Segmentation of China's online wine market based on the wine-related lifestyle

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Abstract

Purpose – The purpose of this paper is to explore China's online wine market segmentation on the basis of the wine-related lifestyle (WRL). Moreover, this study can provide further understanding and reference about China's wine market segmentation research, which is limited at present. This work can be helpful for those who want to do further research in the Chinese wine market. It is good for wine importers wanting to import wine to China to understand the Chinese wine consumers.

Design/methodology/approach – Survey data were obtained from a sample of 3,369 participants through cooperation between the College of Enology and the Yesmywine.com website. Questionnaire items included gender, age, area distribution, unit price, bottles consumed, drinking frequency, drinking time, wine-related knowledge, etc. Combined with the influence factors of the WRL, a structural equation model was developed. The data analysis, particularly employing principal component analysis, enabled the identification of five market segments.

Findings – Five distinct segments were identified within the wine market and designated as follows: wine official consumption type enthusiastic fancier; enjoyment consumption; fashionable consumption; and new, young wine drinkers.

Research limitations/implications – The research data were derived from Yesmywine, one of the largest online wine sale platforms. However, the impact of yesmywine is much smaller compared with Tmall and Taobao and Jingdong. In this paper, we can see that WRL is increasingly becoming a part of Chinese people's daily lives, especially for the enthusiastic and fancier wine consumers, which is the official type of wine consumer. Next, an analysis of time series under the data of the near future years should be conducted to find the online wine segmentation market variation trend. Moreover, it is important to conduct cross-culture comparison between the Chinese and Australians. Brand positioning can be improved by better understanding China's online wine market segmentation.

Practical implications – WRL segmentation is valuable for the wine importers and producers in west France, Italian, Germany and so on, as they want to develop China's wine market and understand the mindset of Chinese wine consumers. The wine importers in China should focus more on consumers that enjoy wine along with newer and younger wine drinkers.

Originality/value – This paper analyzes a large sample (3,369) and therefore is useful for understanding online wine market segmentation and wine consumption behavior in China owing to China's limited wine market segmentation literature. This paper is the first to use WRL tool to segment China's online wine market. Moreover, the research data have reference value for those who want to learn more about China's online wine market, as yesmywine is one of the largest online wine-sale platforms. It also gives

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some managerial implications for wineries and wine marketers that will be helpful to wine companies in understanding the emerging Chinese wine market and in enacting wine marketing strategies more effectively.

Keywords China, Wine, Wine-related lifestyle, Yesmywine.com (YMW)

Paper type Research paper

Introduction

The annual consumption of wine in China has increased rapidly from 331,000 tons in 2002 to 1.703m tons in 2012, and annual consumption per capita has also increased from 0.25 L in 2002 to 1.31 L in 2012 (Jing *et al.*, 2017; Guimei and Junxia, 2015; Li, 2014; Yabin, 2013). However, drastic changes took place as regards domestic and imported wines from 2012 to 2018. The export of domestic wine decreased from 1,382,000 tons in 2012 to 978,000 tons in 2018. At the same time, imported wine increased sharply from 394,500 tons in 2012 to 687,500 tons in 2018. This change suggests that individual wine consumers rather than government consumers play a more important role in the Chinese wine market. Wine plays an increasingly important role in gatherings of family and friends, official banquets, wedding celebrations, etc. Li *et al.* (2016). Wine conferences, festivals, fairs and wine tasting events are becoming more common. Consumers are becoming more knowledgeable, resulting in the emergence of a wine culture. As the market matures, it becomes increasingly important to gain an insight into the various segments in the wine market in China. While China is a promising wine market, it is a country characterized by great diversity in terms of culture, food, and economic development. As a complex alcoholic beverage, it is associated with multiple cultural and lifestyle attributes that are becoming more common in China (Juhua *et al.*, 2009) (Table I).

The American marketing researcher W. Smith first proposed the concept of market segmentation in 1956 (Smith, 1956, 2002). Subsequently, market segmentation has been widely applied in marketing practices for various products. Market segmentation must be undertaken with the help of a wide array of scientific indicators. A study by Spawtonaw shows that the wine market is suitable for almost all types of market segmentation.

