

## Overcoming Measurement Errors: Segmenting Wine Consumers across 11 Countries

Professor Larry Lockshin  
Head Wine Marketing Research  
Ehrenberg Bass Institute of Marketing Science  
University of South Australia  
[Larry.Lockshin@unisa.edu.au](mailto:Larry.Lockshin@unisa.edu.au)

Dr Eli Cohen  
Adjunct Senior Lecturer  
Ehrenberg Bass Institute of Marketing Science  
University of South Australia  
[Eli.Cohen@unisa.edu.au](mailto:Eli.Cohen@unisa.edu.au)

Dr Steve Goodman  
Senior Lecturer  
The University of Adelaide Business School  
[Steve.Goodman@adelaide.edu.au](mailto:Steve.Goodman@adelaide.edu.au)

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### Introduction

Most marketing researchers and practitioners use surveys to measure buyers' attitudes towards various products, promotions, or practices. There is a hidden assumption that the numeric methods used produce reliable and valid measurements, which can then be compared and useful conclusions drawn. In reality there are several reasons why much of marketing measurement is not scientific and the conclusions based on unreliable measurements. One of the major areas affected has been useful segmentation of wine consumers, especially across different countries. This paper discusses some of the issues in segmentation and provides evidence of a better method, which provides robust results across 11 different wine consuming countries allowing wine marketers to better understand how consumers buy wine. The research is part of a grant from the GWRDC investigating how consumers buy wine in different countries. Earlier parts of the research have been presented in previous wine industry and academic publications. Readers can view these at [www.winepreferences.com](http://www.winepreferences.com). The paper first presents the general background to measurement issues in marketing followed by a detailed look at segmentation. Then the specific project is presented with a brief review of the methodology followed by the results and their interpretation for international wine marketing.

### Measurement Issues in Marketing

One of the major shortcomings of much marketing research is the inability to replicate results. Scientific research is built on the premise that results must be tested and repeated in order for it to be accepted. Behind this problem is an issue hardly ever spoken or written about: measurement. We accept as given that scientists will use the same units in making measurements of phenomena under observation, e.g., photosynthesis, chemical compounds, alcohol levels. This way both scientists and practitioners can compare their findings and

outcomes. Marketing often uses what are called ‘scales’, which are verbal items where respondents mark their agreement on 1-5, 1-7, or 1-9 numeric scales. An example might be to ask consumers, “How important is brand/region/price... when you buy wine?” The answers to these types of questions are summed across consumers and the results are analysed using the same statistical techniques as for scientific data. The analytical methods were developed using normal scientific data, where the measure of 2 units of something is half as much as having 4 units and so on. When these same methods are used in marketing we have to assume that there is little error in the measurement of consumers’ answers to the questions in a survey or else the techniques can give erroneous conclusions.

This assumption has been shown to be wrong in most cases. There are several sources of error in consumer measurement using these types of scales. First, no one has a 1-7 or 1-9 scale built into his/her head. What might be 3 out of 7 importance to me might be 4 out of 7 importance to you, yet we value the item (like importance of region in wine choice) the same. This source of error comes from the fact that different people use these scales differently. Some people never use the endpoints, 1 or 7. Some people use the bottom or top two-thirds of the scale. Some use only the end points. When these are summed together there is a lot of ‘noise’ or variability in the data that does not come from the actual importance of the item being rated.

Another issue is that the distance from 2 to 4 is assumed to be the same as the distance from 5 to 7. In scientific measurement this can be verified, but ratings scales do not have this property. The best we can say is that 7 is larger than 5, which is larger than 3, but the methods typically used assume the interval between these ratings is exactly and repeatedly the same. So we hear interpretations that one segment likes something twice as much as another, which is not really true.

Finally there are differences in how people in different countries use scales. When we first began testing our segmentation methods using Best-Worst Scaling, we compared it to the standard 1-7 scaling and found that Australians and Israelis in general used different parts of the scales (Goodman et al. 2005). Few Australians used the lower ends (1-3), and few Israelis used the upper ends (5-7). If we took their ratings direct, we would conclude Australians found certain items much more important than the Israelis, rather than that the importances might be the same, but the scale usage was different.

