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Determining Consumers' Willingness to Pay in View of Extrinsic Attributes of Erzurum Stuffed-Kadayif with Protected Geographical Indication

Coğrafi işaretli Erzurum Kadayıf Dolmasının Dışsal Ürün Nitelikleri Bakımından Tüketicilerin Ödeme İstekliliklerinin Belirlenmesi

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DETERMINING CONSUMERS' WILLINGNESS TO PAY IN VIEW OF EXTRINSIC ATTRIBUTES OF ERZURUM STUFFED-KADAYIF WITH PROTECTED GEOGRAPHICAL INDICATION

ABSTRACT

The aim of the study is to determine consumers' willingness to pay (WTP) in view of the brand types and food retailers simulations from the product profiles based on the intrinsic and extrinsic attributes of Erzurum Stuffed-kadayif profiles with Protected Geographical Indication, and then to create the marketing strategies for each consumer segment. In order to reach to these goals, the main material composed of the primary data obtained from consumers consuming Erzurum Stuffed-kadayif in Erzurum Province. Based on the data, k-means cluster analysis was firstly used to segment heterogeneous consumer masses according to their consumption frequencies, and choice-based CA model was secondly applied to calculate the total utilities for each consumer segment and then to measure consumers' WTP for Erzurum Stuffed-kadayif profile simulations. The results of the study highlighted that the light and heavy users' WTPs with higher premium prices for the local brands and manufacturer outlets calculated as 48.0% and 28.2%, and 40.8% and 26.5% respectively, but the medium users' WTPs with high premium prices for each product attribute found as 14.5%. Focused on such consumer-oriented attitudes, the market actors should position Erzurum Stuffed-kadayif with local retailer brands sold from the higher premium prices at the manufacturer stores for the light and heavy users, but it should be implemented the product differentiation strategies under the intrinsic and extrinsic food attributes for the medium users.

Keywords: Conjoint Analysis, Erzurum Stuffed-Kadayif, Local Brand, Retailer, WTP.

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COĞRAFİ İŞARETLİ ERZURUM KADAYIF DOLMASININ DIŞSAL ÜRÜN NİTELİKLERİ BAKIMINDAN TÜKETİCİLERİN ÖDEME İSTEKLİLİKLERİNİN BELİRLENMESİ

ÖZ

Çalışmanın amacı, coğrafi işaretli Erzurum Kadayıf Dolmasının içsel ve dışsal mamul niteliklerini temel alan ürün profillerinden mamul marka tipleri ve gıda perakendecileri bakış açısından tüketicilerin ödeme istekliliklerini (WTP) belirlemek ve daha sonra her bir tüketici grupları için pazarlama stratejilerini oluşturmaktır. Bu amaçlara ulaşmak için Erzurum ilinde Erzurum Kadayıf Dolması

tüketen tüketicilerden elde edilen birincil veriler, araştırmanın ama materyalini oluşturmuştur. İlk olarak bu verileri temel alan k-ortalamalar kümeleme analizi, tüketicilerin tüketim frekanslarını dikkate alarak heterojen tüketici gruplarını kümelemek için kullanılmış ve daha sonra seçim tabanlı Conjoint Analiz (CA) modeli, her bir grubun toplam faydasını hesaplamak ve Erzurum Kadayıf Dolmasının profil simülasyonları için tüketicilerin WTP ölçmek için kullanılmıştır. Araştırmanın sonuçları; düşük ve yoğun bir şekilde kadayıf dolmasını tüketen kullanıcıların yerel ve mağaza markaları için yüksek fiyatlı WTP sırasıyla %48.0 ve %28.2 ile %40.8 ve %26.5 olarak hesaplandığına, fakat ılımlı düzeyde kullanıcıların ise her iki marka için yüksek fiyatlı WTP %14.5 olarak bulunduğuna işaret etmiştir. Tüketici odaklı davranışlar üzerine odaklanan piyasa aktörleri, düşük ve yoğun bir şekilde kadayıf dolmasını tüketen kullanıcılar için imalatçı mağazalarında yüksek fiyatlardan satın alınan yerel markalı Erzurum Kadayıf Dolmalarını konumlandırmalıdır, fakat ılımlı düzeyde kullanıcılar için içsel ve dışsal gıda niteliklerini dikkate alan mamul farklılaştırma stratejileri uygulanmalıdır.

Anahtar Kelimeler: Conjoint Analiz, Erzurum Kadayıf Dolması, Yerel Marka, Perakendeci, WTP.

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1. INTRODUCTION

In recent years, there has considerably maintained a change on consumers' food consumption preferences and purchase decisions under the negative effects of global climate change due to lower yield and quality attributes suffered in plant and livestock products, biodiversity losses, possible risk factors on food safety and security at food life cycle from the farms to the retailer shelves, negative consumer perceptions about emotional food quality attributes, as well as negative impacts on human health and the environment (Rojas-Downing *et al.,* 2017; Godde *et al.,* 2021; Bernabeu *et al.,* 2023; Bouranta *et al.,* 2023).

Under the impact of the Covid-19 pandemic and the Ukraine and Russia war along with the negative effects of climate change, the production of wheat being the main raw material of stuffed-kadayif has considerably decreased for the last few years in the world and Turkey. As considered global wheat supply and demand trends, while global wheat production and stocks decreased from 764 and 284 million tons in 2019 to 769 and 271 million tons in 2022, wheat consumption increased from 741 million tons to 782 million tons (TEPGE, 2022). In response to the decreases in both global wheat production and current stocks, a significant increase in global wheat consumption was also observed in view of the trend figures. Consequently, this situation has indicated the existence of a serious

problem in meeting consumer demands of wheat supply worldwide and a large supply gap in the future if the necessary preventive and adaptation studies are not carried out to an adequate extent.

