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## Efficiency Structure of Co-operative Agricultural Marketing Societies - A Case Study of Coconut Marketing Societies of Kerala State

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### Abstract

One of the peculiar features of the Kerala's coconut sector is that it is cultivated in homestead land and most of the growers are tiny or marginal farmers. Coconut marketing here is unorganized. It is cultivated in an area of 9.36 lakh ha, which is about 50 per cent of the total area under coconut cultivation in India. The annual production of coconut in the State is 5,496 million nuts, which is 44.00 per cent of the total production in the country. Lack of irrigation is one of the major reasons attributed to the low level of productivity of coconut in Kerala State. Scarcity of irrigation water is also considered as one of the major constraints in resource use management in coconut farming in Kerala.

This paper attempts to examine the efficiency structure of co-operative marketing societies which are involved in the coconut marketing in Kerala. In cooperative organizations efficiency structure contains a combination of different factors such as financial performance of the societies, membership strength and their attitude towards the society, procurement and marketing of agricultural produce, Input supply, infrastructure supply, Link with apex body etc.,.

**Key Words:** Cooperatives, coconut, marketing, efficiency structure, marketing societies, unorganized marketing, Kerala coconut sector.

### Introduction

Indian economy is predominantly agrarian and agriculture forms an important basis for its economic structure. Apart from providing food for the million of Indian population, agricultural sector provides 60 per cent of the labour force, contributes nearly 16.6 per cent of GDP and accounts for about 18 per cent of the total value of the country's exports (DGCIS Annual Data 2008-09).

Coconut is grown in 92 countries in the world. Global production of coconut is 51 billion nuts from an area of 12 million hectares. The four major players; India, Indonesia, Philippines and Sri Lanka contribute 78% of the world production. India is of the leading producers of coconuts in the world producing 13 billion nuts per annum.. There are millions of farmers linked with this sector directly or indirectly. Large numbers of farmer's co-operative societies are in primary processing and marketing different coconut products. Government

agencies such as Kerafed, State Trading Corporation, Kerala State Marketing Federation and Karnataka State Marketing Federation are in manufacturing and marketing of branded coconut oil in small packs.

### The position of cooperatives in the agro-food chain

Agricultural producer cooperatives traditionally have a strong supply orientation. A major Dutch example is this transformation is the traditional cooperative vegetable auction turning into a cooperative wholesale company (Bijman, 2002). Another example of the changing role of the cooperative in the agri-food supply chain are the establishment of many new producer organizations in food horticulture in The Netherlands in the 1990s, set up by producers of innovative products and/or innovative marketing concepts (Bijman and Hendrikse, 2003).

Cooperatives, being companies with close relationships

with the primary producers, may have a good opportunity to develop and implement the necessary vertical coordination (Royer, 1995). Transaction Cost Economics as developed by Williamson 1985, 1991) can be used to explain the organizational set up of the producer organizations. Producer organizations are increasingly defined as hybrid governance structures, which are better able to achieve vertical coordination in agri-food channels (e.g. Peterson et al., 2001; Menard, 2004).

Similar tendencies can be observed in developing countries, where some (production) cooperatives become part of grower arrangements with large retailers or exporters and have to transfer part of their authority regarding production and handling practices to external agents (Key and Runsten, 1999; Glover and Kusterer, 1990). This may, however, also have some positive implications for the cooperative enterprise in the sense that economies of scale and scope can be better exploited and cooperative marketing procedures enable smallholder producers to remain in the market. Therefore, reduced internal autonomy may be partly compensated by improved market competitiveness, as already outlined by Putterman (1985) in his seminal study on the balance between intrinsic and extrinsic drivers for cooperative consolidation.