Year	Domestic output 10,000 tons	Increase (%)	Annual imports 10,000 tons	Aggregate consumption 10,000 tons	Per capita annual consumption liters per year
2000	20.2	/	/	/	/
2001	25.1	24	3.1	28.2	0.22
2002	29.8	15.2	3.3	33.1	0.25
2003	34.3	18.8	4.1	38.4	0.30
2004	37	7	4.4	41.4	0.32
2005	43.4	10.9	5.31	48.1	0.37
2006	49.5	18.04	12.64	59.8	0.46
2007	66.5	37.05	13	80.6	0.62
2008	69.8	23.83	16.33	84.5	0.65
2009	96	27.63	17.12	110.5	0.85
2010	108.9	12.38	30.48	133.9	1.03
2011	115.7	13.02	36.16	146.9	1.13
2012	138.2	16.9	39.45	170.3	1.31
2013	117.8	−14.59	37.48	161.2	1.23
2014	116.1	−2.11	38.38	158.6	1.22
2015	114.8	−0.732	55.53	170.33	1.31
2016	113.74	−2.04	63.8	177.54	1.37
2017	100.1	−12.0	74.58	174.68	1.34
2018	97.8	−2.3	68.75	166.55	1.28

Source: China Wine Industry Association

Table I.
Related data on China's wine market (2004–2018)

At present, a dozen different variables or subdivision methods are used for wine market segmentation, such as grape varieties, wine color, bottle pressure, brewing method, price, geographical factors, population factors, psychological factors, behavioral factors, product quality, consumer risk reduction, consumption timing, cultural crossover, involvement and lifestyle. The most widely used market segmentation indicators include geographic indicators, population indicators, psychological indicators and behavioral indicators, which constitute four commonly used market segmentation tools (Changbo and Wei, 2002; Peicai, 2004; Song, 2014; Yu *et al.*, 2009; Ying *et al.*, 2007; Yan and Jiaqing, 2013).

Segmentation can be based on situations, product–situation, and person–situation interactions. Most market segmentation studies have involved an *a priori* or backward type of analysis, also known as the traditional approach. They are particularly well suited to situations where it is known, from either prior research or experience, which (demographic) variable can be used to split consumers into homogeneous sub-groups in terms of their responses (Ahmad, 2003; Bruwer *et al.*, 2001; Arsil *et al.*, 2018; Aurifeille *et al.*, 1999).

The use of the more traditional approaches to market segmentation, notably those based on demographics, to explain or predict consumer behavior, has been questioned mainly because demographics lack richness. In the case of wine, Bruwer asserts that demographics are inadequate to describe, let alone provide the information basis with which to successfully penetrate wine target segments (Ahmad, 2003; Bruwer *et al.*, 2001; Arsil *et al.*, 2018; Aurifeille *et al.*, 1999).

A development in the evolvement of lifestyle as segmentation has been at the product-specific level, for instance Grunert conducted their study on food in 1997 and Bruwer on wine in 2002. This approach has also been referred to as "domain-specific" market segmentation. It simply means that consumers are segmented on psychographical data that are specific to a particular consumption situation or a set of consumption behaviors such as those found with wine. The domain-specific market segmentation approach is singled out by Bruwer and Li, Pirc, Ahmad, and Van Raaij and Verhallen as the most feasible for segmenting markets. The development of a domain-specific wine-related lifestyle (WRL) segmentation approach in the foundational studies (Bruwer *et al.*, 2001, 2002; Bruwer and Li, 2007) started the process of knowledge evolvement using wine in a product-specific context. To date, these studies have been confined to the Australian environment despite suggestions to broaden the scope in other country environments (Bruwer and Li, 2007). In the current study, we used this domain-specific lifestyle-related research instrument, known as WRL, to determine the different wine market segments in a different country. Johan Bruweer's contribution is threefold in that it tests the WRL instrument in a cross-cultural context, which is the first time this has been done; in the process, it interprets the wine consumer segments in South Africa and is the first time this has been done using a WRL-based activities, interests, and opinions (AIO) approach (Miaozhen, 2016; Bruwer and Li, 2007).

