

## **Evaluation of performance of agricultural producer organizations and a model proposal: Evidence from Turkey**

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### **Abstract**

This paper reviews the performance of agricultural producer organizations (POs) and focuses on the Logit performance model. The research was conducted in Uşak, Turkey where organizational mobility has been active. The main material of the research consisted of the survey data conducted with 360 producers. The collected data were analyzed econometrically, and the independent variables according to the Logit model proposed were founded statistically significant. 89.2% of the producers was a member of the PO in the region. Organizational performance level of the POs was high. Members' satisfaction levels with being a member of the PO were 72.9% and their satisfaction levels with works of the organization's management were also 66.7%. These rates were higher than those in other research. This study will be important in terms of creating organizational management with an innovative vision and contributing to the efforts to raise members' satisfaction with the POs.

**Keywords:** Agricultural Organizations. Organizational Performance. Organizational Satisfaction.

### **1. Introduction**

When the historical and economic developments of societies are examined, it is seen that organizational sensitivities are quite effective in available developments. The acting

together awareness of the individuals forming the society provides great conveniences in reaching the joint goal. It is seen that individuals play a part active role in non-governmental organizations in developed societies (Fowler, 1993; Şahin and Öztürk, 2011; Lewis *et al.*, 2020).

Today, it is possible to come across organizational activities in all professional and political, economic, and social fields. The organization primarily brings together people endeavoring in order to achieve a specific purpose (İnce *et al.*, 2004; Edwards, 2008). Thus, it is possible to protect social and economic interests, to have a voice in the related field, to develop policies, and to gain self-confidence for members.

One of the sectors where the organization is necessary is the agricultural sector. For, the agricultural sector is a sector receiving an important share in employment, production, and foreign trade (Cerri *et al.*, 2009; Arjun, 2013; Doğan *et al.*, 2015).

Agriculture is a sector where organizational formations have been seen for the first time and spreading to all areas of social life together with other sectors. In Turkey, The reasons such as the fact that agricultural enterprises are small scale, their competitive powers are weak, and market shares are low are to slow down the development of organizational activities (Özçatalbaş and Imran 2017). In addition, the low education level (Çetin, 2014; Karahan, 2006), weak organizational awareness, and inadequacy of management skills of people living in rural areas also affect organizational developments.

The POs can be considered as a movement with social and economic goals. Essentially, these are important organizations in keeping the culture of democracy alive, providing employment opportunities, actuating resources, investing, fighting poverty, and contributing to social development (Rondot and Collion.2001; Ragasa and Golan, 2014).

In the agricultural sector, there are different formations established according to various laws and that basically aim to protect the interests of their members. These are; Chambers of Agriculture of professional purpose; Cooperatives, Stud Breeders Association and Producer Associations of economic and social purpose (Allen and Lueck, 2004; Kaneva, 2006).

In Turkey, Chambers of Agriculture were established by Law No. 6964 in order to carry out activities such as keeping farmers' registries, supplying inputs, establishing laboratories related to agriculture, registering agricultural equipment and machinery, organizing agricultural courses, and providing farmer consultancy services. Agricultural development cooperatives, irrigation cooperatives and sugar beet growers cooperatives from the agricultural cooperatives were established by the cooperatives law No. 1163, and

agricultural credit cooperatives were also by the agricultural credit cooperatives law numbered 1581. Stud Breeders Associations were established by supplementing an item in the Veterinary Services, Plant Health, Food and Animal Feed Law No. 5596, and Producer Associations were by the Agricultural Producer Associations Law No. 5200.

Agricultural organizations are of prime importance in the development of rural areas. However, agricultural organizations have very diverse problems, which can be listed as legal, public relations, organizational awareness, education and research, superior organization, inter-organizational cooperation, and financing (Hussein, 2001; Adefila, 2012). The most important problems of agricultural organizations in Turkey are related to functional, managerial, and member-organization relations.

The principal purpose of this study is, by revealing the current structure of the POs, to analyze econometrically a member's satisfaction levels with organizations, and to propose a model for the agricultural organizations.

In Uşak, which was chosen as the research area, Turkey's first sugar factory was established with private attempts in 1925. This initiative has shown that it is possible to do business with cooperation even in the most difficult conditions and periods. Uşak, which also has leather, milk, red and white meat processing facilities, which are among the agriculture-based industrial sectors, is a province with a high genetic structure in cattle breeding. It has an important potential in plant production, especially in chickpea and poppy production. In the light of this information, Uşak needs to be organized very well in terms of agricultural organization in order to be more active in the agricultural field.

The POs mentioned in this research consist of agricultural cooperatives, chambers of agriculture, and associations. In Uşak 73 Agricultural Development, 23 Agricultural Credit Cooperatives, 34 Irrigation and 1 Sugar Beet Growers Cooperatives; 6 Chambers of Agriculture; 3 improvement associations, 8 producer unions, 6 Village Service associations, and 1 Uşak Region Livestock Cooperatives Association activate.

