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odločanju v kmetijstvu  
in razvoju podeželja

Krško, 2013

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## 6. konferenca DAES

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# Študije potrošnih navad

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## **YOUNG URBAN ADULTS' PREFERENCES FOR WINE ATTRIBUTES: AN EXPLORATORY STUDY OF THE REPUBLIC OF MACEDONIA WINE MARKET APPLYING THE BEST-WORST SCALING**

Hristov HRISTOV<sup>a</sup>, Aleš KUCHAR

### **ABSTRACT**

This work focuses on measuring the importance of the attributes which influence the wine choice of Macedonian young wine consumers when they purchase wine in wine stores. Our goal is to identify significant behavioral differences across 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, the best-worst scaling (BWS). The objectives of the paper are twofold: first, to explore the preferences and gender differences of Macedonian young urban adults towards wine attributes; and second, to present the best-worst scaling method and to demonstrate its empirical use. A total of 100 Macedonian young consumers between the age of 25 and 34 purchasing wine in wine stores participated in a face-to-face interview performed 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 shows that young urban adults in their selection of wine give more importance for the wine attributes: type of wine (red/white), brand, grape variety and price. The attributes less preferred were alcohol content, medal/awards and country of origin. Moreover, the study showed that genders differ in their use of wine attributes. Young males prefer more barrel aged wines, while females put more attention to wine type and bottle design.

Key words: Wine consumer preferences, gender segmentation, young adults, best-worst scaling, Republic of Macedonia

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## **PREFERENCE MLADIH URBANIH ODRASLIH GLEDE LASTNOSTI VINA: UVODNA ANALIZA VINSKEGA TRGA REPUBLIKE MAKEDONIJE Z UPORABO METODE "BEST- WORST SCALING"**

### **IZVLEČEK**

To delo se osredotoča na ovrednotenje pomembnosti atributov, ki vplivajo na nakupno izbiro vina v specializiranih vinskih trgovinah v Makedoniji za segment mlajših urbanih odraslih. Cilj raziskave je prikazati najpomembnejše razlike znotraj podskupin proučevanega segmenta, glede na temeljne sociodemografske spremenljivke, kar je mogoče koristno uporabiti pri razvoju učinkovitejših strategij trženja. Nadalje, raziskava temelji na aktualnem metodološkem pristopu, ki lahko občutno izboljša kakovost rezultatov. Praviloma, se pri podobnih raziskavah uporabljajo ocenjevalne lestvice, ki pa imajo vrsto empirično dokazanih pomanjkljivosti. Ena od metod, ki te slabosti učinkovito preseže je metoda "Best worst scaling" (BWS). V prispevku želimo to metodo predstaviti ter na primeru analize razlik med spoloma v preferencah za vina v segmentu mladih odraslih urbanih makedonskih potrošnikov dokazati njeno empirično uporabnost. V vzorec smo vključili 100 makedonskih potrošnikov v starosti med 25 in 34, ki so nakupovali vino v treh specializiranih vinskih trgovinah v Skopju in eni v Bitoli. Izvedli smo anketni vprašalnik, ki je vseboval vprašanja z BWS za merjenje ravni pomembnosti najpogostejših atributov za izbiro vina. Rezultati študije kažejo, da mladi urbani odrasli pri izbiri vin dajejo največ pomena elementarnim lastnostim vina: vrsta vina (rdeče/ belo), blagovna znamka, sorta in cena. Atributi z manjšim pomenom pa so: vsebnost alkohola, medalje/nagrade in država porekla. Poleg tega je študija pokazala signifikantno razliko med spoloma. Mladi moški pri izbiri preferirajo barikirana in starana vina, medtem ko ženske dajejo večjo težo vrsti vina in designu steklenice.

Ključne besede: porabnik vina, preference, segmentacija po spolu, mladi odrasli, metoda BWS, Republika Makedonija

### **1 Introduction**

Understanding what product attributes drive consumer choice is necessary for developing marketing and advertising strategies. Choice modeling provides 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). In 1990, Louviere and Woodworth formulated a scaling method, today known as best-worst scaling to examine consumer preferences on products while eliminating the previously bias problems apparent in other scaling methods. The best-worst (BW) scaling otherwise known as Maximum Difference Scaling was first published by Finn and Louviere in 1992. A formal discussion of this method, including formal proofs of the measurement properties associated with different cognitive processes that

respondents might use to make best and worst choices, was provided by Marley and Louviere (2005).

The best-worst scaling method has many advantages. Some of them will be mentioned in this article. It can be used instead of rating scales in many applications. Compared to hedonic scaling produces much less method variance and thus results in better separation among various alternatives (Cohen, 2009). Furthermore, the best-worst scaling has the ability to provide unbiased estimates across different data collections (Louviere et al., 2000; Goodman, 2009). The method can be used to measure many types of latent, subjective quantities and can be used in place of applications that use the method of paired comparisons.

