



Original Research

An Economic Analysis of Mini Dairy Scheme Impact in Y. S. R. Kadapa District of Andhra Pradesh, India

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Abstract

This paper addresses the economic analysis of Mini dairy scheme which was implemented by the Government of Andhra Pradesh to improve the economic and nutritional status of farmers in rural area. A total of 100 respondents were selected randomly of Y.S.R. Kadapa district. Out of which 50 were beneficiaries and 50 were non- beneficiaries who were selected for comparative assessment of cost and returns, calorie intake and factors influencing the per capita income. A structured interview schedule was designed to elicit required information from the sample farmers. The total costs of the Mini dairy scheme were Rs.75, 363 12,636 for beneficiaries and Rs.81, 983 18,885 for non- beneficiaries. For two animals unit, the total returns, net returns, gross margin and returns per rupee of expenditure were found to be Rs. 2,17,302 , Rs. 1,41,939, Rs. 1,47,225 and Rs. 2.88 for beneficiaries and for non-beneficiaries, they were of the order of Rs. 1,43,891, Rs.30,776, Rs. 70,948 and Rs. 1.75 respectively. The beneficiaries received better nutrition in respect of quantity as well as calorie intake. The factors influencing per capita income of sample respondents with the help of multiple regression analysis for Mini Dairy stood at 0.32 and 0.37 revealing that the variables included in the function influenced variation in the per capita income to an extent of 32% and 37%, respectively for beneficiaries and non-beneficiaries.

Key words: Economic Analysis, Mini Dairy Scheme, Per Capita Income, Returns

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Introduction

With the advent of industrialization and globalization, agriculture, livestock rearing and its allied activities have become more commercial and is bracing for a crucial place in the economic development of our country. Rural poverty is mostly concentrated among the landless and the marginal households comprising about 70 percent of rural population. Dairy farming is an important component of small farmers' livelihood to meet their needs of milk, food security and daily cash incomes. It provides a good opportunity for self-employment of unemployed youth. It is also an important source of income generation to small/marginal farmers and agricultural laborers. Because of this the Government of Andhra Pradesh implemented Mini dairy scheme in Kadapa district.

Materials and Methods

The study was conducted in Y.S.R. Kadapa district of Andhra Pradesh as the district comes under scarce rainfall zone where most of the livestock farmers thrive on animal husbandry activities. In this study, the list of 50 beneficiaries under each programme were prepared from the agencies and 50 non beneficiaries for each programme were also selected randomly throughout the district. The data pertaining to cost and returns, calorie intake and factors influencing the per capita income of beneficiaries and non-beneficiaries were collected through personal interview using pre tested interview schedule. Secondary data pertaining to the study were collected from various published reports and also from district animal husbandry department. The data were collected during the year 2016- 17 for the units grounded from 2012 – 13 onwards. In this scheme Government supplied (2 Murrah buffaloes unit) on 50 % subsidy basis to the targeted families along with inputs like feed, healthcare and insurance coverage to animals enrolled on subsidy. Thus the collected data were tabulated and analyzed using different statistical tools like tabular analysis, linear regression model.

Results and Discussion

The Cost Structure of Mini Dairy Scheme for Beneficiaries and Non-Beneficiaries

Cost structure of Mini Dairy scheme beneficiaries and non-beneficiaries is presented in Table 1. The total costs comprised two components viz. variable costs and fixed costs. Variable costs include family labour, concentrate feed cost, green fodder cost, dry fodder cost, veterinary aid and interest on working capital. The fixed costs included were interest on investment, depreciation on animal shed. The mean total costs of the Mini dairy enterprise were Rs. 75,363 for beneficiaries and Rs. 81,983 for non- beneficiaries. The mean total variable costs were Rs. 70,077 and Rs. 73,643 for the corresponding groups of the respondents. Of the total costs of the enterprise, family labour wages and cost of concentrate feed were the major items occupying 35.07% and 34.75%, respectively.

Table 1: Cost structure of Mini dairy scheme (Rs)

S. No.	Particulars	Beneficiaries		Non -Beneficiaries	
	Variable Costs	Per unit	%	Per unit	%
1	Notional family Labour	27491	36.48	28720	35.03
2	Concentrate feed cost	26428	35.07	28486	34.75
3	Green fodder cost	2794	3.71	2880	3.51
4	Dry fodder cost	9382	12.45	9496	11.58
5	Veterinary expenditure	1600	2.12	1700	2.07
	a. Government contribution	1000	1.32	0	0
	b. Beneficiaries contribution	600	0.79	1700	2.07
6	Interest on working capital	2382	3.16	2361	2.88
	Total variable costs	70077	92.99	73643	89.82
	Fixed Costs	Per unit	%	Per unit	%
1	Interest on investment	4760	6.31	7760	9.47
2	Depreciation	526	0.69	580	0.71
	Total fixed costs	5286	7.01	8340	10.18
	Total costs (T.V.C+T.F.C)	75363	100	81983	100

The trend was almost similar in respect of non- beneficiaries also. Dry fodder was the next item of total costs on which Rs. 9,382 (12.45 %) and Rs. 9,496 (11.58 %) was incurred by the beneficiaries and non-beneficiaries respectively. Other costs were green fodder and veterinary expenditure for both the groups of the respondents. In respect of beneficiaries, the Government contributed Rs. 1000 towards veterinary expenditure. Fixed costs were interest on investment and depreciation. The percentage of fixed costs in the costs structure of Mini dairy scheme was 7.01 in respect of beneficiaries and 10.18 in the case of non-beneficiaries.

