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An Economic analysis of marketable surplus and marketed surplus of cereals and oilseeds in Azamgarh district of Eastern Uttar Pradesh India

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Abstract

The present study was carried out in the Azamgarh district of Eastern Uttar Pradesh to analyze marketed surplus and marketable surplus of cereals and oilseeds. The district Azamgarh was purposively selected for the study due to the convenience of the investigator. There are 22 development blocks in the district, one block namely, Pawai was selected randomly and from this block 100 respondents were chosen following the proportionate random sampling technique from 5 randomly selected villages. On the basis of holding size respondent were categorized as marginal (below-1ha), small (1-2ha.) and medium (2-4 ha.). Category wise 69 respondents from marginal, 22 from small and 9 farmers from medium holding size were included in study. The overall average size of farms came to 0.794 hectare. The average size of holding on marginal, small and medium farms, were found 0.272, 1.558 and 2.920 hectare, respectively. The cropping pattern revealed that highest area was covered under paddy and wheat followed by mustard. The cropping intensity was found highest on marginal farms followed by small and medium farms and it came to 269.86, 221.43 and 201.09 per cent, respectively. The cropping intensity decreased with increase in size of holdings of sample farms. On overall average per farm investment of sample farms was found Rs 330248.80. There were three marketing of channels i.e. Channel-I, Channel-II and Channel-III through which the farmers sold their produce. On an average per farm, total production, marketable surplus and marketed surplus of paddy were 2036.60, 1715.06 and 1715.06 quintal, total production marketable surplus and marketed surplus of wheat were 1812.01, 1253.00, and 1253.00, respectively whereas, total production, marketable surplus and marketed surplus of mustard were observed 261.60, 139.18, and 139.18.

Keywords: farm structure, cropping pattern, cropping intensity, marketed surplus, marketable surplus.

Introduction

Rice and wheat are main cereals crops, which are grown widely in the country. Rice-wheat farming systems cover about 80 per cent of the food requirement and about 60 per cent of the nutritional requirement of the Indian population. In India, West Bengal rank first in area of rice 60.01 lakh ha and production 14.85 million tonnes with productivity 26.00 qt/ha whereas Uttar Pradesh rank second with area 59.47 lakh ha and production 14.03 million tones and productivity 23.58 qt/ha (Economic survey, Govt. of India) 2016-17. Azamgarh district of Uttar Pradesh paddy occupies on area 2.07 lakh ha with production 4.07 lakh metric tonnes, and productivity was 19.66 qt ha⁻¹ (Arth Evam Sankhkiy Prabhag Azamgarh, 2015-16).

India accounts for about 14.46 per cent of world's oilseeds area and 6.97 per cent of world's oilseeds output (FAO Year Book, 2017). It has second and third rank in the world in the production of groundnut (8.2%) and rapeseed-mustard (13.7%). Total area under rapeseed-mustard Rabi crop in India for the year 2016-17 is 5.76 milion hectares as per the Government's estimates. Estimated total production of rapeseed-mustard Rabi crop in India for the year 2016-17 is 6.82 milion tonnes. Total area, production and productivity in U.P. were 5.93 lakh hectare, 6.02 lakh tones and 1015 Kg/ha, respectively (D.E.S., 2015-16). During the same period area, production and productivity of rapeseed-mustard in Azamgarh District was 1879 hectare, 1467 metric tonnes and 7.81 q/ha.

The seeds and oil are used as condiment in the preparation of pickles and for flavouring curries and vegetables, The oil is utilized for human consumption through-out northern India in cooking and frying purpose, It is also used in the preparation of hair oil and medicines, It is used in soap making, in mixtures with mineral oils for lubrication. Rapeseed oil is used in the manufacture of greases. The oil cake is used as a cattle feed and manure. Green stems and leaves are a good source of green fodder for cattle. The leaves of young plants are used as green vegetables as they supply enough sulphur and mineral in the diet. In the tanning

industry, mustard oil is used for softening leather.

The arrangements for marketing and the expansion of markets have to be made only for the surplus quantity available with the farmers, and not for total productions. The rate at which agricultural production expands determines the pace of agricultural development, while the growth in the marketable surplus determines the pace of economic developments. An increase the production must be accompanied by an increase in the marketable surplus for the economic development of the country. Though, the marketing system is more concerned with the surplus, which enters or is likely to enter the market, the quantum of total production is essential for this surplus, The knowledge of marketed and marketable surplus helps the policy maker as well as the traders. Some studies indicate that the marketed surplus-output elasticity of paddy and wheat in India is more than one. Estimation of marketable and marketed surplus in India where the production activity is carried out by millions of farmers is spatially.

