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Marketing Channel Preferences of Cut Flower Producers: A Case Study of Turkey

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Abstract: This study aims to determine the preferred criteria of cut flower producers when choosing marketing channels, and the degrees of importance of these criteria. In this study, the levels of importance of the different marketing criteria used by cut flower producers and their marketplace preferences were analyzed using the analytic hierarchy process. The data used in this study were obtained from questionnaires completed by 82 cut flower producers in İzmir province. The most preferred marketing criterion for producers was payment guarantee, followed by ease of marketing and price. When producers' marketplace preferences were ranked according to the different criteria, cooperatives ranked first, followed by wholesalers and exporters. The Tobit model was employed to reveal the socio-economic variables that affected the producers' choices and the criteria considered in the analytic hierarchy process. It was established that cooperatives play an important role in marketing cut flowers and developing this sector in Turkey.

Keywords: cut flower; analytic hierarchy process (AHP); Tobit model; marketing; Turkey



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1. Introduction

The cut flower sector has economic value, primarily due to the employment opportunities it creates, particularly for the idle labor force [1]. The problems encountered in the marketing of cut flowers in Turkey include the instability of cut flower prices, the seasonality of demand, the lack of availability of adequate cold storage, the fact that payments are not made in cash, the long maturity periods of the product, the lack of buyer guarantee, and the fact that the products are not classified according to their quality. The scarce purchasing of cut flowers particularly affects cut flower marketing in Turkey [2–6]. The determination of the most appropriate marketing channel for producers in terms of the price at which they can obtain a return on the cost of their labor, a payment guarantee, and ease of marketing is essential for ensuring the development of the cut flower sector in Turkey.

In Turkey, a significant portion of cut flowers are marketed by cooperatives (the Limited Liability Flora Floriculture Production and Marketing Cooperative and the Limited Liability Flower Production and Marketing Cooperative). Production and marketing cooperatives market the products of cut flower producers, whom they partner with through flower auctions set up by cooperatives in various provinces. In research conducted in Turkey, it has been determined that the majority of producers who are members of the cut flower cooperative sell their products at auctions through cooperatives [4,5,7,8]. In addition to auctions, cut flower producers can market their products to wholesalers, to retailers (florists/street vendors), or directly to consumers [9]. Cooperatives play an important role in fulfilling various marketing functions, such as collecting, transporting, and packaging the cut flowers. In addition, to develop the market, the cooperatives send representatives to attend various functions and provide technical support for their partners [10].

About 1265.22 hectares of land was used for cut flower production both in open fields and under protected conditions in Turkey in 2021 [11]. Of these areas of production, 26.52% were in İzmir, 32.53% in Antalya, and 40.95% in other provinces (e.g., Isparta, Yalova, Bursa,

Adana, Konya, Mersin, İstanbul, and Tokat). While İzmir province ranks second in terms of cut flower production by area, the production that occurs here is predominantly intended for the domestic market, with exportation being of secondary importance.

Many studies have revealed the socio-economic status of cut flower enterprises and marketing, and the profitability of various cut flower species both in Turkey and globally [5,6,12–38]. In many field research studies carried out in Turkey concerning cut flower production, authors have established such problems as: the need for producers to set low prices, the fact that payments are not made in cash or on time, producers' lack of decision-making power in the market, and the fact that no guarantee is given in marketing [6,8,12,15,18,25,29]. To ensure the development of the cut flower sector, it is important to determine which actor in the cut flower marketing chain is most appropriate for the settlement of problems encountered by producers.

In this study, the analytic hierarchy process (AHP) was used to select the most appropriate marketing channel for cut flowers. The AHP is employed in many fields, such as project selection; the selection of sellers and sources; planning and budgeting; education, health, and the environment; quality management; market research; performance and risk assessment; decision making in consumers choosing between different products; and the determination of optimal strategies. Studies using the AHP have also been conducted in the field of agricultural economics [39–60]. According to a literature review, a study was conducted regarding the determination of the most appropriate marketing channel for promoting fresh fruits and vegetables by employing the AHP method [47]. However, no research using this method to determine the marketing channel preferences of cut flower producers has been encountered in the literature.