This study is one of the rare studies in its field. For this reason, it is such as to shed light on research to be conducted on similar issues. Although there are some studies examining the agricultural sector from various perspectives in the research region, no study has been found on the POs. Some of the studies conducted on the agricultural sector in the research region are: "Geographical Features of Poppy Agriculture in Uşak" (Kadıoğlu, 2011); "Analysis of Factors Effective in Adoption of Possible Drought Insurance by Wheat Producers in Uşak Province" (Naseri and Saner, 2016); "Swot Analysis in Agricultural Development Cooperatives: The Case of Uşak Province" (Doğan and Ersoy, 2017) and

“Economic structure of dairy cattle farms in Uşak” (Göçoğlu and Gül, 2019).

This research is important in creating organizational satisfaction and awareness in agriculture, formation of an innovative organization’s management, and developing models regarding organizations.

This study consists of five sections including the introduction. The works of literature were reviewed in the second part after the introduction. In the third section, material and methods were examined in detail. In the fourth section, research results and discussion were looked through. Research results; consisted of members' socioeconomic characteristics, Logit model proposal for the POs, correlations among variables and significance test. In this section, moreover, the results of the research were also compared with the results of other studies. In the fifth and last part, the article was completed with conclusions.

## 2. Literature Review

Nowadays, when agriculture has gained more importance due to global epidemics and food crises, organization of agricultural producers and measurement of organizational performance have come into prominence. Organization of producers is also the sole means of rural development. Literature review on the subject is important in achieving goal in scientific researches. In this research also, some literature review related to the subject are below:

Black and Knutson (1984), in their study, examined the relations of Texas agricultural cooperatives with their members/partners, services provided by them to members/partners, and participation of members/partners in activities of the cooperative.

Quach and Kawaguchi (2003), in their publication analyzed the role in the production of two cooperatives in dairy farms in Hanoi and Hochiminh, Japan, the weak and strong aspects of farms, the current status, and the effectiveness of cooperatives.

Forgacs (2007), in his study examined the impact of human resources with two successful cooperative case studies in the reform process regarding agricultural cooperatives in Hungary. In the study, it was stated that before the reform, agricultural cooperatives was contributed to the solution of economic, social, and psychological problems, and the level of dependence on human resources increased in the new cooperatives immediately after the reform process.

Ortmann and King (2007), in their examined the development of agricultural cooperatives in developed and underdeveloped countries with a South Africa sample. In addition, they also discussed briefly the principles and short history of cooperation in their study.

Serinikli and İnan (2011), in their work discussed the cooperative activities in Turkey, the EU from past to present and proposed a SWOT analysis model for Turkish agricultural cooperatives and developed ways to determine strategy and performance for cooperatives. In this research, it was also emphasized what kind of strategy cooperatives should develop in order to be effective and effective in terms of cooperative and business administration.

Fałkowski and Ciaian (2016), in their study, analyzed the recent literature on the POs with a specific focus on factors affecting their establishment and their impact on farmers' market performance and welfare. In the study, moreover, they also discussed POs' role in improving farmers' bargaining power and allowing them to respond to various challenges which result from dynamic changes characterizing commercial relations within the food supply chain. They explained the key factors supporting the emergence and development of the POs, human and social capital, networking, interpersonal relationships between members (with an important role of trust), and the functioning of enforcement mechanisms used to govern group behavior.

Michalek et al. (2018) explained that the small size of farms relative to downstream and upstream companies leads to increased cooperation among farmers in order to enhance and concentrate their bargaining position in the food supply chain and thus to contribute to the improvement of their economic performance. Two main forms of cooperation can emerge between farmers: (a) bargaining cooperatives/organizations (horizontal concentration) or (b) supply and/or marketing cooperatives/organizations (vertical organization). The main purpose of bargaining organizations is to improve the negotiation power of farmers with buyers for obtaining a better price and terms of trade. Supply and/or marketing organizations besides improving the bargaining position of farmers are also involved in processing agricultural and food products in order to add value to members' products and to extract a greater share of returns along the food chain.

Bartova and Fandel (2020), in their study, discovered that the meta-efficiency demonstrated farm efficiency associated with membership in a PO. They examined the differences between meta-efficiency by membership groups by the Kruskal-Wallis and post hoc Dunn's tests. Members of the POs were mainly large farms. Membership in newly established POs contributed significantly to higher technical efficiency of livestock and crop farms. Their performance was, however, affected by managerial and scale inefficiencies. However, the long-term PO membership did not improve farm technical efficiency significantly.

Mwambi et al. (2020) stated that policymakers and development practitioners consider

the POs as critical in influencing food safety. According to them, the POs in developing countries operate in the formal value chain which handles the process and packaged products sold to supermarkets and urban consumers. Literature shows mixed impacts of the POs on smallholders' access to high-value markets. On the one hand, additional compliance costs in high-value market chains constitute a burden, posing a threat to smallholders.

Hill et al. (2021), in their works, explained that smallholder agriculture in Sub-Saharan Africa is largely exposed to pervasive market failures, translating into missed opportunities and sub-optimal economic behavior. They stated that these failures can partly be traced to the importance of economies of scale in procuring inputs and marketing produce, where smallholders face disproportionately high transaction costs. They also laid stress upon interventions aimed at promoting marketing via the POs.