Literature review

Market segmentation is defined as the division of the total market into homogenous segments of consumers with similar needs and it is the first step in the segmentation, targeting, and positioning process that businesses adopt as a core aspect of their marketing strategy. The market offerings (4Ps) of a business can then be designed to meet the needs, wants, tastes and preferences of such segments (Bang and Du, 2010; Berni *et al.*, 2005; Beverland, 2003; Brangule-Vlagsma *et al.*, 2002).

Demographic segmentation

Factors influencing wine consumption are complex and culture-bound. Felzensztein performed a literature review of early contributions to wine consumer behavior. It was found that well educated, high income and geographically concentrated in urban areas were

some of the main characteristics of the heaviest consumers of wine. Some studies view wine as a "feminine" product but others argue that buying wine is associated with overtly masculine behavior and men use wine to foster business relationships and deliberately display wine knowledge to demonstrate cultural capital and elitism. Age and family life cycle stages are associated with wine involvement. In a western context, wine involvement is associated with older consumers and with empty nesters as they have the disposable income and time to go to lifestyle-related events such as wine shows and wine clubs. As the wine market in China grows, some natural questions arise: who is buying wine? One study of university students found that females were more knowledgeable about wine and expressed more positive interest in future wine drinking than males. However, a qualitative study found that wine buying was seen as a man's role and wine is perceived to be more masculine than feminine. Chinese wine consumers are usually well educated and well off. Previous studies on wine consumption report that Chinese wine consumers are in the higher income bracket and education categorizations. Camillo found that the average Chinese wine consumers were aged between 19 and 35, and salary, position, profession, wine knowledge and participation in wine-related activities have a significant impact on consumption volumes. Somogyi suggest that extended residency overseas causes Chinese consumers to become more westernized and discard Chinese traits, such as mixing wine with lemonade or other soft drinks to make it sweeter or less intense in flavor. While a limited number of studies provide insight into Chinese consumer demographics, the results fail to paint a consistent picture of the "typical" red wine consumer. Due to the lack of data in the literature, the aim is to develop a behavioral profile of the Chinese wine consumer (Brunner and Siegrist, 2011; Bruwer and Huang, 2012; Bruwer and Buller, 2013; Bruwer, 2014; Bruwer *et al.*, 2017; Bruwer and Li, 2017; Camillo, 2012).

Benefits sought and behavioral segmentation

Product purchase is an acceptable behavioral form by which markets can be segmented. In doing this, light, medium, and heavy purchase (or volume) difference are identified in New Zealand's wine market. In their study, they determined that response categories would be used for classifying different purchase levels. As a result, light purchasers are defined as those respondents who, on average, bought between one and seven bottles of wine per month. At the upper level, this equates to the purchase of one bottle of wine every 4.4 days. The medium category is defined as those purchasing between eight and 20 bottles of wine (which equates to the purchase of a bottle of wine every 4.4–3.9 days). Heavy purchasers are those respondents purchasing 21 bottles or more. This equates to buying a bottle of wine at least every 1.5 days. Applying these boundary points to the data reveals light, medium, and heavy purchasers accounting for 57, 33 and 10 percent of the total sample, respectively (Li and Liang, 2007; Li, Jinrong and Ligong, 2010; Li, Jinrong and Tayler, 2010; Li and Jinrong, 2010).

