

ECONOMIC FEASIBILITY OF PUMPSET LOANS IN TRICHUR DISTRICT*

S. Rageena and V. Radhakrishnan

College of Horticulture, Vellanikkara 680 654, Kerala, India

Financing for minor irrigation is one of the important fields of activities of commercial banks, wherein medium term loans are provided for digging or deepening of wells and installation of pumpsets. Among these, the pumpset loans are given for a period of three years, to be repaid in half yearly instalments. The interest rate charged is 12½ per cent per annum. Irrigation being one of the crucial inputs of modern agriculture, a study was undertaken in Trichur district in Kerala in 1982, to evaluate the impact of pumpset loans on the socio-economic conditions of the beneficiaries. The present paper is an attempt to work out the economic feasibility and repayment capacity of the loans.

Materials and Methods

Data for the study were collected by microlevel investigation of 98 beneficiaries of bank finance for minor irrigation in Trichur district. The sample was chosen in two stages. In the first stage, five branches of Canara Bank, which is the lead bank of the district were selected. From these branches, lists of beneficiaries for minor irrigation for the period 1977—1979 were prepared and 98 beneficiaries were selected on the basis of probability proportionate to size.

Data were collected by personal interview using a pre-tested questionnaire. For facilitating comparison, the beneficiaries were classified into three groups on the basis of the size of operational holding which also happened to be the ownership holding. The groups were, 1) less than 0.4 ha 2) 0.4 to 1.0 ha and 3) more than 1.0 ha. There were 30 samples in the first group, 40 in the second group and 28 in the third group.

Results and Discussion

The average cost of a pumpset acquired under the assistance of Canara Bank in Trichur district, came to Rs. 2776.76, more than half of them being of 3 HP. Out of this, the loan component came to Rs. 2185.70 and Rs. 591.06 was given as subsidy. There was no case of overdues among the beneficiaries. Even though majority of the farmers were found to make prompt repayments, the application of the provisions of the Revenue Recovery Act was one main reason for the absence of any over-dues. Hence the economic feasibility and repayment capacity of the loans were worked out to see whether the loan on its own could generate enough incremental income.

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Economic feasibility was worked out by the formula suggested by Siddappa and Radhakrishnan (1977).

$$\Delta Y_f > Q + AC - S$$

where ΔY_f = increased gross farm income due to unit investment, Q = annual capital charge for the period of the loan, AC = annual increase in cultivation charges, and S = income from sale of water.

The calculations for the three size groups and for the sample as a whole are given in Table 1.

Table 1
Economic feasibility of pumpset loans (period of loan = three years)

Size group	ΔY_f	Q	AC	S	Q+AC--S	Economic feasibility
1	332.6	1150.3	293.8	85.6	1358.5	Not feasible
2	1096.8	1181.7	530.1	5.4	1717.2	Not feasible
3	1859.6	1432.5	1091.5	210.1	2313.9	Not feasible
Overall	1080.8	1243.8	693.4	88.4	1848.8	Not feasible

The results indicate that the loans did not satisfy the test of economic feasibility in any of the three size groups or for the sample as a whole. So the calculations were repeated taking the period of the loan as five years which was the maximum possible duration for a medium term loan. So Q was taken as annual capital charge for a period of five years and the results are presented in Table 2.

Table 2
Economic feasibility of pumpset loans (period of loan = five years)

Size group	ΔY_f	Q	AC	S	Q+AC-S	Economic feasibility
1	332.6	818.6	293.8	85.6	1026.8	Not feasible
2	1096.8	840.9	530.1	5.4	1365.6	Not feasible
3	1859.6	1019.4	1091.5	210.1	1900.8	Not feasible
Overall	1080.8	885.1	693.5	88.4	1490.2	Not feasible

Here again, the loans were not economically feasible in any size group or for the sample as a whole. The test was hence repeated taking Q as annual capital charge for a period of fifteen years, which was taken to be the serviceable life of the asset (Ohja & Michael, 1978). The results are shown in Table 3.

Table 3
Economic feasibility of pumpset loans (period of loan = fifteen years)

Size group	ΔYf	Q	AC	S	Q+AC-S	Economic feasibility
1	332.6	486.9	293.8	85.6	695.1	Not feasible
2	1096.9	500.1	530.1	5.4	1024.8	Feasible
3	1859.6	606.3	1091.5	210.1	1487.7	Feasible
Overall	1080.8	526.6	693.5	88.4	1131.7	Not feasible

The results indicated that even when the periods of the loans were extended to fifteen years, the loans did not satisfy the test of economic feasibility in the lowest size group as well as for the sample as a whole, even though it was economically feasible in the second and third size groups. This indicated that the investment on its own could not generate enough incremental income in respect of farmers with very small holdings.

It was found that borrowers in every size group had the benefit of subsidies. These details are given in Table 4.