Total cost per a unit of two animals for beneficiaries of Mini dairy scheme was Rs. 75,363 against Rs. 81,983 for non-beneficiaries. The major items of expenditure was feed cost followed by human labour in respect of both beneficiaries and non-beneficiaries. The expenditure percentage on human labour and feed was higher non-beneficiaries farms over beneficiaries' farms. One additional advantage the beneficiaries received was the government subsidy towards health care which was not there in respect of the non-beneficiaries. These findings were in conformity with Ghulam *et al.* (2009) who, while analyzing of the cost structure in dairy reported that cost for buying fodders (green and dry) accounted for 28-39 per cent of the total cost across different farm categories being the second largest cost component in the total costs. It was found that the cost was lower (28%) on small farms as compared to medium farms (35%) and large farms (39%). It was found that labour cost accounted for about 59-71 percent of the total cost across different farm categories. Labour cost was higher on small farms (71%) as compared to medium (64%) and large farms (59%). Though the non-beneficiaries incurred more expenditure that wasn't translated into the returns as beneficiaries received substantially higher income over the non-beneficiaries. Higher returns coupled with lesser expenditure enabled them to receive a higher net income compared to non-beneficiaries.

Gross margin too was higher on the farms of beneficiaries. Returns per rupee of expenditure were Rs.2.88 in the case of beneficiaries against Rs. 1.75 received by the non-beneficiaries which evidently showed that the beneficiaries are relatively more efficient in marshalling their services efficiently. The present findings were in agreement with the findings of Metzger (2004) who further observed that over the 11-year period the high-profit herd group achieved an annual total cost of Rs. 21,298.97 as compared to the average of Rs.24, 641.48 for the total herd group. The average net return favoured the high-profit group as they exceeded the overall average by Rs. 6,220.31 per cow to finish the 11-year period with an annual profit of Rs.9, 823.85 per cow. When calculated over the 11 years, this amounts to an additional revenue of Rs.68, 423.42 of profit per cow. The cost of production per cow including the cost of inventory change was calculated to be Rs.4, 784.95 and Rs.3, 756.29, respectively for the average-and the high-profit groups. The annual operator labor charge was very similar for both groups, being calculated at and Rs 3,052 .47 per cow or at Rs.568.47 and Rs Rs.538.18 per cow of production.

Returns from Mini Dairy Scheme

The dairy animals of beneficiaries were found to be more productive as the returns from milk was to a tune of Rs. 1,89,000 compared to Rs.1,20,160 in respect of non – beneficiaries. This made the difference into net returns obtained by the beneficiaries as well as non-beneficiaries. Beneficiaries were found to receive a gross margin of Rs.1, 47,225 as against Rs. 70,948 by the non-beneficiaries. Returns per rupee of expenditure too was high with Rs. 2.88 against Rs. 1.75 by the non – beneficiaries. The returns indicate that the Mini dairy scheme of government of Andhra Pradesh helped the beneficiaries to fare better in comparison to the non – beneficiaries. Similar findings were observed by Mukesh *et al.* (2012) in their study on impact of micro financing on milk production in Jharkhand which revealed that investment made on beneficiary households (Rs. 14,398.88) was almost double to that of non-beneficiary households (Rs. 7,506.20). The gross income from dairy enterprise on beneficiary farms (Rs. 14,372) was higher than that of non-beneficiary farms (Rs. 10,032.72). The present findings were in agreement with Dunn, (2000).

Table 2: Returns from Mini dairy scheme (Rs)

S. No.	Particulars	Beneficiaries		Non –Beneficiaries	
		Per unit	%	Per unit	%
1	Appreciation on the value of animals	8530	3.93	8209	5.71
2	Returns from sale of milk	189000	86.98	120160	83.51
3	Returns from sale of farm yard manure	8500	3.91	7684	5.34
4	Calf value	11272	5.18	7838	5.44
5	Total returns	217302	100	143891	100
6	Net returns	141939		30776	
7	Gross margin	147225		70948	
8	Returns per rupee of expenditure	2.88		1.75	

Nutritional Security of Sample Respondents of Mini Dairy Scheme

The pattern of consumption of the food items by the beneficiaries was higher when compared to non-beneficiaries (Table 3).

