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nomy is still not out of the woods as far as agricultural production is concerned, the form of mobilization has to be such as not to affect productive investment in agriculture adversely. A discriminatory input pricing scheme could meet the twin objectives of diverting savings away from conspicuous consumption and retaining the incentive to produce more by adopting scientific farming.

MEASUREMENT OF RURAL SURPLUSES AT THE MICRO LEVEL IN THE SUGAR FACTORY AREAS OF THE MAHARASHTRA STATE

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In order to attain balanced growth of the economy it is necessary that the surpluses accrued within different sectors of the economy are streamlined into the economic system and distributed equally within and outside the sectors. This needs proper identification and measurement of surpluses in different sectors at the micro level. In the rural areas there are several pockets practising commercial and large-scale farming where surpluses are large enough and can be mobilized for the growth of the economy. An attempt is made in this study to estimate the quantum of surpluses at the micro level in one of the agriculturally prosperous pockets of the Maharashtra State.

METHODOLOGY

In the present study it has been hypothesized that in the sugar factory areas of the Maharashtra State, the cultivators growing sugarcane crop have got surpluses and through the adoption of suitable measures these can be mobilized for productive purposes. In view of this, the study was undertaken in the area coming under the jurisdiction of the *Shetkari Sahakari Sakkar Karkhana* (Farmers' Co-operative Sugar Factory) Ltd., Sangli. The data for the study were obtained from member cultivators of the sugar factory through a sample survey. To limit the size of the sample, four villages, *viz.*, Ankalkhop, Manjarde, Padmale and Yelavi were selected at random from the operational area of the sugar factory. From each village a list of member cultivators was obtained and the member cultivators were grouped into three size-groups, *viz.*, small, medium and large on the basis of the size of holding. Based on this distribution, six member cultivators were selected randomly from individual size-groups for each of the villages. Thus a sample of 72 member cultivators was selected for the study. The data on various aspects of the pattern

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of income, expenditure, saving and investment and other related aspects of the member cultivators of the sugar factory were obtained for the agricultural year 1972-73.

RESULTS AND DISCUSSION

(*a*) *Structure of the Sample Farms*

Before attempting an analysis of the measurement of the surpluses with the sample member cultivators, the salient features of the structure of the sample are presented in Table I.

TABLE I—SIZE-GROUPWISE LAND USE PATTERN, CROP PATTERN AND VALUE OF CAPITAL ASSETS OF THE MEMBER CULTIVATORS

Particulars	Size-groups			
	Small (below 2 hectares)	Medium (2 to 4 hectares)	Large (above 4 hectares)	Overall
1. Size of holding (ha.)	1.17 (100.00)	2.93 (100.00)	8.37 (100.00)	4.16 (100.00)
2. Net sown area (ha.)	1.12 (95.22)	2.82 (96.24)	8.08 (96.51)	4.00 (96.32)
(*a*) Irrigated (ha.)	0.69 (58.99)	1.65 (56.43)	4.59 (54.78)	2.31 (55.56)
(*b*) Unirrigated (ha.)	0.43 (36.23)	1.17 (39.81)	3.49 (41.73)	1.69 (40.76)
3. Gross cropped area (ha.)	1.29 (100.00)	3.13 (100.00)	8.70 (100.00)	4.37 (100.00)
(*a*) Foodgrain crops (ha.)	0.64 (39.31)	1.47 (47.20)	3.91 (45.07)	2.01 (45.98)
(*b*) Sugarcane (ha.)	0.47 (36.27)	1.02 (32.75)	2.75 (31.77)	1.42 (32.40)
(*c*) Other commercial crops (ha.)	0.18 (24.42)	1.34 (20.05)	1.99 (22.55)	0.92 (21.21)
(*d*) Miscellaneous crops (ha.)	—	—	0.05 (0.61)	0.02 (0.41)
4. Value of capital assets excluding land				
(*a*) Per farm (Rs.)	3,475.63	9,449.62	30,104.36	14,343.21
(*b*) Per hectare (Rs.)	2,970.62	3,225.13	3,596.70	3,447.89
5. No. of persons in the family	7.71	7.71	8.62	8.03

Note : Figures in parentheses relating to net sown area indicate percentages to the size of holding while those relating to crops form percentages to the gross cropped area.

As seen from Table I the average size of holding was 4.16 hectares (ha.) at the overall level and it increased from 1.17 ha. to 8.37 ha. over the small to large size-groups. The net sown area formed 95.22 to 96.51 per cent of the total size of holding in all the size-groups and nearly 55 to 59 per cent

of the area received irrigation. Because of availability of irrigation facilities on the sample farms a major portion of land was put to use for cultivation of commercial crops like sugarcane, cotton, tobacco, groundnut, fruits and vegetables. Sugarcane alone accounted for over 32 per cent of the gross cropped area in the sample farms, whereas foodgrain crops and other miscellaneous crops together occupied only 46.39 per cent of the gross cropped area. The sample farms also owned sufficient capital assets of different forms for efficient management of the production activities.