### **3. Materials and Methods**

#### **3.1. Material**

The principal material of this research consisted of primary and secondary data sources. The data obtained from surveys conducted with the producers in the towns and villages of Uşak province constituted the primary data of the research. The surveys were carried out face-to-face with the producers.

In the research, in addition, it was also benefited from statistical data (secondary data) of some public institutions and organizations and the POs. These were; the Uşak Provincial and District Directorates of the Ministry of Agriculture and Forestry, the Turkish Statistical Institute (TSI), and provincial and central organizations of the POs.

#### **3.2. Methods**

##### **3.2.1. The method used in the sampling stage**

The research was conducted in the towns and villages in central and 5 distinct of Uşak province. Uşak province was divided into 72 regions according to the agricultural potential within the scope of the Agricultural Extension Development Project. These regions were deemed suitable as the most homogeneous distribution in the survey application.

The Proportional Sampling Method was used in determining the sampling size. In this method, the following formula was used (Newbold, 1995; Sağlam and İnan, 2013).

$$n = \frac{N_p(1-p)}{(N-1)\sigma_{p_x}^2 + p(1-p)} \quad (1)$$

In formula;

$n$  = Sampling size,

$N_p$  = The number of total units belonging to the sampling frame,

$p$  = Ratio of the studied feature on in the number of total units,

$\sigma_{p_x}^2$  = Variance.

According to the formula, the sample size was calculated as 360 for an error margin of 5% and a confidence interval of 95%.

Considering the calculated sample size, 5 respondents were selected from each region, and surveys were conducted via 360 producers. Relevant survey forms were used in collecting original data.

### 3.2.2. Method applied in survey stage

Before conducting the survey, the producers were provided informed consent and this consent was verbal. Thus, loyalty and confidence in the research were brought into. The surveys were conducted face-to-face with the producers. Surveys forms covered generally producers' sociocultural characteristics, opinions about the POs, participation in general boards, and questions measuring satisfaction and dissatisfaction levels with the POs.

### 3.2.3. The method used in the analysis of data

The research data were entered into the computer, and they were analyzed with suitable statistical methods for characteristics of numerical data and the purpose of the research. A general database was created in the Microsoft Excel package program for obtained data, and a general coding plan was made according to the questions asked. The surveys were entered into the computer according to this coding plan. In the study, the SPSS Software program was used for statistical analysis. It significantly benefited from descriptive statistics (mean, standard deviation, frequency) in the summary tables. The Chi-square test was also used to compare the variables in the tables with each other.

In this research, it was identified that 89.2% of producers surveyed were members of

at least one PO. In other words, 321 out of a total of 360 producers were members of at least one PO. Thus, the data obtained from 321 members were taken into account in the study.

To determine the members' satisfaction odds with the cooperatives, the Logit model, one of the two-valued selection models, was used. In the model, a member's satisfaction or dissatisfaction with the cooperative was determined by the values of 1 and 0, and these were used as dependent variables. Since it is possible for individuals to make many assumptions about the probability structures relevant to preferences, alternative model specifications emerge (İşyar, 1994). The logit model, which was created as an alternative to the probit model to solve the problems encountered in the linear probability model, is used more widely than others in practice (Sağlam and İnan, 2013). Although it is the same as the probit model in terms of its formation process, it differs from it in terms of the cumulative distribution function (CDF) on which it is based (Özer, 2004). The logarithm (L) of the odds ratio is linear not only with reference to X but also with reference to coefficients of the number of total units. L is called logit and the logit model comes from equation (7) (Gujarati and Porter, 2009). In determining members' satisfaction odds with the cooperatives, the following formulas were used (Sağlam and İnan, 2013).

$$P_i = E(Y = 1|X) = \frac{1}{1 + e^{-(\beta_1 + \beta_2 X_2 + \dots + \beta_k X_k)}} \quad (2)$$

or

$$P_i = \frac{1}{1 + e^{-Z_i}} \quad (3)$$

In the formula,  $Z_i$  ;

$$Z_i = \beta_1 + \beta_2 X_2 + \dots + \beta_k X_k \quad (4)$$

Equation (3) is accepted as the cumulative logistic distribution function. While  $Z_i$  varies between  $-\infty$  and  $+\infty$ ,  $P_i$  takes values between 0 and 1. It is known that its relationship with  $Z_i$  is not linear.

If members' satisfaction odds with the cooperatives is  $P_i$ , the odds of not purchasing ( $1 - P_i$ ) can be calculated as follows;

$$1 - P_i = \frac{1}{1 + e^{Z_i}} \quad (5)$$

The following formula is obtained from here;

$$\frac{P_i}{1 - P_i} = \frac{1 + e^{Z_i}}{1 + e^{-Z_i}} = e^{Z_i} \quad (6)$$



In this case, the ratio  $P_i/(1 - P_i)$  is the satisfaction odds with the cooperatives

$$L_i = \ln\left(\frac{P_i}{1-P_i}\right) = Z_i \tag{7}$$

$$= \beta_1 + \beta_2 X_2 + \dots + \beta_k X_k \tag{8}$$

The logarithm (L) of the odds ratio is linear not only with respect to X but also with respect to coefficients of the number of total units. L is called logit and the logit model comes from equation (7) (Gujarati and Porter, 2009). The variables used in the model were given in Table 1.