Coconut is the most important crop cultivated in Kerala State, which plays a vital role in the agrarian economy of the State. It occupies about 40 per cent of the total cropped area of the State. Kerala State has the largest area under coconut cultivation in India. It is also the largest producer of coconuts in the country. Coconut is cultivated in an area of 9.36 lakh ha in Kerala, which is about 50 per cent of the total area under coconut cultivation in India. The annual production of coconut in the State is 5,496 million nuts, which is 44.00 per cent of the total production in the country. Lack of irrigation is one of the major reasons attributed to the low level of productivity of coconut in Kerala State (Rajagopal et al., 2001). Scarcity of irrigation water is also considered as one of the major constraints in

resource use management in coconut farming in Kerala. (Prakash, 1989 and Haridasan, 1995).

### **Cooperative Coconut Marketing in Kerala**

One of the peculiar features of the Kerala's coconut sector is that it is cultivated in homestead land and most of the growers are tiny or marginal farmers. Coconut marketing in Kerala is unorganized. An organised coconut marketing system gives certain advantages to the producers such as low assembling and transportation cost, prompt and regular payment, rationalized price structure etc., as it is mentioned by The Royal Commission on Agriculture in 1924 that "defects and chaotic conditions, prevailing in the markets for agriculture goods, could be removed only by the establishment of properly regulated markets. The over all aim of establishing the regulated market is, to give solution to, and remove the defects which are clear-cut with our marketing system"(Royal Commission on Agriculture, op.cit., 1928). The organised marketing system also provides an assured and stable market outlet by developing product lines. Therefore, creation of a sound organizational structure that will provide remunerative market for coconuts, is the best method to stabilize the price and to motivate farmers to increase production and thereby earn increased income.

### **The Study of Efficiency Structure**

The study of efficiency structure enables an organisation to know its financial and operational efficiency. The more efficient companies will better compete, develop and grow in scale, thus resulting in an increase in the degree of market concentration. It also assumes that such companies will achieve high profitability while maintaining high market shares (Demesetz, 1973). It is expected that the greater the degree of market concentration, the more efficient is the market. The efficiency structure of commercial banks focuses on a basic proposition independent from the structure-conduct-performance (SCP) hypothesis ( Tsutsui Yoshiro, 2009).

This paper attempts to examine the efficiency structure

of co-operative marketing societies which are involved in the coconut marketing in Kerala. Cooperative organizations' efficiency structure contains a combination of different factors such as financial performance of the societies, membership strength and their attitude towards the society, procurement and marketing of agricultural produce, Input supply, infrastructure supply, Link with apex body etc.,

### Objectives of the Study

The main objectives of the study are as follows:

1. To examine the present marketing practices of coconut in Kerala.
2. To identify the factors influencing the efficiency
3. To analyse the efficiency of coconut marketing co-operative societies in Kerala.
4. To conclude and give suggestions on the basis of the research.

### Methodology

The study is designed as an empirical one based on survey method. Historical data and statistical information regarding the present position of the industry have been collected through primary and secondary statistics.

### Sampling Design

For the purpose of the selection of sample societies and coconut grower members, a multi stage random sampling technique is used.

### Selection of Coconut Cooperative Societies

There are 115 General purpose Marketing Co-operative

societies and more than 1500 PACS/SCB in the state with the objectives in their bye-laws for undertaking marketing and processing activities of all agricultural commodities including coconut. Out of the 1500 PACS/SCBs, 898 are affiliated to the apex Co-operative Federation set up for the coconut marketing activities. Kerafed and Marketfed are the two state level federations authorized to undertake coconut procurement in the Kerala state. Most of the primary agricultural co-operative societies (PACS), Service Co-operative Banks (SCBs) and Agricultural produce marketing co-operative societies which undertake coconut marketing in one or the other ways are affiliated to any one or both of the federations mentioned above.

Out of the total PACs, SCBs and General purpose marketing societies, only 205 co-operative societies are undertaking active coconut marketing activities. Similarly the coconut marketing cooperatives are spread more or less evenly in three regions, so ten societies from each region was selected as sample, which will constitute around 15 % of the total population of active coconut marketing co-operatives.

Out of the active coconut marketing co-operatives, 24 societies are in Thiruvananthapuram district, 27 societies in Thrissur district and 30 in the Kozhikode district. From each district selected, 10 societies are selected at random. The details of the population and the samples selected for the study are depicted in the Tables 0.1 and 0.2 given below.