Wheat production in Turkey was 19.00, 17.65 and 19.80 million tons in 2019, 2021 and 2022 respectively, whereas domestic wheat consumption was given as 20.00, 19.01 and 19.00 million tons (TEPGE, 2022). In particular, it was abnormally caused the product prices to increase with the effects of the panic buying by narrowing the supplies of wheat and bakery products under the negative impacts of ongoing climate change and the Covid-19 pandemic hitting 2019 (Arafat et al., 2021). Indeed, while the average annual wheat price was ₺1.5 kg^{-1} in 2018, it increased to about ₺5.5 kg^{-1} in 2022 (PTB, 2022). The dramatic increases in wheat price at commodity markets caused wheat flour prices trading from ₺1.76 kg^{-1} in 2018 to increase by ₺7.7 kg^{-1} in 2022 (PTB, 2022a). Manufacturing cost increase resulting from excessive rises in the prices of Stuffed-kadayif ingredients such as sugar, walnuts, pistachios and hazelnuts, along with the price of the flour being the main input of Erzurum Stuffed-kadayif, therefore, caused the price per kg to rise from ₺15 ($2) in 2019 to ₺140 ($7) in 2023.

On the other hand, besides the natural risk factors being of a negative impact on agriculture and agricultural food industry, when the macroeconomic data taken into consideration for 2022-2023 years in Turkey, the consumer price index (YI-CPI) and food price increases (food inflation) were annually realized as 50.51 and 67.89% (TSI, 2023). The annual increases in the producer price index (YI-PPI) and food input prices were calculated as 62.45% and 88.38%, respectively (TSI, 2023a). The pressures of these inflationary and natural risk factors caused the food prices to increase dramatically with the contraction in the economy by increasing the production costs, and then the formation of social welfare losses created by the contraction in demand resulting from the real decline in consumer incomes. This situation caused an excessive increase in the share of consumer incomes allocated to mandatory food needs in the expenditure budget and their WTP categorically changed significantly depending on the marketing mix. Consumers trying to meet their food needs under the effects of climate change have rationally tried to shape their food choices and purchasing patterns at retailer selling points by taking into account both the extrinsic food attributes and the negative developments in Turkish economy in the last years.

It was reported in the previous researches that it was attempted to determine consumers' WTP against the foods, and to maximize their total benefits by having been taken into account the external product characteristics (brand, labelling, package weight and size, price, geographical indications, retail selling points) on the product profiles impacting their purchasing models at retail levels (Campbell *et al.,* 2023; Cardona *et al.,* 2023; Carvalho and Spence, 2023; Edenbrandt and Nor-

dström, 2023; Fakhreddine and Sanchez, 2023; Gonzalez *et al.,* 2023; Lin *et al.,* 2023; Milkovic *et al.,* 2023; Petrontino *et al.,* 2023; Yeh and Hirsch, 2023; Zanchini *et al.,* 2023; Zeng *et al.,* 2023).

In these studies based on consumers' food purchasing decisions, it was pointed out that the product prices were the major determinant of their willingness to buy and also provided vital information about their socioeconomic attributes reflecting their purchasing powers. It was also reported that there is a very close relationship between the prices of consumers' WTPs for food products and product brand types, the region of origin labeling and points of purchase, and the relative importance of these motivational factor levels maximizing the total utilities was also calculated higher than the others. It was also pointed out that there was a much stronger relationships among consumers' WTPs for the foods and their prices, brand types, the region of origin labels and retail selling points, and thus the relative importance (RI) of these motivational factor levels such as the local, private and national brands, mountainous and lowland region labels, organic, ecologic and conventional labels, ecofriendly packaging, local selling store and markets etc. maximizing total utility were also calculated higher than the others.

Especially when making food purchasing decisions based on consumers' experiences with hedonic or external product quality perceptions, it was emphasized that they make purchasing decisions to a large extent by taking into account the product mix such as the region of origin and prices (Topcu and Çavdar, 2022; Bernabeu *et al.,* 2023; Chaffee and Ross, 2023; Noor *et al.,* 2023; Ong *et al.,* 2023; Onozaka *et al.,* 2023), brands and labels (McLean *et al.,* 2017; Schiano *et al.,* 2020; Baptista *et al.,* 2022; Racette and Drake, 2022; Bernabeu *et al.,* 2023), package weight and size (Best *et al.,* 2023; Campbell *et al.,* 2023; Chaffee and Ross, 2023) and retail outlets (Bytyqi *et al.,* 2023; Curutchet *et al.,* 2023; Seo and Kim, 2023), and thus their willingness to pay was also much higher for the food products providing higher extrinsic quality satisfaction.

Within the scope of the current research, extrinsic food attributes such as the region of origin and labeling, brand, price, retail selling points and packaging standard and sizes as well as protected geographical indication, which impact on their consumption preferences and purchase decisions towards Erzurum Stuffed-kadayif shaped under three different manufacturing processes could consider to be the main determinants of their WTPs. Measuring consumers' WTPs for the food profiles designed according to the extrinsic food attributes affecting consumers' Erzurum Stuffed-kadayif preference and purchasing decisions, therefore, could allow not only food differentiation and sustainability along the supply chain but also a positive consumption motivation on their WTPs to possible. In this context, the aim of the study is to determine the willingness to pay according to brand type and retail sales point simulations from food profiles based on intrinsic and extrinsic

food attributes for homogeneous consumer groups residing in Erzurum province and consuming Erzurum Stuffed-kadayif with protected geographical indication, and then to create consumer-oriented marketing strategies.

2. MATERIALS AND METHODS

2.1. Materials

The main material of the study consisted of primary data obtained from face-to-face questionnaires conducted with the households in Erzurum covering Yakutiye, Aziziye and Palandöken Central Districts, consuming Erzurum Stuffed-kadayif with Protected Geographical Indication (PGI). In addition to primary data, secondary data were obtained from the data of various statistical institutions and organizations (TSI, FAO, Erzurum Chamber of Commerce, Commodity Exchanges), as well as domestic and foreign scientific research project reports and article findings and results.