There is a general consensus on that wine is a complex product and multiple attributes are used in wine buying behavior, including taste, alcohol content, age of wine, color, brand, label/package and region of origin. Sutanonpaiboon and Atkin have provided a review of the literature on the impact of country-of-origin (COO) on consumer decision making and found that it is a risk-reduction strategy or coping mechanism in several countries. It is common practice for retailers to categorize bottled wine on the shelves by COO. In China, red wine is popular because of its health connotations and the symbolic associations of the red color with happiness and celebration in Chinese society. Wine is much lower in alcohol than the popular Chinese spirits and this is perceived to confer a health benefit). In a culture that favors self-control and moderation, the lower alcohol content of red wine in comparison to spirits is an advantage. Red wine is also linked to blood circulation and traditional Chinese medicine. There is some evidence that moderate consumption of wine delivers health benefits, such as cardiovascular effects, for adults; however, the scientific evidence to confirm this belief is lacking.

In the literature on Chinese wine consumption, taste, COO, quality, and price are influential factors and price has a significant relationship with salary (Camillo, 2012). COO was found to be the most significant factor influencing wine purchase and its effect is critical when Chinese consumers buy wine for special occasions (Balestrini and Gamble, 2006). However, Bang and Du (2010) argue that educated buyers are less influenced by national stereotypes. Yan suggests that Chinese consumers rely on reputable brands owing to high levels of risk avoidance. This is linked to the collectivistic nature of Asian society and the focus on the development of the social self rather than on the private self. Furthermore, wine is a credence good because many of the attributes that consumers may consider important are not obvious or easily verified; in other words, simply looking at the product does not give the consumer any idea of how it was produced. The relevance of credence attributes underlines the considerable role played by extrinsic cues (i.e. attributes that are not physically part of the product) such as brand name or price. Yu found Chinese buyers give a high rating to brand name and origin but also to an intrinsic cue such as having tasted the wine previously. They are also price sensitive. The price of imported wine is high due to various tax rates, transportation costs, and channel fees, and price is an important purchasing criterion for Chinese consumers. A recent study found that the average price of foreign wine was 94 yuan a bottle, more than double the price of domestic wine. Wine is a social product and is consumed in a variety of settings and bought as a gift. However, the Chinese, in general, do not entertain at home. It is rare for Hong Kong Chinese to take a bottle of wine with them when invited to somebody's home. Wine consumption has been linked to business banquets, gift-giving and special occasions such as the Chinese new year (an official holiday of about two weeks), spring festival, or mid-autumn festival. Low involvement consumers tend to be those who only drink wine on special occasions. Status seeking has been linked to the public consumption of wine. The rapid economic success of China has led to wine, a luxury good, being seen as a symbol of one's social status and sophistication. The giving of gifts in China has a particular cultural significance and consumers tend to buy the more expensive, imported wines for special occasions and other wines for daily use. High price is associated with giving "good face" (*mianzi* in Mandarin) and shows politeness and respect to the receivers as well as gaining "good face" such as admiration for one's economic success. In fact, one study of wine consumers in Hong Kong found that product symbolism dominates taste considerations. It is argued that values such as "face" constitute the deepest level of culture and are the most difficult to change. This study was interested in ascertaining the product attribute preferences of Chinese wine consumers; based on the literature review, status, taste, health, COO, price, quality and brand name, are all key purchasing motives (Charters and Pettigrew, 2006; Dibb *et al.*, 2002; Dubow, 1992; Elizabeth, 2006; Geraghty and Torres, 2009).

Wine related lifestyle segmentation

WRL has been described in research regarding wine market segmentation by Australian and American scholars. It is defined as changing consumer values, including attitudes and opinions about products, things and activities, which determine how consumers control their time and money. Behind a consumer's personality or attitude is their lifestyle. Lifestyle is largely influenced by social and cultural changes, and the WRL is influenced by economic and cultural changes in different countries and their stages of development. From the perspective of WRLs, it is easier to understand the process and trend of the occurrence, development and climax of a product entering a society. Therefore, the introduction of WRLs as a new wine market segmentation variable reflects this perspective and allows easier understanding of the underlying causes and processes of changes in different countries at different stages of wine market development (i.e. wine drinking per capita). The WRL of this research refers to one that is based on five factors, including wine shopping methods, drinking occasions, consumption scenarios, expected consequences, and desired quality attributes on the basis of

consumer values. Thus, WRL market segmentation is based on wine market segmentation of different WRLs (Goodman *et al.*, 2007; Johnson and Bruwer, 2003; Liu and Murphy, 2012; Liu *et al.*, 2017; Hua *et al.*, 2000; Brunner and Siegrist, 2011; Somogyi *et al.*, 2011; Schiffman and Kanuk, 2001; Yunbo, 2010; Jining, 2003).

