I)

V = Value of goods sold (consumer's price),
I = Total marketing cost (cost + margins)

3. RESULTS AND DISCUSSION

Disposal pattern: In Surguja district there was no regulated market for groundnut, thus the study for marketing of groundnut was conducted at farmer's level. There were three market functionaries engaged in marketing of groundnut in the study and were village merchant Commission Agents/ wholesalers and Retailers.

Marketing channels: There were three marketing channels for the groundnut marketing in Sitapur and Guturma market viz.

Channel – I: Producer → Consumer
Channel – II: Producer → Village Merchants/ Retailers → Consumer
Channel – III: Producer → Commission Agents/ Wholesaler → Retailer → Consumer

(i) Channel – I: Producer → Consumer:

Table 1 reveals that average marketing cost when producers sold their product directly to consumers in the local market was Rs. 110.00 /qtl. transportation cost was most important which accounted for Rs. 23.33/qtl, followed by miscellaneous charges Rs. 9/qtl, loading and unloading cost Rs. 10/ qtl, market fee Rs. 28.33/qtl, packing material cost Rs. 18.56/ qtl, weighing charges Rs.8/qtl, and packing cost was Rs. 12.47/qtl, respectively. The producer net share was 97.55 per cent in consumer price. Average producer sale price to consumer in different farms size group was Rs.4500.00/ha and the average price spread was Rs. 110.00/ha. Market efficiency in small, medium and large farms size groups was 42.85 per cent, 40.17 per cent and 38.46 per cent respectively. Sample average for marketing efficiency in channel I was 40.98 per cent.

(ii) Channel – II: Producer → Village Merchants/ Retailers → Consumer

Among these cost transportation cost was most important which accounted for Rs. 23.33/qtl, followed by miscellaneous charges was Rs. 9/qtl,

Table 1. Marketing Cost, Marketing Margin and Price Spread in different Size of Farms Group

(Value in Rupees/Qtl.)

S. No.	Particulars	Size of Farms Groups			Sample Average
		Small	Medium	Large	
1.	Producer sale price to Consumer	4500.00	4500.00	4500.00	4500.00
2.	Cost incurred by the producer				
i	Packing cost	12.00(0.31)	13.00(0.34)	14.00(0.36)	12.78(0.33)
ii	Packing material cost	17.00(0.44)	19.00(0.49)	21.00(0.54)	18.56(0.48)
iii	Transportation cost	22.00(0.57)	24.00(0.62)	25.00(0.65)	23.33(0.60)
iv	Market fee	27.00(0.71)	29.00(0.75)	30.00(0.78)	28.33(0.74)
v	Loading and unloading charges	10.00(0.26)	10.00(0.26)	10.00(0.26)	10.00(0.26)
vi	Weighing charges	8.00(0.21)	8.00(0.20)	8.00(0.20)	8.00(0.20)
vii	Miscellaneous charges	9.00(0.23)	9.00(0.23)	9.00(0.23)	9.00(0.23)
3.	Total cost (i-viii)	105(2.76)	112(2.93)	117(3.05)	110.00(2.88)
4.	Net price received by producer	4395.00	4388.00	4383.00	4390.00
5.	Producer share in Consumers Rupee (%)	97.66	97.51	97.40	97.55
6.	Price spread	105 (3.94)	112 (4.24)	117 (4.69)	110.00 (4.21)
7.	Consumers paid price	4500.00(100)	4500.00(100)	4500.00(100)	4500.00(100)
8.	Marketing Efficiency	42.85	40.17	38.46	40.98

Note: *Figure in the parenthesis indicate percentage to the total consumer price.*

Table 2. Marketing Cost, Marketing Margin and Price Spread in different Size of Farms Group

(Value in Rupees/Qtl.)