Table 3: Nutritional security of sample respondents of Mini dairy scheme

Name of the Scheme	Nutritional security (kg/year)		Calorie Intake (k.cal/day)				Nutritional Security (Rs /year)	
	Beneficiaries	Non – Beneficiaries	Beneficiaries	%	Non – Beneficiaries	%	Beneficiaries	Non – Beneficiaries
Mini Dairy								
Cereals	196	122	699	27.89	476	26.21	4600	3080
Pulses	14	7	280	11.17	239	13.16	840	420
Oil	6	3	180	7.18	146	8.03	480	240
Livestock Products								
Milk	62	44	504	20.11	359	19.76	2480	1760
Meat	11	6.9	218	8.69	119	6.55	2200	1380
Eggs (No.)	95	72	120	4.78	109	6	380	288
Fish	1.46	0.6	190	7.58	102	5.61	150	90
Vegetables	37	22	215	8.57	179	9.85	1110	660
Fruits	7	4	100	3.99	87	4.79	385	220
Total			2506	100	1816	100	12625	8138

Because of higher net income among beneficiaries the consumption of cereals were highest 196 kg / annum followed by pulses 14 kg/ annum, edible oil 6 kg / annum, milk 62.0 kg/ annum, meat 11 kg / annum, eggs 95.0 no/ annum and others. These findings are somewhat different from the reports of National Council of Applied Economic Research New Delhi (2014) which indicates that cereals 73 kg/ annum, pulses 8 kg/ annum, milk 50 kg/ annum, meat 1.5 kg/ annum, 21 eggs / annum were consumed by the Indians. Calorie intake of Mini dairy schemes of beneficiaries revealed that they found to receive 2,506 k.cal / day which was higher than the ICMR recommendations of 2400 k.ca / day. These results deviated from the reports of India today (2011) and NSSO (2016) reports which indicate that the rural calorie consumption per day has fallen from 2,221 kcal in 1983 to 2047 kcal in 2004-05, a decline of 8 per cent. They were also supported by National Sample Survey Office's (NSSO) (2016) reports that as per 2011- 2012 data on nutritional intake, per capita calorie consumption rose to 2099 kcal per day in rural areas. On the other hand non-beneficiaries were found to receive 1816 kcal /day which was lower than the recommendations of ICMR.

Factors Influencing Per Capita Income of Sample Respondents

For the beneficiaries the coefficient of multiple determination (R²) estimated through the analysis stood at 0.32 revealing that the variables included in the function influenced variation in the per capita income to an extent of 32 % (Table 4).

Table 4: Factors influencing per capita income of sample respondents of Mini dairy scheme

Explanatory Variables		Beneficiaries			Non Beneficiaries		
		Regression coefficients	Standard errors	't' value	Regression coefficients	Standard errors	't' value
S. No.	Intercept	20133.49	19854.94	2.788	5981.16	3904.91	2.831
1	Agriculture	67.56	99.94	0.67	124.19	326.74	0.38
2	Livestock farming	8.21	9.52	0.86	14.5	18.5	0.18
3	Farm labour	11.53 *	9.65	1.88	107.85 *	105.92	1.93
4	Non- farm occupation	28.42	110.07	0.25	59	301.07	0.19
5	Age of the head of the family	0.31	5.84	0.054	5.96 *	4.01	1.95
6	Gender of the head of the family	3.75 *	1.9	1.85	191.97 *	190.01	1.96
7	Literacy	78.38	97.72	0.8	64.4	287.16	0.22
8	Primary education	95.29	112.25	0.84	212.99	337.08	0.63
9	Secondary education	100.90 *	98.95	1.95	25.89	391.22	0.066
10	Family size	65.19 *	42.87	1.52	161.63 *	159.82	1.81
11	Land holding in acres	60.43 *	58.62	1.81	198.29 *	117.86	1.88
12	Value of assets	0.0035	0.014	0.24	0.011	0.014	0.74
13	Employment (man days)	81.13 **	32.37	2.5	13.61	12.22	1.11
$R^2 = 0.32 *$					$R^2 = 0.37 **$		

Those factors which were positive and significant in influencing per capita income generated were farm labour, gender of the head of the family, secondary education, family size, land holding and employment. Others were found to be non-significant in their influence on income generation. For non-beneficiary respondents, the results of the analysis showed that the coefficient of multiple determination (R^2) influenced 37 % of the variation in the income generation of the non-beneficiaries. Farm labour, age of the head of the family, gender of the head of the family, family size and land holding positively and significantly impacted the income generation. Other factors were not significant in their influence on income generation. The present results match with the findings of Mali *et al.* (2014) who concluded from their study that the dairy farmers (37.50%) fell under high economic motivation category, followed by medium (33.33%) economic motivation category, whereas, half of the non-dairy farmers fell under high economic motivation category, followed by medium (29.16%) and low (20.83%) economic motivation category. The reason for high economic motivation of dairy farmers might be due to their sound economic position, larger land holding and possession of crossbred cows. To provide good employment and income generation activities for dairy farmers, it is better to establish small scale industries to prepare the milk products like, ghee, curd, butter, cheese, khova etc.

Conclusion

Dairy farming is a major source of livelihood in rural areas. Dairying has been considered as one of the activity in economic and nutritional development of rural people through income generation via milk and



manure etc. Because of these advantages the A.P. government implemented this scheme and it showed marked difference between the beneficiaries and non- beneficiaries in terms of improvement in calorie intake and returns.

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