2.2. Methods

2.2.1. Method Used to Determine the Sample Size

In order to ensure the homogenous participation of the households consuming Erzurum Stuffed-kadayif in Erzurum, the city were divided into three central districts; Yakutiye (44.325 households), Aziziye (14.818 households) and Palandöken (38.674 households), and then the sample size in Equation 1 was calculated with the Simple Random Sampling Method (Malhotra, 1993; Churchill, 1995; Topcu, 2012)

$$n = \frac{Z^2 * p * (1-p)}{c^2} = 385 \qquad (1)$$

In Equation 1,

n: Sample size

Z: Standardized Z value (1.96 at 95% confidence interval)

p: Erzurum Stuffed-kadayif consumption probability (0.50)

c: Error term (± 0.05)

The survey numbers under the proportional techniques were calculated as 175 in Yakutiye, 58 in Aziziye and 152 in Palandöken, and totally 385 in Erzurum by taking into account the sample size and the number of households in each district.

2.2.2. Method Used for Preparation of Questionnaire Forms

Factors related to the intrinsic and extrinsic food attributes that determine consumers' purchase decision and attitudes consuming Erzurum Stuffed-kadayif at the research region and their socioeconomic and demographic characteristics were obtained by adapting the variables used in domestic and foreign research to the regions and related product.

Table 1. Factor and factor levels used in Conjoint Analysis for Erzurum Stuffed-kadayif

Factors	Factor Levels		
Manufacturing Technique	Homemade Type	Manufacture Type	-
Product Content	Walnut	Hazelnut	Pistachio
Brand Type	Local Brand	Manufacturer Brand	Generic Brand
Retail Selling Point	Restaurant	Patisserie	Manufacturer Shop
Package Weight and Size	Large Size	Medium Size	Small Size
Price*	Low Price ($5.0 kg^{-1})	Medium Price ($6.25 kg^{-1})	High Price ($7.5 kg^{-1})

*Exchange rate is ₺ $-120 on 29 May, 2023.

Table 2. Erzurum Stuffed-kadayif profiles derived by Orthogonal Design

# Card	Price	Product Content	Manufacturing	Brand Type	Size	Retailers
1	$6.25	Pistachio	Manufacturer Type	Local Brand	Medium Size	Manufacturer
2	$5.00	Hazelnut	Manufacturer Type	Local Brand	Medium Size	Patisserie
3	$7.50	Walnut	Manufacturer Type	Local Brand	Small Size	Manufacturer
4	$7.50	Walnut	Manufacturer Type	Local Brand	Large Size	Patisserie
5	$6.25	Walnut	Homemade Type	Generic Brand	Small Size	Patisserie
6	$5.00	Pistachio	Manufacturer Type	Generic Brand	Small Size	Patisserie
7	$5.00	Walnut	Homemade Type	Manufacturer Brand	Medium Size	Manufacturer
8	$6.25	Walnut	Manufacturer Type	Generic Brand	Medium Size	Restaurant
9	$5.00	Pistachio	Manufacturer Type	Generic Brand	Large Size	Manufacturer
10	$7.50	Hazelnut	Homemade Type	Generic Brand	Large Size	Manufacturer
11	$6.25	Hazelnut	Manufacturer Type	Manufacturer Brand	Large Size	Patisserie
12	$6.25	Pistachio	Homemade Type	Local Brand	Large Size	Restaurant
13	$7.50	Pistachio	Manufacturer Type	Manufacturer Brand	Small Size	Restaurant
14	$7.50	Hazelnut	Manufacturer Type	Generic Brand	Medium Size	Restaurant
15	$5.00	Walnut	Manufacturer Type	Manufacturer Brand	Large Size	Restaurant
16	$7.50	Pistachio	Homemade Type	Manufacturer Brand	Medium Size	Patisserie
17[a]	$5.00	Hazelnut	Homemade Type	Local Brand	Small Size	Restaurant
18[a]	$6.25	Hazelnut	Manufacturer Type	Manufacturer Brand	Small Size	Manufacturer

[a] *Holdout*

The intrinsic and extrinsic food attributes including in 6 factors and their 17 levels impacting on consumers' Erzurum Stuffed-kadayif purchase patterns were given in Table 1, and then 18 food profiles designed by Orthogonal Design under choice-based Conjoint Analysis model were presented in Table 2. The profiles were transferred to the questionnaire forms, and then the 18 profiles identified with the card numbers were asked to be evaluated by each consumer on the ordinal scale (the profiles providing the highest and lowest satisfaction were ranked from 1st preference to 18th one, respectively).

2.2.3. Method Used in Statistical Analyses of Data

2.2.3.1. Conjoint Analysis

Conjoint Analysis (CA) is one of the market research tools used to measure WTPs and market shares under various simulations of effective product profiles developed by being applied the statistical techniques allowing consumers to choose the product profiles designed by the market researchers (Green and Krieger, 1991; SPSS Conjoint 20.0, 2020). The data needed to conduct the CA obtains from the alternative product profiles evaluated by consumers. There was needed to four stages to run the CA model firstly determining each factor and their levels, secondly accepting fractional factorial design and then prefer scale types, and finally specifying the expected relationship between the factors and the ranking (Topcu, 2019).

The first and second steps in the CA are to determine the suitable product attributes and their levels. It was considered the six factors and their 17 levels related to Erzurum Stuffed-kadayif in the current research (Table 1). Based on Erzurum Stuffed-kadayif attribute levels, 486 product profiles under the potential hypothetical scenarios were calculated by multiplying the numbers of each factor level so that consumers could rank their ordinal preferences with full-profile approach, and since this situation will lead to an unmanageable number of potential product profile, it is needed to generate a representative orthogonal array. To solve this problem, therefore, the Generate Orthogonal Design procedure under the full-profile approach is used to generate an orthogonal array, and the procedure creates a fractional factorial design presenting a suitable fraction of all possible combination of the attribute levels (Topcu, 2019a). In the study, the 486 possible Erzurum Stuffed-kadayif profiles were diminished to the 18 profiles as a suitable fraction (Table 2).

