

AN ASSESSMENT OF THE IMPACT OF AGRICULTURAL PRODUCERS' COOPERATIVE MARKETING SOCIETIES ON INCREASE OF FARM PRODUCTION / PRODUCTIVITY AMONG MEMBERS – EMPIRICAL EVIDENCES FROM NAMAKKAL DISTRICT, TAMILNADU

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Abstract

The study was undertaken with the objective of assessing the impact of Agricultural Producers' Cooperative Marketing Societies (APCMSs) on the farm production / productivity among member beneficiaries in Namakkal District. It is an empirical analysis. Field survey method was adopted. The study units, villages and respondents were selected by employing appropriate sampling procedures. The tools such as Structured Interview Schedules, Focus Group Discussions and the Personal Interview techniques were used to elicit data. The study employed purposive sampling procedure for the selection of a region / district in the State as the geographical area. Namakkal district wherein there are three APCMSs, whose performances are exemplary, is selected purposively to launch the study. By adopting Probability Proportional to Size Sampling Technique, 400 sample respondents were drawn. Descriptive statistical tools and ANOVA were used for data analysis and interpretation. Further, Linear Multiple Regression analysis was employed to assess the impact of APCMSs on the farm production / productivity among members. The result of the study shows that increase in farm income coupled with better exposure to mass media result to farm productivity increase. The independent variables such as occupation, income, assets and services mix index variables have significant positive effect on the perception towards farm production increase.

Key words: *Agricultural Cooperative Marketing Society, Impact, Occupation, Farm production / Productivity, Perception.*

Introduction

Agricultural marketing includes all those activities, arrangements and preparations which help the farmers in the disposal of the farm products. In fact, the process of marketing is more difficult than that of production (Hajela, 1994). The cooperatives control the expense of marketing of agricultural produces in a manner that both the farmers and the ultimate purchasers feel to be satisfactory (FAO, 1957). Under the prevalent system of agricultural marketing, an individual producer can hardly stand to the exploitative measures of intermediaries. Thus promotion of cooperative marketing deserves high priority not merely because cooperative marketing is desirable as such, but also because it is an essential pre-requisite for the large-scale expansion of cooperative credit. Cooperative marketing, an efficiently organized concept, helps to reduce the price variation between the producer and the consumer and thereby ensure a fair return to the farmer producers (Singh, 2000) without adversely affecting the legitimate interest of consumers. They function as a bridge between producers and consumers and bestowing remunerative price and better services in turn help to generate myriad employment opportunities and improve the living standard of members.

Need of the Study

Marketing societies have been creating, maintaining and enhancing the economic development among the community. They seek to raise agricultural output, create employment and eradicate poverty by providing market accessibility to farm producers, securing reasonable and remunerative prices, supplying adequate inputs like seeds, fertilizers, pesticides, agricultural implements at reasonable prices, implementing effective linking of credit with marketing, distributing consumer articles at reasonable prices through fair price shops, etc. They help to promote the growth and development even in the most remote rural areas. The Agricultural Producers' Cooperative Marketing Societies (APCMSs) stress their emphasis on business retention by enhancing and strengthening the volume of their business in input supply and output marketing. They also undertake business expansion activities such as processing and distribution of consumer goods (under both Village Shop Program and

Public Distribution System). “Marketing Cooperatives continue to play an important role in employment promotion and poverty alleviation, both as production enterprises – mainly of the self-employed – and as providers of services to members” (ILO, 1999). Further, they focus their attention on encouraging the growth of all new businesses in the region. Thus, it is evident that APMCSs promote economic development in the region in general and among the farmers in particular. In this perspective, the study threw light on assessing the impact brought out by the Agricultural Producers’ Cooperative Marketing Societies in increasing the farm production / productivity of farmer members.

Objective of the Study

The main objective of the study is to assess the impact of Agricultural Producers’ Cooperative Marketing Societies on increase of farm production / productivity among member beneficiaries in Namakkal District.

Research Methodology, Sampling and Tools Use

The study is an empirical analysis. Field survey method was adopted. The study units, the villages and the respondents were selected by employing appropriate sampling procedures. The tools such as Structured Interview Schedules (SIS), Focus Group Discussions (FGD), and the Personal Interview techniques were used to elicit data for the study.

Selection of the Geographical Area for the Study

The study employed purposive sampling procedure for the selection of a region / district in the State as the geographical area for the study. Out of 31 districts in the Tamilnadu State, Namakkal district wherein there are three APCMSs whose performances are exemplary, is selected purposively to launch the study. By adopting Probability Proportional to Size Sampling Technique ($n_i = P_i \times n/N$, where n_i = each cooperative sample size, P_i = Number of members of each cooperatives, n = total sample size in this case 400 (2.2%) and N = total population (membership with more than 10 years duration), the sample respondents were drawn from each cooperative society as follows.

