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sugar industry. If efficiency in sugarcane cultivation is to be promoted and fostered over a long period of time the present system of regulation of cane price will need to be reformed. Mere adjustments in the sugarcane prices without taking into consideration the gur and wheat prices would not be meaningful because the latter two do exercise a potent influence on sugarcane acreage. Secondly, the risk arising out of price fluctuations and through infestation of pests and diseases need to be minimized. So, in a nutshell, the price and risk factors need to be taken care of through appropriate policy measures in order to provide the necessary incentives to the producers to maintain sugarcane acreage at desired levels.

JAGDISH LAL AND KATAR SINGH<sup>†</sup>

AN ECONOMIC EVALUATION OF LAND ALLOTMENT TO THE  
LANDLESS POOR IN AHMEDNAGAR DISTRICT OF  
WESTERN MAHARASHTRA : A CASE STUDY\*

The Government of Maharashtra passed the bill amending the earlier Ceiling Act of 1961 in 1972 to enact the legislation, *viz.*, "The Maharashtra Agricultural Lands (Lowering of Ceiling on Holdings) and (Amendment) Act, 1972" and subsequently brought it into force with effect from September 19, 1975 in the State. This legislation, lowering ceiling on holdings, was an important step in the sphere of land reforms to follow the ideal of socialistic pattern of society by way of removing inequalities in land distribution and providing land to the landless poor. It was decided by the State Government that the surplus land acquired under this legislation will be distributed among the weaker sections of the society on or before June 30, 1976. Since two years have passed after the allotment of land to the new allottees, it was thought appropriate and worthwhile at this stage to attempt a scientific assessment of cultivation of allotted land as well as to examine changes in employment and income pattern of the new allottees as a result of land allotment to them. With this view in mind, the present study was undertaken in Ahmednagar district of Western Maharashtra during the year 1978-79.

*Objectives*

Specifically, this paper seeks to study the cultivation pattern and farm business economy of the sample new allottees in the cultivation of allotted land as well as the changes in their household economy as a

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result of land allotment under the latest Ceiling Amendment in Ahmednagar district.

#### METHODOLOGY

Two blocks, *viz.*, Shrirampur and Karjat were purposively selected to represent the district of Ahmednagar. Four villages from each selected block, having maximum cases of new allottees were selected for the study. A sample of 40 new allottees for each block was drawn by simple randomisation under the proportional allocation method from each selected village. The total sample for the study thus consisted of 80 new allottees spread over the eight villages from two blocks.

The requisite data were obtained by interviewing the sample new allottees with the help of a specially designed schedule for two years, *i.e.*, 1975-76, a year before allotment of land and 1977-78, a year after allotment of land to them. The data were analysed with appropriate methods separately for the year 1975-76 and 1977-78. The farm business economy of the sample new allottees was studied by estimating cost of cultivation of crops grown by them as well as by working out the various measures of farm income with the help of standard cost concepts adopted in farm management studies.<sup>1</sup>

The impact of land allotment on the economy of new allottees was studied by examining the changes in their employment, income and expenditure pattern and the data in this respect for the years 1975-76 and 1977-78 were analysed by tabular method. For absolute comparison, the final figures of capital assets, income, expenditure and investment for the year 1977-78 were reduced to the 1975-76 price level with the help of consumer's price index for eliminating the price effect. The linear regression equation of the following type was fitted to the data of the year 1977-78 for knowing the important variables influencing the variation in total family income of the new allottees.

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3$$

where  $Y$  = total annual income from all sources per household in rupees,

$X_1$  = total annual employment per household in man-days,

$X_2$  = farm size in *gunthas*,

$X_3$  = cash expenditure on crop production and subsidiary occupation in rupees.

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1. Cost concepts : (a) *Cost A* covers the items of cost such as value of hired human labour, hired and owned bullock labour, seeds, manures, fertilizers, irrigation, crop protection expenditure, depreciation and hiring of implements and machinery, land revenue and other cesses, interest on working capital, (b) *Cost B* : Cost A plus rental value of owned land plus interest on fixed capital. (c) *Cost C* : Cost B plus imputed value of family labour.