This study aims to determine producers' preferred marketing channel among cooperatives, exporters, wholesalers, and florists/street vendors according to their priorities using the criteria of price, payment guarantee, and ease of marketing. To determine these criteria, we examined the results of research carried out in Turkey. Additionally, a Tobit analysis was used to analyze the socio-economic variables (age, education, number of individuals in the family, experience in cut flower growing, status of membership in a cooperative, total farmland, cut flower production area, etc.) that affect producers' choices and the criteria addressed in the analytic hierarchy process with respect to cut flower producers' preferred marketing channels.

2. Methodology

2.1. Sample Size

In terms of the cut flower production area, İzmir ranks second after Antalya in Turkey, and ranks first in the Aegean region. Of the cut flower production in Turkey, 26.52% takes place in the Aegean region and 98.70% in İzmir province [11]. In İzmir province, chrysanthemum, rose, carnation, narcissus, lily, gerbera, gladiolus, lisianthus, and other flower species are grown in 29.84%, 23.49%, 13.85%, 9.36%, 5.81%, 2.10%, 1.64%, 1.62%, and 12.29% of the cut flower production areas, respectively [11]. The main materials used for this research consisted of data obtained from farms that produce cut flowers in open fields and under protected conditions in the Balçova, Karaburun, Kiraz, Menderes, Seferihisar, and Urla districts in İzmir province. Data from these farms were acquired from questionnaires completed in 2015. Records of the Turkish Statistical Institute and of the İzmir Provincial Directorate for the Ministry of Food, Agriculture and Livestock of the Republic of Turkey were utilized to select the study areas. It was discovered that the six districts listed above accounted for 93.08% of the cut flower production area in open fields and under protected conditions in İzmir province. Menderes, Urla, Balçova, Karaburun, Kiraz, and Seferihisar districts, where the most intensive productions were carried out, were included in the scope of the research. The 525 producers of cut flowers in the 6 selected districts of intensive production are registered in the Farmer Registration System (FRS) [61].

The number of producers to be interviewed for this study was calculated using the formula of the proportional sampling method [62].

$$n = \frac{Np(1-p)}{(N-1)\sigma^2_{px} + p(1-p)} \quad (1)$$

n = sample size;

N = number of producers of cut flowers in the villages investigated in this research;

σ^2_{px} = variance (95% confidence interval and 10% margin of error);

($1.96 \sigma_{px} = 0.10$, $\sigma_{px} = 0.05102$, $\sigma^2_{px} = 0.002603$).

To ensure that the sample size was as large as possible, it was recommended to accept a value of $p = 0.50$, which yielded the largest value when multiplying $p(1-p)$. Therefore, the rate of the producers of cut flowers was taken as 0.50 in order to achieve the maximum sample size. The sample size was calculated to be 82 with a 95% confidence interval and a 10% margin of error. The producers included in the research were selected randomly and the questionnaires were performed face-to-face in 2015.

2.2. Ethical Statement

This study was reviewed and approved by the Scientific Research Projects Coordination Unit of Ege University. In 2014, when the project was initiated, the Scientific Research Projects Coordination Unit of Ege University did not have to obtain an ethics committee certificate for human research. The survey participants were invited to take part in the study and were fully informed of the intent and the purpose of the study prior to participating. The consent procedure was carried out face-to-face. The questionnaires were completed via face-to-face interviews with farmers.

2.3. Analytical Framework

In this study, the analytic hierarchy process (AHP) was utilized to rank the goals of cut flower producers according to their degree of importance in order to determine the most appropriate cut flower marketing channel in İzmir province. Furthermore, the Tobit model was used to evaluate the socio-economic variables affecting alternative choices, and the criteria were addressed in the analytic hierarchy process, with respect to the cut flower producers' preferred marketing channel.

The AHP is a decision-making method developed by Saaty, 1980 [63]. It is used to solve complicated problems involving more than one criterion. Decision making is a process of selection among different options that takes place in order to attain certain objectives and goals [64]. The AHP allows decision makers to model a complicated problem in a hierarchical structure that shows the relationships among the main objective, the criteria, the sub-criteria, and alternatives to the problem [65]. It is a robust and easy-to-understand method that enables groups and individuals to combine the quantitative and qualitative factors involved in the decision-making process. This process allows for the rating of alternative decisions and for the best choice to be made based on the multiple objectives of the decision maker. Briefly, it answers the question "which?". The AHP is a rating method that is based on how much each alternative decision complies with the criteria of a decision maker. Moreover, it is a method whereby knowledge, experience, and the thoughts and expectations of an individual are logically combined [66]. It enables one to determine the advantages of different criteria and sub-criteria, and to systematically compare and assess them [67].