Table 1: Proportional Allocation of Sample Size

Name of the societies	Number of members (P_i)	Sample Size ($n_i = P_i \times n/N$)
Tiruchengodu Cooperative Marketing Societies (TCMS)	9, 000	200
Namakkal Cooperative Marketing Societies (NCMS)	5, 400	120
Rasipuram Cooperative Marketing Societies (RCMS)	3, 600	80
Total (N)	18, 000	n= 400

Method of data analysis

Descriptive statistical tools such as simple percentages, averages and ANOVA were used for data analysis and interpretation. Further Linear Multiple Regression analysis was employed to assess the impact of APCMSs on increase of farm production / productivity among members.

Results and Discussion

One of the objectives of offering a bundle of services by marketing cooperatives is to increase productivity. As productivity increase cannot be affected through single line services mix, marketing cooperatives have adopted the strategy of multiline services mix. It is well known that marketing cooperatives have contributed to productivity increase among members. (Vyas and Chaudhary, 1971, Singh and Chatterji, 1989, Vekaria 1989, Bora 1994, Patel 1997 and Bhople, 1998). To assess the contribution of marketing cooperatives to productivity increase, an analysis is made here and the major findings of the impact of agricultural producers’ cooperative marketing societies on farm production / productivity increase pertaining to farmers’ perception and effect on farm production / productivity of all the selected respondents (overall) and among small, medium and big farmers are summarised in this section.

The responses regarding perception towards productivity increase were measured with the help of six point rating scale. For the purposes of statistical analysis, total score on productivity increase has been arrived at and high score of an individual denotes high perception on productivity increase. The results of survey statements and statistical analysis are presented in table 2.

Table – 2, Members' Perception towards Productivity Increase

Farmers category	Small Farmers (N=180)			Medium Farmers (N=120)			Big Farmers (N=100)		
	A	DA	NADA	A	DA	NADA	A	DA	NADA
Items									
Farm productivity increase is due to:									
supply of improved seeds and manures	170 (94.44)	07 (03.89)	03 (01.68)	112 (93.33)	06 (05.00)	02 (01.67)	96 (93.33)	03 (03.00)	01 (01.00)
Provision of appropriate technology on on-farm cultivation	157 (87.22)	17 (09.44)	06 (03.33)	106 (88.33)	08 (06.67)	06 (05.00)	90 (90.00)	08 (08.00)	02 (02.00)
Provision of facilities for post-harvest farming operations	172 (95.55)	07 (03.89)	01 (00.56)	110 (91.67)	09 (07.50)	01 (00.83)	93 (93.00)	05 (05.00)	02 (02.00)
provision of marketing services	146 (81.11)	28 (15.56)	06 (03.33)	105 (87.50)	13 (10.83)	02 (01.67)	97 (97.00)	02 (02.00)	01 (01.00)
Reduction in production variable cost	155 (86.11)	19 (10.56)	06 (03.33)	112 (93.33)	07 (05.83)	01 (00.83)	95 (95.00)	03 (03.00)	02 (02.00)
Change in cropping pattern encouraged by CMSs	139 (77.22)	36 (20.00)	05 (02.78)	114 (95.00)	06 (05.00)	00 (00.00)	98 (98.00)	01 (01.00)	01 (01.00)
Value addition on agricultural products	172 (95.55)	07 (03.89)	01 (00.56)	110 (91.67)	07 (05.83)	03 (02.50)	92 (92.00)	04 (04.00)	02 (02.00)
Diversification of farming operations	148 (82.22)	28 (15.56)	04 (02.22)	109 (90.83)	06 (05.00)	05 (04.17)	90 (90.00)	03 (03.00)	07 (07.00)
Storage / warehousing facility	142 (78.89)	34 (18.89)	04 (02.22)	110 (91.67)	07 (05.83)	03 (02.50)	96 (93.33)	03 (03.00)	01 (01.00)
Marketing finance provided	152 (84.44)	25 (13.88)	03 (01.68)	120 (100)	00 (00.00)	00 (00.00)	100 (100)	00 (00.00)	00 (00.00)

Source: Computed from survey data during 2011-12, Figures in brackets are percentages to the respective column total, Legend: A-Agree; DA-Disagree; NAND-Neither agree nor disagree.