S. No.	Particulars	Size of Farms Groups			Sample Average
		Small	Medium	Large	
1.	Producer sale price to Village Merchants	4500.00	4500.00	4500.00	4500.00
2.	Cost incurred by the producer				
i	Packing cost	12.00(0.31)	13.00(0.34)	14.00(0.36)	12.78(0.33)
ii	Packing material cost	17.00(0.44)	19.00(0.49)	21.00(0.54)	18.56(0.48)
iii	Transportation cost	22.00(0.57)	24.00(0.62)	25.00(0.65)	23.33(0.60)
iv	Market fee	27.00(0.71)	29.00(0.75)	30.00(0.78)	28.33(0.73)
v	Loading and unloading charges	10.00(0.26)	10.00(0.26)	10.00(0.26)	10.00(0.26)
vi	Weighing charges	8.00(0.21)	8.00(0.20)	8.00(0.20)	8.00(0.20)
vii	Miscellaneous charges	9.00(0.23)	9.00(0.23)	9.00(0.23)	9.00(0.23)
3.	Total cost (i-viii)	105.00(2.76)	112.00(2.93)	117.00(3.05)	110.00(2.88)
4.	Net price received by producer	4395.00	4388.00	4383.00	4390.00
5.	Sale price of producer to Village Merchant /Retailers	4605.00(100)	4612.00(100)	4617.00(100)	4610.00(100)
6.	Cost incurred by the Village Merchant/Retailers				
i	Loading & unloading charges	14.00(0.33)	15.00(0.36)	16.00(0.37)	14.78(0.35)
ii	Carriage up to shop	19.00(0.45)	22.00(0.52)	23.00(0.54)	20.89(0.49)
iii	Weighing charges	15.00(0.36)	15.00(0.36)	15.00(0.35)	15.00(0.36)
iv	Town charges	20.00(0.48)	20.00(0.48)	20.00(0.47)	20.00(0.48)
v	Transportation	22.00(0.53)	23.00(0.55)	25.00(0.59)	23.00(0.55)
vi	Losses & Miscellaneous charges	12.00(0.28)	12.00(0.28)	12.00(0.28)	12.00(0.28)
vii	Village Merchant/Retailers Margin	250.00(6.03)	260.00(6.24)	270.00(6.41)	257.78(6.18)
7.	Total cost (i-vii)	352.00(8.21)	367.00(8.26)	381.00(9.04)	363.44(8.41)
8.	Sale price of village Merchant/ Retailer	4945.00	4956	4998.00	4960.44
9.	Price spread	457.00	479.00	498.00	473.44
10.	Consumers paid price	4945.00	4956	4998.00	4960.44
11.	Producer share in Consumers Rupee (%)	88.87	88.53	87.69	88.49
12.	Marketing Efficiency	10.82	10.34	10.03	10.48

Note: *Figure in the parenthesis indicate percentage to the total consumer price.*

Table 3. Marketing Cost, Marketing Margin and Price Spread in different Size of Farms Group

(Value in Rupees/Qtl.)

S. No.	Particulars	Size of Farms Groups			Sample Average
		Small	Medium	Large	
1.	Producer sale price to Commission agent	4500.00	4500.00	4500.00	4500.00
2.	Cost incurred by the producer				
i	Packing cost	18.00(0.47)	18.00(0.47)	20.00(0.51)	18.44(0.48)
ii	Packing material cost	22.00(0.57)	24.00(0.62)	27.00(0.69)	23.78(0.61)
iii	Transportation cost	26.00(0.68)	30.00(0.78)	32.00(0.82)	28.67(0.74)
iv	Market fee	42.00(1.09)	38.00(0.98)	43.00(1.10)	40.89(1.06)
v	Loading and unloading charges	16.00(0.42)	18.00(0.47)	16.00(0.41)	16.67(0.43)
vi	Weighing charges	14.00(0.36)	16.00(0.41)	16.00(0.41)	15.11(0.38)
vii	Miscellaneous charges	12.00(0.31)	16.00(0.41)	16.00(0.41)	14.22(0.37)
3.	Total cost (i-viii)	150(3.90)	160(4.13)	170(4.38)	157.78(4.08)
4.	Net price received by producer	4395.00	4388.00	4383.00	4390.00
5.	Sale price of producer toCommission agent/ Wholesaler	4650	4660	4670	4656.78
6.	Cost incurred by theCommission agent/ Wholesaler				
i	Loading and unloading charges	16.00(0.37)	18.00(0.41)	16.00(0.36)	16.67(0.38)
ii	Grading	15.00(0.35)	16.00(0.37)	18.00(0.41)	16.00(0.37)
iii	Packing	15.00(0.35)	15.00(0.34)	16.00(0.36)	15.22(0.35)
iv	Market fee	20.00(0.46)	20.00(0.46)	22.00(0.50)	20.44(0.46)
v	Commission ofCommission agent/ Wholesaler	32.00(0.74)	33.00(0.75)	34.00(0.77)	32.78(0.75)
vi	Losses & Miscellaneous charges	12.00(0.28)	16.00(0.37)	16.00(0.36)	14.22(0.33)
vii	Commission agent/ Wholesaler Margin	390.00(8.98)	395.00(9.02)	400.00(9.09)	393.87(9.01)
7.	Total cost (i-vii)	500.00(11.51)	510.00(11.64)	520.00(11.82)	507.78(11.62)
8.	Sale price of /Commission agentwholesalers to Retailers	5150	5170	5190	5165.56
9.	Cost incurred by the Retailers				
i	Weighing charges	14.00(0.28)	15.00(0.30)	16.00(0.31)	14.78(0.29)
ii	Loading and unloading charges	19.00(0.38)	22.00(0.43)	23.00(0.45)	20.89(0.41)

