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YOUNG URBAN ADULTS' PREFERENCE FOR WINE ATTRIBUTES APPLYING BEST-WORST SCALING: AN EXPLORATORY STUDY FOR REPUBLIC OF MACEDONIA

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Abstract

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This work focuses on measuring the importance of the attributes, which influence the wine choice of Macedonian young adult wine consumers, when purchase a wine in wine stores. Our goal is try to identify significant behavioral differences across wine knowledge and gender-demographic subgroups of the sample, in order to give marketers an instrument to develop more efficient marketing strategies. Most marketing researchers use rating scales to understand consumer preferences. These have a range of problems, which can be ameliorated by the use of the new technique, best-worst scaling (BWS). The objectives of the paper are twofold: first, to explore the preferences, gender and knowledge differences of the Republic of Macedonia young urban adults towards wine attributes; and second, to present best-worst scaling method and to demonstrate its empirical use. A total of 123 Macedonian young consumers between the age of 25 and 34 purchasing wine in wine stores participated in a face-to-face interview preformed in three wine stores in Skopje and one in Bitola. The best-worst scaling method was applied to measure the level of importance to a list of most common attributes used in a choice of wine. The study results show that young urban adults in their selection of wine give more importance for the wine attributes: price, type of wine (red/white), brand and grape variety. The attributes less preferred were alcohol content, medal/awards wine closure and label design. Moreover, the study showed that genders differ more than the segments formed on the base of the knowledge on the use of wine attributes in selection of wine.

Key words: urban adults, Macedonia, wine, young consumers

Introduction

Understanding what product attributes drive consumer choice is necessary for developing marketing and advertising strategies. Choice modeling provides a means to understand consumer preferences for product attributes and is much more predictive of actual marketplace choices than standard hedonic scaling (Lockshin and Hall, 2003; Lockshin et al. 2006; Louviere et al., 2000). However, choice modeling confounds the scale and size of the utilities and therefore is not suitable for making comparisons among different data collections (Louviere et al., 2000). Finn and Louviere first published the Best-Worst method in 1992 and in 2005 proved the ability of the method to provide unbiased estimates across different data collections (Marley and Louviere, 2005). Best-Worst scaling produces much less method variance than hedonic scaling and thus results in better separation among various alternatives. A main focus of this paper is to present authors initial findings for the use of the wine attributes by young adult wine consumers in Macedonia in selection of their wines. The study describe the use of recent methodology, the best-worst (BW) method, which already proved to be very successful for the studying consumer preferences (Cohen and Neira, 2003; Flynn et al., 2007; Goodman et al., 2005; Lee et al., 2007). Best-worst scaling method for this study was used as an instrument for data collection. The obtained scores were analyzed on aggregate level, and the main findings were obtained by using the tests for comparing the mean values. The study experimental design consists of 13 wine attributes selected after literature review of those papers published in the most important journals from 2006 to 2012, and confirmed on a base of qualitative interviews with

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Macedonian experts in the field of wine marketing. Respondents included in the sample were wine shoppers between 25 and 34 years of age purchasing wines in three wine stores in Skopje and one in Bitola. The data were collected using a face-to-face survey instrument. For the data collection we used non-probability convenience sampling method, where respondents who like to participatein the study were selected by the interviewers, personal working in the wine stores.

The paper work is structured in the following way: first, previous literature on wine attributes and use of best-worst scaling method is presented; second, method employed along with the study design are shown and data collection technique is presented and finally, results followed by discussion and conclusions are discussed.

Literature Review

A product, whatever it is, is defined by a set of intrinsic and extrinsic attributes. Intrinsic cues are those that form any physical part of the product and cannot be altered without changing product performance or technical specifications; alternatively, extrinsic cues are any aspects only associated with the product (Aaron et al., 1994). Brand name, label attractiveness, design of the bottle, origin and price are good examples of extrinsic attributes of wine whereas organoleptic qualities are intrinsic cues. Numerous products are put on the market in conditions where the consumer does not have the possibility to test them before buying. This is the case for food products sold by large retailers. For these products, the consumer therefore has to rely on extrinsic attributes to evaluate, a priori, their quality. Wine is one of these products. The choice would be much simpler if consumers could taste the wine and appreciate its organoleptic qualities. As in the majority of cases, the consumer does not have this possibility, (s)he must rely on information which is available such as the price, the region of production, the vintage, the packaging, the brand name, recommendations, etc. Wine is a product which is characterized by multiple extrinsic attributes. According to Quester and Smart (1998), wine is a combination of 13 attributes among which appear the fermentation, the label, the back-label and the style of the wine. Cohen (2009) suggests 11 attributes like recommendations, brand name, food/wine harmony and country of origin. Verdu-Jover et al. (2004) develop a measurement scale including 21 items grouped into seven factors: origin (brand name, region, appellations, etc.); image (image of the wine, opinion of friends, the press, experts, wine waiters, etc.); presentation (bottle, label, etc.); age; year of production and, finally, two dimensions relating to extrinsic cues (organoleptic qualities).