In the third step, the respondents were rationally asked to assign a rank to each product profile ranging from 1 (most preferred) to 18 (least preferred) in the questionnaire interview conducted on the participant preferences for the 18 Erzurum Stuffed-kadayif profiles. Finally, the RIs of the factors and the part-worths of each factor level, resulted from the conjoint procedure are calculated through

the factors subcommands allowing it to specify the model describing the expected relationships between the factors and the rankings (SPSS Conjoint 20.0, 2020). The most commonly used model for these goals is linear additive approach identified by the sum of the part-worths of the factor levels. In the current study, the additive conjoint model was used and also given in Equation 2.

$$TU_{ij} = \beta_0 + \sum_{i=1}^{n} \beta_{1i} D_{1i} + \sum_{j=1}^{m} \beta_{2j} D_{2i} \dots\dots\dots\dots\dots\dots\dots\dots\dots + \sum_{k=1}^{y} \beta_{xk} D_{xk} \quad (2)$$

In Equation 2,

TU_{ij} refers to $i\ (i = 1, \dots, n)$ and $j\ (j = 1, \dots, m)$ total utilities for each product profile,

β_{1i}, β_{2j}, β_{xk} indicate the part-worth related to the factor levels $i\ (i = 1, \dots, n); j(j = 1, \dots, m), k(k = 1, \dots\dots, y)$ of the factor 1, 2 and x,

D_{1i}, D_{2j}, and D_{xk} identify dummy variables taking a value of 1 if a ranking level for the factor levels is in the profiles, and a value of 0 in the others,

β_0 symbolizes a constant representing the average preference level for each product profile.

In additive conjoint models, the model specifications for each factor could be specified by four models including in discrete, linear, ideal and anti-ideal models (SPSS Conjoint 20.0, 2020). In the study, the discrete model indicating the factors levels being categorical and making no assumption about the relations between the factors and the ranks was used for manufacturing and brand types, product contents, package size, retail selling points. Linear model identifying with an expected less direction of linear relationship between the factor and the ranks was also applied for the product price in compliance with Demand Law.

2.2.3.2. Willingness to Pay (WTP)

The real power of CA come from the ability to predict the preferences for the product profiles that were not rated by the participants, by referring to the simulation cases functioned as a part of the plan along with the profiles from the orthogonal designs. Simulation results, therefore, give the predicted probabilities of choosing each of the simulation cases with the most preferred one under different probability-of-choice models. The maximum utility model determines the probability as the number of consumers predicted to choose the profile divided by the total number of them. For each participant, the predicted choice or the probability is only the profile with the largest total utility. In summary, the probability as the rate of a profile's utility to that for all simulation profiles, averaged across all respondents is determined by the BTL (Bradley-Terry-Luce) model, and then

the logit model being similar to the BTL model is used to explain the probability, considering the natural logarithm of the utilities instead of the utilities (Green and Krieger, 1991; Murphy *et al.,* 2004; SPSS Conjoint 20.0, 2020).

Table 3. WTP simulation profiles according to the brand types of Erzurum Stuffed-kadayif

# Card	Price	Product Content	Manufacturing	Brand Type	Size	Retailers
19[a]	$5.00	Walnut	Homemade Type	Manufacturer Brand	Large Size	Manufacturer
20[a]	$6.25	Walnut	Homemade Type	Manufacturer Brand	Large Size	Manufacturer
21[a]	$7.50	Walnut	Homemade Type	Manufacturer Brand	Large Size	Manufacturer
22[a]	$5.00	Walnut	Homemade Type	Local Brand	Large Size	Manufacturer
23[a]	$6.25	Walnut	Homemade Type	Local Brand	Large Size	Manufacturer
24[a]	$7.50	Walnut	Homemade Type	Local Brand	Large Size	Manufacturer
25[a]	$5.00	Walnut	Homemade Type	Generic Brand	Large Size	Manufacturer
26[a]	$6.25	Walnut	Homemade Type	Generic Brand	Large Size	Manufacturer
27[a]	$7.50	Walnut	Homemade Type	Generic Brand	Large Size	Manufacturer

[a] *Simulation cases*

Out of the 17 Erzurum Stuffed-kadayif attributes in the study, two different nine simulation profiles for both three brand types in Table 3 and three retail selling points in Table 4 were designed to measure the participants' WTPs at three different price levels covering $7.50 and $6.25 with 50% and 25%-increased from $5.0 baseline reference level.

Table 4. WTP simulation profiles according to retail selling points of Erzurum Stuffed-kadayif

# Card	Price	Product Content	Manufacturing	Brand Type	Size	Retailers
19[b]	$5.00	Walnut	Homemade Type	Local Brand	Large Size	Restaurant
20[b]	$6.25	Walnut	Homemade Type	Local Brand	Large Size	Restaurant
21[b]	$7.50	Walnut	Homemade Type	Local Brand	Large Size	Restaurant
22[b]	$5.00	Walnut	Homemade Type	Local Brand	Large Size	Patisserie
23[b]	$6.25	Walnut	Homemade Type	Local Brand	Large Size	Patisserie
24[b]	$7.50	Walnut	Homemade Type	Local Brand	Large Size	Patisserie
25[b]	$5.00	Walnut	Homemade Type	Local Brand	Large Size	Manufacturer
26[b]	$6.25	Walnut	Homemade Type	Local Brand	Large Size	Manufacturer
27[b]	$7.50	Walnut	Homemade Type	Local Brand	Large Size	Manufacturer

[b] *Simulation cases*

2.2.3.3. Cluster Analysis

In order to construct the different homogenous clusters of consumers consuming Erzurum Stuffed-kadayif, k-means cluster analysis was used, and then they were segmented to three groups to be heavy (3-4 times consumption at week), medium (1-2 times consumption at week) and light (3-4 times on month) users with 117, 156 and 112 households, respectively.