## RESULTS

1. *Family Background of Sample New Allottees*

The average size of family was 5.45 persons, comprising 1.97 persons as dependents and 3.48 persons as earners. Of the total earners, the male and female workers were 1.81 and 1.67 respectively. As regards education, very few persons were educated up to primary education. The main occupation of these families was wage earning in agriculture and subsidiary employment. It was seen that the sample families belonged to the lowest socio-economic strata of the society since socially they are illiterate and lower caste people and economically, very poor due to lack of resources with them.

2. *Mode of Cultivation of the Allotted Land*

The important feature of land cultivation by the sample allottees was the completion of various agricultural operations on hire basis. The contribution of sample families for the cultivation of crops was observed in farm operations, *viz.*, weeding, watching, harvesting and preparing the produce for consumption. The average size of holding was 1.46 hectares. Of the total holding, 1.30 hectare (89 per cent) was cultivable area which included 1.15 hectare (79 per cent) of net sown area and 0.15 hectare (10 per cent) of current fallow. Per holding average double cropped area was 0.10 hectare making a gross cropped area of 1.25 hectare. The intensity of cropping for the year 1977-78 worked out to 108.70 per cent. The proportion of irrigated area in the total area was very meagre, *i.e.*, about two per cent while 98 per cent of the total area was dry. The soil type of the allotted land varied from medium to light, calling for considerable investment for land development.

*Rabi* jowar was the principal crop grown by the new allottees which was followed by *kharif* jowar and bajra. These three cereals together occupied 87.25 per cent of the gross cropped area. The proportion of area under pulses, *viz.*, *kulthi*, gram and *tur* was only 10.76 per cent of the gross cropped area. It was also noted that the sample allottees could not adopt new technology in land cultivation due to lack of resources, *viz.*, bullock power, farm implements, irrigation, technical know-how and credit for making improvements on their poor quality lands and procuring modern inputs.

3. *Farm Business Economy of the Sample New Allottees*

(a) *Cost of cultivation of major crops* :— Since the crops were grown under rainfed conditions, the sample families did not care to apply manure, fertilizer and plant protection inputs for the cultivation of crops. This has reflected in low productivity of crops, which can be seen from the costs and returns structure of the individual crops grown

by the sample new allottees. Table I presents the data in this regard for the year 1977-78.

TABLE I—PER HECTARE COST OF CULTIVATION AND RETURNS FROM THE MAJOR CROPS GROWN BY THE SAMPLE ALLOTTEES (1977-78)

Sr. No.	Crops	Per hectare cost of cultivation				Returns at		
		Cost A (Rs.)	Cost B (Rs.)	Cost C (Rs.)	Value of gross produce (Rs.)	Cost A (Rs.)	Cost B (Rs.)	Cost C (Rs.)
1.	Jowar (r)	273.09	361.12	403.58	347.06	73.97	-14.06	-56.52
2.	Jowar (k)	264.54	376.35	432.62	466.10	201.56	89.75	33.48
3.	Bajra	225.17	313.43	357.72	310.52	85.35	-2.91	-47.20
4.	Kulthi	173.49	254.77	298.94	287.95	114.46	33.18	-10.99

It is clear from Table I that the sample allottees incurred a per hectare loss of Rs. 56.52, Rs. 47.20 and Rs. 11.00 at Cost C in the case of jowar(r), bajra and *kulthi* respectively. Jowar(k) was the only exception which gave a net return of Rs. 33.48 per hectare. The per hectare average yield of these crops, *viz.*, jowar(r), jowar(k), bajra and *kulthi* was only 2.39, 3.03, 2.50 and 2.45 quintals, while the average per hectare productivity of these crops in the State in 1977-78 was 5.9, 9.9, 4.5 and 3.5 quintals respectively. This shows the low productivity of crops grown on the sample farms.

(b) *Costs, returns and measures of farm income in crop production* :—

Table II shows the data on these aspects. The important point which can be noted from the table is that the crop production activity undertaken by the sample allottees on their farms resulted in a loss since the farm net income (*i.e.*, returns at Cost C) was negative to the extent of Rs. 31.74 per hectare and Rs. 41.30 per farm.