Table 4
Loan and subsidy components of the facility acquired, Rs

Size group	Cost	Loan	Subsidy	% age of subsidy
1	2568.2	1993.8	574.4	22.4
2	2638.3	1962.8	675.5	25.6
3	3198.1	2709.8	488.3	15.3
Overall	2776.8	2185.7	591.1	21.3

Since subsidy resulted in lowering the actual cost investments, economic feasibility was reworked after adjusting the investment costs accordingly.

Taking Q as annual capital charge for a period of three years, the loans still were not feasible in any of the size groups or for the sample (Table 5).

Table 5
Impact of subsidy on feasibility of pumpset loans for a period of three years

Size group	ΔYf	Q	AC	S	Q+AC-S	Economic feasibility
1	332.6	892.6	293.8	85.6	1100.8	Not feasible
2	1096.9	879.1	530.1	5.4	1403.8	Not feasible
3	1859.6	1213.7	1091.5	210.1	2095.1	Not feasible
Overall	1080.8	979.0	693.5	88.4	1584.1	Not feasible

The results obtained when period of the loan was extended to five years also showed the loans to be feasible only in the third size group. The details are presented in Table 6.

Table 6
Impact of subsidy on feasibility of pumpset loans (period of loan = five years)

Size group	ΔYf	Q	AC	S	Q+AC-S	Economic feasibility
1	332.6	635.6	293.8	85.6	843.8	Not feasible
2	1096.9	625.7	530.1	5.4	1150.4	Not feasible
3	1859.6	863.8	1091.5	210.1	1745.2	Feasible
Overall	1080.8	696.7	693.5	88.4	1301.8	Not feasible

The results indicated that the incremental income in the case of farmers in the lowest size groups was so low that even subsidy could not make the loans feasible. There was vast difference in incremental income between the different size groups of farmers mainly due to difference in net cropped area, net irrigated area and cropping intensity, as is revealed by Table 7.

Table 7
Net cropped area, net irrigated area and cropping intensity of beneficiaries

Size group	Net cropped area (ha)	Net irrigated area (ha)	Cropping intensity
1	9.1	8.7	131.4
2	31.1	22.2	124.4
3	40.2	37.6	147.0
Overall	27.2	22.6	134.9

Repayment capacity was worked out by the formula:

$$R = Y - (c + I) \text{ and } R > Q'$$

Where R = repayment capacity, Y = family income, c = household expenditure, I = liabilities and Q' = annual capital charge for the period of the loan (three years). The calculations are shown in Table 8.

Table 8
Repayment capacity of pumpset loans (period three years)

Size group	Y	c	I	$R = Y - (c + I)$	Q'	Repayment capacity (Yes/No)
1	12076.0	7586.3	0	4989.7	1177.1	Yes
2	17439.4	11297.4	539.0	5603.0	1209.2	Yes
3	28283.2	12624.3	258.9	15500.0	1465.7	Yes
Overall	17922.3	10540.4	303.2	7078.6	1272.7	Yes

The results indicated that the loans stood the test of repayment capacity in all the size groups and for the sample as a whole. This was because apart from farm income, the families in all size groups had other sources of income the details of which are given in Table 9.

Table 9
Family income of beneficiaries, Rs

Source	Size group			Overall
	1	2	3	
Farming	4366.0 (36.2)	9952.7 (57.1)	19345.4 (68.4)	10926.1 (57.9)
Service	4586.3 (37.9)	4315.5 (24.7)	6111.4 (21.6)	4912.1 (26.0)
Trade	286.7 (2.4)	1735.0 (9.9)	1375.0 (4.9)	1188.8 (6.3)
Profession	—	225.0 (1.3)	—	91.8 (0.5)
Labour	133.3 (1.1)	150.0 (0.9)	—	120.0 (0.6)
Other sources	2756.7 (22.4)	1061.3 (6.1)	1444.6 (5.1)	1647.5 (8.7)
Total	12076.0 (100)	17439.9 (100)	28276.5 (100)	18886.3 (100)

Figures in parentheses are percentages to total

As can be seen from the table major chunk of the family income was derived from sources other than farming. This was especially true in the case of the lowest size group, wherein only 36.2 per cent of the family income came from farming. This, again might be one of the reasons why incremental income was very low in their case.

Proper assessment of the loan proposals with regard to the incremental income expected to be generated, and monitoring to ensure proper utilization of not only the loan, but also the facility acquired with the loan can go a long way in making the loans financially sound and economically feasible.

Summary

A study on economic feasibility and repayment capacity of pumpset loans was done using the data generated through microlevel investigation of 98 beneficiaries of the scheme in Trichur district. Analysis revealed that even though

the loans passed the test of repayment capacity in all the size groups, they failed to satisfy the criterion of economic feasibility in the lowest size group, even when the period of the loans was extended to fifteen years. This showed that overdues was not a problem, not because of the income generation capacity of the loans, but because the farmers had enough family income with which they repaid the loans.

References

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- Siddappa, M. and Radhakrishnan, V. 1977. Analysis of economic feasibility and repayment capacity of farm investments. *Bull. Indian institute of Management, Bangalore*, pp. 30-35