**Table 1: Definitions of variables**

Dependent variable	Value	Explanation
Satisfaction with being a member of PO	1	Being satisfied
	0	Not being satisfied
Independent variables	Value	Explanation
Participation in general boards	1	Participating in them
	0	Not participating in them
Satisfaction with works of the management of POs	1	Being pleased
	0	Not being pleased
Benefiting from organizational advantages	1	Benefiting from advantages
	0	Not benefiting from advantages

The model in question was estimated by the Maximum Likelihood (ML) method. According to estimation results, members' satisfaction odds and the odds ratios of the POs were calculated. This method has many statistical features. All estimators are consistent and asymptotic efficient. When all or some of the coefficients are tested in terms of significance in the logit model estimated via the highest likelihood method, the likelihood ratio (LR) test can be applied for them (Cai *et al.*, 2018). However, in terms of goodness of harmony,  $R^2$  is not considered an appropriate measure for logit models. However, in terms of goodness of harmony, the  $R^2$  value is not considered as an appropriate measure for logit models (Thomas, 2000). Although many alternative descriptive have been suggested as the goodness of harmony, the Nagelkerke  $R^2$  value was used in the study.

## 4. Results

### 4.1. Producers' sociocultural characteristics

#### 4.1.1. Producers' age

In the research, producers/members were examined by their ages and given in Table. According to this, it was detected that 12.2% of the members were in the 20-30 age group, 26.8% of them in the 31-40 age group, 30.5% of them in the 41-50 age group, 19.9% of them in the 51-60 age group, and 10.6% of them in the 61-+ age group (Table 2).

**Table 2: Producers/members' average age**

Age groups	Producers		Members of PO	
	Number	(%)	Number	(%)
20-30	43	11.9	39	12.2
31-40	94	26.1	86	26.8
41-50	112	31.1	98	30.5
51-60	75	20.9	64	19.9
61-+	36	10.0	34	10.6
Total	360	100.0	321	100.0

#### 4.1.2. Education

As in other sectors, education is also important in the agricultural sector. In particular, the education level becomes much more important in terms of being conscious, being interested, owning, and taking charge as a manager in the PO.

In the study, members' educational status was also examined, and given in Table 3. Accordingly, 55.8% of the members graduated from primary education, 37.7% of them from secondary education, and 6.5% of them from higher education/postgraduate. Accordingly, it is viewed that those who graduated from higher education/postgraduate were more willing to organizational membership than others.

**Table 3: Producers' educational status**

Levels	Producers		Members of PO		Membership (%)
	Number	(%)	Number	(%)	
Primary education	199	55.3	179	55.8	89.9
Secondary education	138	38.3	121	37.7	87.7
Higher education/postgraduate	23	6.4	21	6.5	91.3
Total	360	100.0	321	100.0	89.2

#### 4.1.3. Organization

In the study, the membership rates of the producers were analyzed according to the type of the POs and given in Table 4. Accordingly, 59.4% of producers was a member of the Chamber of Agriculture, 44.7% of them was a member of the Agricultural Credit

Cooperatives, 36.7% of them was a member of the Stud Breeders Association, 26.7% of producers was a member of the Agricultural Development Cooperative, 19.2% of them was a member of the Sugar Beet Growers Cooperative, 18.6% of them was a member of the Producer Association (Milk, Honey, Poppy, etc.) and 8.3% of them was also a member of the Irrigation Cooperative. In the study, 10.8% of the producers were also determined to be not members of any PO.

**Table 4: POs and their members' rate**

POs	Number of members	(%)
Chamber of Agriculture	214	59.4
Agricultural Credit Cooperative	161	44.7
Stud Breeders Association	132	36.7
Agricultural Development Cooperative	96	26.7
Sugar Beet Growers Cooperative	69	19.2
Producer Association (Milk, Honey, Poppy, etc.)	67	18.6
Irrigation Cooperative	30	8.3
Not being a member of the PO	39	10.8

## 4.2. A model proposal for POs: The Logit model

According to the Logit Model, variables were analyzed in 2 categories as dependent and independent variables. In the model, members' satisfaction with being a member of the PO was accepted to be the dependent variable; participation in the general boards, satisfaction with works of the management of the POs, and benefit from the advantages of the POs were also determined as independent variables.

### 4.2.1. The dependent variable

#### 4.2.1.1. Members' satisfaction with being a member of PO

The success case of an organization can be tested by the members' satisfaction with it. In the meantime, the members also need to know, monitor, and objectively evaluate the activities of the organization (Sağlam and İnan, 2013).

When members' satisfaction levels with being a member of the PO were examined, 7.8% of them was very satisfied, 36.1 of them was satisfied, 29.0% of them was partially satisfied, 13.4% of them was not satisfied, and 13.7% of them was not satisfied at all (Table 5). Members' satisfaction levels with POs were also shown in Figure 1.