Based on the segmentation approach of combination of demographics, socio-economics, usage patterns, attitudes, opinions, perceptions and preferences about WRL, Mckinna proposed five categories of wine drinkers. These are as follows: the wine knowledgeable or connoisseur, the wine pretentious or aspirational, the young bottle wine drinkers, the beverage wine drinkers, and the new wine drinker. Hall and Winchester stated four categories: connoisseurs, image concerned, risk averse and enjoyment. Lockshin and Spawton proposed five categories: uninvolved shoppers, choosy buyers, interested shoppers, brand conscious and hate to shop, and lazy involved shoppers.

Bruwer developed a WRL instrument based on the food-related lifestyle instrument, as wine is closely and naturally related to food. Lifestyle comprises of an individual's AIOs that create the patterns according to which they live and spend time and money. Segmentation using this (lifestyle) method divides the market according to different subjective preferences. Three studies using the WRL instrument, all to segment the Australian wine market, have been executed to date.

Bruwer implemented the WRL instrument through a household survey in Australia that was exploratory in nature. In the first study, the following five segments were identified:

(1) enjoyment-oriented social wine drinkers;

(2) purposeful inconspicuous premium wine drinkers;

(3) ritual-oriented conspicuous wine enthusiasts;

(4) basic wine drinkers; and

(5) fashion and image-oriented wine drinkers.

Bruwer and Li (2007) conducted a similar research study to both fine-tune the WRL model and to monitor changes as individual preferences develop over time. Two new segments emerged in this study, namely, the "mature time rich wine drinkers" and "young wine drinkers." Three segments were, however, consistent in the three WRL studies, namely, "enjoyment oriented social wine drinkers," "conservative knowledgeable wine drinkers" and "basic wine drinkers."

Research methodology

The questionnaire

The WRL market segment come from the intersection of demographics (age, male, annual income), consumption behaviors (drink wine once per week, 1.4 bottles per month), situational characteristics (drink wine on social occasions away from home, while privately with family, and to celebrate something). WRL is a pattern in which people live and spend time and money in wine, reflecting a person's AIO. In 2010 Johan Bruwer propose a conceptual model that consists of five dimensions that contribute to the link between wine and values of a WRL measurement instrument. The five dimensions are wine consumption situations, ways of shopping, quality/attributes, drinking rituals and consequences of wine consumption. Therefore, the questionnaire is highly structured and it consists of three parts: demographic, consumer behavior and consumer lifestyle (Taihong, 2005; Balestrini and Gamble, 2006).

The questionnaire is a revised and improved version of the College of Enology's historical consumer behavior questionnaire. Before the actual survey, a pre-survey, with a sample size of 300 individuals, who were members of YMW, was conducted. Results were analyzed using personal data of YMW intranet members, including gender, age, region of

residence and transaction price. The consumer behaviors measured included drinking bottle already, drinking time, drinking frequency, wine-related knowledge level, etc.

The main survey questions regarding the WRL included the following:

- Drinking wine is enjoyable and relaxing.
- I like wine. Wine is becoming an important part of my lifestyle.
- I cannot say that I like or dislike wine.
- Wine helps me create a special atmosphere.
- Wine is a social tool and helps me blend in with my friends.

Sampling and data collection

The survey was conducted from December 2017 to May 2018. The data were delivered to the research team at the College of Enology in four batches. The last total sample size was 3,369. Certain sample data were screened out, such as in the event that the gender field was left blank or the age was < 18 or $\geqslant 70$ years. A total of 1,996 valid samples were obtained.