**Table 0.1: Sample Design**

Sl. No.	Region	Districts Selected	Number of Respondents Selected				Coconut Grower Members
			Coconut Marketing Cooperatives (Affiliation)				
			Kerafed	Marketfed	Both	Total	
1.	North	Calicut	6	2	2	10	150
2.	Central	Trissur	6	1	3	10	150
3.	South	Trivandrum	6	3	1	10	150
	<b>Total</b>		<b>18</b>	<b>6</b>	<b>6</b>	<b>30</b>	<b>450</b>

**Table 0.2: Population (Active Coconut Marketing Cooperatives)**

Sl. No.	Region	Number of Co-operatives undertaking Coconut Marketing			
		Kerafed	Marketfed	Both	Total
1.	North	46	10	13	69
2.	Central	38	9	20	67
3.	South	39	22	8	69
	<b>Total</b>	<b>123</b>	<b>41</b>	<b>41</b>	<b>205</b>

## Data Analysis

### Measurement of Efficiency

To measure the efficiency of the marketing society "Efficiency Index" is prepared on 'Anand Pattern' dairy co-operative societies. Accordingly 12 major indications of the efficiency of the coconut marketing societies are delineated. The collected information is rated on a five point continuum of efficiency structure. The efficiency score of a coconut marketing society ranges from 12 to 60 in this way, the efficiency scores of each society is obtained. Then the mean efficiency score of each society is worked out by aggregating the efficiency scores of each society. This aggregate score is used as "Efficiency Index" for analysis.

With this Efficiency Index, analysis of the efficiency structure of the coconut marketing societies is carried out in:

1. between the region
2. between the societies within the region
3. between the affiliation, and
4. between the societies within the affiliation.

### Identification of Factors Influencing the Efficiency

In order to find out the factors influencing the efficiency of the coconut co-operative societies, seven independent factors which are likely to affect the efficiency of coconut co-operatives are drawn from the available literature, these independent factors are listed below:

1. Input supply
2. Infrastructure facilities
3. Link with the apex body
4. Attitude of members
5. Attitude of the management

6. Financial assistance received by the society
7. Government attitude towards coconut co-operatives

The operational workings of these independent variables are measured again by 'Rating Judgment'. After obtaining the scores for each independent variable, correlation analysis is carried out with the Efficiency Index of each co-operative society. This is done to measure the existing degree of relationship. Influence of Region and Affiliation over the efficiency of coconut marketing co-operatives is studied to know whether the region in which the coconut marketing societies belong or the apex body to which the coconut marketing societies are affiliated have any influence for their varying degree of efficiency. For the purpose of the study 'Analysis of co-variance Model with seven co-variables are applied'.

Step-wise regression analysis is used to identify the most important and least important factor influencing the level of efficiency of coconut marketing societies. This has been done with the following procedure. Suppose  $Y_t = B_0 + B_1 X_{1t} + \dots + B_k X_{kt}$   $t = 1, 2 \dots n$ .  
i. There are K explanatory variables, considered for the explanation of Y and there are n sets of observation on these variables. The aim is to select a few of the explanatory variables, explaining Y in the sense that these variables are enough for the explanation of Y i.e, the effect of other explanatory variables are not significant (in statistical language) in the presence of those variables which are selected. This is done using a step-wise Regression procedure. Then Scheffe Test is used to identify the influence (interaction) of

affiliations and regions simultaneously over the efficiency of societies. Scheffe has given a general method that provides a conservative test in this situation. Declare L/sL significant only if it exceeds  $\sqrt{(a-1)F_{0.05}}$  where  $F_{0.05}$  is the 5% level of F degrees of freedom  $f_1 = (a - 1)$ ,  $f_2 = a(n - 1)$ . In more complex experiments,  $f_2$  is the number of error d.f. provided by the experiment. Scheffe's test agrees with the t-test when  $a=2$ , and requires a substantially higher value of L/sL for significance when  $a>2$ . It allows us to test any number of comparisons, picked out by inspection, with the protection that the probability of finding any erroneous significant result is at most 0.05.