### **Segmentation in Wine Marketing**

In straight marketing terms, segmentation is the process of dividing the market (buyers) into groups, where the preferences are more similar within the group than between the groups. It is predicated on the assumption that there are efficiencies to be gained by developing products and marketing activities geared to one group at the expense of not suiting another. We know people are different and though we all have the same basic needs, we often prefer to satisfy those needs with different products. We all need to eat, but what we choose to eat can differ dramatically. The problem lies with the idea of segmenting buyers based on these preferences.

Today I felt like eating Italian food; should I be segmented on that preference, if tomorrow I decide to eat Chinese? More realistically, are the different models of mobile phones really aimed at different segments? Different wines aimed at different segments? Different credit cards? The answer lies with the ability to identify a specific group whose behaviour is mainly predictable and similar. Even Chinese people in Australia sometimes eat pizza, and it is hard to locate a demographic indicator that will predict which model of a mobile phone a buyer will purchase. In fact the same phone may be purchased by a teenager and by a middle-aged

businessman, just as both might eat Chinese one day and Italian food the next. A study done about eight years ago by Dr Rachel Kennedy of our Ehrenberg Bass Institute of Marketing Science and Professor Andrew Ehrenberg of Southbank University looked at over 50 different product categories, as diverse as breakfast cereal, automobiles, and insurance and found using dozens of demographic and attitudinal measures very few differences between the buyers of different brands. In other words there was very little evidence of segmentation at all. Most differences were less than 5 percentage points on any of the 100+ measures, even between buyers of Fords and BMWs.

There is of course segmentation between buyers of different categories. People, who don't buy wine, do differ in some ways from those that do buy wine. But within the wine category, there aren't differences between Penfolds and Jacobs Creek buyers. We have done extensive segmentation type research and find that even demographics, such as frequency of wine consumption, gender, and income are not very important predictors of behaviour. Yes, people with higher incomes do tend to buy more expensive wines, but people who buy expensive wines are not necessarily wealthier than those who buy cheaper wines. Higher involvement wine buyers do use more extensive information and deliberate longer over their choices, but they are impossible to identify from their demographics (Lockshin et al. 1997). So where does that leave us when trying to understand and then measure relevant wine segments?

Previous research has attempted to measure wine drinker segmentation by means of lifestyle segments (Bruwer and Li 2007; Bruwer et al. 2002). Although the segments are reported to be robust, each time the survey has been run, a few different segments have occurred. This could be due to changes in the market, which means the segments themselves were not very robust; or it could be due to the problems cited above with measurement error. Research conducted by the lead author (Lockshin et al. 1997; Aurifeille et al. 2002) also failed to find the same segments in two different countries using involvement as the means of segmentation. Wine provides a fertile ground to test whether segments occur between countries and therefore whether companies can focus on the most useful segments for their types of wines, or whether countries act as segments, and therefore companies need to adapt their marketing country by country.

Different variables have been used to segment across countries. The studies using country or regional-wide data have focused on available secondary data, such as sociodemographics at the regional level, economic development indicators, or sales in various sectors of the economy. Steenkamp and Ter Hofstede (2002) comment that the most useful studies use individual consumers in each country and either focus on measures related to a specific product market or to broader measures of cultural differences, such as values. Product specific measures as expected are better for predicting behaviour in those specific markets, while value-based segmentation is more general and often more difficult to use for company-level decisions. One could argue that value-based segmentation is oriented around measuring culture (Briley and Aaker 2006), while product market segmentation is more of a cross-national measurement ignoring direct measures of culture. We decided to use the attributes or features consumers use to choose wines to develop our segmentation scheme. This is expanded below following the section on Best Worst Scaling.