The first step of the AHP is to separate the decision problem into its basic components and create a hierarchical structure. Pairwise comparisons make up the second fundamental step of the AHP and involve a comparison of two alternatives/criteria with each other. If the hierarchy contains n elements, a total of $n(n-1)/2$ pairwise comparisons must be made. A pairwise comparison shows how important Criterion A is in comparison with Criterion B. This is determined using a 9-point preference scale (1–9) [65].

Definition of Degree of Importance

1	Equally important
3	Moderately important in comparison with the other criterion
5	Strongly important
7	Very strongly important
9	Extremely important
2, 4, 6, 8	Intermediate values

In the AHP method, the problem is first presented. The objective to be placed at the top of the hierarchy is determined, and then, the remainder of the hierarchy is created. Upon placing the first objective at the top, the places of the criteria, the sub-criteria, and the alternatives are determined. Next, a pairwise comparison matrix is formulated. The relative importance vector (weight vector) is found by making use of the pairwise comparison matrix. The consistency ratio is then calculated. In the case of consistency, a decision is made. In the case of inconsistency, the pairwise comparisons are reviewed, and the process is repeated [68].

The Tobit model is also known as the censored regression model. As the values taken by the dependent variable are limited, it is also called the model with a limited dependent variable [69]. The values of the preferences and the priorities obtained in the analysis of the analytic hierarchy process are between 0 and 1.

The equation for the Tobit model is provided below [70].

In the Tobit model, the dummy variable is:

$$y_i = \begin{cases} 1 & \text{if } y_i^* > 0 \\ 0 & \text{if } y_i^* \leq 0 \end{cases} \quad \text{and} \quad (2)$$

$$y_i = \beta x_i + u_i \quad (3)$$

It is assumed that y_i^* is observed if $y_i^* > 0$, but y_i cannot be observed if $y_i^* \leq 0$.

The observable y_i is expressed as follows:

$$y_i = \begin{cases} y_i^* & \text{if } y_i^* > 0 \\ 0 & \text{if } y_i^* \leq 0 \end{cases} = \beta x_i + u_i \quad \text{but} \quad (4)$$

$u_i \sim N(0, \sigma^2)$ denotes a vector of the explanatory variables, β the unknown parameters, y_i^* the unobservable (latent) variable, and y_i the scores obtained from the AHP.

3. Results and Discussion

3.1. Features of the Producers and the Farms That Produce Cut Flowers

The mean age of the cut flower producers in this study was approximately 46.91 years, and the length of their education was 7.54 years. It was determined that the producers received an education at the secondary level. The average amount of agricultural experience of the producers on the farms under examination was 21.70 years. The producers of cut flowers in this study have been producing cut flowers for 18.56 years on average. The mean number of individuals in families working in the cut flower production farms under examination was about four (Table 1).

In terms of age, education, and the amount of experience of the producers, the results of the present study resemble those obtained from various other studies of producers growing different species of cut flowers at different locations in Turkey [6–8,20,29,61].

About 78.05% of the producers in this study were discovered to have partnered with a cooperative. Of the producers who had cooperative partners, 89.06% were members of the Limited Liability Floriculture Production and Marketing Cooperative, 28.13% were members of the Agricultural Credit Cooperative, 7.81% were members of the Agricultural Development Cooperative, and 3.13% were members of the Fishery Cooperative.

The total size of the farmland of each producer was found to be 1.297 hectares, and the average number of plots was 3.23 on the farmland where cut flowers were produced.

The mean cut flower production area was 0.52 hectares and the number of plots was 2.18. About 40.09% of the total farmland was allocated for cut flower production. Of the land where cut flowers were produced, 73.27% was privately owned, 19.04% was rented, and 7.69% was operated through sharecropping.

Table 1. Features of the Producers of Cut Flowers.