Scattered throughout the length and breadth of the vast country, the estimates of the marketable/marketed surplus of food grains at national level is not easy which are consumed by the producing family also. Micro studies have been used to bring out the nature and extent of distress sale of food grains by small and marginal farmers. Studies on marketing margins and costs are important, for they reveal many facets of marketing and price structure as well as the efficiency of the system. Regular monitoring of market margins at regional levels is essential for the formulation as successful implementation of marketing and price policies. A study of marketing margins should include an estimation of the producer's share in consumer's rupee, the cost of marketing functions and the margins of intermediaries.

Research Methodology

In this present research work on marketed surplus, marketable surplus and its determinants of cereals and oilseeds in Azamgarh district of Eastern Uttar (India), we were used to study following objectives:

1. To study the farm structure, assets, cropping pattern and cropping intensity of cereals and oilseeds on different size of farms.
2. To study marketed surplus and marketable surplus and its determinants of cereals and oil seeds on different size of farms by below mentioned methodology:

Sampling Technique

The purposive-com random sampling design was used for the selection of district, block, villages and respondents. The district Azamgarh of eastern U.P. was selected purposively to avoid the operational inconvenience of the investigator. Out of twenty two blocks of selected district, one block purposively Pawai was selected purposively. A list of all the villages falling under selected block was prepared and arranged in ascending order according to area covered by Paddy, Wheat, and Mustard crop and five villages were selected randomly, i.e. Saraipul, Khairuddinpur, Ibrahimpur, Dhudhuri, and Bagbahar. A separate list of Paddy, Wheat and Mustard growers of selected villages were prepared along with their size of holding. Thus, the farm holding categorized into three size groups: marginal (Below-1 ha), small (1.0-2.0

ha) and medium: (2.0-4.0 ha). From this list a sample of 100 respondents were selected following the proportionate random sampling techniques. Primary data were collected through personal interview method on well pre-structured schedule specially designed for this study, while secondary data were collected from published/ unpublished record of district and blocks, headquarters, books, journals, periodicals, and news bulletins etc. among different Cereals and Oilseeds crops in Azamgarh district. The data pertained for the agriculture year 2017-2018.

Tabular Analysis

Tabular analysis was used to compare the different parameters among marginal, small and medium size group of the farmers. Family composition, investment pattern; crop-wise costs and returns etc. were computed and presented in tabular forms. In this computation weighted average was used.

$$\text{Weighted mean} = \frac{\sum W_i X_i}{\sum W_i} \quad \text{Where,}$$

W. A. = Weighted average

X_i = Variable

W_i = Weight of variable

Market for Disposal of Paddy, Wheat and Mustard Production

Most of the Agricultural produce food grain Paddy, Wheat and Mustard of the study area is disposed in the local market Shahganj and Pawai which is situated at 6-8 km distance from the sample villages. Few farmers having heavy marketable surplus also approach Azamgarh at district level market to dispose of their produce in whole sale market. Thus the data related with marketing of Paddy, Wheat, and Mustard was recorded from a sizable number of market functionaries functioning in both the market.

Marketable Surplus

The marketable and marketed surplus of Paddy, Wheat and mustard generated by different size groups of farms have been worked out as follow:

		MS = P-C
Where,		
MS	=	Marketable surplus
P	=	Total production of crop
C	=	Total requirement

Marketed surplus

The marketed surplus indicates the actual quantity of produce sold by the farmers in the markets has been worked out as follows:

$$MT = MS + PS + D - L$$

Where,

MT = Marketed surplus

MS = Marketable surplus actually sold

D = Distress sale

PS = Post stock sold out, if any

L = Losses during storage and transmit marketable surplus left for sale.

Result and Discussion

Table 1: Average holding size of sample farms under different size group of farms (ha.).

Sr. No.	Size groups of farms	No of framers	Total cultivated area (ha)	Average size of farms
1.	Marginal	69	18.76 (23.63)	0.272
2.	Small	22	34.29 (43.20)	1.558
3.	Medium	09	26.32 (33.16)	2.920
Grand Total		100	79.37 (100)	0.794

(Figure in parentheses indicate percentage of respective variable)

The average size of holding on marginal, small and medium sample farms was 0.272, 1.558, and 2.920 hectares, respectively. On an overall average size of land holding was found to be 0.794 hectare. It is clear from the table that 23.63 percent of cultivated land was hold by 69 percent of the

farmers whereas 43.20 and 33.16 percent of total cultivated area were owned by 22 and 9 percent of small and medium farmers. It shows the uneven distribution of cultivated land among the sample farmers.