### **Best Worst Scaling**

Best Worst Scaling (BWS) can effectively overcome a variety of problems in using rating scales across countries (Auger et al. 2007; Cohen and Neira ). It was developed by Finn and Louviere (1992) as a multiple choice extension of the paired comparison approach (Thurstone 1927), though its underlying theory is derived from choice modelling (Marley and Louviere

2005). The important aspect of the method is that it is scale free. “Best-Worst scaling models the cognitive process by which respondents repeatedly choose the two objects in varying sets of three or more objects that they feel exhibit the largest perceptual difference on an underlying continuum of interest” (Finn and Louviere 1992, p. 13). Since there is no scale usage in choosing the two most distant objects, there is no response style factor. Consumers in any country or culture perform the same cognitive task when choosing the pair of objects exhibiting the greatest perceptual difference.

Two of the most important properties of BWS are that it measures all items on a common scale and that the resulting scale has known measurement properties, either an interval or ratio scale depending on the transformation (Auger et al. 2007). As long as every pair of items appears equally often, the difference between the number of times an item is chosen best and worst is a close approximation to the true scale values as taken from the Multinomial Logit model. These values can be standardized to account for sample size differences between countries and then treated as ratio level values in subsequent multivariate analyses. The method does not allow respondents to dislike or like all of the attributes. By definition it forces the attributes to make trade-offs and the resulting importance weights are then relative to each other.

In our research, respondents indicated the ‘most’ and ‘least’ important of 13 factors used in choosing wine from a retail store. We used a BIB design, where there were 13 sets of four items. Each item appeared once in each of the four positions in a set and each one appeared four times across the 13 sets. Every possible pair of items appeared together exactly one time. Using this design with the Best Worst method allows us to accurately estimate the true differences based on subtracting the best and worst counts for each item (Auger et al. 2007). These counts are then a bias-free estimator of the importances of each of the items in wine choice at a retail store.

### **Factors in Wine Choice**

This section details the 13 items used in the Best Worst Scaling choice sets. When a product has a high proportion of attributes that can only be assessed during consumption (experience attributes) as with wine (Chaney 2000), then the ability of consumers to assess quality prior to purchase is severely impaired, and consumers will fall back on extrinsic cues in the assessment of quality (Speed 1998). Chaney (2000) found there is a very little external search effort undertaken prior to entering the store to purchase wine, with the two highest ranked information sources in her study being point of sale material and labels, but these were found to rate at only the somewhat important level.

Koewn and Casey (1995) found that the taste of the wine was a dominating factor for wine consumers. Thompson and Vourvachis (1995) found that taste was the most highly correlated attribute relating to wine choice and noted that this was to be expected as it is frequently found to be the key attitudinal factor in studies of wine choice. The taste of the wine represents one of the major perceived risks presented by Mitchell and Greatorex (1988). They found that the taste of the wine was the risk that concerned consumers most. However, almost all purchase situations do not include the opportunity to taste the wine before purchase, so having previously tasted the wine has been shown to be important in wine selection (Goodman et al. 2006).

Lockshin et al. (2000) highlight the fact that brand name acts a surrogate for a number of attributes including quality. The brand name by itself is not a strong enough cue for the purchase decision, as much more information is available on the label.

Batt and Dean (2000) found that the origin of the wine was the third most important variable influencing consumers' decision to purchase wine in Australia. In Europe research by Skuras and Vakrou (2002), Dean (2002), Koewn and Casey (1995) and Gluckman (1990) suggest that country of origin is a primary and implicit consideration of consumers in their decision to purchase wine, and recent research by Tustin and Lockshin (2001) in Australia confirmed region to have a major impact on wine purchase. Other authors have studied the region of origin as a cue to wine purchasing and found it is usually in the top four cues (Angulo et al. 2000; Gil and Sanchez 1997; ( Lockshin et al. 2006; Quester and Smart 1998).

Koewn and Casey (1995) found that pricing was extremely important to all respondents in a study of wine purchasing influences. Similarly, in a study conducted by Jenster and Jenster (1993), price was an overriding criterion in making the purchase decision among European wine consumers. Generally, price is an important cue to quality when there are few other cues available, when the product cannot be evaluated before purchase, and when there is some degree of risk of making a wrong choice (Monroe and Krishnan 1985).