Regards to members' perception towards productivity increase, the survey shows that the majority of farmers have agreed about farm productivity increase owing to the bundle of services such as supply of improved seeds and manures, provision of on-farm technology, post-harvest technology, modern marketing services, reduction in production variable cost, value addition, diversification of farm operations, and marketing finance by cooperative marketing societies. However, a less percentage of small farmers (20.0% and 18.89%) did not agree about the cooperative marketing societies' contribution for cropping pattern change and value addition through storage and warehousing facilities

During FGD, farmers said;

"The intervention of TCMS in the form of advisory service on change in cropping pattern enabled us to take up bold decision on cropping pattern..... change in cropping pattern from food crops to commercial crops due to the influence of marketing cooperatives, which ultimately resulted in production / productivity increase.

(FGD - Farmers group from Thiruchengodu Agricultural Producers Cooperative Marketing Society)

Table – 3, Farmers' Perception Level on Productivity Increase

Farmers category Level	No. of. respondents			Total
	Small	Medium	Big	
10 -23 (low level)	01 (0.60)	0 (--)	0 (--)	01 (0.25)
24-36(moderate)	14 (07.80)	02 (01.70)	02 (02.00)	18 (4.50)
37-50(high)	165 (91.70)	118 (98.30)	98 (98.00)	381 (95.25)
Total	180(100)	120(100)	100 (100)	400 (100)

Source: Computed from survey data during 2011-12

Figures in brackets are percentages to the respective column total

The survey reveals that majority of farmers (more than 90%) do have high perception towards productivity increase. However, the result of ANOVA reveals that there is a significant variance between farmers' categories and their perception towards productivity increase (Table 3). (The 'f' value between groups is 13.882 which is significant at 0.01 level).

Results of Linear Multiple Regression Analysis – Effect on Productivity increase (overall)

To understand the effect of independent variables on the dependent variable namely effect of productivity increase among farmers, Linear Multiple Regression model was employed. Twelve independent variables were statistically related to productivity increase as dependent variable.

Table – 4: Effect on Productivity Increase (Overall)

Independent variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Demographic Indicator Variables					
Gender	.352	.298	.025	1.182	.238
Education	-.108	.091	-.025	-1.182	.238
Family Size	.511	.164	.067	3.114	.002
Economic Indicator Variables					
Landholding	-.094	.064	-.031	-1.460	.145
Annual Farm Income	.885	.021	.091	42.857	.000
Assets	.531	.197	.058	2.698	.007
Occupation	.514	.156	.070	3.284	.001
Borrowings	-.060	.107	-.012	-.558	.577
Social Indicator Variables					
Exposure to mass media	.642	.176	.076	3.643	.000
Cooperation Indicator Variables					
Knowledge about Coop.Mgmt	-.100	.150	-.014	-.668	.505
Participation in Coop.Mgmt	.113	.214	.011	.528	.598
Services mix index	.412	.243	.049	1.693	.092
Constant	4.381	1.395		3.141	.002
R²	.859				
N	400				

Source: Computed from survey data during 2011-12

As shown in table 4, the model is significant and the R² value is 85 per cent i.e., the effect of independent variables on the dependent variable has been explained at 85 per cent significance level. The results show that demographic variables such as gender and education and the variables under economic indicators namely size of landholding possessed and the extent of borrowings including the cooperative characteristics variables namely

knowledge about cooperative management and participation in cooperative management did not have effect whereas the economic indicator variables such as annual farm income level, assets owned and nature of adoption of agriculture as occupation and cooperation indicator variable namely the extent of services availed from marketing cooperatives (Service mix index) have effected significantly for high realization of the economic benefits of the marketing cooperatives enabling for productivity increase among farmers.

However, among these significant variables, the annual farm income level and exposure to mass media were found to be the prominent variables effecting significantly to a greater extent for high realization of the economic contributions of the marketing cooperatives enabling for productivity increase i.e., the standardized coefficient value is 0.091 and .076 respectively, which is greater than the other variables.

Thus it may be stated that increase in annual farm income coupled with better exposure to mass media results to productivity increase among farmers. This is true that farmers with better exposure to mass media could have understood the technologies to be adopted to increase the farm productivity. Further increase in annual farm income will also contribute farmers to adopt on farm technologies to augment productivity.

Results of Linear Multiple Regression Analysis – Effect on Productivity increase among Small Farmers

To have a further probe on the effect of demographic, social and economic indicators in general and the Cooperation indicators in particular on the perception of productivity increase by marketing cooperatives among small farmer respondents, LMR analysis was carried out.