A literature review is beyond the scope of this paper, the focus here is to describe the use of best-worst scaling (BWS) as an instrument for data collection and to present authors' initial findings for the use of wine attributes by young consumers purchasing wines in Macedonia. In analyzing the results two statistical methods are used: one-sample t-test and independent samples t-test. The 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 Macedonian experts in wine marketing. The study sample includes wine shoppers between the age of 25-34 purchasing wines in four wine stores, three in Skopje and one in Bitola. The data were collected during face-to-face interviews on non-probability convenience sample. The interviews took place between first of November and 20<sup>th</sup> December, 2012. Respondents participating in the study were selected by trained interviewers (personnel working in the 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; third, data collection technique is presented and finally, results and discussion followed by conclusions are discussed.

## 2 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 a 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 pinpoint 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 influenced 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). Ranking can also become exhausting for respondents as the number of attributes increases. 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 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).

### 3 Best -Worst scaling

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 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 (Cohen 2003; Cohen and Markowitz, 2002; Cohen and Neira, 2003; Louviere and Islam, 2004; etc).

Choice sets (Table 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:

*Think of the last time you purchased a bottle of wine. Tick the ONE reason that MOST influenced your choice and the ONE that LEAST influenced your choice.*

**Table 1.** Example of Best Worst choice sets presented to respondents

Least/Worst	Attribute	Most/Best
<input type="checkbox"/>	Wine price	<input type="checkbox"/>
<input type="checkbox"/>	Grape variety	<input type="checkbox"/>
<input type="checkbox"/>	Type (red/white)	<input type="checkbox"/>
<input type="checkbox"/>	Alcohol %	<input type="checkbox"/>

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 (Table 2). The 13 attributes selected were combined to 13 sub-sets of four items each using a balanced incomplete block design (BIBD). We have used counting based method for analyzing the results. The BIBDs are by far the most widely used designs for conducting counting based analysis. This method was 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, resulting in 'best-minus-worst' (BW) scores. On the aggregated level, the difference between all best and all worst counts is divided by the number of respondents resulting in an average BW 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 scale depend on the number of repetitions of each attribute in the BIBD used.

Wine attributes which according to wine literature mostly influence consumers purchasing decisions and selection on wine.

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 the 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.

Table 2: Wine attribute list

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

#### 4 Data collection

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 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 20<sup>th</sup> 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, personnel working in the 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 year of birth, since this was the only condition to participate in the study. Respondents were briefly explained with the content of the survey, and asked for their answers. The total of 100 valid best-worst data from 170 questionnaires were obtained. The response rate was 58%. The average length of the interview was 25 minutes, from which that part reserved for best worst data took 10 minutes. Table 3. illustrates the number of responses and percentages per demographic and geographic category.

Table 3: Characteristics of the sample

	N	%
<b>Gender</b>		
Male	54	54
Female	46	46
<b>Age groups</b>		
25-29	46	46
30-34	54	54
<b>Education</b>		
High school	53	53
University or higher	47	47
<b>Income</b>		
None	1	1,1
Low	7	7,4
Below Middle	22	23,2
Middle	54	56,8
Above Middle	11	11,6
<b>City</b>		
Bitola	48	48
Skopje	52	52

## 5 Results and discussion

In this study 100 respondents provided a valid answer sheets for the BW experiment. Of the respondents, 52 per cent were wine purchasers in Skopje and 54 per cent were male. The BWS scores that each attribute obtained for the whole sample are presented in Figure 1. As explained previously, the BW scores for each attribute and individual can range from -4 to +4. The average BW scores are calculated by dividing the number of respondents and the frequency that each attribute appears in the design of the choice sets, i.e. four in our example. As such, the average best-worst score ranges from -1 to +1.

In our study the highest average BW score was obtained for "type of wine" (0,275), whereas the lowest BW score was obtained for "alcohol content" (-0,275). The second most important attribute was the "brand", and the third was the "grape variety". 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 consumers decide to give low importance to wine attribute "wine medals/awards" as well. This is quite surprising, since, it is generally known that wine medals and awards are usually considered as signal that reduces the risk of bad purchase. A simple way of graphical presentation is plotting the BW average scores vs the attributes as depicted in Figure 1. In this figure, each attribute is shown across the vertical axis and the standard score on the horizontal. All the attributes that received a positive score are those above the "0" line.

Attribute	B-W Score	Average B-W score
Wine price	77	,19750
Grape variety	78	,20500
Type of wine	108	,27500
Alcohol content	-108	-,27500
Label design	-53	-,14000
Barrel aged wine	20	,05250
Brand	83	,21500
Sugar content	-20	-,05250
Wine closure	-57	-,15000
Wine age/vintage	25	,06500
Medals/awards	-70	-,17500
Bottle design	-24	-,06750
Country of origin	-43	-,11000

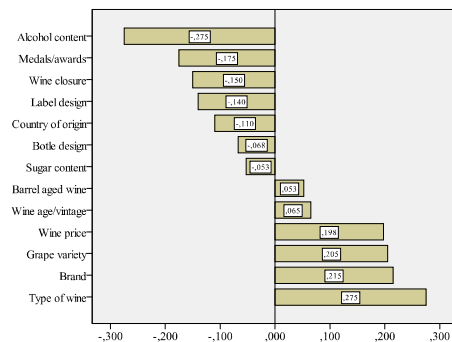


Figure 1: Wine attributes BW average scores (n=100)

Using the statistical method one sample t-test, we tried to answer the question, which wine attributes influence young adults decision to purchase wine. From the results in Table 4., we can conclude that except the following wine attributes "barrel aged wine", "sugar content", "wine age/vintage" and "bottle design" all other have significant impact on consumers' selection of wine. Attributes "type of wine", "grape variety", "brand" and "wine price" have strong positive, while "alcohol content",

"medal/awards", "wine closure", "country of origin" and "label design" have strong negative influence.