2.2.3.4 . Comparison Statistics

It was used Pearson Chi-square (χ^2) statistics to test the comparisons between Erzurum stuffed-kadayif consumption frequencies and demographic factors (sex, education and occupation), and One-way ANOVA (F statistics) to compare the relations between their consumption frequencies and the socioeconomic factors (age and family size groups, income and expenditure groups).

3. RESULTS AND DISCUSSION

3.1. Consumers' Demographic and Socioeconomic Profiles

Participants' gender, age and life cycle, education and occupation status, monthly income and expenditure groups at each cluster were presented in Table 5. The results of the study indicated that 59% of the target consumer mass consisted of men, and the consumers with college graduate and white collars concentrated generally at each consumption segment of Erzurum Stuffed-kadayif. On the other hand, the results also highlighted that the average age of overall consumers was 43.38 years, and the family size consisted of 4.22 individuals, and the middle age group and large families showed intensity at each consumption segment. Similarly, the average income and expenditure levels for all consumption groups were $1406.30 and $875.69, and these economic indicators also were of the highest shares at each consumer segment.

Table 5. Consumers' various demographic and socioeconomic attributes

Consumers' attributes		Consumption segments of Erzurum Stuffed-kadayif						Overall consumers	
		Light users		Medium users		Heavy users			
		n	**%**	***n***	**%**	***n***	**%**	***n***	**%**
Gender	Male	**77**	66	**85**	55	**65**	58	**227**	59
	Female	40	44	71	45	47	42	158	41
	$(Pearson\ Chi-kare) = \chi^2_{(2603;2)} = 24.746 \quad p=0.001$								
Education	Literate	4	4	9	6	3	3	16	4
	First school	20	17	39	25	31	28	90	23
	High school	45	39	39	25	35	31	119	30
	College	**48**	41	**69**	44	**43**	38	**160**	42
	$(Pearson\ Chi-kare) = \chi^2_{(2606;4)} = 77.378 \quad p=0.001$								
Occupation	Businessman	11	9	27	17	13	12	51	13
	White-collar	**50**	43	**49**	31	**42**	38	**141**	37
	Blue-collar	18	15	12	8	17	15	47	12
	Retailers	27	23	40	36	26	24	93	24
	Pensioners	9	8	15	10	12	11	36	9
	Farmers	1	1	7	5	1	1	9	2
	Housewife	1	1	6	4	1	1	8	2
	Total	117	100	156	100	112	100	385	100
		$\bar{x}$	***n***	$\bar{x}$	***n***	$\bar{x}$	***n***	$\bar{x}$	***n***
Age group	+ < 30 years (young)	30.76	37	30.43	30	30.56	16	30.60	83
	30-50 years (mature)	42.23	**69**	43.33	**84**	42.59	**64**	42.76	**217**
	+ > 50 years (more mat.)	56.64	11	58.05	42	56.94	32	57.45	85
	Group means	39.96	117	44.81	156	44.97	112	43.38	385
	$F_{(382,2)} = 10.559 \quad p=0.001$								
*Income**	+ < $400 (low-income)	321.43	14	360.00	24	365.00	12	350.40	50
	$400-1000 (middle-income)	416.04	**91**	751.56	**109**	750.91	**88**	740.14	**288**
	+ > $1000 (high-income)	1398.33	12	1421.74	23	1384.67	12	1406.30	47
	Group means	738.80	117	790.13	156	777.46	112	770.85	385
	$F_{(382,2)} = 0.903 \quad p=0.406$								
Expenditure	+<$400 (low-expenditure)	320.00	21	318.60	43	310.00	19	316.99	83
	$400-700 (middle-expend)	591.94	**62**	582.90	**69**	596.56	**61**	590.16	**192**
	+>$700 (high-expenditure)	848.82	34	885.36	44	890.94	32	875.69	110
	Group means	617.78	117	595.36	156	632.05	112	612.85	385
	$F_{(382,2)} = 0.903 \quad p=0.404$								
Family size	+< 4 person (core family)	2.55	56	2.63	40	2.68	25	2.60	121
	4-6 person (small family)	4.18	**57**	4.64	**108**	4.67	**75**	4.54	**240**
	+> 6 person (large family)	11.00	4	8.50	8	9.17	12	9.25	24
	Group means	3.63	117	4.32	156	4.71	112	4.22	385
	$F_{(382,2)} = 10.084 \quad p=0.001$								

*$\bar{x}$: arithmetic means n: sample size %: relative rate *exchange rate is Ɓ $-15.75 on September 15, 2019*

3.2. The Results of the CA

The RI of Erzurum Stuffed-kadayif attributes and the part-worths of their levels which impact on consumers' consumption preferences and purchase decisions along with goodness-of-fit test statistics were given in Table 6. Pearson's R and Kendall's tau values measuring the correlations between observed and expected

values under the full-profile approach, revealed a strong relationship for both overall consumers and each consumer segment

$$(Pearsons's\ R = 0.960 - 0.986;\ p < 0.001)\ and\ (Kentall's\ tau = 0.843 - 0.961;\ p < 0.001).$$

The results of the research emphasized that while the manufacturing type, product content and size reflecting the intrinsic food attributes of Erzurum Stuffed-kadayif were of the RI with 34%, 19% and 14% on overall consumers' purchase decisions, the RIs for its brand type, price and retail selling points representing the extrinsic product attributes on their purchase patterns calculated as 12%, 11% and 10%, respectively. On the other hand, the RI of price for light users, that of brand type and retailers for medium users and that of package weight-size for heavy users were found the highest rates on Erzurum Stuffed-kadayif consumption satisfaction.