In this context, the satisfaction with being a member of the PO was found 72.9% in

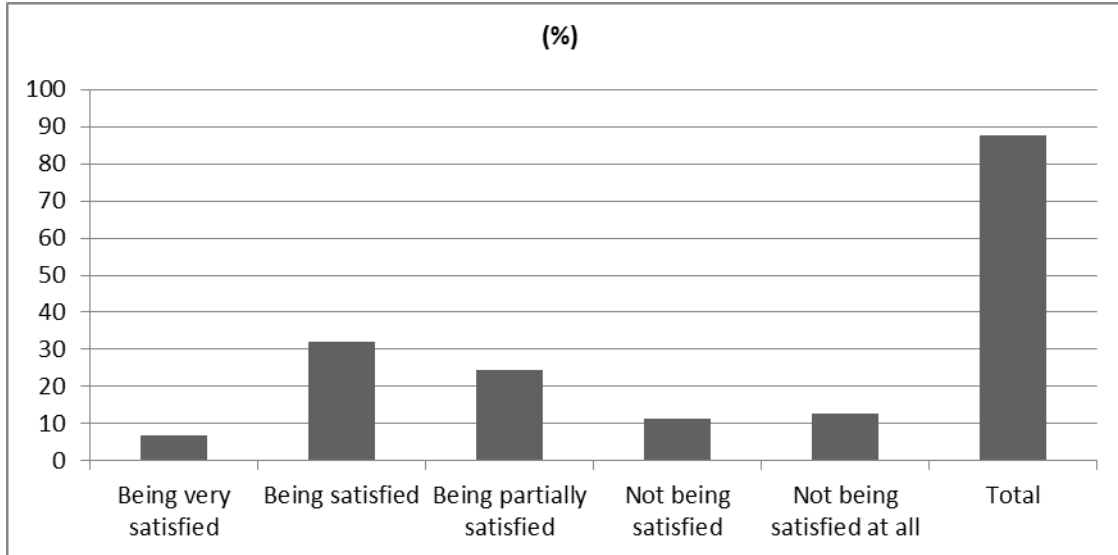
total, and their dissatisfaction level was also 27.1%. In the event that the satisfaction level is increased, the target expected from the organization will be also approached.

**Table 5: Members’ satisfaction levels with POs**

Satisfaction	Number of members	(%)
Being very satisfied	25	7.8
Being satisfied	116	36.1
Being partially satisfied	93	29.0
Not being satisfied	43	13.4
Not being satisfied at all	44	13.7
Total	321	100.0

In the research, the distribution of members’ satisfaction with being a member of the PO according to their age was given in Table 6. According to this, there was a statistically *significant relationship* in high level between both variables ( $p=0.009<0.01$ ).

The distribution of members’ satisfaction with being a member of the PO according to their educational level was given in Table 7. Accordingly, there was not a statistically *significant relationship* between both variables ( $p=0.260>0.05$ ).



**Figure 1: Members’ satisfaction levels with being a member of the PO**

## 4.2.2. Independent variables

### 4.2.2.1. Participation in general boards

As in all organizations, the General Board is a meeting held by the participation of

members in the POs and is the most authoritative organ. The General Board is held in the periods specified in the articles of association. At the General Board, the management activities and financial statements are discussed, and the administrative board is authorized for the new period. In addition, due to the fact that it is a meeting where the members are informed, it is also important in terms of being showed interest in the general board. High participation rates both increase the effectiveness of the organization and give trust to the management.

In the research, the members' participation status in the general boards was given in Table 8. According to table; the ratio responding “I participate in all of the meetings” was 12.1%, that of responding “I participate most of the meetings” was 12.5%. that of responding “I participate in none of the meetings” was also 33.3%.

**Table 6: Chi-Square analysis of the correlation between members’ age and satisfaction with being a member of the PO**

Satisfaction	Age groups												χ <sup>2</sup>	p <sup>a</sup>
	20-30		31-40		41-50		51-60		61-+		Total			
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)		
Very satisfied	3	0.9	8	2.5	12	3.7	2	0.6	0	0.0	25	7.8	32,358*	0,009
Satisfied	10	3.1	27	8.4	38	11.8	26	9.0	15	4.7	116	36.1		
Partially satisfied	11	3.4	32	10.0	23	7.2	15	4.7	12	3.7	93	29.0		
Not satisfied	13	4.0	12	3.7	7	2.2	9	2.8	2	0.6	43	13.4		
Not satisfied at all	2	0.6	7	2.2	18	5.6	12	3.7	5	1.6	44	13.7		
Total	39	12.2	86	26.8	98	30.5	64	19.9	34	10.6	321	100.0		

**Table 7: Chi-Square analysis of the correlation between members’ educational level and satisfaction with being a member of the PO**

Satisfaction	Educational levels								χ <sup>2</sup>	p <sup>a</sup>
	Primary education		Secondary education		Higher education		Total			
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)		
Very satisfied	10	3.1	11	3.4	4	1.2	25	7.8	10,075*	0,260
Satisfied	64	19.9	44	13.7	8	2.5	116	36.1		
Partially satisfied	50	15.6	36	11.2	7	2.2	93	29.0		
Not satisfied	22	6.9	20	6.2	1	0.3	43	13.4		
Not satisfied at all	33	10.3	10	3.1	1	0.3	44	13.7		
Total	179	55.8	121	37.7	21	6.5	321	100.0		