Much of the literature on attribute importance in wine marketing is based on surveys, where consumers respond to questions on the importance of various intrinsic and extrinsic attributes. Many attributes importance studies used rating or ranking scales to measure consumer preferences (Goodman, 2009; Lockshin and Hall, 2003; Cohen, 2009). Measurement systems involving rankings or ratings of a product or service have supported powerful research and results in the past, however, current research is showing this form of measurement can lead to biases in the results. Respondents may not view and use the ranking or rating scale in the exact same way across all the respondents (Cohen, 2003; Cohen and Neira, 2003; Finn and Louviere, 1992). The scaling method may have also been developed specifically for that research so the reliability and validity is lacking (Goodman et al., 2005). Using the standard scaling method also makes it hard to locate the most important attribute or the most preferred product (Goodman et al., 2005). Ordinary rating or ranking scales make it difficult to measure attribute importance against the other competing attributes. Some people may be influence by all the attributes or none of them but this doesn't provide adequate distinction to help marketers' associate real influences in consumer choice (Finn and Louviere, 1992). Using solely consumer panel data only helps to gain information on actual consumer purchases. This method is not particularly appropriate if a person is testing new concepts or a combination of preferences throughout a product field (Goodman et al., 2005). Actual preferences may be concealed because a product with a large market share may be available for more purchase and therefore purchased more frequently (Goodman et al., 2005). So consumers may not actually prefer a particular product or attribute just because it is selling more than the competitors. This establishes that consumer purchases may not necessarily reflect their true preferences.

Other statistical methods such as discrete choice modeling have the capability to address consumer preferences; however, the interpretation of the data and adaptability to managerial application is remarkably more difficult.

Louviere and Woodworth (1990) formulated a scaling method in which to examine consumer preferences on products while eliminating the previously mentioned bias problems apparent in other scaling methods. The Best-Worst (BW) Scaling method otherwise known as Maximum Difference Scaling was developed by Louviere and Woodworth (1990) and then first presented by Finn and Louviere (1992). Since then the method has been used in multiple other studies in a variety of areas such as healthcare, social sciences, etc (Cohen, 2009).

Materials and Methods

The paper features the results of exploratory research, which provide information about the use of most common

wine attributes among the Macedonian young adult consumers, when they purchase wine in wine stores. Data were collected in two cities, Bitola and the capital city Skopje, located in the southern and northern part of Republic of Macedonia, respectively. Although these two cities belong to the same country, they present socio-demographic differences, which may lead to different behaviors in how wines from young adults are chosen. Data collection took place at one wine store in Bitola and three wine stores in Skopje. Customers who purchase wines in these stores are medium to high involvement wine consumers. The sample includes consumers born between 1978 and 1987. Questionnaires were collected in the same period in both cities. The survey started at first of November and ended on 20th of December 2012.

The data were collected using a face-to-face survey instrument. Non-probability convenience sampling method was used, where respondents who like to participate in the study were selected by the interviewers (personal working in the wine stores). The interviewers involved in the study were previously trained for this purpose. Before beginning with each interview, they were told to ask participants for their age of birth, since this was the only condition for participation in the study. Respondents were briefly explained with the content of the survey, and asked for their answers.

Table 1
Structure of respondents by sex, age, education, place of living, income, and knowledge in wine

Factors	Structure of the questioned respondents	
	N	%
City		
Bitola	55	44,7
Skopje	68	55,3
Gender		
Male	69	56
Female	54	44
Marital status		
Married	56	45,6
Not Married	67	54,4
Age groups		
25-29	70	57
30-34	53	43
Education		
High Scholl	65	52,8
University or higher	58	47,2
Income		
Missing data	9	7,3
Low	8	6,5
Below middle	27	22
Middle	63	51,2
Above Middle	16	13
Knowledge segmentation		
High	53	43
Low	70	57

The total of 123 valid best-worst data from 170 questionnaires was obtained. The response rate was 72%. The average length of the interview was 25 min, from which that part reserved for best worst data took 12 min. Table 1 illustrates the number of responses and percentages per geographic, demographic, and category done according to respondents' knowledge in wine. Regarding to their knowledge, respondents' were classified in two categories" high knowledgeable" and "low knowledgeable". Those categories were for med according to respondents' answers on 7 test questions. For the instrument used, we obtained internal consistency of 0.76 according to Kuder-Richardson (KR-20) statistic. The sum of scores of 7 questions defined the classes where a score above 2 (the median value of the sum of scores) was classified as "high knowledge" and 2 or below was classified as "low knowledge".

To determine the importance that the whole sample, different genders and knowledge segments give to the wine attributes, we used Best Worst Scaling method. In the Best Worst scaling method respondents are provided with choice sets in which they have to compare and decide on attributes over the other options. Respondents have to choose the best/most important item and the worst/least important item from each given choice set. Through this process the bias in the rating scale is eliminated because a respondent only has one option to choose the attribute that is the `most´ and `least´ (Cohen and Markowitz, 2002). Respondents are forced to make trade-offs between the wine attributes (Cohen, 2009) as different attribute combinations are offered in choice sets. There is no built in assumption of the right way to read the interval scales and the differences between any of the scale points (Cohen and Neira, 2003). Not only does this method allow for the delimitation of scaling biases but it also creates a ratio-based scale with standardized scores that allow for comparisons and contrasts to be applied within the data set.