	Mean	Standard Deviation	Minimum	Maximum
Age (years)	46.91	11.99	18	80
Education (years)	7.54	3.12	0	15
Number of individuals in the family	4.00	1.42	2	7
Agricultural experience (years)	21.70	10.89	1	60
Experience in cut flower production (years)	18.56	10.89	1	60

Narcissus was grown in 40.69% of the total cut flower production areas, rose in 16.67%, chrysanthemum (in greenhouses) in 14.42%, gladiolus in 10.67%, lilium in 7.50%, carnation in 4.08%, chrysanthemum (in open fields) in 3.44%, and others (gillyflower, freesia, lisianthus, Asiatic dayflower, sweet William, zinnia, and solidago) were grown in 2.53% of the total cut flower production areas.

Of the 82 farms included in the questionnaire, 46.34% grew chrysanthemum, 26.83% grew narcissus, 23.17% grew rose, 15.85% grew gladiolus, 12.20% grew lilium, 10.98% grew carnation, and 12.20% grew other flowers. Gladiolus, narcissus, and lilium were produced in open fields. Carnations and roses were grown in greenhouses, while chrysanthemums were grown in both open fields and greenhouses. It was found out that the majority of the farms produced flowers in plastic-covered greenhouses.

3.2. Cut Flower Marketing

In this research carried out in İzmir province, the overwhelming majority of producers marketed their cut flowers through auctions affiliated with cooperatives. The farms that produce gladiolus, chrysanthemum grown in open fields, and lilium give all of the products they grow to the Limited Liability Flora Floriculture Production and Marketing Cooperative. Of the rose farms, 89.47% stated that they marketed their products through the Limited Liability Flora Floriculture Production and Marketing Cooperative, and 31.58% stated that they marketed their products through wholesalers. Of the farms producing carnation, 88.89% marketed their flowers through the Limited Liability Flora Floriculture Production and Marketing Cooperative, 11.11% through merchants, and 11.11% through street vendors. Of the producers who grew chrysanthemum in greenhouses, 96.55% marketed their products through the Limited Liability Flora Floriculture Production and Marketing Cooperative, 13.79% through wholesalers, and 3.45% through street vendors. The narcissus farms marketed 18.18% of their flowers through the cooperative, 90.91% of them through merchants, 4.55% of them through florists, and 4.55% of them through street vendors (* the total exceeded 100 because the farms sold the cut flowers to more than one place).

All of the farms that grew gladiolus, chrysanthemum (in open fields), and lilium sold their products through deferred payments. Of the rose farms, 78.95% marketed flowers through deferred payment, 15.79% in cash, and 5.26% both in cash and through deferred payments. Of the carnation farms, 88.89% sold carnation through deferred payments and 11.11% in cash. Of the farms that grew chrysanthemums in greenhouses, 89.66% sold their flowers through deferred payments, 6.90% sold them both in cash and through deferred payments, and 3.45% sold them in cash only. Of the narcissus farms, 36.36% sold narcissus in cash, 36.36% through deferred payments, and 27.28% both in cash and through deferred payments. None of the producers included in this research sold cut flowers online.

3.3. Results of the Analytic Hierarchy Process (AHP)

In this study, the preferences of cut flower producers based on the criteria of price, payment guarantee, and ease of marketing according to different marketing channels (cooperatives, exporters, wholesalers, and florists/street vendors) were evaluated using the analytic hierarchy process (Figure 1).