**Table 8: Members' participation in the general boards**

Participate status in meeting	Number of members	(%)
I participate in all of them	39	12.1
I participate in most of them	40	12.5
I participate in some of them	82	25.6
I participate in too few of them	53	16.5
I participate in none of them	107	33.3
Total	321	100.0

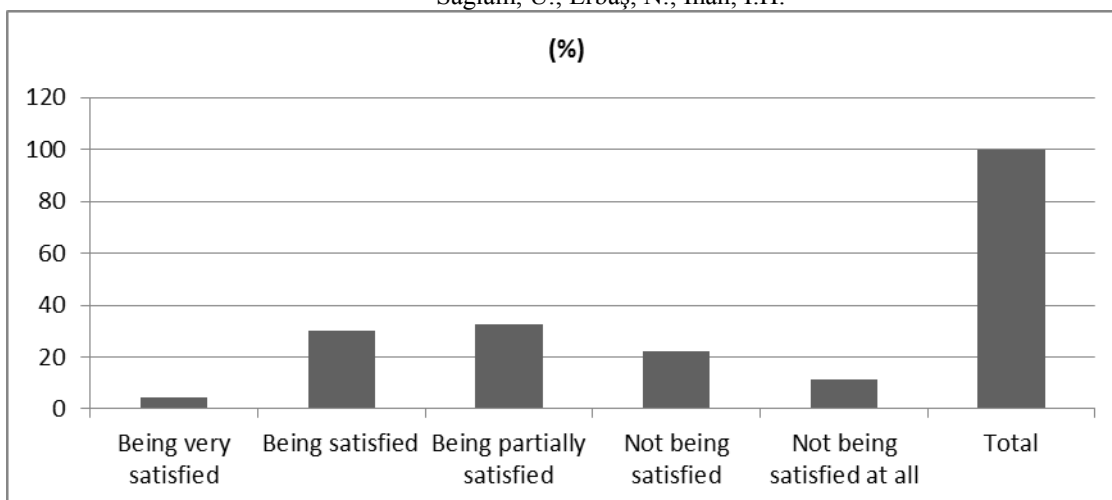
#### 4.2.2.2. Satisfaction with works of the management of POs

As in the other organizational models, the members in the PO want to be satisfied with the services of the people they have chosen as the manager. Organization's management should satisfy the audience they represent in the direction of a certain purpose, and make an effort for the success of the organization.

In Table 9 and Figure 2, the ratios of the members who were satisfied and weren't satisfied with works of the management of the POs were given. According to this, the ratio of the members who were "very satisfied" was detected at 4.4% and the ratio of those who were "satisfied and partially satisfied" was also 62.3%. Hence, total satisfaction level with organization's management was 66.7%. The ratio of the members who were not pleased with organization's management was also 33.3%.

**Table 9: Members' satisfaction levels with works of the management of POs**

Satisfaction	Number of members	(%)
Being very satisfied	14	4.4
Being satisfied	96	29.9
Being partially satisfied	104	32.4
Not being satisfied	71	22.1
Not being satisfied at all	36	11.2
Total	321	100.0



**Figure 2: Members' satisfaction levels with works of management of the POs**

#### 4.2.2.3. Reasons for members' dissatisfaction

When members were asked the reasons for their dissatisfaction with organizations and organization's management, 31.8% of them stated they could not receive the desired benefit from organizations. The ratio of the members expressing that they could not keep informed sufficiently about the PO and its activities was 20.6%, and the ratio of the members thinking that the supervisory board did not fully audit was also 15.3%. Those thinking that managers act arbitrarily were also 24.6% (Table 10).

**Table 10: Reasons for members' dissatisfaction**

Reasons	Number of members	(%)
Not keeping informed sufficiently about the PO and its works	66	20.6
Thinking that the supervisory board did not fully audit	49	15.3
Thinking that managers act arbitrarily	79	24.6
Not receiving the desired benefit	102	31.8
Other	25	7.8
Total	321	100.0

In the research, the distribution of the members' satisfaction with works of the management of the POs according to their age was given in Table 11. When the data in the table were tested, it occurs that there was a statistically *significant relationship* in high level between both variables ( $p=0.0001<0.01$ ).

The distribution of the members' satisfaction with works of the management of the POs according to their education level was given in Table 12. Accordingly, it was detected that there was not a statistically significant relationship between both variables ( $p=0.760>0.05$ ).

#### 4.2.2.4. Benefiting from organizational advantages

The issue of whether the organization meets their expectations was also as important as the reasons for the members to become a member of the PO. Producer organizations established to be beneficial to their members, to facilitate their work, to represent, and to make their voices heard on various platforms may not be able to fully meet the expectations of their members.