Table 2: Cropping pattern under different size group of sample farm (ha.).

S. N.	Crop	Average size of sample farms			
		Marginal	Small	Medium	Overall Average
A.		Kharif			
1.	Paddy	0.174 (23.71)	0.887 (25.71)	1.934 (35.37)	0.334 (28.26)
2.	Maize	0.019 (2.589)	0.096 (2.78)	0.146 (2.67)	0.047 (2.82)
3.	Pigeon pea	0.009 (1.23)	0.160 (4.64)	0.215 (3.93)	0.061 (3.15)
4.	Green Fodder	0.032 (4.36)	0.053 (1.57)	0.057 (1.042)	0.039 (2.43)
5.	Black gram	0.023 (3.13)	0.035 (1.01)	0.116 (2.12)	0.034 (2.03)
6.	Green Gram	0.015 (2.04)	0.054 (1.57)	0.092 (1.68)	0.021 (1.84)
Total (A)		0.272 (37.06)	1.335 (38.70)	2.560 (46.81)	0.712 (41.64)
B.		Rabi			
1.	Wheat	0.154 (20.98)	0.806 (23.36)	2.047 (37.44)	0.406 (26.62)
2.	Mustard	0.091 (12.40)	0.480 (13.91)	0.510 (5.67)	0.187 (12.26)
3.	Potato	0.007 (0.95)	0.053 (1.54)	0.065 (1.189)	0.024 (1.51)
4.	Pea	0.013 (1.77)	0.046 (1.33)	0.067 (1.23)	0.023 (1.51)
5.	Barseem	0.005 (0.68)	0.013 (0.89)	0.016 (0.29)	0.007 (0.46)
Total (B)		0.263 (35.83)	1.398 (40.52)	2.705 (45.81)	0.639 (41.90)
C.		Zaid			
1.	Black gram	0.032 (4.36)	0.136 (3.94)	0.127 (2.32)	0.060 (3.93)
2.	Green gram	0.043 (5.86)	0.093 (2.70)	0.165 (3.02)	0.060 (3.93)
3.	Onion	0.033 (4.49)	0.039 (1.13)	0.054 (0.99)	0.035 (3.30)
4.	Vegetables	0.089 (12.13)	0.091 (2.38)	0.057 (1.04)	0.085 (5.57)
Total (C)		0.199 (27.11)	0.319 (9.25)	0.403 (7.37)	0.232 (15.421)
Grand Total (A+B+C)		0.734 (100)	3.450 (100)	5.668 (100)	1.525 (100)

(Figure in parentheses indicate the percentage to the total)

Cropping pattern presents the area devoted to the various crop during the given period, conventionally in a single year. It indicates the yearly sequence and arrangement of crops grown by farmer in a particular area. The cropping patterns followed by the sample farms are presented in table 2. It is depicted from the table 2 that on an average the highest area was covered under Paddy (28.26 per cent) followed by wheat (26.62 per cent) and Mustard (12.26 per cent) of total cropped area on the sample farms. It is clear from the table that Paddy and Wheat are the main crop raised by the sample farms followed by Mustard, other crops like Maize, Pigeon Pea and Pulses in kharif and Potato, Pea, Barseem in rabi season are allotted comparatively less area. In zaid season black grams, green gram and other vegetables have covered comparatively

less area. Than kharif and zaid i.e. 15.42 per cent of the gross cropped area. The gross cropped area on sample farms are found in direct proportion to the holding size of the sample farms. As it were 0.590, 2.702 and 5.520 hectares on marginal, small and medium farms, respectively. The gross cultivated area was higher in the kharif season and less in the zaid season on all farm situations. Marginal farmers devoting higher proportion of their area for cultivation of paddy (23.71 per cent) followed by small (25.71 per cent) and medium (35.37 per cent), wheat (20.98 per cent) followed by small (23.36 per cent) and medium (37.44 per cent), mustard (12.40 per cent) followed by small (13.91 per cent) and medium (5.67 per cent), respectively of their total cultivated area.

Table 3: Cropping intensity on different size group of sample farms.