In previous studies conducted on the satisfaction, utility and pleasure feelings provided by extrinsic and intrinsic food attributes playing a major role on consumers' preferences and purchase patterns, it was reported that production and processing techniques of food products (Bernabeu *et al.,* 2023; Bytyqi *et al.,* 2023; Curutchet *et al.,* 2023), product content and components (Baptista *et al.,* 2022; Best *et al.,* 2023; Chaffee and Ross, 2023;) and package weight-size (Best *et al.,* 2023; Campbell *et al.,* 2023) factors were of higher RI on their purchase decision, and thus also were of a strong correlation between them and willingness to pay a premium. In addition, Realini *et al.* (2013) and Grunert *et al.* (2015) reported that consumers on red meat consumption preference in European Union countries had moderate and high RIs variating from 45% to 88% for the region of origin, from 18% to 62% for manufacturing type, from 25% to 75% for product content.

On the other hand, in choice-based CA researches conducted by Bernabeu *et al.* (2023), Campbell *et al.* (2023), Chaffee and Ross (2023), Curutchet *et al.* (2023), Noor *et al.* (2023), Ong *et al.* (2023) and Seo and Kim (2023), it was highlighted that the RIs of the extrinsic food qualities, especially price, brand, promotion, packaging and retailers were major determinant factors on the decision to purchase from online and food retailers, but the sensory quality attributes focused on core benefits of the product, especially under the effects of climate change experienced in the last years, addressed among more effective decision factors.

Table 6. Relative importance of Erzurum Stuffed-kadayif preference factors and their part-worth based on the CA

Product attributes and their levels		Consumption segments of Erzurum Stuffed-kadayif						Overall consumers	
		Light users		Medium users		Heavy users			
		Utility	S.E	Utility	S.E	Utility	S.E	Utility	S.E
Product content	Walnut	1.487	0.507	1.332	0.286	1.750	0.249	1.501	0.338
	Pistachio	-0.077	0.500	-0.382	0.284	-0.705	0.248	-0.384	0.330
	Hazelnut	-1.409	0.501	-0.950	0.280	-1.045	0.200	-1.117	0.328
	RI	*%17.55*		*%18.56*		*%21.47*		*%19.10*	
Manufacturing types	Manufacturer type	-2.467	0.380	-2.220	0.214	-2.298	0.186	-2.317	0.253
	Homemade type	2.467	0.381	2.220	0.210	2.298	0.180	2.317	0.235
	RI	*%29.89*		*%36.11*		*%35.31*		*%33.98*	
Brand types	Manufac. brand	0.105	0.507	0.048	0.286	0.030	0.249	0.060	0.338
	Local brand	0.753	0.500	0.858	0.283	0.690	0.247	0.777	0.330
	Generic brand	-0.858	0.501	-0.906	0.280	-0.720	0.220	-0.837	0.328
	RI	*%9.76*		*%14.35*		*%10.84*		*%11.93*	
Package weight-size	Large size	1.358	0.507	0.710	0.286	0.991	0.249	0.989	0.338
	Medium size	-0.238	0.500	0.114	0.281	0.140	0.275	0.015	0.330
	Small size	-1.120	0.490	-0.825	0.278	-1.131	0.250	-1.004	0.328
	RI	*%15.02*		*%12.49*		*%16.30*		*%14.37*	
Retail selling points	Restaurant	-0.644	0.507	-0.800	0.286	-0.573	0.249	-0.687	0.338
	Patisserie	0.148	0.500	-0.029	0.275	-0.006	0.230	0.031	0.318
	Manufac. store	0.497	0.501	0.829	0.280	0.579	0.245	0.655	0.348
	RI	*%6.91*		*%13.25*		*%8.85*		*%10.05*	
Product price ($ kg^{-1})	$5.00	1.722	0.439	-0.323	0.247	0.471	0.215	0.530	0.292
	$6.25	3.444	0.878	-0.645	0.495	0.942	0.431	1.059	0.585
	$7.50	**5.167**	1.318	-0.968	0.742	**1.413**	0.646	**1.589**	0.877
	RI	***%20.87***		*%5.25*		*%7.24*		*%10.57*	
Constant coefficient		*6.873*	*0.957*	*10.884*	*0.539*	*9.327*	*0.469*	*9.212*	*0.637*
The relationships between observed and expected values									
Statistical measures		***Value***	***p***	***Value***	***p***	***Value***	***p***	***Value***	***p***
Pearsons's R		*0.960****	*0.001*	*0.979****	*0.001*	*0.986****	*0.001*	*0.975****	*0.001*
Kendall's tau		*0.843****	*0.001*	*0.895****	*0.001*	*0.961****	*0.001*	*0.908****	*0.001*

$^{***}p<0.001$ S.E: Standard error Utility: Part-worth

**Bold and bold italic values refer to maximum utility for the factor levels and to maximum RI scores.*

In addition to the RIs of experiential satisfaction on consumers' purchase decisions; it is of great importance to calculate the part-worth determining the total benefit. For this purpose, when considered the factor levels affecting the target consumer masses' purchase decision towards Erzurum Stuffed-kadayif, homemade type, high price level, walnuts use as product content, product with large size, local brand type and manufacturer selling points provided the highest part-worth. The light users provided maximum total utility from the part-worth of homemade Erzurum Stuffed-kadayif with higher price prepared by walnut, whereas the medium and heavy users also reached to maximum total utilities from only homemade product with walnut. Under the maximum part-worth at all consumption clusters (except for medium users), therefore, the consumers approved the WTPs to accept

a differentiated variation of homemade Erzurum Stuffed-kadayif manufactured with walnuts at the higher prices on their purchase decision motivations.