To the question about the advantages of the POs, 22.4% of the members stated it as “supplying a loan”; 9.4% of them “Getting vocational and technical information and making a more efficient production”; 22.7% of them “procuring agricultural inputs cheaper”; 13.4% of them “marketing crops more easily” and 7.5% of them also “removing bureaucratic barriers” (Table 13). 24.6% of the members think it didn't provide benefits themselves.

According to the model results, participation in the general board, satisfaction with works of the organization's management, and benefiting from organizational advantage variables (independent variables) were statistically significant [ $H_0: \beta_k = 0; H_1: \beta_k \neq 0; t_{\beta_k} = \beta_k / s(\beta_k)$ ].

**Table 13: Advantages of POs**

Topics	Number of members	(%)
Supplying a loan	72	22.4
Making a more efficient production by getting vocational and technical information	30	9.4
Procuring agricultural inputs cheaper	73	22.7
Marketing crops more easily	43	13.4
Removing bureaucratic barriers	24	7.5
Not providing benefit	79	24.6
Total	321	100.0



**Table 11: Chi-Square analysis of the correlation between members' age and satisfaction levels with works of the management of the POs**

Satisfaction	20-30		31-40		41-50		51-60		61-+		Total		χ <sup>2</sup>	p <sup>a</sup>
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)		
Very satisfied	2	0.6	2	0.6	4	1.2	6	1.9	0	0.0	14	4.4	47,647*	0,0001
Satisfied	7	2.2	19	5.9	49	15.3	14	4.4	7	2.2	96	29.9		
Partially satisfied	17	5.3	30	9.3	20	6.2	19	5.9	18	5.6	104	32.4		
Not satisfied	10	3.1	26	8.1	18	5.6	13	4.0	4	1.2	71	22.1		
Not satisfied at all	3	0.9	9	2.8	7	2.2	12	3.7	5	1.6	36	11.2		
Total	39	12.2	86	26.8	98	30.5	64	19.9	34	10.6	321	100.0		

\*Chi-Square test

**Table 12: Chi-Square analysis of the correlation between members' educational status and satisfaction levels with works of the management of the POs**

Satisfaction	Primary education		Secondary education		Higher education /postgraduate		Total		χ <sup>2</sup>	p <sup>a</sup>
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)		
Very satisfied	8	2.5	4	1.2	2	0.6	14	4.4	4,979*	0,760
Satisfied	52	16.2	40	12.5	4	1.2	96	29.9		
Partially satisfied	62	19.3	34	10.6	8	2.5	104	32.4		
Not satisfied	37	11.5	32	10.0	2	0.6	71	22.1		
Not satisfied at all	20	6.2	11	3.4	5	1.5	36	11.2		
Total	179	55.8	121	37.7	21	6.5	321	100.0		

\*Chi-Square test

The model results were given in Table 14.

**Table 14: The model results**

Variables	Coefficient	Standard error	Wald	Odds*	Odds ratio
Fixed	-1,11	0,295	14,19	0	0,329
Participation in the general boards	-0,944	0,293	10,41	0,001	0,389
Satisfaction with works of the management of POs	1,809	0,323	31,31	0	6,103
Benefiting from organizational advantages	2,619	0,304	74,2	0	13,73
-2 Log likelihood					320,28
Likelihood ratio (LR) (%)					80
Nagelkerke R <sup>2</sup>					0,47

\*Significant for a confidence interval of 99%.

The table value of  $X^2$  was 12.50 for a confidence interval of 95% and degrees of

freedom of 6. By testing of LR of the model, due to  $(320,281) > X^2_{0.05,5}$ ,  $H_0$  hypothesis was rejected.

The comment of the logit model is not as easy as in the linear regression model. Odds ratios are used in the interpretation of coefficients. Odds ratios are obtained by taking the exponential of the natural logarithms of these coefficients. The odds ratio expresses how many times it will affect the occurrence odds of the dependent variable in the event of the related independent variable to be 1 or 0 while other variables are fixed. In addition, as a rule, if the regression coefficients are negative, the odds ratios of these coefficients should be corrected as  $OO = 1/OO$  (Sağlam and İnan, 2013; Özdamar, 2004). For example, the odds ratio for the variable of participation in the general boards was calculated as  $(1/0.389 = 2.57)$ . This ratio meant that organizational satisfaction odds for each member participating in the general boards was 2.57 times higher than that not participating in them. As for other odds ratios, organizational satisfaction odds related to members who were pleased with works of the management of POs was 6.10 times higher than those who were not delighted at them; and the organizational satisfaction odds regarding members who benefited from organizational advantages were also 13.72 times higher than the others.

In the study, organizational satisfaction odds of a member participating in the general boards and benefiting from organizational advantages were also calculated (Equation 9).

$$P = \frac{1}{1+e^{-z}} \quad (9)$$

$$Z = -1,110 - (0,944 \times 1) + 2,619 \times 1 = 0,565$$

$$P = \frac{1}{1+e^{0,565}} = 0,363 = \%36.3$$

Accordingly, organizational satisfaction odds concerning members who participated in the general boards and benefited from organizational advantages was 36.3%.