S. No.	Size of farms	Net cultivated area (ha)	Gross cropped area (ha)	Cropping intensity (%)
1.	Marginal farms (below 1ha)	0.272	0.734	269.86
2.	Small farms (1-2 ha)	1.558	3.450	221.43
3.	Medium farms (2-4 ha)	2.720	5.468	201.09
Overall average		0.694	1.525	219.74

The details of cropping intensity are given in the table 3. Reflects the cropping intensity on different size group of farms was found highest on marginal farms (269.86 per cent)

followed by small (221.08 per cent) and medium (201.26 per cent), respectively. The overall average cropping intensity on sample farms was worked out to 219.74 percent. Cropping

intensity revealed the inverse relationship with size group of farms. Highest cropping intensity on marginal farms was

supported with the large no. of family labour attached with the little cultivated area.

Table 4: Per farm investment on different farm assets under different size group of sample farms (Rs.).

S. N.	Particulars	Size group of farms			Overall
		Marginal	Small	Medium	Average
1.	Farm Buildings	186047.60 (73.29)	298395.90 (69.84)	363001.90 (53.46)	226690.10 (68.64)
A.	Residential	178970.80 (70.51)	284299.50 (66.54)	352301.00 (51.90)	217742.80 (65.93)
(i)	Kaccha	12325.80 (4.86)	5767.25 (1.35)	4722.12 (0.70)	10198.59 (3.09)
(ii)	Pakka	166645.00 (65.65)	278532.20 (65.19)	347578.90 (51.20)	207544.20 (62.85)
B.	Cattle shed	4991.32 (1.97)	6906.72 (1.61)	6338.07 (0.94)	5533.91 (1.68)
(i)	Kaccha	2705.82 (1.07)	4418.44 (1.03)	1945.56 (0.29)	3014.17 (0.91)
(ii)	Pakka	2285.50 (0.90)	2488.28 (0.58)	4392.51 (0.65)	2519.74 (0.76)
2.	Godown	2085.45 (0.82)	7189.66 (1.68)	4362.88 (0.64)	3413.35 (1.04)
(i)	Kaccha	985.45 (0.39)	1025.11 (0.24)	544.11 (0.08)	954.46 (0.29)
(ii)	Pukka	1100.00 (0.43)	6164.55 (1.44)	3818.77 (0.57)	2458.89 (0.75)
3.	Live stock	42599.40 (16.78)	68724.46 (16.08)	59483.02 (8.76)	49866.44 (15.10)
(a)	Milch Animal	42599.40 (16.78)	68724.46 (16.08)	59483.02 (8.76)	49866.44 (15.10)
(i)	Cow	2950.00 (1.16)	11815.72 (2.76)	6785.59 (0.99)	5245.66 (1.58)
(ii)	Buffalo	27050.00 (10.65)	48535.12 (11.36)	45252.25 (6.66)	33414.93 (10.11)
(iii)	Goat	12599.40 (4.96)	8373.62 (1.95)	7445.18 (1.10)	11205.85 (3.39)
3.	Machinery and implements	25187.35 (9.92)	60143.06 (14.07)	256461.10 (37.77)	53692.25 (16.25)
I.	Minor implement	987.54 (0.39)	2218.92 (0.51)	4632.92 (0.68)	1586.52 (0.48)
II.	Major implement	24199.81 (9.53)	57924.14 (13.55)	251828.20 (37.09)	52105.72 (15.77)
	Total	253834.30 (100)	427263.40 (100)	678946.10 (100)	330248.80 (100)

Note- Figure in parentheses indicates the percentage to the total.

Table 4 presents the per farm asset structure on sample farms. It is evident from this table that major components of farm asset structure are farm building, implements & machinery and live-stocks which constituted 68.64 per cent, 16.25 per cent, 15.10 per cent of total asset value, respectively on the basis of overall average. Per farm value on building, implements & machinery and livestock came to Rs.226690.10, Rs. 53692.25 and Rs. 49866.44, respectively. On overall average per farm investment was found Rs.

330248.80 the highest investment was recorded on medium farm (Rs.678946.10) followed by small farm (Rs. 427263.40) and lowest on marginal farms (Rs 253834.93), respectively. The per farm investment on farm assets in variably showed the direct relationship with size of holding on sample farms expect medium size group of farms.

Disposal of Paddy, Wheat and Mustard

Table 5: Nature and extent of marketable and marketed surplus of Paddy on different size group of sample farms. (Qt.).