In the various studies, it was also highlighted that the part-worths of the manufacturing types, product contents, brand types, prices, product size standards and retail outlets maximizing consumers' total utilities for the food products were the major indicator clues, and the interactive relationships among these factors on their consumption satisfaction were of a bigger impact on their WTPs for the foods. (Topcu, 2019; Yeh and Hirch, 2022; Cardona *et al.,* 2023; Edenbrandt and Nordström, 2023; Gonzalez *et al.,* 2023; Gorton *et al.,* 2023; Lin *et al.,* 2023; Milkovic *et al.,* 2023; Petrontino *et al.,* 2023; Zanchini *et al.,* 2023). In more detail, it was pointed out that consumers were of a higher willingness to pay for local-branded foods guaranteed by the intrinsic product attributes based on homemade manufacturing and natural or organic production techniques under the region and origin creating a positive impact on their food purchase models maximizing the total utilities, and that they were making a great attempt to reach to the retailers of these foods. It was also emphasized that food prices impacting on consumers' food purchase decisions could directly affect their willingness to pay and part-worths, which enable the maximization of their total utilities.

3.3.3. The Results of the WTP for the Brands

Consumers' WTP for product profiles simulated according to the brand types (local, generic and manufacturer brands) being of an impact on their purchase decisions towards Erzurum Stuffed-kadayif was given in Table 7. The results of the WTP indicated that 24-numbered profile of Erzurum Stuffed-kadayif, homemade large-sized product with walnut sold at manufacturer outlets under local brand with the highest price ($7.5 kg^{-1}) and the baseline price ($5 kg^{-1}) provided the utility maximization with 17.04 TU and 15.98 TU to 30.2% and 13.3% of overall consumers. Similarly, the WTP of the light and heavy users along with overall consumers for the local brand at the highest price level ($7.5 kg^{-1}) calculated by 50% premiums to the threshold price ($5 kg^{-1}) found as 48%, 28.2% and 30.2% at the product profiles maximizing TU, respectively. Differentiated from the other consumer groups, however, the WTP of the medium users for the local brand at the baseline price level ($5 kg^{-1}) determined to be 27.5% at the maximum TU level. In the food profiles maximizing TU of consumers for the local brands, therefore, while there was a negative correlation among the medium users' WTP tends and its price, it was seen a positive relation for other consumer groups. On the other hand, it was not reached to Erzurum Stuffed-kadayif profiles maximizing TU of overall and each consumer segments for the manufacturer and generic brands, and thus the consumers' WTPs were not assessed for these brands.

Table 7. Consumers' WTP according to brand types of Erzurum Stuffed-kadayif profile

Brand types	Price	# card	Consumption segments of Erzurum Stuffed-kadayif						Overall consumers	
			Light users		Medium users		Heavy users			
			TU	Logit (%)	TU	Logit (%)	TU	Logit (%)	TU	Logit (%)
Manufacturer brand	$5.00	19	14.508	0.8	15.701	12.2	15.446	5.7	15.264	6.2
	$6.25	20	16.230	4.5	15.378	8.9	15.917	9.1	15.794	7.5
	$7.50	21	17.953	25.1	15.056	6.4	16.388	14.6	16.323	15.4
Local brand	$5.00	22	15.156	1.5	16.511*	27.5	16.106	11.0	15.981**	13.3
	$6.25	23	16.878	8.6	16.188	19.9	16.577	17.6	16.511	15.4
	$7.50	24	18.601*	48.0	15.865	14.5	17.048*	28.2	17.041*	30.2
Generic brand	$5.00	25	13.545	0.3	14.747	4.7	14.696	2.7	14.367	2.6
	$6.25	26	15.267	1.7	14.424	3.4	15.167	4.3	14.896	3.1
	$7.50	27	16.990	9.6	14.101	2.5	15.638	6.9	15.426	6.3
			*%100 TU		*%100 TU		*%100 TU		*%66.7 and **%33.3 TU	

Out of previous studies conducted on WTPs considering choice-based CA approach, Nguyen and Truong (2021) and Zanchini *et al.* (2023) reported that the organic and local-oriented food consumption was an important motivation tool due to human health and environmental concerns, and thus consumers for these foods accepted higher premium prices. Topcu (2019) brought out that consumers' WTPs with a higher premium for drinking milk with Marmara Region of origin maximizing their total utilities was 26% against to that with other region of origins. Lin *et al.* (2023) emphasized that Chinese college students' milk tea preferences were largely impacted from tea brands and its production origin, and their WTPs with a higher premium for famous tea manufacturer brands varied from 5% to 95%.

Similarly, Noor *et al.* (2023) highlighted that quality-oriented and safety-conscious consumers preferred the organic certified vegetable labels, and their WTPs for these vegetables costed higher premium prices on Indonesian consumers' product preferences certified. According to Godden *et al.* (2023), Kleih *et al.* (2023) and Nawi *et al.* (2023) there was a strong positive correlation among the familiar brands, front-of-pack labels, traceability and their prices on consumers' buying intentions, and thus it was pointed that these factors increased considerably their WTP, but decreased the negative impacts of a higher price compared with other attributes. This research focused on the brands of Erzurum Stuffed-kadayif, indeed, highlighted that consumers' willingness to pay the highest premium for recognized and credible local brands varied from 15% to 48%, and thus the results also approved by the results of previous studies.

3.3.4. The Results of the WTP for the Retailers

Consumers' WTPs for product profiles simulated according to the retailer outlets (manufacturer store, patisserie, restaurant) affecting their purchase decisions towards Erzurum Stuffed-kadayif was indicated in Table 8. The results of the study showed that 27-numbered profile of Erzurum Stuffed-kadayif, homemade large-sized product with walnut sold at manufacturer outlets under local brand with the highest price ($7.5 kg^{-1}) and the baseline price ($5 kg^{-1}) provided the utility maximization with 17.04 TU and 15.98 TU to 27.2% and 13.0% of overall consumers. Similarly, the WTPs of the light and heavy users as well as overall consumers for the manufacturer stores at the highest price level ($7.5 kg^{-1}) calculated by 50% premiums to the threshold price ($5 kg^{-1}) found as 40.8%, 26.5% and 27.2% at the product profiles maximizing TU, respectively.