Table – 5: Effect on Productivity Increase among Small Farmers

Independent variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Demographic Indicator Variables					
Gender	.623	.412	.041	1.509	.133
Education	-.034	.123	-.008	-.275	.784
Family Size	.518	.237	.060	2.187	.030
Economic Indicator Variables					
Landholding	-.212	.119	-.049	-1.775	.078
Annual Farm Income	.914	.026	.944	34.701	.000
Assets	.854	.298	.080	2.870	.005
Occupation	1.079	.286	.114	3.774	.000
Borrowings	-.042	.137	-.008	-.305	.761
Social Indicator Variables					
Exposure to mass media	-.655	.305	-.060	-2.146	.033
Cooperation Indicator Variables					
Knowledge about Coop.Mgmt	-.368	.227	-.044	-1.625	.106
Participation in Coop.Mgmt	.410	.315	.036	1.303	.194
Services mix index	.686	.338	.061	2.304	.003
Constant	.874	2.286		.382	.703
R²	.886				
N	180				

Source: Computed from survey data during 2011-12.

As shown in table 5, the model is significant and the R² value is 88 per cent i.e., the effect on the dependent variable has been explained at 88 per cent level. The results show that demographic variables such as gender and education, and the variable under economic indicators namely extent of borrowings including the cooperative

characteristic variables namely knowledge about cooperative management and participation in cooperative management did not have effect whereas demographic variable namely family size, the economic indicator variables such as size of landholding possessed, annual farm income level, assets possessed and agriculture as prime occupation and cooperation indicator variable namely the extent of services availed from marketing cooperatives (Service mix index) have effected significantly for high realization of the economic benefits of the marketing cooperatives enabling for productivity increase among small farmers.

However, among these significant variables, the annual farm income level, agriculture as prime occupation and extent of services availed from marketing cooperatives were found to be the prominent variables effecting significantly to a greater extent for high realization of the economic contributions of the marketing cooperatives enabling for productivity increase i.e., the standardized coefficient value is 0.944, 0.114 and 0.061 respectively which are greater than the other variables.

Thus it may be stated that increase in annual farm income through agriculture coupled with extent of services availed from marketing cooperatives results to productivity increase among small farmers. This is true that small farmers can remain on farming only when farm income is appreciable and form significant proportion to annual family income. Further agriculture as prime occupation and utilization of one or more core services of marketing cooperatives by small farmers would have ultimately resulted in realization of economic contributions of marketing cooperatives in terms of productivity increase.

Results of Linear Multiple Regression Analysis – Effect on Productivity increase among Medium Farmers

To have a further probe on the effect of demographic, social and economic indicators in general and the Cooperation indicators in particular on the perception of productivity increase by marketing cooperatives among medium farmer respondents, LMR analysis was carried out.

Table – 6: Effect on Productivity Increase among Medium Farmers

Independent variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Demographic Indicator Variables					
Gender	.184	1.689	.006	.109	.914
Education	.353	.268	.085	1.317	.194
Family Size	.075	.302	.013	.249	.804
Economic Indicator Variables					
Landholding	.071	.214	.019	.331	.742
Annual Farm Income	.951	.061	1.016	15.474	.000
Assets	.050	.327	.008	.152	.880
Occupation	-.733	.396	-.118	-1.853	.070
Borrowings	-.002	.282	.000	-.008	.994
Social Indicator Variables					
Exposure to mass media	-.408	.288	-.073	-1.417	.162
Cooperation Indicator Variables					
Knowledge about Coop.Mgmt	-1.186	.444	-.167	-2.670	.010
Participation in Coop.Mgmt	-.409	.505	-.051	-.810	.421
Services mix index	2.778	1.636	.156	1.698	.097
Constant	5.953	3.327		1.789	.079
R²	.870				
N	120				

Source: Computed from survey data during 2011-12

As shown in table 6, the model is significant and the R^2 value is 87 per cent i.e., the effect on the dependent variable has been explained at 87 per cent significance level. The results show that none of the demographic variables and the variable under economic indicators namely land holding possessed, assets owned, and extent of borrowings and social variable namely exposure to mass media including the cooperative characteristics variable namely participation in cooperative management did have effect whereas the economic indicator variables such as annual farm income level and nature of adoption of agriculture as occupation and cooperation indicator variables such as knowledge about cooperative management and the extent of services availed from marketing cooperatives (Service mix index) have effected significantly for high realization of the economic benefits of the marketing cooperatives enabling for productivity increase among medium farmers.

However, among these significant variables, the annual farm income level was found to be the prominent variables effecting significantly to a greater extent for high realization of the economic contributions of the marketing cooperatives enabling for productivity increase among medium farmers i.e., the standardized coefficient value is 1.016 which is greater than the other variables.

Thus it may be stated that increase in annual farm income results to productivity among medium farmers. This is true that medium farmers can remain on farming only when farm income is appreciable and form significant proportion to annual family income.