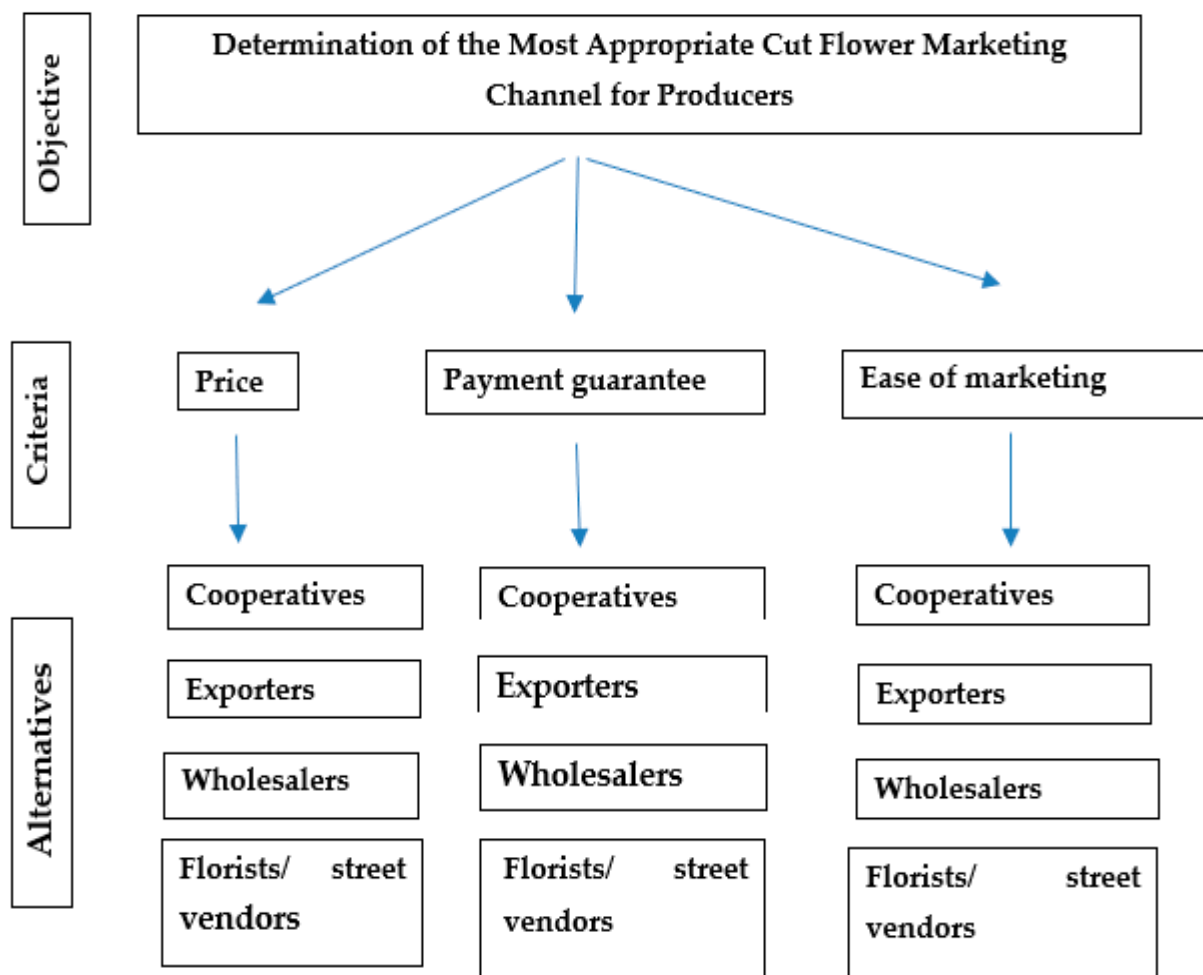


Figure 1. An Analytic Hierarchy Model to Determine the Most Appropriate Cut Flower Marketing Channel.

When evaluated according to the degrees of importance of the criteria in the marketing of cut flowers, it is evident that there is a statistically significant difference among the criteria. The payment guarantee (0.504) ranks first, followed by the ease of marketing (0.293) and the price (0.203) (Table 2). This indicates that producers primarily attach importance to payment guarantees and ease of marketing, followed by pricing.

Table 2. Degrees of Importance of the Criteria affecting Cut Flower Marketing on the Farms under Examination.

Criteria	Mean *	Median	Standard Deviation	Minimum	Maximum
Price	0.203	0.192	0.151	0.052	0.818
Payment Guarantee	0.504	0.474	0.193	0.052	0.818
Ease of Marketing	0.293	0.323	0.185	0.052	0.818

* Significant difference at $p < 0.05$ according to the Friedman Test.

When evaluated in terms of the different marketing alternatives for cut flower producers, it is striking that the most important marketing avenue is through cooperatives (0.566), followed by wholesalers (0.158), exporters (0.148), and florists/street vendors (0.128) (Table 3). There is a statistically significant difference among these alternatives. Producers prefer marketing their cut flowers through cooperatives. The supply chain of cut flower products in the European Union (EU) countries includes agents, auctions, wholesalers, and retailers. Auctions are an important marketing channel through which cut flowers are sold. It has also been noted that the shares of wholesalers and retailers are increasing over time [71,72].