(*b*) *Income of the Sample Farms*

In order to arrive at the annual income of the member cultivator, the income received from business and services, wages and other sources was added to the gross value of all the plant and livestock products produced on the farm. The borrowings of the member cultivator, either for productive or unproductive purposes, were also added to the gross income. The details of the annual income are given in Table II for all the size-groups.

TABLE II—PARTICULARS OF ANNUAL INCOME PER MEMBER CULTIVATOR

(*Rupees*)

Source of income	Size-group			Overall
	Small (below 2 ha.)	Medium (2 to 4 ha.)	Large (above 4 ha.)	
1. Gross value of crop production	9,316.54 (73.54)	22,287.92 (86.42)	55,380.94 (87.99)	28,961.76 (85.78)
2. Gross value of livestock production ..	1,099.79 (8.68)	1,300.00 (5.04)	1,933.33 (3.07)	1,444.37 (4.28)
3. Business and services	1,016.67 (8.03)	516.66 (2.00)	691.67 (1.10)	741.67 (2.20)
4. Wages	172.92 (1.36)	29.17 (0.11)	—	67.36 (0.20)
5. Other sources	351.87 (2.78	653.54 (2.54)	2,137.08 (3.40)	1,047.50 (3.10)
6. Borrowings	710.42 (5.61)	1 004.16 (3.89)	2,783.34 (4.42)	1,499.31 (4.44)
Total	12,668.11 (100.00)	25,791.45 (100.00)	62,926.36 (100.00)	33,761.97 (100.00)

N.B.: Figures in parentheses are percentages to the total.

Table II shows that the total income (inclusive of borrowings during the year) amounted to Rs. 12,668, Rs. 25,791 and Rs. 62,926 per member cultivator belonging to the small, medium and large size-groups respectively. At the overall level, the total income worked out to Rs. 33,762 per member cultivator. Among the different sources of income, the contribution made by the gross value of plant products was the highest, almost to the extent of

85.78 per cent at the overall level. The percentage shares of contributions made by other sources individually ranged between 0.20 per cent and 4.44 per cent. Within the size-groups the relative contributions of the gross value of plant products indicated an increasing trend; while those of livestock products, business and services and wages showed decreasing trend as the farm size increased. It is, however, true that the income had positive relation with the farm size and increased more than proportionately as the latter increased.

(c) Expenditure of the Sample Farms

The items like expenditure on crop production (cost of production of all crops at cost A level), expenditure on livestock production, family expenditure on various items and loan instalments paid during the year have been considered while estimating the total expenditure of the member cultivator. The details of expenditure are given in Table III.

TABLE III—PARTICULARS OF EXPENDITURE PER MEMBER CULTIVATOR

(Rupees)

Items of expenditure	Size-group			Overall
	Small (below 2 ha.)	Medium (2 to 4 ha.)	Large (above 4 ha.)	
1. Expenditure on crop production (*i.e.*, cost of production at cost A level)	2,912.79 (32.74)	7,896.95 (45.20)	22,115.44 (58.40)	10,975.06 (51.25)
2. Expenditure on livestock productio' ..	1,328.92 (14.94)	2,213.02 (12.67)	4,762.00 (12.57)	2,767.98 (12.93)
3. Family expenditure	4,170.73 (46.87)	5,702.71 (32.64)	7,831.12 (20.68)	5,901.52 (27.56)
4. Repayment of loans	485.42 (5.45)	1,658.33 (9.49)	3,162.50 (8.35)	1,768.75 (8.26)
Total	8,897.86 (100.00)	17,471.01 (100.00)	37,871.60 (100.00)	21,413.31 (100.00)

N.B.: Figures in parentheses are percentages to the total.

At the overall level, the total expenditure came to Rs. 21,413 per member cultivator. Of the total expenditure, 51.25 per cent was on crop production, 12.93 per cent on livestock production, 27.56per cent on family requirements and the remaining 8.26 per cent on repayment of loans. Over the size-groups, the expenditure on all the major items indicated positive relationship with the size of holding. However, their percentage shares in the total expenditure varied considerably over the size-groups. The share of family expenditure in the total expenditure was relatively more in the small size-groups. It is also observed that even though the size of family remained more or less the same, the family expenditure increased tremendously with

an increase in the farm size and gross income. The more than proportionate increase in the expenditure on crop production over the size-groups has had positive effect on the gross returns from crop production (which in turn indicated more than proportionate increase as the farm size increased).