Landon and Smith (1998) suggest that given the incomplete information on quality, consumers rely heavily on both individual firm reputation based on the past quality of the firm's output and collective or group reputation indicators and characteristics that allow consumers to segment firms into groups with differing average qualities to predict current product quality. To help deal with that uncertainty, quality-conscious consumers process various perceived signals of quality, mainly of an extrinsic nature, such as price, producer, brand, vintage, region, awards, ratings and recommendations (Lockshin et al. 2006; Lockshin et al. 2000).

Hall and Lockshin (2000) found that the above factors are related to the situation where the consumer intends to drink the wine. For example, high price was important when a consumer was purchasing wine in order to impress a business associate or to celebrate a special anniversary. Low price was important, when the consequence was to relax at home by oneself, or for entertaining at an informal party or BBQ. Different consumption situations amplified or muted the importance of different wine attributes and therefore these must be taken into account in wine research.

It is clear that there are many potential factors consumers might consider in choosing wine. We argue that from a marketing management point of view, useful segments could be derived from how consumers use these factors when making a wine choice. If we can measure the relative importance of a range of factors, then managers could decide what aspects to emphasize in their marketing programs. If there are groups of consumers across countries with similar choice criteria, then similar marketing programs could be successfully employed.

### **Sampling and Survey Methodology**

In this section we first describe the BWS design and survey instrument. We then discuss the data collection, including translation, in the 11 countries of interest. The analysis of the BW scores and the Latent Cluster Analysis are presented next. The testing of the cluster allocations across 11 countries and interpretation is provided in the results section. We chose 13 different items to represent the range of choice cues consumers might use in wine selection based on the above literature review. This included: previously tasting the wine, promotional display in-store, grape variety, origin of the wine, information on the shelf, alcohol level below 13%, matching food, information on back label, medal / award, an attractive front label, brand name, someone recommended it, and I read about it.

Respondents were asked to consider their choice of a 750ml bottle of wine to have at home with friends or family. In this way we controlled for the consumption situation (Hall and Lockshin 2000). Each person completed a survey including all 13 choice sets plus some demographic and product category usage questions. For each choice set, respondents selected the item that was ‘most important’ and ‘least important’ in selecting wine for the chosen occasion. Since each respondent saw all 13 choice sets, we can compute a Best-Worst score for each of the 13 items for each person by subtracting the number of times each item was chosen worst from the number of times it was chosen best. As each attribute appears four times in the 13 choice sets, the scores for each item for each person could range from +4 to -4. Therefore, the average Best-Worst scores range from positive to negative values, but the interpretation is one of a continuous scale from most to least important.

The data was collected as part of a research project sponsored by the Australian wine industry in 11 different countries: Australia, Austria, Brazil, France, Germany, Israel, Italy, New Zealand, Taiwan, the United Kingdom, and the United States. Although the overall choice was somewhat arbitrary due to academic collaboration in each country, these countries represent both New and Old World wine producing and consuming countries on five continents speaking six different languages. We used the full data set of 11 countries to derive our model. We derive cluster solutions of two to nine clusters, where the cluster membership is allowed to vary, and one model of 11 clusters, where the country predetermines the membership. We compare the solutions generated and decide our optimal number of clusters based on key fit indices plus a combination of the most simplest and easiest to interpret model.

The survey was translated by a different native academic speaker from English into each of the languages for our 11 countries. It was then back translated and corrected for any errors before the final version was used. The target for this research was wine drinkers in each country. Sampling was limited to those consuming wine at least once per month, so the data represent wine drinkers, but not the overall population. Therefore most of the surveys were collected face to face near wine retail stores. Some of the interviews in Israel and Taiwan were conducted at wine clubs in order to get enough respondents. The aim was not to develop an instrument that could project to a national sample, but to measure the important factors wine drinkers in each country used to make their selections from retail wine stores. We measured frequency of wine consumption in order to test for differences between the countries in our segmentation.