Best worst choice sets (Figure 1) can be created through different kind of designs. Some examples include full factorial design, fractional factorial design, Latin Square design and Balanced Incomplete Block design (Cohen, 2009). The design must present each pair of attributes or items the same number of times as all others in order to be analyzable. Each choice task begins with the following question:

From the attributes proposed on the following table, please indicate the most important attribute and the least

important one that you would take into consideration when choosing a wine. Mark only one attribute in each column for the best and for the worst attribute.

Least important	Wine Attribute	Most important
☐	Brand	☐
☐	Wine Price	☐
☐	Grape variety	☐
☐	Sugar content	☐

Fig. 1. Example of Best Worst choice sets presented to respondents

The experimental design in this study consists of 13 wine attributes selected after literature review of those papers published in the most important journals from 2006 to 2012, and confirmed on a base of qualitative interviews with Macedonian experts in wine marketing (Cassini et al., 2009; Chrysochou et al., 2012; Goodman et al., 2008; Bernabeu et al., 2012) (Table 2).

The 13 attributes selected were combined to 13 sub-sets of four items each using a Balanced Incomplete Block design (BIBD).The presented attributes in the experimental designwere asking consumers for the most and least important attribute and making sure that each attribute appeared 4 times throughout all the series of options (Table 3).

Balance incomplete block designs (BIBD) are by far the most widely used designs for counting based analysis and repeatedly resulted in empirically equivalent linear relationship between counting and maximum likelihood estimates. The counting method can be applied to individual respondents and aggregated at the sample level. On the individual level the number of times each item is chosen as most important (best) and least important (worst) are summed up across all choices and the worst are subtracted from the best, result-

Table 2
Wine attribute list

	Wine attribute
1	Wine price
2	Type of wine (red/white)
3	Brand
4	Grape variety
5	Barrel aged wine
6	Wine age/vintage
7	Sugar content
8	Bottle design
9	Country of origin
10	Label design
11	Wine closure
12	Medals/awards
13	Alcohol content

Table 3
Balance incomplete block design for choice sets

	Choice sets													
Attribute number	1	2	3	4	5	6	7	8	9	10	11	12	13	Appearance
1	x				x						x		x	4
2	x	x				x						x		4
3		x	x				x						x	4
4	x		x	x				x						4
5		x		x	x				x					4
6			x		x	x				x				4
7				x		x	x				x			4
8					x		x	x				x		4
9						x		x	x				x	4
10	x						x		x	x				4
11		x						x		x	x			4
12			x						x		x	x		4
13				x						x		x	x	4
Total Attributes	4	4	4	4	4	4	4	4	4	4	4	4	4	

Note: x, the attribute appearance in the choice set

ing in 'best–minus–worst' (B–W) scores. On the aggregated level, the difference between all best and all worst counts is divided by the number of respondents and the appearance of each attribute in all choice sets resulting in an average B–W score for each item. The average B–W score can be interpreted as the average number of times an attribute was chosen as most or least important, resulting in an interval scale based on choices (Marley and Louviere, 2005). The properties of this interval scale depend on the number of repetitions of each attribute in the BIBD used. If for instance each item appeared four times in the BIBD, as it is in our case, then the B–W interval scale can take on nine potential values between four (always chosen as best), zero (not chosen at all or equally often chosen as best and worst) and minus four (always chosen as worst). Similarly three (two) item repetitions will result in an interval scale with seven (five) potential values. Researchers therefore should consider selecting BIBDs with a useable minimum number of item repetitions, if individual level B–W scores are to be used for the analysis of variance or for segmentation.

Results

In this study 123 respondents provided a valid answer sheets for BW experiment. Of the respondents, 55 per cent were wine purchasers in Skopje and 56 per cent were male. The proportion of high knowledgeable male respondents in the sample was higher than the proportion of female respondents (Table 4).

The study has measured respondents' wine drinking and wine store purchasing frequency. The data in Table 5 show, that 52.8% of the respondents drink wine at least one per week, 35% ones per month, and 12.2% ones on six months. Concerning their wine purchases, 35.8% of the respondents stated that purchase wine weekly, 50.4% ones per month, and 13.8% up to 6 bottles per year.

Using the Pearson Chi-Square statistic, we found difference between genders in their frequency of wine dinking (p=0.022), while no difference was found in their purchasing habits (p=0.105). The data are presented on the Table 6. Furthermore, we have analyzed the frequency of drinking and purchasing wines between deferent wine knowledge segments (Table 7). From the data, we conclude that high knowledgeable segment as it was expected is consuming and purchasing wine more often than its counterpart. The results of the Chi-Square test shows that there is significant difference in the frequency of wine drinking (p=0.07) between the knowledge groups. No difference was found in the frequency of wine purchasing (p=0.145).