### Efficiency Structure Analysis

#### 1) Affiliation-wise study of efficiency structure

The calculated Mean Efficiency indices of the coconut marketing societies among the affiliations are presented in Table 5.30.

**Table 1 - Mean Efficiency of Coconut Marketing Societies in Kerala**

Affiliation	Sample size	Mean efficiency index
Kerafed	18	34.8
Marketfed	6	33.5
Both	6	42.7
<b>Total</b>	<b>30</b>	<b>37.0</b>

Source: Survey data

Table 1 shows that the efficiency level of coconut marketing co-operatives among three affiliations is different. The level of efficiency of the coconut marketing societies in the state taken as a whole is medium. Against the maximum efficiency Index of 60 attainable by most efficient society the mean Index achieved is 37. This indicates that the aggregate level of performance of the societies is about 61 percent of the maximum efficiency.

Among the affiliations, societies affiliated to both the federations are found to be relatively more efficient

than those in other types of affiliation (Mean Index: 42.7). The least efficient societies belong to the Marketfed with the mean Index of 33.5. Societies belongs to the Kerafed are mediocre, standing between the other two affiliation types in the level of efficiency (Mean Index 34.8)

Even though there is significant variation in the efficiency level of societies among the affiliations when considering the absolute values, it is found to be statistically insignificant, as the calculated value of 'F' (2.765) is less than the tabular value of 3.35 at 5% probability level (Table 2).

**Table 2: Results of the Analysis of Variance Among Affiliations.**

Source of Variation	Sum of squares	Degrees of Freedom	Mean Square	F. ratio
Among affiliation	306.533	2	153.267	*2.7645
Error	1,496.83	27	55.48	

Note: \*Not significant at 5% level

Tabular value 3.35

Source: computed from survey data.

#### a) Analysis of efficiency within the societies affiliated to both the Federations (Kerafed and Marketfed)

The efficiency Index of the coconut marketing co-operatives affiliated to both the apex bodies as presented in Table 3 shows that there is wide difference in the performance efficiency among the coconut co-operatives. (table on next page)

The variation in the level of efficiency is also statistically tested and the calculated value of 'F' obtained is (0.185256), which is less than the tabular value of 2.758 at 5 percent level of significance. It shows that there is no significant difference among the efficiency structures of the societies within the affiliation, even though the absolute value shows there is significance difference among the societies.

**Table 3: Efficiency Index of Coconut Marketing Co-operatives (Affiliated to both the Federations)**  
(Kerafed and Market fed)

Sl. No.	Society code	Year Efficiency Index					Mean Efficiency Index
		I year	II Year	III Year	IV Year	V Year	
1	2	3	4	5	6	7	8
1.	C7	35	40	44	42	49	42
2.	B1	57	51	58	58	56	56
3.	B2	26	24	23	30	32	27
4.	A9	58	59	59	60	59	59
5.	A4	30	32	36	34	33	33
6.	A5	40	32	41	40	42	39

Note: F ratio: 0.185256 (Not significant), Degree of freedom 4, 25

Source: Computed from the survey data

The variation in the level of efficiency is also statistically tested and the calculated value of 'F' obtained is (0.185256), which is less than the tabular value of 2.758 at 5 percent level of significance. It shows that there is no significant difference among the efficiency structures of the societies within the affiliation, even

though the absolute value shows there is significance difference among the societies.

**b) Kerafed:** The level of performance of the coconut marketing societies affiliated to Kerafed is lower than that of the societies affiliated to both the apex bodies.