Table 1 shows the demographics of the 11 country samples. The proportions in each group are not equal, but represent the wine consuming groups in the countries. Thus, the UK is over represented above 55 years old, while Taiwan has a much younger skew. We use three items to measure wine involvement across the countries, because it has been shown to be related to wine consumption and even more to the attributes consumers use in their wine choices in Australia and in France (Aurifielle, et al. 2002; Lockshin et al. 2006; Lockshin et al. 1997). With three items summed for each person, low involvement ranged from 3-9; medium involvement was 10-12, and high involvement ranged from 13-15. Frequency of wine consumption is separated into those who drink more than once per week and those who drink less often. The samples overall provide a range of demographics and wine consumption behaviours within and between countries, which will allow us to see whether these characteristics are linked to segments based on BW scores.

## Best-Worst Ratings and Clustering of 11 Countries

We first rank ordered the BW scores by country to get an idea of the structure of the data and the similarity between countries. We simply computed the BW score for each person for each item and averaged within each country. We present the results in Table 2. The attributes are ordered by the rank using Australia as the base.

TABLE 1: SAMPLE CHARACTERISTICS FOR EACH COUNTRY IN PERCENTAGES

Country (Sample size)	Gender		Age				Frequency of drinking wine		Wine involvement		
	Male	Female	18-24	25-40	41-55	over 55	Low	High	Low	Medium	High
<b>Australia (305)</b>	52	48	14	34	30	21	42	58	24	37	39
<b>Austria (182)</b>	49	51	10	27	35	27	63	37	30	37	32
<b>Brazil (293)</b>	49	51	20	23	21	35	75	25	83	15	2
<b>France (158)</b>	58	42	15	20	34	31	72	28	30	46	24
<b>Germany (129)</b>	35	65	12	60	19	9	76	24	39	38	23
<b>Israel (184)</b>	59	41	18	50	18	14	64	36	50	33	17
<b>Italy (314)</b>	50	50	4	30	35	31	39	61	25	32	42
<b>NZ (364)</b>	46	54	2	24	39	35	37	63	16	53	31
<b>Taiwan (317)</b>	62	38	8	55	29	8	58	42	18	53	29
<b>UK (303)</b>	50	50	0	25	24	51	71	29	43	38	19
<b>USA (195)</b>	48	52	47	18	8	26	51	49	27	34	39
<b>Average (2744)</b>	<b>51</b>	<b>49</b>	<b>12</b>	<b>33</b>	<b>28</b>	<b>28</b>	<b>56</b>	<b>44</b>	<b>34</b>	<b>38</b>	<b>28</b>

It is clear from Table 2 that there are some similarities and some differences between the mean Best Worst scores for each country. The negative weights are not negative influences, but just less important on the scale of +4 to -4. Tasting the wine previously is most important for eight of the 11 countries, with Austria, Brazil, and France each having different most important factors. If we only look at mean values, we might consider segmenting the market by country, because each country looks to be different.

We used Latent GOLD software, version 4.0 (Vermunt and Magidson 2005) to estimate a latent class cluster model based on the individual Best Worst scores. We estimated models ranging from two to nine clusters plus one where 11 clusters were specified using country membership. It is clear from examining the key indicators that the forced 11 country/ cluster solution has the worst fit of all the models tested. Cluster solutions, where membership is allowed to vary according to the importance of each of the 13 wine choice attributes, produce much better fitting models. After examining the solutions for three, four and five clusters, we chose the three cluster solution, because there was no overlap between the loadings of each of the 13 items on each cluster (data available from the authors). The four and larger cluster solutions each had several attributes that loaded on multiple clusters and very small final clusters, making interpretation difficult. The three cluster solution is easily interpretable and leads to 'actionable' segmentation (Swait 1994).