TABLE II—PER HECTARE AND PER FARM COST OF PRODUCTION, GROSS RETURNS AND INCOME FROM CROP PRODUCTION ON SAMPLE FARMS (1977-78)

Sr. No.	Particulars	Per cropped hectare (Rs.)	Per farm (Rs.)
1.	Cost of production of crops		
	Cost A	256.79	334.18
	Cost B	347.91	452.76
	Cost C	392.39	510.64
2.	Value of gross produce	360.65	469.34
3.	Measures of income		
(a)	Farm business income (Returns at cost A)	103.86	135.16
(b)	Farm labour income (Returns at cost B)	12.74	16.58
(c)	Farm investment income (Farm business income — Family labour cost)	59.38	77.28
(d)	Farm net income (Returns at cost C)	-31.74	-41.30

However, the sample allottees could get returns over cost A, indicating that the crop production activity simply covered direct costs, *i.e.*, the cost of purchased inputs, tillage operations, etc., incurred by them.

(c) *Economics of livestock production* :— The cost and returns from livestock production of the sample households were studied for the year 1977-78. The average number of milch animals maintained by the sample farms was 1.55. The average total cost of livestock production came to Rs. 375.23 which included the working cost of Rs. 308.07 and fixed cost of Rs. 67.16. The average gross returns obtained by the sample farms from livestock were Rs. 494.44. The net returns over the working cost and total cost worked out to Rs. 191.37 and Rs. 124.21 respectively. The livestock production was thus profitable as compared to crop production on the sample farms. There exists a greater scope to develop livestock enterprise of such new allottees by providing cross-bred cows and technical know-how regarding animal management along with necessary financial aid in the rural areas. This will help to obtain the benefit of complementarity between crop and livestock production activities on the sample farms.

#### 4. *Effects of Land Allotment on the Economy of New Allottees*

An attempt is made here to study the trend of changes in employment and income pattern of sample allottees on account of land allotment to them by analysing the data of two years, *viz.*, 1975-76 and 1977-78. The data in respect of capital assets, income, expenditure and investment for the year 1977-78 have been deflated by 1.89 per cent to eliminate the price change. The results are briefly summarised below :

(a) *Capital assets* :— Table III presents the average value of capital assets possessed by the sample families for the years 1975-76 and 1977-78.

TABLE III—PER FAMILY VALUE OF CAPITAL ASSETS OF SAMPLE NEW ALLOTTEES  
FOR THE YEAR 1975-76 AND 1977-78

		(Rs.)		
Sr. No.	Particulars	1975-76	1977-78	Percentage increase (+) or decrease (—) over the past
1.	Land .. .. .	—	3,229.27 (64.93)	
2.	Buildings .. .. .	1,260.45 (80.12)	1,300.48 (26.15)	+ 3.13
3.	Livestock .. .. .	235.75 (14.98)	370.27 (7.44)	+57.06
4.	Iron implements, tools, etc... .. .	77.08 (4.90)	73.56 (1.48)	— 4.57
	<b>Total .. .. .</b>	<b>1,573.28 (100.00)</b>	<b>4,973.58 (100.00)</b>	<b>+216.13</b>

(Figures in brackets are the percentages to the total.)

A significant positive change in the value of capital assets of sample allottees is apparent since the total value of assets rose from Rs. 1,573.28 in 1975-76 to Rs. 4,973.58 in 1977-78, *i.e.*, by 216.13 per cent. This was mainly due to the contribution of the value of land allotted and also the increase to the value of livestock in 1977-78. The increase in the value of livestock was due to purchase of cows and goats by the sample families after allotment of land.

(b) *Employment and unemployment* :— The employment pattern and unemployment position of an average male and female worker of the sample families for the years 1975-76 and 1977-78 are given in Table IV.