iii	Town charges	15.00(0.30)	15.00(0.30)	15.00(0.29)	15.00(0.29)
iv	Carriage up to shop	20.00(0.40)	20.00(0.39)	20.00(0.39)	20.00(0.39)
v	Miscellaneous charges	22.00(0.44)	23.00(0.45)	25.00(0.49)	23.00(0.45)
vi	Retailers Margin	580.00(11.57)	590.00(11.65)	600.00(11.76)	587.78(11.63)
10.	Total cost (i-vi)	670.00(13.36)	685.00(13.52)	700.00(13.73)	681.67(13.50)
11.	Sale price of Retailers to consumers	5820(100)	5855(100)	5890(100)	5847.22(100)
12.	Price spread	1425.00	1467.00	1507.00	1457.22
13.	Consumers paid price	5820(100)	5855(100)	5890(100)	5848.22(100)
14.	Producer share in Consumers Rupee (%)	75.51	74.94	74.41	75.08
15.	Marketing Efficiency	4.08	3.99	3.90	4.01

Note: *Figure in the parenthesis indicates percentage to the total consumer price*

Table 4. Price spread, producer share in Consumers rupee and Marketing Efficiency under different marketing channels of groundnut

(Value in Rupees/ha)

S. No.	**Particular**	**Sample average**		
		Channel-I	**Channel-II**	**Channel-III**
1.	Total Marketing Cost	110.00(2.88)	215.66(5.11)	365.38(8.56)
2.	Total Marketing Margin	-	257.78(6.18)	635.00 (20.64)
3.	Price Spread	110.00(4.21)	473.44(10.27)	1457.22 (24.92)
4.	Producer share in Consumers Rupee (%)	97.55	88.45	75.08
5.	Marketing Efficiency	40.98	10.48	4.01

Note: *Figures in parentheses indicate percentage to total respondents*

Table 5. Marketing problems faced by the Farms Group

S. No.	Problems	Number of Respondents	
		Yes	No
1.	No implementation of support price in village sale	80 (88.80)	10(11.20)
2.	Forced sale due to lack of market intermediaries after long time of harvesting	82(91.10)	8(8.90)
3.	Not economical transportation due to small quantity of produce	50(55.50)	40(44.40)
4.	Less profit from the crop	43(47.70)	47(52.30)
5.	Lack of awareness about market information	43(47.70)	47(52.3)
6.	Low price realized by farmers	26(28.80)	64(71.20)

Note: *Figures in parentheses indicates percentage to total respondents.*

loading and unloading cost Rs. 10/qtl, market fee Rs. 28.33/qtl, packing material cost Rs. 18.56/qtl, weighing charges Rs. 8/qtl, and packing cost was Rs. 12.78/qtl, respectively. Price spread was highest on large size farms (Rs. 498.00/qtl) followed by medium size farms (Rs. 479.00 /qtl) and Rs. 457.00/qtl on small size of farm groups. Insert these markets the sample average of price spread was Rs. 473.44/qtl on different size of farms groups. Market efficiency in small, medium and large size of farm groups were 10.82 per cent, 10.34 per cent and 10.03 per cent respectively. Sample average for marketing efficiency in channel II was 10.48 per cent.