**TABLE 2: AVERAGE BW RATING OF WINE CHOICE FACTORS IN EACH COUNTRY (RANKED BY AUSTRALIA)**

	<b>Australia</b>	<b>Austria</b>	<b>Brazil</b>	<b>France</b>	<b>Germany</b>	<b>Israel</b>	<b>Italy</b>	<b>NZ</b>	<b>Taiwan</b>	<b>UK</b>	<b>USA</b>
Tasted the wine previously	2.60	1.37	1.58	1.41	2.04	3.04	1.89	2.58	2.26	2.23	2.19
Someone recommended it	1.25	.03	.81	.49	1.53	.73	.34	.90	1.44	.89	1.32
Grape variety	.91	1.43	.55	.70	.54	.68	.41	1.50	.03	-.13	.60
Origin of the wine	.62	1.02	.74	1.54	.98	-.85	.76	.75	.74	.47	.25
Brand name	.60	-.27	2.38	.25	-.85	.72	.00	.99	.17	.10	.41
Medal / Award	.48	-.29	-1.48	.46	-.59	-.14	-.22	1.09	.53	-.45	.14
I read about it	.00	-.69	-.42	.01	-.17	.66	.65	-.34	.77	-.12	.09
Matching food	-.26	.97	1.04	1.73	1.33	.92	1.70	-.74	-.72	-.19	.31
Information on back label	-.27	.19	-.79	-.89	.27	-.69	.43	-.95	-.62	.43	-.69
Information on the shelf	-.87	-.73	-.77	-1.68	-.09	-1.28	-1.21	-1.06	-.89	-.28	-.49
An attractive front label	-1.02	.23	-1.74	-1.58	-.40	-1.21	-1.49	-1.00	-.96	-.77	-.23
Promotional display in store	-1.40	-2.01	-.96	-.72	-1.84	-.73	-1.72	-.88	-.78	-.41	-1.06
Alcohol level below 13%	-2.66	-1.26	-.93	-1.71	-2.75	-1.85	-1.55	-2.84	-1.97	-1.76	-2.84

**TABLE 3: LATENT CLASS CLUSTER PARAMETER VALUES FOR 11 COUNTRIES**

	<b>Cluster1 Cognitive Cues</b>	<b>Cluster2 Assurance Cues</b>	<b>Cluster3 In-store Cues</b>	<b>p- value</b>	<b>R<sup>2</sup></b>
Origin of the wine	<b>0.45</b>	-0.31	-0.14	0.00	0.26
Grape variety	<b>0.43</b>	-0.23	-0.21	0.00	0.27
Medal / award	<b>0.11</b>	0.04	-0.15	0.00	0.03
Brand name	<b>0.10</b>	0.05	-0.14	0.00	0.02
Matching food	0.02	-0.02	0.00	0.24	0.00
Alcohol level below 13%	-0.02	-0.20	<b>0.22</b>	0.00	0.06
Information on back label	-0.03	-0.19	<b>0.22</b>	0.00	0.05
I read about it	-0.05	<b>0.30</b>	-0.25	0.00	0.09
Tasted the wine previously	-0.06	<b>0.44</b>	-0.38	0.00	0.16
An attractive front label	-0.20	-0.03	<b>0.23</b>	0.00	0.07
Promotional display in-store	-0.29	-0.02	<b>0.31</b>	0.00	0.14
Someone recommended it	-0.30	<b>0.73</b>	-0.42	0.00	0.34
Information on the shelf	-0.43	-0.19	<b>0.62</b>	0.00	0.22

The three cluster solution (Table 3) shows strong loadings on each cluster with no cross-loadings. All of the 13 attributes are significantly different between the clusters ( $p$ -values  $< 0.05$ ) except for matching wine with food. This item is not very important in any cluster and its importance does not differ between clusters. The results show that the three clusters represent the core attributes as follows: Cluster 1 is labelled as “cognitive cues” and focuses on extrinsic factors (Jacoby and Olson 1977; Lockshin et al. 2006), which indicate wine quality and taste based on the cognitive understanding of how these factors relate to the actual wine. These people choose their wines by considering objective information on the label. The key attributes are the grape variety, the origin of the wine, the brand, and medals and awards, which can be seen as objective measures of quality. The second cluster is labelled “assurance cues” and consists of attributes indicating previous knowledge (tasted before) or recommendation by someone else. These wine purchasers choose based on previous experience or recommendation and seem to be avoiding the risk of choosing an unknown wine. The third cluster focuses on the package and display without cognitively processing the cues, and is named “in-store cues”. These people do not cognitively assess the information, nor use previous experience. They use shelf-based promotions and the packaging to make their decision.