Table 3. Evaluation of Different Market Alternatives for Cut Flowers on the Farms under Examination.

Alternatives	Mean *	Median	Standard Deviation	Minimum	Maximum
Cooperatives	0.566	0.606	0.154	0.035	0.750
Exporters	0.148	0.125	0.097	0.034	0.507
Wholesalers	0.158	0.124	0.101	0.033	0.465
Florists/Street Vendors	0.128	0.098	0.076	0.034	0.334

* Significant differences at $p < 0.05$ according to the Friedman Test.

In this study, the cut flower producers preferred cooperatives to the alternative choices (exporters, wholesalers, and florists/street vendors) in terms of the price, payment guarantee, and ease of marketing. Exporters ranked second and wholesalers ranked third according to the criterion of price. In terms of payment guarantee, cooperatives ranked first, followed by wholesalers, exporters, and florists/street vendors. When considered based on the criterion of the ease of marketing, cooperatives ranked first, followed by wholesalers, exporters, and florists/street vendors (Table 4).

Table 4. Priorities of the Alternatives in the Analytic Hierarchy Process regarding Different Markets on the Farms under Examination.

	Cooperatives	Exporters	Wholesalers	Florists/Street Vendors
Price	0.370	0.272	0.185	0.173
Payment Guarantee	0.610	0.132	0.143	0.116
Ease of Marketing	0.630	0.120	0.145	0.105

In the questionnaires, cut flower producers stated that a cooperative was an important marketing channel in terms of the ease of marketing and payment guarantees. This finding was also found to be significant according to the results of the analytic hierarchy process. Low prices, the fact that payments were not made in cash, the lack of guarantees of buyers, and the difficulties experienced in finding buyers were also stated as crucial problems in studies carried out on cut flower producers in different regions of Turkey [4–7]. Payment guarantee is one of the most serious issues for producers in different areas of production in Turkey. When producers are in urgent need of cash, they prefer to sell their products to merchants, even if the prices of the products are low, since the payments from merchants are made in cash. Nevertheless, although the producers have given their products to the merchants, they sometimes experience difficulty in obtaining the intended price of the product. Thus, cooperatives are an important marketing channel for producers in terms of both the ease of marketing and payment guarantees. Producers who are members of the cut flower cooperative state that they have no difficulty in finding a market. In Turkey, producers in the cut flower sector join forces through cooperatives to a greater degree than those in other areas of agriculture. Cut flowers are marketed through auctions affiliated with these cooperatives. The cut flowers prepared by the producers are collected at a

predetermined center and transported to the auction venues by the cooperative, which is one of the main reasons that producers prefer cooperatives. This provides the producers with ease of transport. Furthermore, the cooperatives also provide support in the supply of materials, such as seedlings and seeds, to the producers. For these reasons, it can be stated that producers prefer cooperatives for the marketing of cut flowers. Additionally, in a study carried out in Antalya province, where cut flower production for exportation is performed intensively, it was stated by the producers that conducting sales through cooperatives was more reliable [5].

3.4. Results of the Tobit Model

The Tobit model was employed to reveal the factors that affect the marketing channel preferences of cut flower producers (Table 5).

Table 5. Tobit Models Regarding the Marketing Channel Preferences of Cut Flower Producers on the Farms under Examination.

