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On statistical criteria, the whole relation and the coefficient with labour income appear relevant. Although no conclusive evidence could be deduced from the dummy variable, it appears that the assertion that subsidy would be catalytic in improving the home milk consumption habits among TMP households, apart from stimulating market delivery, may not gain support.

Such impression of FSS becomes intelligible when one scans the production framework of TMP households shown elsewhere. The bearing of labour income on home-produced milk consumption is not intriguing, if the opportunity cost of household time in the special context of Kerala is understood. A rise in the market wage rate will induce the household members to seek more hours of market work, restricting thereby the time spent for home production of milk with a large time input. In particular, since the time input for home-produced milk is greater than the time input for market-purchased milk, the price of the former will rise relative to the latter with an increase in market wage rate. That is why small farm operators in the State, now earning substantial amounts of income from off-farm sources, are contented with part-time farming. Further, the ease of entry into farming has been slowly reduced as private capital requirements at farm level have considerably increased.

#### CONCLUSIONS

Subsidising an unproven and, possibly, economically unsound production technology might prove less than promising. The weakness of FSS is its heavy dependence on land-labour base and hence, its fate in Kerala is doomed at the outset. The scheme should, therefore, be tailor-made to the specific needs and conditions of the region; otherwise, such well-meaning programmes are bound to be misfits, leading to misappropriation of public monies. The promoter agency can better strike at the milk marketing front instead, according cash premium to the milk producers who deliver persistent amount of milk to the local co-operative society. In any case, the prospects of the dairy sector in rural Kerala are rather bleak. One can hardly dissent with the national dairy policy in which Kerala was ignored in Operation Flood-II Programme.

#### IMPACT OF LOWER INTEREST RATE FINANCE ON ECONOMIC CONDITIONS OF RURAL WEAKER SECTION

Jagannathrao R. Pawar\* and Subhash R. Sutar

The benefits of giving finance from nationalised banks at subsidised rates of interest have been extended to small and marginal farmers, agricultural labourers and village artisans for productive purposes under the "Differential Interest Rates" scheme of priority lending approach for rural and agricultural

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development. The supply of finance at lower interest rates has enabled the beneficiaries to effect improvements in their productive activities and also adopt new activities leading to additional employment, production and income. The effectiveness of this strategy, however, needs to be studied in detail in order to understand its contribution towards rural and agricultural development.

The present paper tries to study empirically the impact of lower interest rates on the economic conditions of the rural weaker section comprising small and marginal farmers, agricultural labourers and village artisans in Western Maharashtra with a view to highlight the efficacy of this strategy.

#### METHODOLOGY

The study is based on information obtained for two agricultural years from a sample of 200 borrowers of State Bank of India in Ahmednagar district. They comprised 50 small farmers, 50 marginal farmers, 50 agricultural labourers and 50 village artisans. The impact of the subsidised finance on the economic conditions of these beneficiaries has been studied with reference to changes between two time periods, *i.e.*, before and after receiving finance in the costs and returns of production activities, employment generation and income and expenditure pattern in family budgets.

#### RESULTS AND DISCUSSION

##### *Extent of Finance Received by the Beneficiaries*

The distribution of beneficiaries of individual categories according to various purposes of loans is presented in Table I along with the total amount of loan advanced to them. The loans were advanced for cultivation of crops,

TABLE I—NUMBER OF BENEFICIARIES AND AMOUNT OF LOAN FOR VARIOUS PURPOSES

Purposes	Number of borrowers				Total	Total amount of loan (Rs.)
	Small farmers	Marginal farmers	Agricultural labourers	Village artisans		
1. Crop loan .. .. .	2	—	—	—	2	2,000
2. Irrigation works .. .. .	3	3	—	—	6	22,150
3. Land levelling .. .. .	2	—	—	—	2	7,500
4. Purchase of cows and buffaloes .. .. .	41	45	—	—	86	3,35,450
5. Purchase of sheep .. .. .	2	2	50	—	54	1,56,590
6. Working capital for business	—	—	—	50	50	1,01,000
Total .. .. .	50	50	50	50	200	
Total amount of loan (Rs.) ..	22,400 (35·85)	1,52,690 (24·44)	14,700 (23·53)	1,01,000 (16·18)		6,24,690 (100·00)
Amount of loan per borrower (Rs.) .. .. .	4,480·00	3,053·80	2,940·00	2,020·00		3,123·24

Figures in parentheses are percentages.

irrigation works, land levelling, purchase of livestock (cows, buffaloes and sheep) and working capital for improvement of traditional business of village artisans. Among all the categories of beneficiaries, small farmers were supplied with a proportionally larger amount of loan (35.85 per cent of the total). The loan advanced was Rs. 3,123.45 per beneficiary and the entire amount was utilized for the purposes for which it was borrowed.