(d) Measurement of Surpluses and Their Break-up

Here, surpluses have been estimated by subtracting the total expenditure from the total income of the member cultivators. The per member surpluses, thus estimated, are given in Table IV.

TABLE IV—TOTAL SURPLUSES PER MEMBER CULTIVATOR

(Rupees)

Size group	Total annual income	Total expenditure	Total surpluses	Surpluses as per cent of total annual income
1. Small (below 2 ha.)	12,668.11	8,897.86	3,770.25	29.76
2. Medium (2 to 4 ha.)	25,791.45	17,471.01	8,320.44	32.26
3. Large (above 4 ha.)	62,826.36	37,871.06	24,955.30	39.72
Overall	33,761.97	21,413.32	12,348.65	36.58

The quantum of surpluses per member cultivator increased from Rs. 3,770 to Rs. 24,955 over the size-groups, indicating thereby a close relationship between the surpluses and the holding size. At the overall level, these surpluses came to Rs. 12,349 per member cultivator. Further, it has been found that the share of surpluses in the total annual income increased from 29.76 per cent to 39.72 per cent over the size-groups. From this it is evident that the member cultivators belonging to the large size-group could receive high incomes and also they possessed relatively large surpluses as compared to the small cultivators. At the overall level, the total surpluses formed 36.58 per cent of the total annual income.

Table V presents the break-up of the surpluses into savings and deposits in different forms, investment in farm improvements and cash in hand.

TABLE V—BREAK-UP OF TOTAL SURPLUSES PER MEMBER CULTIVATOR

(Rupees)

Particulars	Size-group			Overall
	Small (below 2 ha.)	Medium (2 to 4 ha.)	Large (above 4 ha.)	
1. Savings and deposits in different forms..	1,427.29 (37.86)	3,606.67 (43.35)	11,662.74 (46.73)	5,565.56 (45.07)
2. Investment in farm improvements ..	862.49 (22.87)	1,322.92 (15.90)	3,687.50 (14.78)	1,957.65 (15.85)
3. Cash in hand	1,480.47 (39.27)	3,390.85 (40.75)	9,605.06 (38.49)	4,825.44 (39.88)
Total	3,770.25 (100.00)	8,320.44 (100.00)	24,955.30 (100.00)	12,348.65 (100.00)

N.B. · Figures in parentheses are percentages to the total surpluses.

At the overall level, out of the total surpluses of Rs. 12,349 per member cultivator, Rs. 5,566 (45.07 per cent) was saved in the form of deposits (bank, post office, small saving and compulsory deposits); shares (of village co-operative society, land development bank and private industry); purchase of ornaments and premiums of L.I.C. and private *Bhishi*. The investment in farm improvements was to the extent of 15.85 per cent (Rs. 1,958) of the total surpluses whereas hard cash in hand with the average member cultivator was Rs. 4,825 (39.88 per cent of the total surpluses).

Looking at the size-groupwise figures, it is seen that the member cultivators with large holdings held relatively more surpluses in the form of savings, deposits and hard cash.

(e) Relationship between Total Surpluses and Gross Income, Expenditure on Crop Production and Family Expenditure

Finally, surplus function has been derived by fitting regression equation to the data on total surpluses (S) and gross income (X_1), expenditure on crop production (X_2) and family expenditure (X_3), the X_i's being independent variables. The surplus function is worked out as under :

$$S = 1856 + \underset{(0.0774)}{0.2821\ X_1}^{**} + \underset{(0.1475)}{0.3856\ X_2}^{**} - \underset{(0.2092)}{0.5573\ X_3}^{**}$$

$n = 72$ $\qquad R^2 = 0.8496^{**}$

** Significant at 1 per cent level.

The highly significant and positive relationships between S and X_1, and S and X_2 indicated that the total surpluses could increase at increasing gross income as well as expenditure on crop production. In fact, the quantum of total surpluses gets reduced to the extent, as much as, the expenditure on crop production is increased. However, since the contribution made by the value of gross crop output is the major source of total income and as the value of gross crop output is dependent on the level of resource use (indicated by expenditure on crop production in the present study), the positive relationship between total surpluses and expenditure on crop production is accepted. The negative relationship between S and X_3 (family expenditure) indicated that the surpluses decrease with the increasing family expenditure.

CONCLUSIONS

From this study it can be concluded that in rural Maharashtra sugar factory areas in general, and member cultivators with large farm size in particular, could be considered as potentials for mobilization of rural surpluses. There is also a need for identifying similar potential areas where commercial crops occupy larger shares in the cropping pattern. Besides this, the adoption of suitable measures for mobilizing such surpluses will have to be resorted to in order to gear up the economic development process in our country.