Table 4
Knowledge towards wine: Male and Female

		Wine knowledge	
		Low %	High %
Gender	Male	54.2	61.1
	Female	45.8	38.9
Total		100	100

Table 5
Frequency of wine purchasing and drinking (n=123)

	%	
	I purchase wine in wine store	I drink wine
Up to 6/year	13.8	12.2
Monthly	26.8	16.3
Fortnightly	23.6	18.7
Weekly	31.7	34.1
Most days	4.1	18.7
Total	100	100

Table 6
Frequency of wine purchasing and drinking per gender

	Frequency, %			
	I purchase wine in wine store		I drink wine	
	Male	Female	Male	Female
Up to 6/year	8.7	20.3	5.8	20.4
Monthly	23.2	31.5	11.6	22.2
Fortnightly	23.2	24.1	18.8	18.5
Weekly	39.1	22.2	39.1	27.8
Most days	5.8	1.9	24.7	11.1
Total	100	100	100	100

Table 7
Frequency of wine purchasing and drinking per knowledge group

	Frequency, %			
	I purchase wine in wine store		I drink wine	
	Low Know.	High Know.	Low Know.	High Know.
Up to 6/year	18.8	7.4	17.4	5.6
Monthly	26.1	27.8	20.3	11.1
Fortnightly	26.1	20.4	23.2	13
Weekly	27.5	37	29	40.7
Most days	1.4	7.4	10.1	29.6
Total	100	100	100	100

The main study objective was to determine which attributes influence the wine purchases of Macedonian young adults in wine stores. To find this, we have used the best worst scaling method. The B-W scores were calculated for each attribute for each individual. They were further summarized for the whole sample (Table 8), for the different genders (Table 10) and knowledge groups (Table 12). As it was explained before, the B-W scores for each attribute and individual in our case ranged from-4 to +4. The average attribute B-W scores were calculated by summing all individual B-W scores and dividing with the number of respondents and the frequency of attribute appearance across all choice sets. As such, the attribute average B-W score ranged from -1 to +1.

Table 8
Attribute importance on aggregated level and summary of individual Average B-W Scores (n=123)

	Aggregated B-W Score	Average B-W Score	Std. Deviation
Wine price	116	0.228	0.478
Type of wine (red/white)	110	0.217	0.468
Brand	110	0.217	0.445
Grape variety	90	0.177	0.427
Barrel aged wine	30	0.061	0.457
Wine age/vintage	30	0.061	0.43
Sugar content	-23	-0.045	0.45
Bottle design	-24	-0.047	0.465
Country of origin	-52	-0.102	0.433
Label design	-81	-0.159	0.442
Wine closure	-81	-0.159	0.434
Medals/awards	-95	-0.187	0.454
Alcohol content	-117	-0.23	0.504

The best worst scaling (BWS) scores that each attribute obtained for the whole sample are presented in the Table 2 and illustrated in the Figure 1. The highest average sample B-W score was obtained for the attribute "wine price" (0.228), whereas the lowest BW score was obtained for "alcohol content" (-0.230). The second most important attribute was the ''type of the wine (red/white)'', and the third was the ''brand''. The high rating of ''brand'' and the low rating for "alcohol content" can be seen as well in most other studies where this design has been used (Goodman et al., 2008; Chrysochou et al., 2012).

Beside the attribute "alcohol content", young adults as well decide to give low importance to wine attribute "medals/awards". This is quite surprising, since, it is generally known that medals and awards are usually considered assignal that reduces the risk of bad purchase. A simple way of graphical presentation is plotting the B-W average scores vs the attributes as depicted in Figure 2. In this figure, each attribute is shown across the horizontal axis and the standard score on the vertical. All the attributes that received a positive score are those above the ''0'' line.

In addition one sample *t*-test was conducted. We did this with purpose to give the answer to the question, which wine attributes influence young adults decision to purchase a wine in wine stores. From the results in Table 9, the ANOVA tests of indifference fail to reject the null hypotheses for four attributes "barrel aged wine", "sugar content", "wine age/vintage"

Table 9
One sample t-test for wine attributes for whole sample (n=123)

	t	df	Sig. (2-tailed)	95% Confidence Interval	
				Lower	Upper
Wine price	5.387	122	0.000***	0.1444	0.3122
Grape variety	4.672	122	0.000***	0.1021	0.2522
Type of wine (red/white)	5.219	122	0.000***	0.1344	0.2986
Alcohol content	-5.154	122	0.000***	-0.3187	-0.1418
Label design	-4.068	122	0.000***	-0.237	-0.0818
Barrel aged wine	1.504	122	0.135	-0.0192	0.1413
Brand	5.487	122	0.000***	0.1384	0.2946
Sugar content	-1.133	122	0.259	-0.1243	0.0338
Wine closure	-4.142	122	0.000***	-0.2356	-0.0832
Wine age/vintage	1.598	122	0.113	-0.0145	0.1366
Medals/awards	-4.64	122	0.000***	-0.2667	-0.1072
Bottle design	-1.146	122	0.254	-0.1288	0.0343
Country of origin	-2.662	122	0.009**	-0.1784	-0.0262

Notes:** and *** indicate the existence of significant differences for a maximum error level of 1 per cent and 0.1 per cent

and "bottle design" indicating that average BW scores are not statistically different from zero for. All other attributes have significant impact on consumers' selection of wine. Some of them have strong positive effect such as "type of wine (red/white)", "grape variety", "brand" and "wine price", and some have strong negative "alcohol content", "medal/awards", "wine closure", and "label design".