Results of Linear Multiple Regression Analysis – Effect on Productivity increase among Big Farmers

To have a further probe on the effect of demographic, social and economic indicators in general and the Cooperation indicators in particular on the perception of occupational stability provided by marketing cooperatives among big farmer respondents, LMR analysis was carried out.

Table – 7: Effect on Productivity Increase among Big Farmers

Independent variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Demographic Indicator Variables					
Gender	-.214	.515	-.026	-.416	.678
Education	-.079	.221	-.021	-.358	.721
Family Size	.663	.281	.125	2.357	.021
Economic Indicator Variables					
Landholding	-.024	.077	-.017	-.318	.752
Annual Farm Income	.749	.049	.811	15.340	.000
Assets	.483	.423	.062	1.143	.256
Occupation	.054	.248	.013	.217	.829
Borrowings	.025	.234	.006	.108	.914
Social Indicator Variables					
Exposure to mass media	-.175	.310	-.031	-.564	.574
Cooperation Indicator Variables					
Knowledge about Coop.Mgmt	.686	.246	.163	2.790	.006
Participation in Coop.Mgmt	.624	.396	.087	1.576	.119
Services mix index	.674	.129	.404	5.245	.000
Constant	8.299	2.864		2.898	.005
R²	.783				
N	100				

Source: Computed from survey data during 2011-12

As shown in table 7, the model is significant and the R^2 value is 87 per cent i.e., the effect on the dependent variable has been explained at 87 per cent significance level. The results show that demographic variables such as gender and education and the variables under economic indicators namely size of land holding possessed, assets owned, nature of adoption of agriculture as occupation and the extent of borrowings and the social indicator variable namely exposure to mass media including the cooperative characteristics variables namely participation in cooperative management did not have effect whereas the economic indicator variable namely annual farm income level and cooperation indicator variable namely knowledge about cooperative management and extent of services availed from marketing cooperatives (Service mix index) have effected significantly for high realization of the economic benefits of the marketing cooperatives enabling for productivity increase among big farmers.

However, among these significant variables, the annual farm income level and extent of services availed from marketing cooperatives (Service mix index) were found to be the prominent variables effecting significantly to a greater extent for high realization of the economic contributions of the marketing cooperatives enabling for productivity increase among big farmers i.e., the standardized coefficient value is 0.811 and 0.414 which is greater than the other variables.

Thus it may be stated that increase in annual farm income results to productivity increase among big farmers. Further long years of membership and availing one or more core services of marketing cooperatives could have helped big farmers to increase their productivity.

Findings

Increase in annual farm income coupled with better exposure to mass media results to productivity increase among farmers. This is true that farmers with better exposure to mass media could have understood the technologies to be adopted to increase the farm productivity. Further increase in annual farm income will also contribute farmers to adopt on farm technologies to augment productivity.

Income, assets, occupation, and services mix index variables do have significant positive effect on the perception of small farmers towards productivity increase whereas income and knowledge about cooperative management were found to have significant positive effect on the perception of medium farmers towards productivity increase. As far as big farmers are concerned, variables such as services mix index, annual farm income, and knowledge about cooperative management were found to be dominant influencing independent variables.

Recommendations

To increase assets and employment and to adopt improved technology in farming including processing / value addition to farm produces, acquisition of improved skill and knowledge enabling for farm production / productivity increase, the study offers following recommendations of policy implications which facilitating effective delivery of services so as to bring economic development among all sections of the farming community in the region.

1. To extend more appropriate and relevant services to increase productivity APCMSs need to augment funds, for which they may approach District Central Cooperative Banks and other cooperatives in their area to subscribe more shares and take efforts to mobilize more deposits from members and non-members.
2. APCMSs should take all necessary actions to distribute required inputs adequately at right time with good quality.
3. Although more number of farmers availed more than one services, the APCMSs should encourage their members to avail almost all services extended by them.
4. To eliminate middlemen to prosper in the business the APCMSs should take necessary steps to effective implementation of linking of credit with marketing.

5. The other APCMSs in the region can establish a cordial relation with TCMS to operate more procurement outlets to supply required quality of inputs with required quantity, at right time with reasonable price.
6. To perfect the marketing system, all the APCMSs can collaborate with regulated markets to establish market leadership in the procurement, processing and sale of agricultural commodities in the district.

Conclusion

The study reveals that APCMSs helped to increase the production / productivity regardless to the categories (small, medium and big farmers) of the farming community. It is imperative that increase in the farm production results to increase in farm income and they together brought occupational stability and increase in living standard. Hence, the APCMSs should take all the efforts and endeavors to the implement the recommendations to maximize the production / productivity among farmer members.

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