TABLE IV—EMPLOYMENT PATTERN AND UNEMPLOYMENT POSITION PER FAMILY WORKER OF THE SAMPLE NEW ALLOTTEES FOR THE YEAR 1975-76 AND 1977-78

Sr. No.	Particulars	1975-76		1977-78	
		Male	Female	Male	Female
1.	Employment on own farm	—	—	4.74 (1.30)	7.60 (2.08)
2.	Employment on other's farm	178.09 (48.79)	189.67 (51.97)	178.82 (48.99)	194.06 (53.17)
3.	Own subsidiary employment	5.40 (1.48)	2.63 (0.72)	8.54 (2.34)	6.21 (1.70)
4.	Others subsidiary employment	15.85 (4.34)	—	20.26 (5.55)	—
5.	Total farm employment	199.34 (54.61)	192.30 (52.69)	212.36 (58.18)	207.87 (56.95)
6.	Own non-farm employment	10.43 (2.86)	2.89 (0.79)	10.31 (2.82)	2.89 (0.79)
7.	Others non-farm employment	30.05 (8.23)	14.67 (4.02)	29.21 (8.00)	14.40 (3.95)
8.	Total non-farm employment	40.48 (11.09)	17.56 (4.81)	39.52 (10.82)	17.29 (4.74)
9.	Gross employment (5+8)	239.82 (65.70)	209.86 (57.50)	251.88 (69.00)	225.17 (61.69)
10.	Period of unemployment	125.18 (34.30)	155.14 (42.50)	113.12 (31.00)	139.83 (38.31)
11.	Total days	365.00 (100.00)	365.00 (100.00)	365.00 (100.00)	365.00 (100.00)

(Figures in brackets are the percentages to the total.)

2. The consumer's price index for agricultural labourers in 1975-76 was 317 which rose to 323, *i.e.*, by 1.89 per cent in 1977-78. For source, see "Indian Economy", Basic Statistics, *Supplement to R.B.I. Bulletin*, October 1977.



On comparison of the position of employment for both the years, it was noted that the employment in the case of a male and female worker has increased by 12.06 days, *i.e.*, by 3.30 per cent and by 15.31 days, *i.e.*, by 4.19 per cent of the total annual days respectively in 1977-78. It appears that the increase in the employment of a male and female worker as a result of land allotment was marginal since the farm activities on the allotted land provided employment, on an average, for 4.74 days, *i.e.*, 1.30 per cent to the male worker and 7.60 days, *i.e.*, 2.08 per cent to the female worker in 1977-78. It was found that the employment on other's farm was the principal source of employment to the sample families even after the allotment of land to them.

(c) *Economic changes*:- It was observed that the income from wages was the prominent source of income to the sample allottees during both the years, *i.e.*, 1975-76 and 1977-78 (see Table V). The total family income showed an increase of 15.32 per cent in 1977-78, which can be attributed largely to the additional source of income through crop production on allotted land and a significant increase of 129.83 per cent in the income from livestock production in 1977-78.

TABLE V—CHANGES IN AVERAGE FAMILY INCOME, EXPENDITURE, SAVINGS AND INVESTMENT OF SAMPLE NEW ALLOTTEES DURING 1975-76 AND 1977-78

Sr. No.	Particulars	(R.)		Percentage increase (+) or decrease (—) over the past
		1975-76	1977-78	
1.	Farm business income			
	(a) Crop production .. .. .	—	132.61 (4.95)	—
	(b) Livestock production .. .. .	81.69 (3.51)	187.75 (7.00)	+129.83
2.	Wage earnings .. .. .	2,168.76 (93.27)	2,273.61 (84.79)	+ 4.83
3.	Business and services .. .. .	74.76 (3.22)	87.56 (3.26)	+ 17.12
4.	Gross family income .. .. .	2,325.21 (100.00)	2,681.53 (100.00)	+ 15.32
5.	Gross family expenditure .. .. .	2,233.01	2,495.44	+ 11.75
6.	Savings .. .. .	92.20	186.09	+101.83
7.	Capital investment .. .. .	114.08	194.14	+ 70.18

(Figures in brackets are the percentages to the respective totals.)