To answer the question, how males and females differ in their use of wine attributes, independent sample *t*-test was preformed (Table 11 and Figure 3). In comparing the mean average attribute BW score for both genders, we conclude that six from ten attributes are equally use by both genders ($p>0.05$). Furthermore, significant difference was evidenced ($p<0.005$) in how genders use the following wine attributes: price, type of

Table 10
Wine attributes' average B-W Scores for genders, ranked by male

		Average B-W Score Male	Std. Deviation	Average B-W Score Female	Std. Deviation
1	Wine closure	-0.182	0.434	-0.13	0.436
2	Medals/awards	-0.151	0.424	-0.236	0.491
3	Alcohol content	-0.151	0.551	-0.338	0.413
4	Label design	-0.147	0.418	-0.176	0.475
5	Bottle design	-0.12	0.439	0.051	0.484
6	Sugar content	-0.058	0.388	-0.028	0.527
7	Country of origin	-0.017	0.389	-0.218	0.466
8	Wine age/vintage	0.058	0.472	0.065	0.37
9	Type of wine (red/white)	0.116	0.473	0.352	0.428
10	Wine price	0.154	0.469	0.329	0.475
11	Barrel aged wine	0.154	0.426	-0.065	0.471
12	Grape variety	0.188	0.414	0.162	0.448
13	Brand	0.202	0.436	0.236	0.459

Table 12
Wine attributes' average B-W Scores, ranked by low knowledge group

		Average BWS Low Knowledge	Std. Deviation	Average BWS High Knowledge	Std. Deviation
1	Medals/awards	-0.208	0.428	-0.153	0.491
2	Alcohol content	-0.16	0.495	-0.343	0.486
3	Wine closure	-0.156	0.433	-0.162	0.443
4	Country of origin	-0.132	0.405	-0.06	0.473
5	Label design	-0.122	0.498	-0.213	0.355
6	Bottle design	-0.038	0.437	-0.06	0.507
7	Sugar content	-0.003	0.477	-0.093	0.41
8	Wine age/vintage	0.01	0.401	0.12	0.463
9	Barrel aged wine	0.049	0.429	0.069	0.496
10	Grape variety	0.09	0.401	0.292	0.442
11	Brand	0.219	0.384	0.218	0.521
12	Type of wine (red/white)	0.226	0.458	0.208	0.487
13	Wine price	0.274	0.477	0.181	0.472

Table 11
Differences of individual Best-Worst Scaling scores between gender groups

	t-test for Equality of means				
	t	df	Sig. (2-tailed)	95% Confidence interval of the difference	
				Lower	Upper
Wine price	-2.062	121	0.041*	-0.3421	-0.007
Grape variety	0.342	121	0.733	-0.126	0.1786
Type of wine (red/white)	-2.886	121	0.005**	-0.3968	-0.0739
Label design	0.36	121	0.719	-0.1287	0.1861
Barrel aged wine	2.735	121	0.007**	0.0605	0.3773
Brand	-0.425	121	0.671	-0.1925	0.1244
Wine closure	-0.665	121	0.507	-0.2063	0.1025
Medals/awards	1.048	121	0.297	-0.0758	0.2467
Bottle design	-2.074	121	0.040*	-0.3337	-0.0078
Country of origin	2.637	121	0.009**	0.05	0.3509

Notes: * and * * indicate the existence of significant differences for a maximum error level of 5 per cent and 1 per cent

wine (red/white), barrel aged wine, bottle design and country of origin. Young males see on attributes wine aged in barrels and origin of the wine as very important, whereas females in their decision-making give more attention on the bottle design,