*Changes in Land Use Pattern and Assets*

The use of finance has enabled the beneficiaries to effect various improvements, including changes in land use pattern and assets.

TABLE II—AVERAGE LAND USE PATTERN AND VALUE OF ASSETS OF THE BENEFICIARIES BEFORE AND AFTER RECEIVING FINANCE

Particulars	Before/ after	Small farmers	Marginal farmers	Agricul- tural labourers	Village artisans
1. Total land holding (ha.) .. ..	Before	1.53	0.74	—	0.36
	After	1.53	0.74	—	0.36
2. Net cropped area (ha.) .. ..	Before	1.42	0.67	—	0.30
	After	1.50	0.73	—	0.34
3. Gross cropped area (ha.) .. ..	Before	1.63	0.80	—	0.38
	After	1.87	0.90	—	0.42
4. Proportion of irrigated area (percentage) .. ..	Before	16.88	13.43	—	15.27
	After	24.32	26.48	—	19.60
5. Intensity of cropping (per cent) .. ..	Before	106.53	119.40	—	126.66
	After	124.70	123.28	—	123.53
6. Value of assets (Rs.) .. ..	Before	15,716	11,552	3,540	4,507
	After	20,122	14,935	6,583	5,322

From Table II it could be seen that, as a result of completion of land levelling and irrigation works, the gross cropped area as well as the proportion of area irrigated has increased on the farms of the small and marginal farmers. The intensity of cropping has increased by 4 to 20 per cent on these farms. The investments undertaken by the beneficiaries in creating assets and purchase of livestock have strengthened their capital base for different productive activities. The value of assets has increased by Rs. 816 to Rs. 4,406 per beneficiary during the period, the lowest and the highest being in the case of village artisans and small farmers respectively.

*Changes in Costs and Returns of Production Activities*

One can expect changes in the costs and returns of production activities of the beneficiaries in response to strengthening the production base and availability of working capital through subsidised finance. Table III gives information on operating costs, gross returns and net returns in respect of production activities of the beneficiaries at the two points of time.

TABLE III—PER BENEFICIARY OPERATING COST, GROSS RETURNS AND NET RETURNS  
IN RESPECT OF VARIOUS PRODUCTION ACTIVITIES BEFORE AND AFTER  
RECEIVING FINANCE

		(Rs.)				
Particulars	Before/ After	Small farmers	Marginal farmers	Agricul- tural labourers	Village artisans	
<b>I. Crop production activity</b>						
1. Operating cost ..	Before	5,131·64	2,775·90	—	369·89	
	After	5,276·80	2,307·03	—	472·39	
2. Gross returns ..	Before	8,465·39	3,837·95	—	721·88	
	After	9,025·23	4,412·83	—	1,048·60	
3. Net returns ..	Before	3,333·75	1,062·05	—	351·99	
	After	3,748·43	2,105·80	—	576·21	
<b>II. Livestock production activity</b>						
1. Operating cost ..	Before	1,245·93	1,492·52	753·10	432·94	
	After	2,804·30	2,635·58	1,633·28	632·64	
2. Gross returns ..	Before	1,715·93	1,802·22	1,070·32	654·20	
	After	4,467·71	4,096·03	3,348·58	951·75	
3. Net returns ..	Before	470·00	309·70	317·22	221·26	
	After	1,663·41	1,460·35	1,715·30	319·11	
<b>III. Traditional occupation</b>						
1. Operating cost ..	Before	—	—	—	4,238·13	
	After	—	—	—	5,251·85	
2. Gross returns ..	Before	—	—	—	5,958·58	
	After	—	—	—	7,104·66	
3. Net returns ..	Before	—	—	—	1,720·45	
	After	—	—	—	1,842·81	

It could be seen from the table that the operating costs as well as gross returns in respect of crop and livestock production activities and traditional occupation of village artisans have increased since obtaining bank finance. The increase in gross returns from these activities was, however, greater than that in operating costs. As a result, there has been an increase in net returns from these activities. The supply of bank finance has, thus, proved to be a means of increasing production and income of the beneficiaries.

#### *Changes in Employment Pattern*

The improvements in production activities resulting from the use of bank finance are expected to have generated additional employment opportunities to family work force of the beneficiaries. Table IV presents information on employment position of the average male and female workers of the families of bank beneficiaries at the two points of time.

It could be seen from the table that, as a result of improvements in the crop and livestock production activities and traditional occupation, there has been an increase in the period of employment of the male and female workers of the families of bank beneficiaries by 35 to 63 days per annum.