### **Descriptive Analysis of the Clusters**

We can see in Table 4 that although the segmentation is truly cross-national, membership is quite different by country (chi-square of 241.1 with  $p < 0.00$ ). Austria, France, Italy and New Zealand have the largest percentage membership in the cognitive cluster. This does not seem to be driven by the typical Old World – New World dichotomy, but perhaps by more interested wine buyers. Israel, Taiwan, and the US are over-represented in cluster 2, the ones needing assurance in purchasing wine. This may be due to the recent development of a wine drinking culture in these countries. Austria, Germany and the UK are the biggest countries by

percentage in cluster 3, which may be due to the high percentage of discount grocery store selling wine in these countries (Euromonitor 2006).

TABLE 4: CLUSTER MEMBERSHIP BY COUNTRY IN PERCENT

Country	Cluster			Number of Responses
	1	2	3	
Australia	53.8	38.0	8.2	305
Austria	61.5	15.9	22.5	182
Brazil	57.0	27.6	15.4	293
France	72.8	19.6	7.6	158
Germany	46.5	32.6	20.9	129
Israel	46.2	47.3	6.5	184
Italy	68.8	22.3	8.9	314
New Zealand	62.9	31.3	5.8	364
Taiwan	39.7	50.2	10.1	317
UK	38.9	36.6	24.4	303
USA	40.5	43.1	16.4	195
<b>Total</b>	<b>53.6</b>	<b>33.7</b>	<b>12.7</b>	<b>2744</b>

TABLE 5: CLUSTER DEMOGRAPHICS

Demographic		Cluster			Mean	# of subjects	Chi-Sq for segment
		1	2	3			
Gender	Male	56.0	44.8	46.7	51.1	1383	31.5
	Female	44.0	55.2	53.3	48.9	1326	P < .00
Age	18-24	9.1	16.2	14.5	12.2	333	89.7
	25-40	28.4	38.6	33.8	32.5	888	P < .00
	41-55	32.1	19.2	31.2	27.6	755	
	over 55	32.1	19.2	31.2	27.6	755	
Frequency of drinking wine	Low	52.6	58.5	65.6	56.2	1542	23.4
	High	47.4	41.5	34.4	43.8	1200	P < .00
Wine involvement	Low	28.3	38.3	48.0	34.2	934	100.3
	Medium	37.1	40.2	37.6	38.3	1045	P < .00
	High	34.5	21.5	14.4	27.6	753	

The demographic composition of the clusters is presented in Table 5. There are demographic differences between the clusters as measured by chi-square. Cluster 1, the cognitive-based cluster is slightly more male, while the other two are slightly more female. Clusters 1 and 3 are older than cluster 2. Perhaps their experience reduces the need for risk reducing choice strategies. Cluster 3 has more infrequent wine drinkers and more low involvement wine drinkers, which makes sense, since these people seem to choose wine by the promotional displays rather than by experience or knowledge. The more highly involved wine consumers are in cluster 1, which also makes sense, since higher wine involvement is more associated with complex cognitive choosing (Perrouy et al. 2006). However, the differences in cluster membership by demographics are not really large enough to utilize in marketing to the distinct segments. There are different sizes of the segments in the countries surveyed (Table 6). This could lead some marketers to focus on specific segments in different countries.

## Discussion

The results we found provide some very good guidelines for wine marketing practitioners. The biggest segment in every country except Taiwan and the US (and tied for largest in Israel) is the segment of cognitive-based buyers. This segment averages about 50% of those surveyed. These buyers read the label and make decisions based on the grape variety, the origin, the brand name, and awards. These elements of the marketing mix are usually found on the label, but interestingly, the grape variety is normally used on wines from the New World, but not wines from traditional wine producing countries, such as France and Italy. These two traditional wine-producing countries have the highest percentage of members of segment one. Marketers concerned with cognitive choosers should focus on clearly showing the key attributes of their wines on the label as well as provide continual communications with the market focusing on these key attributes. Although this sounds like basic advice, many wine labels obscure the grape variety and the origin of the wines focusing on less important features, like the specific vineyard or proprietary name. More objective measures of quality, like medals and awards, are also important to this group. Marketers not only need to enter wine shows, but also publicize the results on the bottle or on the shelf, even in export countries.