As a result of increase in income, the expenditure, savings and investment of the sample families showed positive change. The total family expenditure has increased by 11.75 per cent in 1977-78 over that in 1975-76 and was found to be within the income of sample families

during both the years. On detailed examination, it was noted that the proportion of family expenditure on various items of family consumption did not show much change. The increase in total expenditure was mainly due to a significant increase in the expenditure on food and clothing of the sample families during 1977-78.

On the whole, even though there are positive economic changes in income, expenditure, savings and investment of the sample new allottees after land allotment, it appears that the contribution of allotted land in the total annual income is marginal, *i.e.*, about 5 per cent in 1977-78. This leads us to say that there was no significant impact on the employment and income pattern of the sample new allottees as a result of land allotment to them under the latest Ceiling Amendment.

(d) *Family income function* :— An attempt was made to establish family income function of the sample new allottees by using multiple linear regression equation to the data on selected variables for the year 1977-78. The total annual income from all sources of the sample families was taken as the dependent variable with the selected three independent variables mentioned earlier. The following equation was obtained:

$$Y = 27.4812 + 3.5023X_1^* - 0.6856X_2^{NS} + 1.3401X_3^*$$

(0.1480)                      (1.0912)                      (0.1306)

$$N = 80$$

$$R^2 = 0.8888$$

$$R = 0.9428$$

$$F \text{ ratio} = 202.4844^*$$

NS = Non-significant.

\* = Significant at 1 per cent level.

(Figures in brackets are the standard errors of the elasticities.)

It appears that the relationship between Y and  $X^1$  and Y and  $X^3$  is highly significant and positive, indicating that the total family income of the sample new allottees can be increased by increasing the total employment and cash expenditure on crop and livestock production. This means that there is a need to increase employment opportunities to the sample households as well as to increase the use of crucial inputs, *viz.*, irrigation, fertilizers, farm power, feed, quality seed, etc., in their crop and livestock production for boosting annual family income and consequently improving their economic well-being.

The regression coefficient of  $X_2$ , *i.e.*, farm size is negative and non-significant, showing adverse effect on the income of the sample families due to an increase in their farm size. This means that unless an increase in the farm size is associated with an increased use of matching inputs, its contribution to the total annual income of the

sample allottees would remain almost nil. The coefficient of determination is 0.888, indicating that about 89 per cent of the total variation in the family income of the sample allottees in 1977-78 is jointly explained by the selected three independent variables, *viz.*, total annual employment per household, farm size, and cash expenditure on crop and livestock production.

#### CONCLUSIONS

The above discussion leads us to draw the following specific conclusions.

1. The land allotted to the sample new allottees was, by and large, dry and of poor quality having low potential for increasing agricultural production in the absence of irrigation and other modern inputs.

2. The crop production activity undertaken by the sample new allottees on their farms resulted in a loss. However, they could get the farm business income, indicating that crop production simply covered the direct costs of production of crops grown by them. The livestock production, even though on a small scale, was found to be profitable.

3. The land allotment to the sample new allottees under the Ceiling Amendment has no significant impact on their economy since the contribution of allotted land in increasing employment and income opportunities to the sample families was found to be marginal. Employment on other's farm was the major source of income even after land allotment to the sample allottees.

4. The family income function of the sample allottees indicated that the income can be increased by increasing total employment and cash expenditure on crop and livestock production. The relationship of farm size with their family income was found to be negative and non-significant.

5. There was a significant increase in the value of capital assets of the sample allottees due to land allotment in 1977-78. The sample allottees who were landless became landowners though marginal or small, due to the implementation of the latest Ceiling Amendment. This is an important achievement of the Ceiling Amendment which has been noted from the general feelings of the sample new allottees in the area under study.

On the basis of this study, it is suggested that the beneficiaries of the Ceiling Amendment may be provided with essential farm inputs, *viz.*, credit, fertilizers, irrigation and farm power, etc., at reasonably low cost for the first few years till they establish their farming on sound footing. The provision of such support facilities to the new allottees

would enable them to develop their agricultural entrepreneurship. The incentives to the new allottees for taking up subsidiary activities such as poultry, keeping few milch animals, rearing a small flock of goats or sheep, etc., will be helpful to generate additional source of employment and income for developing their economy.

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