This increase in family labour employment could be attributed both to the use of bank finance as well as owned funds in the production activities. An attempt is, therefore, made to estimate multiple regression equations

TABLE IV—EMPLOYMENT POSITION OF THE AVERAGE MALE AND FEMALE WORKERS OF THE FAMILIES OF BENEFICIARIES BEFORE AND AFTER RECEIVING FINANCE

(days)

Beneficiary	Before/ After	Annual employment in			Total employ- ment
		Farm activities	Non-farm activities	Traditional occupation	
Average male worker					
1. Small farmers ..	Before	214.58	17.07	—	231.65
	After	261.74	13.46	—	275.20
2. Marginal farmers ..	Before	199.09	26.26	—	225.28
	After	246.49	15.44	—	261.93
3. Agricultural labourers ..	Before	200.00	10.97	—	210.97
	After	253.07	8.07	—	261.14
4. Village artisans ..	Before	66.83	—	163.22	230.05
	After	59.48	20.74	193.25	273.47
Average female worker					
1. Small farmers ..	Before	182.58	—	—	182.58
	After	243.32	—	—	243.32
2. Marginal farmers ..	Before	170.93	—	—	170.93
	After	229.04	—	—	229.04
3. Agricultural labourers ..	Before	189.37	—	—	189.37
	After	224.03	—	—	224.03
4. Village artisans ..	Before	80.69	—	147.94	228.63
	After	118.40	—	173.07	291.47

with change in employment ( $\Delta E$ ) as dependent variable and amount of loan borrowed (L) and change in the use of owned funds ( $\Delta F$ ) as independent variables. The estimated equations for the individual categories of beneficiaries are:

Small farmers:

$$\Delta E = 11.44 + 0.05^{**} L + 0.08^{**} \Delta F$$

(0.020)            (0.035)

$$N = 50, R^2 = 0.31, F \text{ ratio} = 10.66^{***}$$

Marginal farmers:

$$\Delta E = 45.98 + 0.09^{**} L + 0.052 \Delta F$$

(0.036)            (0.036)

$$N = 50, R^2 = 0.58, F \text{ ratio} = 36.25^{***}$$

Agricultural labourers:

$$\Delta E = -79.21 + 0.34^* L + 0.20^{**} \Delta F$$

(0.180)            (0.076)

$$N = 50, R^2 = 0.58, F \text{ ratio} = 36.25^{***}$$

Village artisans:

$$\Delta E = 49.36 + 0.06^{**} L + 0.28^* \Delta F$$

(0.035)            (0.018)

$$N = 50, R^2 = 0.70, F \text{ ratio} = 58.33^{***}$$

Figures in parentheses are standard errors.

\* Significant at 10 per cent.

\*\* Significant at 5 per cent.

\*\*\* Significant at 1 per cent.

The above results indicate that about 31 to 70 per cent of the variation in the change in employment is explained by the two independent variables jointly, the minimum and maximum contribution being in the case of small farmers and village artisans respectively. Since the regression coefficients of both the independent variables are positive and significant in almost all the cases, it could be concluded that the use of borrowed and additional owned funds has proved to be beneficial in generating additional employment to the workers of the respondent families.

#### *Changes in Income and Expenditure of the Families*

Information in respect of gross income and consumption expenditure is presented in Table V on per family and per capita basis for the two time periods.

TABLE V.—PER FAMILY AND PER CAPITA ANNUAL GROSS INCOME AND HOUSEHOLD CONSUMPTION EXPENDITURE OF THE BENEFICIARIES BEFORE AND AFTER RECEIVING FINANCE

(Rs.)

Beneficiary	Before/ After	Gross income		Consumption expenditure	
		Per family	Per capita	Per family	Per capita
1. Small farmers .. ..	Before	4,138.75	553.30	2,960.93	462.69
	After	5,728.02	885.32	3,796.04	507.22
2. Marginal farmers .. ..	Before	2,312.75	338.12	3,004.74	439.20
	After	3,996.15	658.34	3,393.06	496.20
3. Agricultural labourers ..	Before	2,042.17	438.23	2,031.76	342.22
	After	3,119.95	462.72	2,246.32	378.17
4. Village artisans .. ..	Before	2,935.86	488.12	2,203.74	309.52
	After	3,298.78	517.86	2,432.69	341.67

The per family gross incomes have increased by Rs. 1,089, Rs. 1,680, Rs. 1,078 and Rs. 363, whereas the per family household consumption expenditures have increased by Rs. 835, Rs. 398, Rs. 215 and Rs. 229 in the case of small farmers, marginal farmers, agricultural labourers and village artisans respectively during the period. The increase in per capita consumption expenditure was, however, not commensurate with the increase in per capita income in all the cases.