The second biggest segment is cluster 2, which focuses on risk reducing strategies, such as recommendations and previous experience. This is the largest group in the US and in Taiwan, and it averages about 34% of all those surveyed. Marketers aiming at this group need to provide sampling where it is legal and other means for potential wine buyers to have a taste of the wine, such as by the glass promotions in restaurants. Recommendations are a well-regarded means of reducing the implicit risk in buying a wine (Mitchell and Greator 1988). These can stem from wine reviews or from personal recommendations by salespeople and friends (Lockshin et al. 1997). Wine reviews are not necessarily easy to gain, but when they are positive, efforts should be made to communicate these on the bottle or the shelf. Some wine regions are prohibited by law to list the grape variety, so aiming for recommendations or tastings is a good strategy to gain sales from this segment of the wine drinking population. Companies aiming at this segment should focus on training and relationship building with key retailers. They also might engage a promotional partner to conduct tastings in these same key outlets.

The third segment is the smallest, but represents a substantial group of buyers in Austria, Germany, Brazil, the UK, and the US. These buyers use displays, attractive front labels, and back labels to help them make their wine choice decisions. This segment presents an interesting decision for wine marketers. Many traditional wineries in Old World wine making

countries use standard white or off-white labels with a drawing of a chateau or a logo and basic region and vineyard information. Often there is either no back label or one with minimal information. These wineries could benefit from making more modern and attractive front labels and more expansive back labels. New World wineries often use colourful and graphical front labels and informative back labels on their wines and thus would be more attractive to this group. Both larger wineries in the Old and New World use shelf promotional displays to attract buyers. However, the relatively small size of this segment might suggest that the expensive efforts into retail displays and wine label design are not directed at means by which the majority of wine consumers shop for wine. There is very little information on what makes a wine label attractive to different segments of consumers (Orth and Malkewitz 2008). More research needs to be conducted in order to provide wine companies with clear ideas of label designs for specific segments of consumers.

Many wines, of course, can be aimed at two or all three of the segments. Clear labelling of cognitive cues, coupled with tastings and shelf promotion could reach many wine buyers. However, small wineries, which have less flexibility in packaging and communication should consider where their largest potential buying audience lies, and focus accordingly. Larger wine companies with a portfolio of wines can emphasise different wines in their portfolios in different marketing channels. Wineries should remember that this segmentation was for buying a bottle of wine to consume at home with friends and family. The relative frequency of this occasion will also differ between countries. In Asian countries, for example, wine is mainly drunk on-premise and not at home. Future research will need to look at the choice criteria for these situations.

The study was by necessity exploratory in that it used a relatively recently devised methodology for an under researched product category. The researchers took care in translating and testing the understanding of the 13 attributes used in the survey, but the fact that wine is not widely consumed in every country led to slightly different sampling frames in each one. For this reason, the segments derived are not based on the wine drinking population and their size cannot be compared to the overall country demographics. Nonetheless, the segment structure derived was very robust and differed only in relative size across each of the 11 very different countries. This lends strong credence to the use of Best Worst Scaling and choice attributes in cross-national research. Our results clearly showed that the same segments of wine buyers occur in all 11 countries, so wineries need not devise totally different strategies for marketing their wines in different countries, but need to decide on which group of consumers it is trying to attract.

The main strength of our approach is that it demonstrates the robust character of using Best Worst Scaling instead of regular 1-7 type scaling. This measurement system is adaptable to a wide range of marketing measurement. We have so far tested it for strategic positioning of a wine region and an exporting country, for testing the best advertising slogan to associate with a wine region, and for comparing label designs. In each case the results clearly demonstrated preferences for one particular result over the others. The reason is based on the underlying measurement characteristics of Best Worst Scaling. This method has the potential to allow marketers to capture a wide range of buyer preferences with accurate and replicable measurements, something that has not been part of our toolbox in the past.

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