Variable	Dependent Variable			
	Cooperative	Exporter	Wholesaler	Florist/Street Vendor
Constant	0.49988 *** (0.120287)	0.216784 ** (0.085321)	0.160464 * (0.0834450)	0.122871 * (0.0636047)
Age	0.00398 ** (0.00162632)	−0.000801 (0.00115358)	−0.00158827 (0.00112820)	−0.001591 * (0.000859956)
Education	−0.01082 ** (0.00500894)	0.001287 (0.00355294)	0.00553751 (0.00347478)	0.003999 (0.00264860)
Number of individuals in the family	0.00821 (0.0117465)	−0.004244 (0.00833200)	−0.0105327 (0.00814872)	0.006570 (0.00621123)
Experience in cut flower growing	−0.00307 * (0.00159836)	0.000207 (0.00113375)	0.00111393 (0.00110881)	0.001745 ** (0.000845171)
Status of membership in a cooperative	0.0204273 (0.0366715)	−0.038229 (0.0260119)	0.0411375 (0.0254397)	−0.023336 (0.00193910)
Total farmland	0.00445 *** (0.00136467)	−0.001683 * (0.00096799)	−0.00207679 ** (0.000946693)	−0.000693 (0.000721602)
Cut flower production area	−0.0020945 (0.00453155)	0.002916 (0.00321432)	−0.00108842 (0.00314361)	0.000267 (0.00239617)
Non-agricultural income	0.04077 (0.0340221)	−0.035057 (0.0241326)	0.0157553 (0.0236017)	−0.021465 (0.0179900)
Share of total income from cut flower production	−0.00002 (0.000057)	0.000062 (0.000040746)	−0.00002476 (0.00003985)	−0.000017 (0.00003)
State of performing vegetal production in addition to cut flower production	−0.17138 *** (0.0349685)	0.034560 (0.0248039)	0.0821425 *** (0.0242583)	0.054682 *** (0.0184905)
N	82	82	82	82
Log-likelihood	51.74345	79.90619	81.73012	103.9932

* Significant at 0.10; ** significant at 0.05; *** significant at 0.01. The values in parentheses represent the standard errors.

In the Tobit model estimate for cooperatives, significant relationships were found among a producer's age, their education level, the length of their experience in cut flower growing, total farmland, and whether they produced vegetal matter in addition to cut flowers. The probability that a producer prefers cooperatives to other choices increased with increasing age. Elderly producers chose cooperatives more often and did not show any preference for the other marketing channels. It might be assumed that elderly producers chose cooperatives through which they could market their products in a guaranteed fashion as they did not want to take risks.

There was a negative relationship between the level of education and preference for cooperatives. The producers with a higher level of education were less likely to prefer cooperatives. It was established that younger and more educated producers took more risks and tended to prefer selling their products through other marketing channels.

There was a positive relationship between total farmland and preference for cooperatives. The producers with more land had a higher probability of preferring cooperatives. The total production was greater with an increase in the area of land used for producing cut flowers. Since producers who have more land may be confronted with difficulties in finding markets for their products, they prefer giving their products to cooperatives.

Producers who produced vegetal matter in addition to cut flowers were less likely to prefer cooperatives. If a producer included an agricultural activity other than cut flower production on their farm, their willingness to sell their cut flowers to a cooperative decreased. It is possible that producers carrying out other forms of agricultural production prefer to sell their cut flowers for cash through different marketing channels to meet the expenses incurred in the production of other products. The preference for exporters and wholesalers in cut flower marketing decreased as the total farmland grew.

The marketing preference of elderly producers for florists/street vendors decreased. It could be stated that younger producers prefer this marketing channel more than elderly producers. The probability of preferring florists/street vendors increased with increasing experience in growing cut flowers. It was determined that producers' preferences for florists/street vendors increased the more experience they had. People producing other agricultural products in addition to cut flowers showed a greater preference for wholesalers and florists/street vendors. It was established that, for the farms examined in this study, cut flowers were purchased in cash by wholesalers and florists/street vendors. It was determined that, due to these cash payments, producers with higher levels of production on their farms had a greater probability of preferring wholesalers and florists/street vendors in order to meet the costs of the other products they produced.

The results of the Tobit model, prepared according to the criteria that affected cut flower marketing on the farms under examination, are provided in Table 6.

Table 6. Tobit Models Regarding the Priorities of the Criteria for Cut Flower Marketing on the Farms under Examination.