**Table 4: Efficiency Index of Coconut Co-operative Society**

(Affiliated to Kerafed)

Sl. No.	Society code	Year Efficiency Index					Mean Efficiency Index
		I year	II Year	III Year	IV Year	V Year	
1	2	3	4	5	6	7	8
1.	A01	28	30	29	35	38	32
2.	A02	36	32	30	40	37	35
3.	A03	28	25	30	31	26	28
4.	A06	20	24	26	25	30	25
5.	A07	33	34	30	37	36	34
6.	A08	39	40	41	40	40	40
7.	B06	30	30	34	33	33	32
8.	B07	28	38	34	36	44	36
9.	B10	25	28	29	30	28	28

10.	C01	40	38	41	39	42	40
11.	C02	34	38	40	43	40	39
12.	C03	35	35	43	42	40	39
13.	C04	37	40	30	32	36	35
14.	C05	40	45	45	46	49	45
15.	C06	35	29	28	30	38	32
16.	C08	34	30	33	36	37	34
17.	C09	30	33	36	40	51	38
18.	C10	30	31	36	36	37	34

Note: F ratio: 2.760944 (significant), Degrees of freedom 4, 85

Source: Computed from the survey data

The result of the analysis of variance shows a calculated 'F' value of (2.761094) as against the tabular value of (2.47901) at 5 percent probability level (Table 4). This result clearly indicated that there is no uniformity in the level of efficiency among coconut marketing co-operatives affiliated to Kerafed.

**c) Marketfed:** As compared with the societies affiliated to Kerafed and societies affiliated to both the apex bodies, the level of efficiency of the coconut co-

operatives affiliated to Marketfed is very low. Of the six societies studied under this category, no societies are working at a level of above 75 percent of the maximum efficiency (Index above 44). Similar to the efficiency level of cooperatives affiliated to both apex bodies, the cooperatives affiliated to Marketfed have no significant difference in the efficiency level (Table 5). This variation is also statistically not significant as the calculated 'F' value of 0.4429 is less than the tabular value of 2.7587 at 5 percent probability level.

**Table 5: Efficiency Index of Coconut Co-operative Society**

(Affiliated to Marketfed)

Sl. No.	Society code	Year Efficiency Index					Mean Efficiency Index
		I year	II Year	III Year	IV Year	V Year	
1	2	3	4	5	6	7	8
1.	A10	28	31	34	37	35	33
2.	B03	28	30	30	29	33	30
3.	B04	38	38	36	37	41	38
4.	B05	23	25	29	24	29	26
5.	B08	35	35	33	36	36	35
6.	B09	40	39	40	35	41	39

Note: F ratio: 0.442902, Degrees of freedom 4,25 ( Not significant)

Source: Computed from the survey data

On the basis of the above findings, it can be inferred that the efficiency level of the coconut co-operative marketing societies in Kerala is of varying degree; the level of efficiency varies between single affiliation and double affiliation as well as within the affiliation type.

## 2) Influence of region and affiliation over the efficiency structure of coconut co-operative marketing societies

Influence of Region and Affiliation over the efficiency structure of coconut marketing co-operatives are

studied to know whether the region (North, Central and South) or the apex body (Kerafed, Marketfed and Both) have any influence over the efficiency of coconut marketing societies in the state. For the purpose of the study 'Analysis of Co-variance Model' with seven co-variates is applied'. 'Scheffe Test' is also carried out to see whether there is any interaction among the regions and affiliations over the efficiency structure of the coconut marketing societies. Respective values of 'F' and 'P' are given in Table 5.35 and the results of the Scheffe test are given in Table 7.

**Table 6: Summary of the Region and Affiliation Effects Over the Efficiency Structure of Coconut Co-operative Marketing Societies.**

Variable	Degree of freedom Effect	MSS Effect	Degree of Freedom Error	MSS Error	F ratio	P-Level**	Significant Level
1	2	3	4	5	6	7	8
Region	2	11.96	20	26.48	0.4515	0.643	NS *
Affiliation	2	27.57	20	24.92	1.1065	0.350	NS *

Note: \*Not Significant \*\*P value at 5% significant Level (0.05)

Source: Computed from the Survey data

**Table 7: Influence (Interaction) of Region an Affiliation over the Efficiency Structure of Coconut Marketing Societies-Results of Scheffe's Test.**