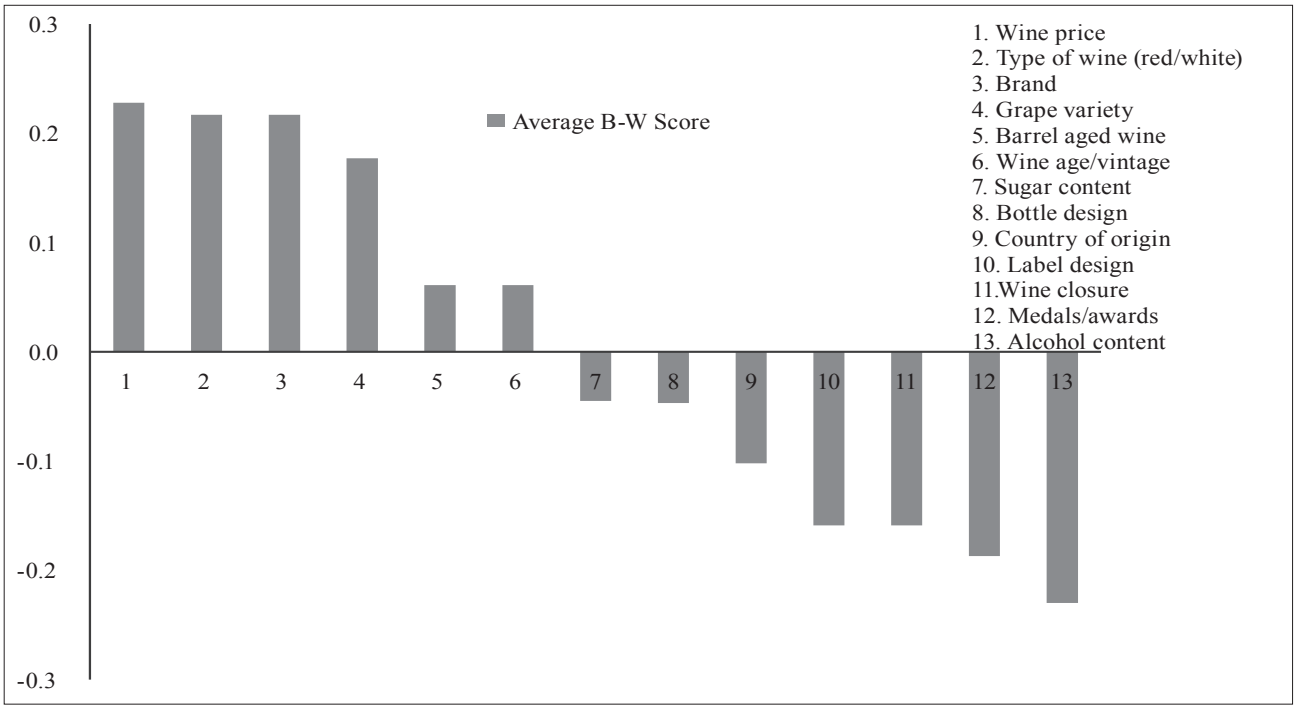

Fig. 2. Average B-W scores for the whole sample (n=123)

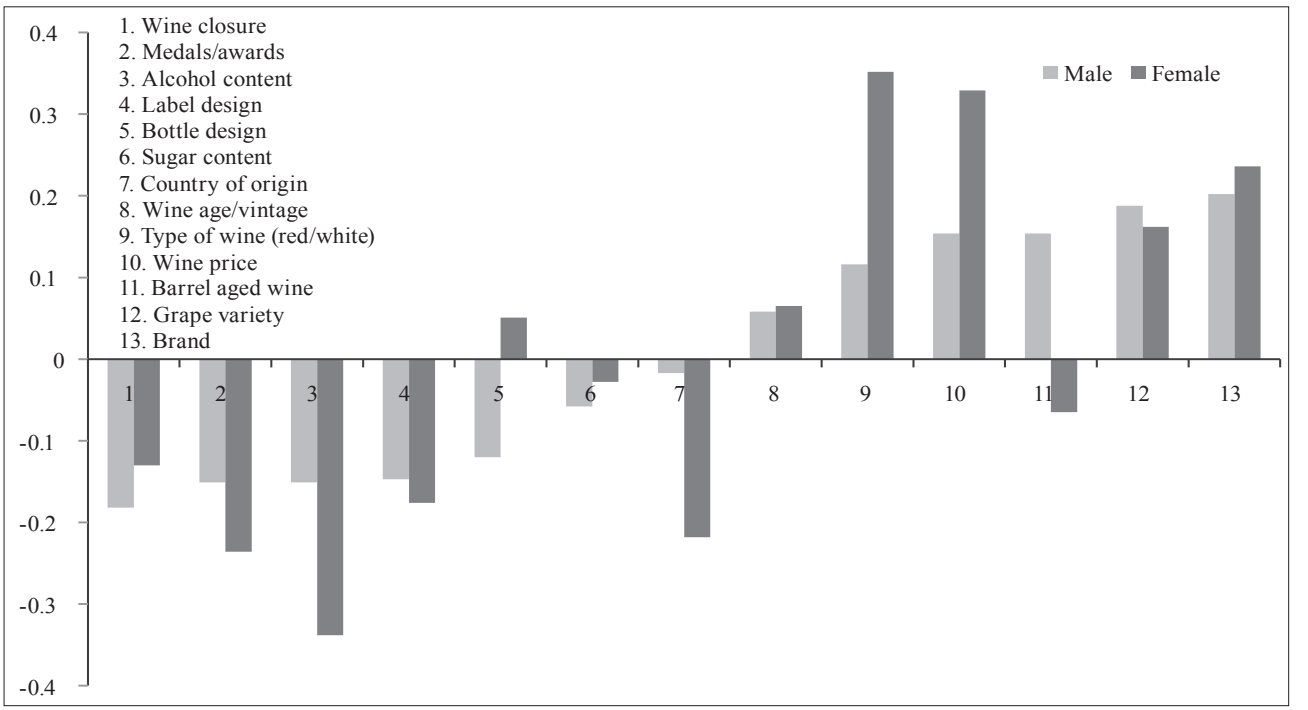

Fig. 3. Averages Best-Worst scaling scores for genders, ranked by males

price and type of wine (red/white). For the attributes "wine age/vintage", "alcohol content" and "sugar content" the analysis of the means was not preformed, since significant differences were obtained for the attributes variances.