Variables	Dependent Variable		
	Price	Payment Guarantee	Ease of Marketing
Constant	0.1959960 (0.128002)	0.546670 *** (0.170064)	0.257334 * (0.155138)
Age	−0.0008413 (0.00173063)	−0.001703 (0.00229933)	0.002544 (0.00209752)
Education	0.0009631 (0.00533021)	0.07462 (0.00708175)	−0.008425 (0.00646021)
Number of individuals in the family	−0.0142736 (0.0124999)	−0.018454 (0.0166074)	0.032728 ** (0.01514498)
Experience in cut flower growing	0.0032127 * (0.00170088)	−0.000137 (0.00225979)	−0.003075 (0.00206146)
Status of membership in a cooperative	0.0186384 (0.0390237)	0.082415 (0.0518471)	−0.101053 ** (0.0472966)
Total farmland	0.0013576 (0.00145220)	0.000594 (0.00192940)	−0.001952 (0.00176006)
Cut flower production area	−0.0076212 (0.00482220)	0.003914 (0.00640681)	0.003707 (0.00584450)
Non-agricultural income	0.037287 (0.0362043)	−0.034969 (0.0481013)	0.031240 (0.00438795)
Share of total income from cut flower production	−0.0000260 (0.000061)	−0.00007 (0.0000812)	0.000099 (−0.000073)
State of performing vegetal production in addition to cut flower production	0.0801442 ** (0.0372114)	−0.009101 (0.0494393)	−0.071043 (0.0451002)
Log-likelihood	46.64572	23.34701	30.87952

* Significant at 0.10; ** significant at 0.05; *** significant at 0.01. The values in parentheses represent the standard errors.

Experience in growing cut flowers had a significant positive effect on price. Price was found to be more important to producers who were more experienced in cut flower marketing. The number of individuals in a producer's family was found to have a positive relationship with the ease of marketing, but a negative relationship with the status of membership in a cooperative. It was established that larger families placed greater importance on the ease of marketing of their cut flowers than the other criteria (Table 6).

4. Conclusions

As a result of these evaluations, we saw that payment guarantees (50.4%) ranked first, followed by the ease of marketing (29.3%) and price (20.3%). It was discovered that cut flower producers made payment guarantees a priority when marketing their cut flowers. The criterion of price was less important than both the payment guarantee and the ease of marketing of cut flowers because producers did not trust intermediaries and because cut flowers decay quickly.

The most appropriate marketing channels in cut flower sales were cooperatives (56.6%), followed by wholesalers (15.8%), exporters (14.8%), and florists/street vendors (12.8%). Producers preferred cooperatives for payment guarantees, ease of marketing, and price.

Cut flower producers placed greater importance on the criteria of payment guarantees and the ease of marketing than on the price of a product as they did not trust intermediaries and cut flowers decay quickly. Moreover, they preferred cooperatives since they did not have any difficulty in receiving the intended price of the product and trusted them more than other intermediaries. As cut flowers are marketed through auctions that are affiliated with cooperatives, producers who sell using this method have no difficulty in finding a market. Cut flower cooperatives play a crucial role in production and marketing. However, producers also stated that they were confronted with some problems when they used this marketing method. The producers who responded to the questionnaire emphasized that they received money for the flowers they had given to the cooperative through deferred payment; that the maturity periods were long; and that they would prefer to be paid in a shorter period of time. The producers stated that the cut flowers they sent to the cooperative were burned if they were not sold at the auction. They expressed that they did not receive payment for the burned flowers, and also had to pay a transportation fee if the products were transported by the cooperatives. The producers stressed that they wanted the unsold flowers to be bought by the cooperatives. Cooperatives are undeniably important to producers in cut flower marketing. As such, reviewing the problems faced by producers and making necessary arrangements with cut flower cooperatives will contribute to the development of the sector.

To ensure the development of the cut flower sector in Turkey, the producer-to-consumer chain should be carefully analyzed. The scarcity of cut flower varieties in the foreign market restricts their export quantity and entry into new markets. Producers should be informed and supported with respect to the production of high-quality cut flowers for the foreign market. Establishing training activities in cooperation with the Provincial/District Directorates for Food, Agriculture and Livestock; universities; exporters' associations; and various institutions working on this issue will contribute to the elimination of these problems. Although cut flower prices are very high on certain days, instability in their prices is encountered. Producers should be provided with support and information about cut flower production planning. To eliminate the difficulties experienced in production and marketing, Organized Agricultural Zones should be established, and auction sites should be created in these zones. By analyzing the current chain at the levels of producers, wholesalers, retailers, and exporters in the cut flower sector, efforts should be made to develop marketing at both the national and international levels.

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