S. N.	Size group of sample farms	Total Production	Family consumption	Seed	Marketable surplus	Marketed surplus
1.	Marginal	522.26 (100)	187.89 (35.98)	12.08 (2.31)	322.29 (61.71)	322.29 (61.71)
2.	Small	805.92 (100)	78.02 (9.68)	10.24 (1.27)	717.66 (89.05)	717.66 (89.05)
3.	Medium	708.42 (100)	32.45 (4.58)	05.86 (0.83)	670.11 (85.70)	670.11 (85.70)
	Average	2036.60 (100)	298.36 (14.65)	23.18 (1.14)	1715.06 (84.21)	1715.06 (84.21)

(Figure in parentheses indicate the percentage to the total)

Nature and extend of marketable and marketed surplus of paddy is presented in Table 5. It is depicted from table that marketable and marketed surplus were of equal quantity in each size group of sample farms. It is also revealed from the table that 14.65 and 1.14 per cent of total production were retained for home consumption and 84.21 per cent was sold in

the market. Maximum share of total production i.e. 4.58 per cent was retained for home consumption by medium size farmers followed by marketing 35.98 and small 09.68 per cent, respectively. It is concluded that retention for home consumption was higher in medium size group of farms followed by marginal and small size of sample farms.

Table 6: Nature and extent of marketable and marketed surplus of Wheat on different size group of sample farms. (Qt.).

S. N.	Size group of sample farms	Total Production	Family consumption	Seed	Marketable surplus	Marketed surplus
1.	Marginal	498.01 (100)	277.09 (55.64)	28.08 (5.64)	192.84 (38.72)	192.84 (38.72)
2.	Small	715.52 (100)	163.02 (22.78)	17.19 (2.40)	535.31 (74.81)	535.31 (74.81)
3.	Medium	598.48 (100)	84.40 (14.10)	09.23 (1.54)	504.85 (84.36)	504.85 (84.36)
	Average	1812.01 (100)	504.51 (27.84)	54.50 (3.01)	1253.00 (69.15)	1253.00 (69.15)

(Figure in parentheses indicate the percentage to the total)

Nature and extend of marketable and marketed surplus of wheat is presented in Table 6. It is depicted from table that marketable and marketed surplus were of equal quantity in each size group of sample farms. It is also revealed from the table that 27.84 and 3.01 per cent of total production were retained for home consumption and 69.15 per cent was sold in

the market. Maximum share of total production i.e. 14.10 per cent was retained for home consumption by medium size farmers followed by marketing 55.64 and small 22.78 per cent, respectively. It is concluded that retention for home consumption was higher in medium size group of farms followed by marginal and small size of sample farm.

Table 7: Nature and extent of marketable and marketed surplus of Mustard on different size group of sample farms. (Qt.).

S. N.	Size group of sample farms	Total Production	Family consumption	Seed	Marketable surplus	Marketed surplus
1.	Marginal	89.20 (100)	58.53 (65.62)	0.93 (1.04)	29.74 (33.34)	29.74 (33.34)
2.	Small	103.93 (100)	32.71 (31.47)	0.69 (0.66)	70.53 (67.86)	70.53 (67.86)
3.	Medium	58.47 (100)	19.20 (32.84)	0.36 (0.62)	38.91 (66.55)	38.91 (66.55)
	Average	261.60 (100)	110.44 (44.22)	1.98 (0.76)	139.18 (53.20)	139.18 (53.20)

(Figure in parentheses indicate the percentage to the total)

Nature and extend of marketable and marketed surplus of mustard is presented in Table 7. It is depicted from table that marketable and marketed surplus were of equal quantity in each size group of sample farms. It is also revealed from the table that 44.22 and 0.76 per cent of total production were retained for home consumption and 53.20 per cent was sold in the market. Maximum share of total production i.e. 32.84 per cent was retained for home consumption by medium size farmers followed by marketing 39.17 and small 31.47 per cent, respectively.

It is concluded that retention for home consumption was higher in medium size group of farms followed by marginal and small size of sample farms.

Conclusion

The overall average size of farms came to 0.794 hectare. The average size of holding on marginal, small and medium farms, were found 0.272, 1.558 and 2.920 hectare, respectively. The cropping pattern revealed that highest area was covered under paddy and wheat followed by mustard. The cropping intensity was found highest on marginal farms followed by small and medium farms. On overall average per farm investment of sample farms was found Rs 330248.80. The major components of farm structure on sample farms were constituted by farm building, implements & machinery and livestock. It is concluded that investment on per farm was positively associated with size of farms. On an average per farm, total production, marketable surplus and marketed surplus of paddy were 2036.60, 1715.06 and 1715.06 quintal, total production marketable surplus and marketed surplus of wheat were 1812.01, 1253.00, and 1253.00, respectively whereas, total production, marketable surplus and marketed surplus of mustard were observed 261.60, 139.18, and 139.18.

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