The average BWS scores and their standard deviations for each knowledge group are presented in the Table 3 and illustrated on the Figure 4. The most important attribute for high knowledgeable group was "grape variety" (0.292), whereas the least important was "alcohol content" (-0.343). The segment representing consumers with low knowledge in wine found price as a most important attribute (0,274), whereas the least important was "medals and awards" (-0,208). Indepen-

Table 13
Differences of individual Best-Worst Scaling scores between knowledge groups

	t-test for Equality of Means				
	t	df	Sig. (2-tailed)	95% Confidence Interval of the Difference	
				Lower	Upper
Wine price	1.1	121	0.275	-0.0754	0.2629
Grape variety	-2.67	121	0,009**	-0.3506	-0.0521
Type of wine (red/white)	0.2	121	0.838	-0.1504	0.1851
Alcohol content	2.07	121	0,041*	0.0078	0.358
Barrel aged wine	-0.25	121	0.801	-0.1844	0.1427
Brand	0.01	121	0.989	-0.1584	0.1607
Sugar content	1.1	121	0.273	-0.0712	0.2494
Wine closure	0.07	121	0.942	-0.15	0.1616
Wine age/vintage	-1.43	121	0.157	-0.2626	0.0427
Medals/awards	-0.68	121	0.5	-0.2181	0.107
Bottle design	0.26	121	0.795	-0.1449	0.1889
Country of origin	-0.92	121	0.362	-0.2268	0.0833

Notes:* and * * indicate the existence of significant differences for a maximum error level of 5 per cent and 1 per cent

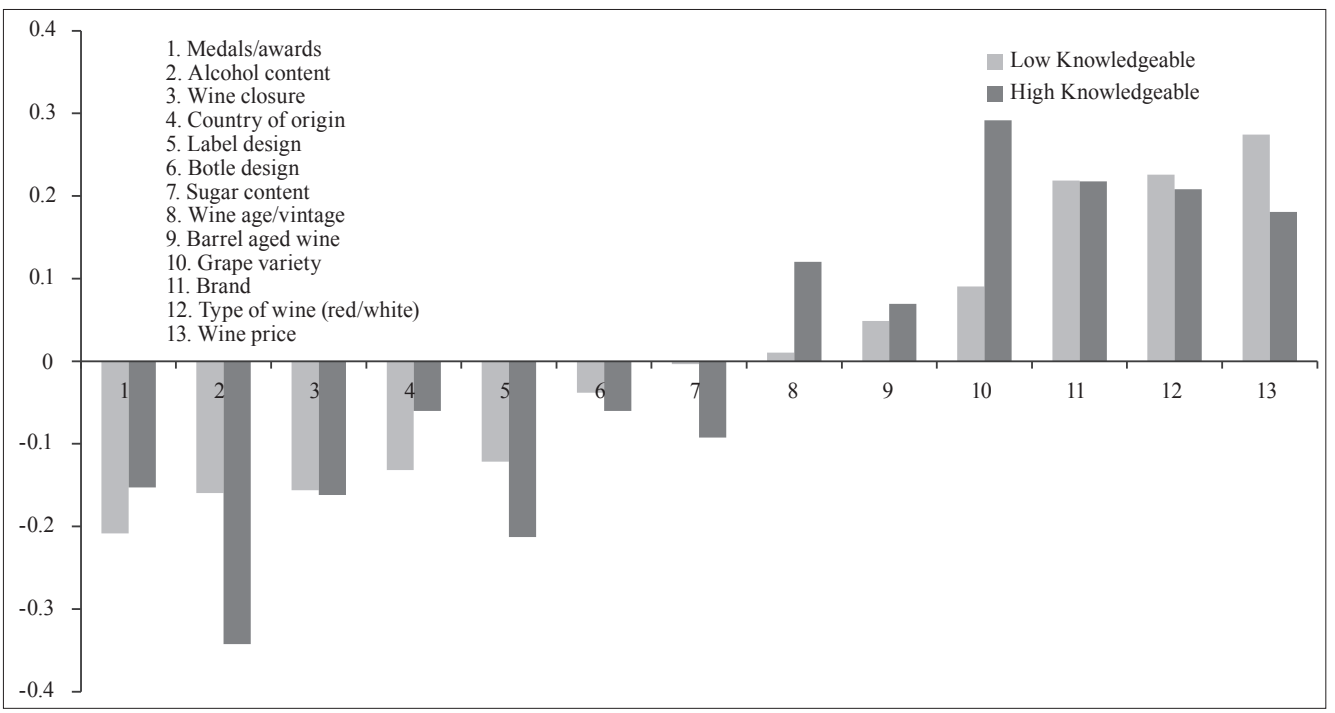

Fig. 4. Best-worst scaling scores for knowledge groups, ranked by low knowledgeable

dent sample *t*-test was conducted with purpose of determining the differences between the two knowledge groups (Table 13). Significant differences were found for "grape variety", $t(121) = -2.76$, $p=0.009$, with high knowledge group finding this more important than low knowledge group; and "alcohol content", $t(121) = 2.07$, $p=0.041$, with low knowledge consumers finding this more important than their counterpart. One attribute was left from the analysis, since significant difference in the attribute variance between the knowledge groups was obtained.