(iii) Channel – III: Producer → Commission Agents/ Wholesaler → Retailer → Consumer

Two intermediaries were identified through which Groundnut reaches to the consumer's i.e. commission agents/ wholesalers, Retailers (Table 3). This is the longest channel among three identified channels. The producer sells his produce to the commission agent/wholesalers, who in turn sell it to retailers in the market. Finally the produce reaches to consumers after collecting margin. Average marketing cost when producers sold their produce to commission agents/wholesalers in the market was Rs. 157.78 /qtl. Among these cost miscellaneous charges was most important which accounted for Rs. 14.22/qtl, followed by transportation Rs. 28.67/qtl, loading and unloading cost Rs. 16.67/qtl, market fee Rs.40.89/qtl, packing material cost Rs. 23.78/qtl, weighing charges Rs.15.11/qtl, and packing cost was Rs. 18.44/qtl, respectively. Sale price of the producer to commission agents/ retailers was Rs. 4500.00/qtl in different farms size group. The retailer's margin was 11.62 per cent of the consumer paid price. Price spread was highest in large size farms which constituted to Rs. 1507.00/qtl of consumer paid price. Market efficiency in small, medium and large size of farm groups was 4.08 per cent, 3.99 per cent and 3.90 per cent respectively. Sample average for marketing efficiency in channel III was 4.07 per cent in different size of farm groups.

Price spread, producer share in Consumers rupee and Marketing efficiency under different marketing channels of groundnut: Total marketing cost, marketing margin, price spread, producers share in consumer rupee and marketing efficiency in those marketing channels is presented in Table 4. The total marketing cost was higher in Channel III (Rs. 365.38) compared to Channel I and Channel II. And the total marketing margin and price spread was also seen higher in channel III Rs. (1457.22 and 635.00) because in the channel III there were two intermediates, where as in the channel I and channel II there in only one, and two intermediate. The producer share in consumer rupee was higher in channel I 97.55 per cent. The market efficiency was higher in channel I, 40.98 per cent.

Constraints in marketing of groundnuts: The major constraints in marketing of groundnut are presented in Table 5. Lack of implementation of support price policy? in the villages is the prime issue faced by groundnuts producers. Almost all farmers admitted that no intermediary is prepared to give the support price if produce is sold by farmers in the villages. When they were asked that why you do not sale your produce in the market? More than 55 per cent producers perceived that transportation of small quantity of produce may not an economical if they sell this small produce in the market. More than 91 per cent producers told that the presence of itinerant traders in the producing area is only for limited period after harvesting the crop. They told during the course of study if few of us want to store the produce, it will be difficult to sell it in future in the absence of these traders. About 48 per cent farmers feel that lack of awareness about the market information is also an issue.

4. SUGGESTIONS

1. The initiating of co-operative marketing is the answer to improve the bargaining power of groundnut producers in order to realize a good price of their produce.
2. A good number of high yielding varieties of this crop should be introduced in the state to increase the productivity and hence the production of crop in the state.
3. State has KVK almost in all districts of the state. A regular trend to train the producers may prove useful at these KVK in order to enrich the farmers about the technology like doses of fertilizer, insecticides and pesticides required for the crop.
4. The financial institutions should make easy and quick procedure to issue the desired crop loan to the producers by using their field staff (Agricultural officers) in order to make the procedure easy and

convenient to the farmers especially small farmers.

5. CONCLUSIONS

The study also indicated that there is huge scope to increase the producer's share in consumer's rupee by making the market more efficient so that the number of intermediaries is to be restricted and marketing costs and marketing margins to be reduced. This will be the way for making groundnut cultivation more lucrative. Major constraints were no implementation of support price in village sale, high cost of labour and less awareness about new technologies among different farms size group followed by a huge price fluctuation in groundnut.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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