	Average Efficiency Index of societies (Region x Affiliation)								
	{1}	{2}	{3}	{4}	{5}	{6}	{7}	{8}	{9}
		32.33	43.33	33.00	33.75	41.50	32.25	37.78	42.00
Region x Affiliation	P - Values (Region x Affiliation)								
North - Kerafed {1}		0.361	1	1	0.745	1	0.817	0.905	--
North - Both {2}	0.361		0.905	0.626	1	0.447	0.934	1	--
North - Marketfed {3}	1	0.905		1	0.976	1	0.999	0.986	--
Central - Kerafed {4}	1	0.626	1		0.905	1	0.981	0.966	--
Central - Both {5}	0.745	1	0.976	0.905		0.79	0.998	1	--
Central-Marketfed{6}	1	0.447	1	1	0.79		0.891	0.917	--
South - Kerafed {7}	0.817	0.934	0.999	0.981	0.998	0.891		0.999	--
South - Both {8}	0.905	1	0.986	0.966	1	0.917	0.999		--
South - Marketfed{9}	--	--	--	--	--	--	--	--	

Note: All P values are above 0.05 so not significant at 5 % Level

Source: calculated from the survey data.



From the Table 7, it could be inferred that even if the average efficiency between region and affiliation seems to be varying, the P value calculated for each interaction (which is above 0.05) shows that the region and affiliation have no influence over the efficiency structure of coconut marketing co-operatives. The calculated P value for every interaction is higher than the Table value of 0.05. The P values of North x Kerafed (0.361), North Marketfed (0.976) and North x Both (0.905) shows that the region and affiliation have no influence over the efficiency structure of coconut co-operative marketing societies. That is, the region to which a society belongs or apex body to which a society is affiliated will not make any influence over the efficiency of a marketing society. The respective figures in the Table

proves that the efficiency of the marketing societies belonging to central region and southern regions which are affiliated to Kerafed, Marketfed and both have also not influenced by regions or affiliations.

Table 6 substantiate these findings because the calculated 'P' value for the region (0.643) is higher than the Table value of 'P' (0.05) at 5% probability level. Similarly, the calculated 'P' value for affiliation (0.350) is also higher than the Table value of 'P' (0.05) at 5% probability level.

### Factors Associated with Efficiency Structure

Respective values of Beta, B, t and p are given in Table 8.

**Table 8: Analysis Results (Considering all Co-variates)**

Variables	BETA	St. Err. of BETA	B	St. Err. of B	t(22)	p-level
Intercept			13.770	17.035	0.808	0.428
1) Input Supply (A)	0.633	0.139	1.021	0.224	4.566	0.000
2) Infrastructure Facility (B)	-0.025	0.136	-0.082	0.453	-0.181	0.858
3) Link with Apex body (C)	-0.099	0.132	-0.360	0.481	-0.748	0.462
4) Attitude of Members (D)	0.336	0.149	1.225	0.544	2.252	0.035
5) Attitude of Management (E)	0.182	0.140	0.573	0.440	1.302	0.206
6) Financial Assistance (F)	-0.034	0.142	-0.119	0.490	-0.242	0.811
7) Attitude of government (G)	-0.233	0.134	-0.913	0.527	-1.734	0.097

Source: Calculated from the Survey data

**Table 9: Regression Summary Table**

(By considering all Co-variates)

R value	R2 value	Adjusted R2	Degree of Freedom	F value	Std. Error	P value
0.822443	0.676413	0.57345	(7,22)	6.5697	5.0163	<0.00029

Source: Calculated from the Survey data

Table 8 shows that the efficiency structure of coconut marketing cooperatives is influenced by the covariates rather than the region or types of affiliation. The inference is substantiated by the p value ( $p < 0.00029$ ) at 5 % level of significance (Table 9). The value of

adjusted R2 (0.573454) shows the degree of relationship among the efficiency and the various covariates. Since it is high, the relationship among the variables will be high and the p value (0.00435), which is less than 0.05 shows that there is relationship among the factors. The

degree of relationship will be strong when the calculated P value becomes less.