In recognition of the significant contribution made by bank finance in raising the income levels of the beneficiaries, an attempt is made to understand the functional relationship among the variables like change in family income ( $\Delta Y$ ), supply of loan ( $L$ ) and change in family employment pattern ( $\Delta E$ ) of the individual categories of bank beneficiaries by estimating regression equations.



The estimated equations are:

Small farmers:

$$\Delta Y = 178.37 + 0.37^* L + 1.08^* \Delta E$$

(0.210)      (0.639)

N = 50, R<sup>2</sup> = 0.55, F ratio = 30.00\*\*\*

Marginal farmers:

$$\Delta Y = -2394.88 + 1.0^{***} L + 0.30^* \Delta E$$

(0.300)      (0.180)

N = 50, R<sup>2</sup> = 0.48, F ratio = 21.82\*\*\*

Agricultural labourers:

$$\Delta Y = -487.56 + 0.43^{***} L + 0.17 \Delta E$$

(0.053)      (0.189)

N = 50, R<sup>2</sup> = 0.61, F ratio = 37.50\*\*\*

Village artisans:

$$\Delta Y = -228.22 + 0.29^* L + 4.83^{***} \Delta E$$

(0.157)      (1.692)

N = 50, R<sup>2</sup> = 0.54, F ratio = 27.00\*\*\*

Figures in parentheses are standard errors.

\* Significant at 10 per cent.

\*\* Significant at 5 per cent.

\*\*\* Significant at 1 per cent.

About 48 to 61 per cent of the variation in the change in family gross income has been explained by the two independent variables jointly. The positive and significant regression coefficients of supply of loan (as observed from the estimated equations) clearly indicate that the supply of lower interest rate finance has had positive effects on the incomes of the beneficiaries.

If we reconcile the results obtained from the family income functions with those of family employment functions, we can easily conclude that the supply of finance under the scheme has generated additional employment opportunities and income levels for the beneficiaries.

#### *Comparison of Additional Income with Annual Loan Instalment*

Lastly, an attempt is made to judge the efficacy of supplying lower interest rate finance to the various categories of rural weaker section by comparing additional net incomes of the beneficiaries with annual loan instalments. The results presented in Table VI clearly indicate that, excepting for village artisans, the additional net incomes derived by the various categories of beneficiaries exceeded the annual loan instalments. In the case of the village artisans, however, the amount of annual loan instalment was greater than the additional net income.

TABLE VI—DETAILS OF PER BENEFICIARY ADDITIONAL NET INCOME AND ANNUAL LOAN INSTALMENT  
(Rs.)

Particulars	Small farmers	Marginal farmers	Agricultural labourers	Village artisans
1. Differential in family income .. ..	1,589·27	1,683·40	1,077·78	362·92
2. Differential in family consumption expenditure .. ..	333·11	388·72	213·56	228·92
3. Additional net family income over consumption expenditure .. ..	1,256·09	1,294·68	864·22	134·02
4. Amount of annual loan instalment ..	819·00	741·00	820·00	720·00
5. Net saving after paying loan instalment ..	437·09	553·68	44·22	—585·98

The situation regarding village artisans might have resulted mainly because the scale of finance to them was relatively low, as a result of which it could have been difficult for them to effect adequate improvements in their respective occupations.

#### CONCLUSIONS

The supply of finance at lower interest rate has enabled the beneficiaries to improve upon their production activities and income levels. It has further served as a means of strengthening their capital base, generating additional employment and ameliorating economic conditions of the rural weaker section. The additional money income generated through the use of bank finance has been adequate for the payment of annual loan instalments in a majority of the cases.

We, therefore, recommend that the present strategy of supplying lower interest rate finance may be executed on a wider scale in order to generate additional employment and income to the weaker sections of the rural society.

### SUBSIDY VERSUS PRICE SUPPORT TO FERTILIZER INDUSTRY: A THEORETICAL FRAMEWORK

D. C. Sah\*

In developing countries the growth in fertilizer consumption could be enlarged by supply push<sup>1</sup> which in its turn influences the expansion of distribution system and efforts to generate sustained cultivators' demand. In a country like India, where every third kilogram of fertilizer used is imported,<sup>2</sup> how can such a supply push be used prudently is a question relevant to sustain an increasing level of fertilizer supply year after year.

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The author is grateful to Dr. Gunvant M. Desai for introducing him with this problem.

1. Gunvant M. Desai, "Commentary: The Fertiliser Question", *IFPRI Report*, Vol. 2, No. 3, September 1, 1980.

2. Projections of fertilizer consumption and estimates of fertilizer production clearly reveal that in absolute terms, the import requirement of nitrogenous fertilizers alone would be of the order of 1·1 to 1·4 million tonnes of nutrient during 1980s. See "Fertiliser Situation in India" (Supplement) *Fertiliser News*, Vol. 26, No. 12, December 1981, p. S. 29.