Discussion and Conclusions

This research applied the best worst scaling method to investigate the degree of importance that young individuals give to 13 attributes related to choosing wine, and in particular the behavioral differences across gender and knowledge subgroups of the sample. The BWS method was employed on attributes which previous literature and wine marketing experts in Republic of Macedonia have pointed out as important for wine selection in off-premise setting (Cassini et al., 2009; Chrysochou et al., 2012; Goodman et al., 2008; Bernabeu et al., 2012).

Findings regarding the selection of wine attributes in purchasing wine of young wine consumers were in line with previous research (Chrysochou et al., 2012; Kennett-Hensel et al., 2011; Magistris et al., 2011; Bernabeu et al., 2012).A general analysis of BW scores shows that interviewees find the "price", "type of wine (red/white)", "brand" and "grape variety" more important than other attributes. Furthermore, the research found no attention towards the attributes "sugar content", "barrel aged wine", "bottle design" and "wine age/vintage" in order to stimulate wine purchases. For the least important attributes by young consumers were chosen "alcohol content", "medal/awards", "wine closure", and "label design", "country of origin", "bottle design" and "sugar content".

The second level analysis of best worst data for genders and knowledge subgroups showed that of the two segmentations, the one done by gender presented a higher discriminate capacity. By analyzing genders average best worst scores, we concluded difference in the preference of the following wine attributes: "barrel aged wine", "country of origin", "price", "type of wine (red/white)", and "bottle design". The analyses of the knowledge segments show overall similarity in the use of wine attributes. However, some differences were present; hence knowledge groups were significantly different in the use of the attributes grape variety and alcohol content, with the last being favored by the low knowledge group.

The findings of the present research provide useful implications for the wine industry in relation to marketing wine to young adult consumers. In light of these findings, it may be counter productive for wine marketers to attempt to attract younger consumers with high priced wine closures, as they are not viewed as a cue for quality. Furthermore, more effort might be needed on the part of the domestic wine industry to educate young consumers for wine in general, since according to the knowledge segmentation only 43% of the respondents have answered on more than 2 questions (from 7) correctly. This is even more surprising as the study was performed in special wine stores. In this context and according to the results, the industry in the future should find a way to explain to young consumers what does medals and awards mean for the quality of the wine. This is very important for the wine industry since if there is no understanding there is no need for advertising the success. Furthermore, the low importance given for the attribute "wine age/vintage" means that consumers do not understand what these two quality signals mean. Explaining to consumers how vintage is related to wine and what ageing means for the quality of wine will probably detract the attention of price as most important quality cue. The negative score given for the wine attribute "country of origin" mostly among low knowledgeable wine consumers should for the moment relieve the pressure of the domestic industry from the foreign competition. This is not expected for the future, when the high knowledge segment is expected to grow, which could increase the interest for the foreign wines.

From methodological point of view, the study demonstrated the strong ability of the BW method to give clear and simple answers regarding the wine attributes that are most and least preferred by individuals in their selection of wine. It is clear that the method and approach have identified signals that might assist the Macedonian wine industry in preparing better marketing strategies towards young adult consumers.

However, the study presents some limitations. First there is considerable scope for this research to be extended, through recruiting a larger sample which will be statistical representative for the wider population. Furthermore, researchers carefully selected the attributes to put in the survey, according what the literature and experts suggested. However, it is not possible to state with certainly that these are the 13 most important attributes that influence wine choice behavior. Moreover, if one tries to include or remove one attribute BW scores change, as a result of the fact that the importance of each attribute is evaluate in respect to the others presented in the choice set. The best worst scaling method, in fact, generates an interval scale, which is influenced by the distance between the attribute with highest raw score and that with the lowest. In this study, we have presented results which show the importance consumers give to wine attributes and the differences that exist between the different segments of one sample. Concerning the data obtained from BWS method, the future study could use different statistical procedures in analyzing BW scores (Magistris et al., 2011; Auger et

al., 2006; Auger et al., 2006; Mueller and Rungie, 2009; Al-Janabi et al., 2011; Casini et al, 2009; Flynn et al., 2008). In this context we should explore new segments using a latent class analysis or hierarchical cluster analysis methods. As well we could try to provide conclusions for the importance of the attributes on individual level by fitting a mathematical model on the obtained data. Furthermore, the method could be used for investigating the probability of choosing different types of wine, for instance Cabernet Sauvignon compared to Vranec and this can be complemented with the question what price consumers are willing to pay for particular wine. There are also many advantages in BW scaling which can be beneficial in wine or any other product marketing research. As the number of items increase it is recommended to use an online survey that limits the errors made by respondents while using the paper survey. In this paper a guidance and example to design and analysis of survey using best worst method was provided.

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