Table 8. Consumers' WTP according to retail selling points of Erzurum Stuffed-kadayif profile

Retailers	*Price*	*# Card*	Consumption segments of Erzurum Stuffed-kadayif						Overall consumers	
			Light users		Medium users		Heavy users			
			TU	*Logit (%)*	*TU*	*Logit (%)*	*TU*	*Logit (%)*	*TU*	*Logit (%)*
Restaurant	$5.00	19	14.015	0.4	14.881	5.4	14.955	3.3	14.639	3.0
	$6.25	20	15.737	2.3	14.559	3.9	15.426	5.2	15.169	3.8
	$7.50	21	17.460	13.0	14.236	2.8	15.897	8.4	15.699	8.1
Patisserie	$5.00	22	14.807	0.9	15.653	11.6	15.522	5.8	15.358	6.1
	$6.25	23	16.529	5.1	15.330	8.4	15.993	9.2	15.887	7.6
	$7.50	24	18.252	28.8	15.007	6.1	16.464	14.8	16.417	16.5
Manufacturer	$5.00	25	15.156	1.3	16.511*	27.4	16.106	10.3	15.981**	13.0
	$6.25	26	16.878	7.3	16.188	19.9	16.577	16.5	16.511	14.6
	$7.50	27	18.601*	40.8	15.865	14.5	17.048*	26.5	17.041*	27.2
			**%100 TU*		**%100 TU*		**%100 TU*		**%66.7 and **%33.3 TU*	

Differentiated from the other consumer segments, however, the WTPs of the medium users for the manufacturer outlets at the baseline price level ($5 kg-1) determined to be 27.4% at the maximum TU level. In the food profiles maximizing TU of consumers for the manufacturer selling points, therefore, while there was a negative correlation among the medium users' WTP tends and its price, it was seen a positive relation for other consumer groups. Unlike the manufacturer outlets, it was not reached to Erzurum Stuffed-kadayif profiles maximizing TU of overall and each consumer segments for the patisserie and restaurant, and thus the consumers' WTPs were not assessed in view of these retail selling points.

Food retailer outlets along food supply distribution channels have generally performed a vital function on consumers' purchase decision and satisfactions in the last decades (Lin and Januardi, 2022). Especially, it was also stated that retailers

offering a hygienic indoor environment and shopping comfort and convenience, and positioning the food products with high quality and differentiated varieties and freshness under the wide and deep shelf placement were largely preferred with consumers' WTPs with higher premium prices (Best *et al.,* 2023; Cambell *et al.,* 2023; Hsu *et al.,* 2023; Nawi *et al.,* 2023; Pascoe *et al.,* 2023; Perrea *et al.,* 2023).

It was reported by Topcu (2019), Alsubhi *et al.* (2022) and Pascoe *et al.* (2023) moreover, that consumers' WTP ranged from 3.7% to 91.5% higher prices for the food retailers selling and serving at the manufacturer stores manufacturing local foods under own famous private brands. Similar to the previous researches, it was also analyzed in this study that consumers' willingness to pay for Erzurum Stuffed-kadayif with local private labels selling at manufacturer stores calculated at range from 14% to %41 premium prices.

4. CONCLUSIONS

According to the RIs and the part-worths of Erzurum Stuffed-kadayif profiles estimated by choice-based CA model under ordinal utility approach, it was calculated the consumers' WTPs and total utilities for each consumer segment by being taken into consideration the brand types and retailers of the product. The results of the study indicated that when considered Erzurum Stuffed-kadayif profile simulations maximizing the total utility on overall consumers' purchase satisfaction, their WTPs with the highest premium and baseline prices for the retailer brands with local private-labeled and the manufacturer stores was 30.2% and 13.3%, and 27.2% and 13.0%, respectively.

Having presented similar consumption attitude to overall consumers, the light and heavy users' WTP the highest premium price for local brands and manufacturer outlets calculated as 48.0% and 28.2%, and 40.8% and 26.5% respectively, but the medium users' WTPs with high premium for every two product attribute found as 14.5%, and that baseline price for the each attribute observed as 27.5% and 27.4%. The light and heavy users with the local retailer brand and manufacturer store-oriented, indeed, satisfied from their WTPs with higher premium prices under lower demand elasticity, whereas the medium users with product price-originated acted with the product price-conscious rather than the brand and retailer perceptions under higher price demand elasticity.

Based on such consumer-oriented attitude and behaviors, the market actors along food supply chain should position Erzurum Stuffed-kadayif with local retailer brands under private-labelled sold from high premium prices at the manufacturer stores for the light and heavy users. Unlike the light and heavy users, it should be implemented the marketing strategies focused on Erzurum Stuffed-kadayif differentiated according to the intrinsic (production and manufacturing types, pro-

duct content) and extrinsic (brand type, retailer, package size, price) food attributes, considering the lower premium prices at the patisserie and restaurants for the medium users. With these marketing strategies, not only the market actors at food supply chain could penetrate further into each consumer segment through product differentiations, and then proved higher total revenue, but consumers could also provide higher consumption satisfactions by maximizing their total utilities.

Conflict of Interest

The authors declare that there is no conflict of interest.

Ethics

This study was conducted by providing Ataturk University Ethics Committee Approval with 2021/14 decision number.

Author Contribution Rates

Design of Study: YT(%80), TG(%20)

Data Acquisition: YT(%10), TG(%90)

Data Analysis: YT(%90), TG(%10)

Writing Up: YT(%95), TG(%5)

Submission and Revision: YT(%98), TG(%2)

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