In the study, organizational satisfaction odds about members who were pleased with the management of the POs was also calculated as follows.

$$Z = -1,110 + 1,809 \times 1 = 0,699$$

$$P = \frac{1}{1+e^{0,699}} = 0,33 = \%33$$

Accordingly, the organizational satisfaction odds related to members who were delighted at the management of the POs was 33%.

Organizational satisfaction levels of members who benefited from organizational advantages, participated in the general boards, and were satisfied with the management of the PO increased generally.

Members' interest and participation situation in the general boards that were the most important audit and contact meetings of the POs will increase the success of the organization. A successful organization will provide more benefits to members. As a result, the satisfaction level with the POs will increase.

## 5. Discussion

In the research, members' average age was determined as 44.1. Members' average age was calculated 46.7 in a study conducted in Van province (Terin and Çelik Ateş, 2010) and 49.5 in a study conducted in Bursa province (Acıköse, 2019). In the region the schooling ratio was 100.0%. In a study conducted in Van province in 2010, the ratio of members graduating from primary school was 51.7%, those graduating from secondary school 17.8%, and those graduating from higher education graduates 0.8%. It was also determined that 29.7% of the members did not graduate from any educational institution (Terin and Çelik Ateş, 2010). In a study conducted in Bursa, it was determined that 41.2% of the members graduated from primary education, 36.6% of them from secondary education and 19.3% of them from higher education/postgraduate, and 2.9% of them did not also graduate from any educational institution. In this context, it was understood that the education level in Uşak was better than Van and Bursa.

In the study, it was determined that 89.2% of the producers was a member of at least one PO. In a study conducted in Van province related to the research topic, it was stated that 74.6% of the members was a member of the Chamber of Agriculture, 27.1% of them was that of the Agricultural Development Cooperative, 5.1% of them was that of the Agricultural Credit Cooperative, and 11% of them was that of the Beet Growers Cooperative. While 83.1% of the members was a member of agricultural organizations, 16.9% of them was not a member of them (Terin and Çelik Ateş, 2010). In 2017, in a study conducted in Erzurum province, it was detected that 53.24% of the members was a member of at least one PO, 46.76% of them was not a member of them (Sarı and Külekçi, 2017). In a study conducted in Samsun, these ratios were 83.1% and 16.9%, respectively (Aydoğan and Yulafcı, 2014). Accordingly, it could be stated that the PO was in quite a good condition in the research region.

In the research, it was determined that members' satisfaction levels with the POs were

63.5% and it was extremely high. In the study conducted by Topuz and Bozoğlu (2021), explored members' satisfaction levels in the Organic Hazelnut Agricultural Producer Union (OHAPU), and the members' satisfaction levels were analyzed by the Ordered Probit Model. The research results showed that 52% of the members were satisfied with the OHAPU.

In this study, it emerged that one of the reasons for producers to be a member of the PO was also to benefit from its advantages. In the study that Baranyai et al. (2008) conducted, they examined the main factors of the producers' willingness to co-operation but from other viewpoints, and demonstrated that the willingness to co-operate is in negative relation to farm size and positive relation to assets deficiency.

In this study, it was viewed that the general board is a meeting in which the members are informed, and it is highly important for them to show interest in the general board. In addition, it was appointed that high participation rates increased both the effectiveness of the organization and members' organizational satisfaction. Prasertsang et al. (2020), in their study, reviewed the determinants of members' satisfaction with the activities of horticultural cooperatives in Thailand using data obtained from 290 cooperative members. The empirical results of the heteroscedasticity-corrected ordinary least squares regression revealed that the members' satisfaction with the works of the cooperatives is influenced by, meeting attendance, trust in the management, profitability, information flow, and coordination, years of membership, and a variety of services.

## 6. Conclusions

In this study, in which a member's organizational relations and satisfaction level were examined, it was determined that most of the producers examined was a member of at least one PO. When compared with other research results, it was detected that this rate was at quite a good level. The PO with the highest number of members was the Chamber of Agriculture and the PO with the fewest members was also the Irrigation Cooperative.

The success of an organization can only be measured by the satisfaction of its members. In the research, members' rate who were satisfied being a member of the PO was quite high. Although this rate showed that most of the members were satisfied with the organizations, it was not enough. The success of organization's management will become effective at this rate.

In the research, it was determined that the performance of the organizations in the region did well. However, not informing members not adequately about the activities of the

organization, fully not auditing the supervisory board, arbitrary action of the organization's management, and sufficiently not benefiting the members from the POs were also the main reasons for dissatisfaction. Organization's management must provide accurate information to the members to whom they are responsible for serving. They should make an effort for the works that members expect from them, inform their members in all respect, and exhibit transparent management.

The Logit model was proposed for detecting member's satisfaction in the agricultural sector. In the study, the logit model variables were statistically significant. In other words, members' participation in general boards, their satisfaction with the works of the organization's management, and their receiving benefits from the works of the PO variables were statistically significant.

Finally, organization's management should have strategic management techniques, creative power values, and innovative vision; the efficiency of the POs in the processing and marketing of agricultural products should be increased, and even the POs should be decisive in detecting the production costs and support prices of agricultural products. In this way, a high organizational satisfaction rate can be achieved.

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