Results

Respondents' gender

Statistics show that men constituted 55.3 percent of the overall sample, women constituted 12.7 percent, and gender data gaps accounted for 32 percent. From the gender perspective, men made up the main part of the group buying online, and the increase in the proportion of women has great potential.

Survey sample age

Among the total of 3,369 returned surveys, 1,148 had data missing. The average age of the valid survey respondents was 37.62 years, with a median of 36 years, indicating that the backbone of the Yesmywine online wine consumer group is the 36-year-olds. At the beginning of the establishment of Yesmywine, the main problem they were faced with was that "people who go online don't buy wine, and those who buy wine don't go online." This was the case because on the basis of sample data, the frequency of wine purchases by consumers under age 28 was relatively low; however, by age 28, the frequency of purchases and purchase amounts increased rapidly, creating a relatively fixed shopping habit. Therefore, wine consumers from 20 to 28 years of age are in the formation period, consumers who are 28 years old are in the molding period, and after 28 years of age, consumers' purchasing habits and brand preferences can be relatively fixed. That is to say, the habit of stable wine drinking is probably acquired after age 28. Therefore, at the beginning of the establishment of Yesmywine, people with purchasing ability had less access to the internet, and they only developed interest through membership journals and telemarketing. However, since 2014, people born in 1985, having already reached the age of 29, have arrived at the optimal age to explore wine drinking and are characterized by good internet habits. During the molding period, this cohort experiences relatively stable work and high income, thus increasing the demand for wine. The marketing method that is most effective for this group is online rather than telephone marketing.

Geographical distribution of survey samples

From the cumulative percentage of regional distribution in Table II, respondents mainly lived in Guangdong, Shanghai, Beijing, Liaoning, Jiangsu, Zhejiang, and Chongqing, followed by other provinces and cities, explaining 72.8 percent of the total sample. According to the internal data of Yesmywine, in 2013, the sales volume of four cities – Beijing, Shanghai,

Area	Frequency	Percentage	Cumulative percentage
Guangdong	721	21.4	21.4
Shanghai	709	21.0	42.4
Beijing	282	8.4	50.8
Liaoning	239	7.1	57.9
Jiangsu	197	5.8	63.7
Zhejiang	161	4.8	68.5
Chongqing	145	4.3	72.8
Sichuan	104	3.1	75.9
Hubei	82	2.4	78.3
Henan	74	2.2	80.5
Shandong	74	2.2	82.7
Tianjin	70	2.1	84.8
Hebei	64	1.9	86.7
Shaanxi	52	1.5	88.2
Fujiang	50	1.5	89.7
Anhui	42	1.2	90.9
Others	303	8.9	99.8
Total	3,369	100.0	100.0

Table II.
Geographical distribution

Guangzhou and Shenzhen – accounted for 70 percent of the total sales of the network in the same year. They are also the key market for Yesmywine. However, in recent years, the proportion of sales to total network sales has been declining. Simultaneously, their sales growth has slowed down, whereas Hangzhou, Ningbo, Nanjing, Suzhou, Wuxi, Chongqing and cities in Guangdong other than Guangzhou and Shenzhen, as well as some second-tier provincial capital cities, have shown a rapid growth in sales volume. The strategy of Yesmywine is to establish a local warehouse for local distribution after the sales volume and sales frequency of a certain area reach a certain target; they then plan to respond more quickly to wine consumer demand in fast-growing areas of sales volume.

Bottle price

From the survey responses, there were 3,188 responses of wine unit price data with an average unit price of CHY 66.39 (note: because of the participation of some members in promotional gift activities, the average price of the sample was reduced). Consumers feel that even if the wine is fake, the loss is not great, which promotes initial purchase and consumption by consumers. At present, the average bottle price is about CHY 98.

Number of bottles

The number of bottles consumed varied greatly across the sample (1–1,205), indicating that the sample was highly polarized. It is generally believed that the more bottles you drink, the longer you drink. This table shows that the number of bottles consumed between novice wine drinkers and mature consumers with a long history of drinking varies widely (Table III).