After studying all the covariates and its relationship with efficiency structure of coconut marketing co-operatives, only those covariates which have bearing

on the efficiency structure of coconut marketing societies are again depicted in the Table 10. The result is derived by eliminating the co-variates which do not have any influence over the efficiency structure by applying forward step-wise regression analysis.

**Table 10: Analysis Results (Considering Influencing Co-variates)**

Variables	BETA	St. Err. of BETA	B	St. Err. of B	t(25)	p-level
Intercept			3.195	9.781	0.327	0.7466
1) Input Supply (A)	0.615	0.125	0.992	0.202	4.914	0.0005
2) Attitude of Members (D)	0.314	0.129	1.146	0.471	2.436	0.0223
3) Attitude of Government (G)	-0.214	0.124	-0.841	0.488	-1.722	0.0973
4) Attitude of Management (E)	0.204	0.120	0.642	0.377	1.702	0.1011

*Note: Significant effects are due to the co-variates A, D, G and E*

*Source: calculated from survey data*

On the basis of the Regression analysis and P values for each of the seven covariates, the following inferences are drawn.

The covariate 'input supply' such as provision of fertilizer/manure, storage facilities, marketing information to growers, pesticides or other means against pests and diseases, implements etc, have a

significant bearing on the performance of coconut co-operatives.

Thus, of the seven co-variates analysed, only four variables are affecting the efficiency structure of the coconut marketing societies. The magnitude of relationship among these variables and efficiency structure were given in Table 10.

**Table 11: Regression Summary Table**

*(By considering influencing Co-variates)*

R value	R2 value	Adjusted R2	Degree of Freedom	F value	Std. Error	P value
0.816884	0.667299	0.61406	(4,25)	12.536	4.7715	<0.0001

*Source: Calculated from the Survey data*

Table 11 shows that co-variates 'Input supply' is the most important factor influencing the efficiency of the society 'P' value (0.00005). Next comes the 'Attitude of Members' 'P' value (0.0223), then 'Attitude of Government' 'P' value (0.0973) and the last influencing factor is 'Attitude of Management' P Value (0.1011).

On the basis of the above findings, it seems safe to conclude that the input supply provided by the society is the primary factor that determines the efficiency or weakness of coconut marketing cooperatives. So for the efficient functioning of coconut marketing cooperatives, the society should provide required inputs

such as fertilizers/manures, storage facility, marketing information, pesticides, implements on hire etc, to the growers, then only a society can make good relationship with the growers and their by the society and their grower members can take advantage out of this. Such a variable has to be supported by a healthy relationship between primary societies and members attitude of management and government.

### Conclusion

From the analysis of the efficiency structure of coconut co-operative marketing societies in Kerala, it can be inferred that (1) in general, the efficiency level of the coconut marketing societies in the state is above medium (2) when comparing the efficiency level of the societies among the different affiliations, it shows that; (a) there is significant differences in the level of efficiency of the coconut co-operative marketing societies affiliated to single apex societies (Kerafed or Marketfed) ;and both the apex bodies. (b) There is no significant difference between the level of efficiency of the coconut co-operative marketing societies affiliated to Kerafed and Marketfed. (3) Within the affiliation types also (ie., Kerafed, Marketfed and Both), there is no uniformity in the efficiency level of societies.

When the regions and affiliations are taking together for measuring the differences in the efficiency level between the societies, the analysis shows that the regions and affiliations have no significant effect on the level of efficiency of the coconut marketing co-operatives in Kerala.

The overall study of efficiency structure of coconut marketing co-operatives reveals that about 80 per cent of the societies (societies affiliated to Kerafed and Marketfed) are having similar efficiency level. These societies achieved 30 to 35 per cent of the highest possible efficiency index (Efficiency Index 60). But the performance of these societies towards coconut marketing is found to be very poor. Only 20 per cent of the societies (societies affiliated to both Kerafed

and Marketfed) have achieved about 75 per cent of the maximum efficiency level. These societies have taken the coconut marketing seriously. So it can be concluded that even though the general marketing societies and PACS in Kerala are efficient enough to undertake coconut marketing activities, they are reluctant to do this.

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