To answer the question, which attributes are commonly used by males and females in their selection of wine an independent sample t-test was used (Table 5). In comparing the mean average attribute BW score for both genders (Figure 2), we conclude seven from ten attributes equally use by both genders in their selection of wine ( $p < 0.05$ ). Furthermore, significant difference was evidenced ( $p < 0.005$ ) in how genders use the following wine attributes: type of wine, barrel aged wine and bottle design. Young males see on "barrel aged wine" to be very important, while females put more attention on the wine's bottle design. Attributes "country of origin", "wine age/vintage" and "sugar content" were not used in the analysis, because of variance inequality across the genders.

Table 4: One sample t-test for wine attributes

	t	df	Sig. (2-tailed)
Wine price	4,504	99	,000
Grape variety	4,628	99	,000
Type of wine	6,016	99	,000
Alcohol content	-6,186	99	,000
Label design	-3,224	99	,002
Barrel aged wine	1,110	99	,270
Brand	4,875	99	,000
Sugar content	-1,230	99	,222
Wine closure	-3,482	99	,001
Wine age/vintage	1,491	99	,139
Medals/awards	-3,794	99	,000
Bottle design	-1,420	99	,159
Country of origin	-2,430	99	,017

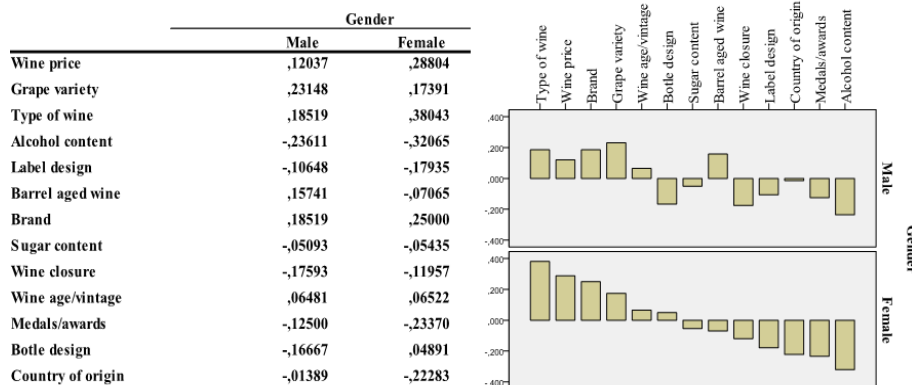


Figure 2: Average BW scores by gender

Table 5: Independent sample t-test for wine attributes with equal variances

	F	Sig.	t	df	Sig. (2-tailed)
Wine price	,229	,634	-1,932	98	,056
Grape variety	1,452	,231	,646	98	,520
Type of wine	,852	,358	-2,168	98	,033
Alcohol content	,161	,689	,947	98	,346
Label design	,816	,369	,835	98	,406
Barrel aged wine	,577	,449	2,463	98	,016
Brand	,749	,389	-,731	98	,467
Wine closure	,030	,863	-,650	98	,517
Medals/awards	,751	,388	1,177	98	,242
Bottle design	,149	,700	-2,310	98	,023

## 6 Conclusion

This research applied the BW method to investigate the degree of importance that young individuals give to 13 attributes related to choosing wine, and in particular the behavioural differences across gender subgroups of the sample.

A general analysis of the average BW scores shows that interviewees find the type of wine (red/white), brand, grape variety and price more important than other attributes. Conversely, our research found scant attention towards the alcoholic content and origin of the wine in order to stimulate wine purchases. It has also been surprising to note that label design and wine medals/awards are not sufficient to influence Macedonian young consumers' choice of wine.

The second level analysis of the BW data between the genders showed an overall similarity in the behavior of both groups. However, some differences are present; hence genders are significantly different in the use of the attributes barrel age wine, type of wine and bottle design, with the last two attributes being favored by females.

The study demonstrates 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 is identifying signals that might assist the Macedonian wine industry in preparing better marketing strategies towards young wine consumers.

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Študije potrošnih navad

Agrarna politika držav zahodnega Balkana

Ekonometrične analize in matematično modeliranje

Empirični modeli v podporo odločanju kmetijske politike

Modeli v podporo odločanju na ravni gospodarstva

Organizacije pridelovalcev, potrošne navade in poslovno odločanje

Pravo in razvoj podeželja

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