Item	*n* Statistical magnitude	Mean value Statistical magnitude	SE
Bottle price	3,188	66.3908	1.44371
Bottles consumed	3,229	33.48	13.576

Table III.
Bottle price and bottles consumed

Drinking frequency

From the sample data, the frequency of drinking is higher because of the selection bias of the Yesmywine member population. Because the average frequency of drinking is 3.72 per month, which is close to weekly drinking (with a value of 4), the survey sample is generally between monthly and weekly drinking.

Drinking time

From the sample data, the average wine-drinking history among respondents was 3.73 years, which is close to the value of the drinking time of 4 years. This indicates that the respondents have a long wine-drinking history (Table IV).

Wine-related knowledge level

From the sample data, the wine-related knowledge level of respondents is between rarely understood and generally understood, and in comparison with the survey sample and the overall Chinese sample, it should belong to a higher level of wine-related knowledge. However, their wine-related knowledge is only higher than that of those with little knowledge, indicating that the overall level of knowledge of Chinese wine consumers is lower, history of drinking is shorter, drinking frequency is lower, and fewer bottles are consumed than in mature markets – an inherently consistent result.

Wine-related lifestyle model structure

Combining the influencing factors of WRLs, we determine the influence of various factors of wine consumption behavior on people's lifestyles and establish a structural equation model consisting of a measurement model and a structural model. The measurement model represents the relationship between each observable indicator and the underlying variable, and the structural model represents the relationship between the latent variables.

The measurement model equation is expressed as follows:

$$X = \Lambda_X \xi + \delta,$$

$$Y = \Lambda_Y \eta + \varepsilon,$$

Item	*n* Statistical magnitude	Minimum Statistical magnitude	Maximum Statistical magnitude	Mean value Statistical magnitude	SE
What is your current drinking frequency?	3,229	1	5	3.72	0.016
Assignment instructions	More than 2 years	One year	A month	Weekly	everyday
	1	2	3	4	5
How long have you been drinking wine?	3,229	1	6	3.73	0.028
Assignment instructions	One year or so	Two years or so	Three years or so	Four years or so	More than five years
	1	2	3	4	5
What do you think about your wine-related knowledge?	3,369	0	5	2.36	0.019
Assignment instructions	Know nothing	Hardly know	General understanding	Know a lot	Very rich
	1	2	3	4	5

Table IV. Drinking frequency, drinking time and wine-related knowledge

where X is the matrix of measured variables of ξ; Y the matrix of measured variables of η; ξ the matrix of potential exogenous variables; η the matrix of potential endogenous variables; Λ_X the regression coefficient (factor load matrix) of ξ, which represents the relationship between the exogenous latent variable matrix (ξ) and indicator (X); Λ_Y the regression coefficient (factor load matrix) of η, which represents the relationship between the endogenous latent variable matrix (η) and indicator (Y). The sum is the residual matrix of the measurement equation.

The structural model equation is expressed as follows:

$$\eta = B\eta + \Gamma\xi + \zeta,$$

where η is the matrix of potential endogenous variable coefficients; Γ the influence of the matrix of potential exogenous variables ξ on the matrix of potential endogenous variables η; B the matrix of structural coefficients, indicating the relationship between endogenous latent variables; and ζ the residual matrix of the structural equation, indicating the unexplained part of the endogenous latent variable.

In this paper, one potential exogenous variable ξ was selected, which is a WRL. Four potential endogenous variables η were selected: wine consumption status, wine consumption occasion, wine consumption factor and the embodiment of the wine lifestyle. Among them, potential endogenous variables have four observable variables for wine consumption status; six for potential endogenous variables in wine consumption occasion for potential endogenous variables for wine consumption factor; and six for potential endogenous variables in the embodiment of the wine lifestyle. The model structure is shown in Figure 1.

Data intrinsic consistency test

The structural equation model data were tested by administering a reliability test to ensure inherent consistency of the model data. Data consistency mainly reflects the test as it examines the relationship between internal topics and whether the various topics of the test measure the same content or traits. The overall inclusion of 26 variables in the observable variables is shown in Table V.

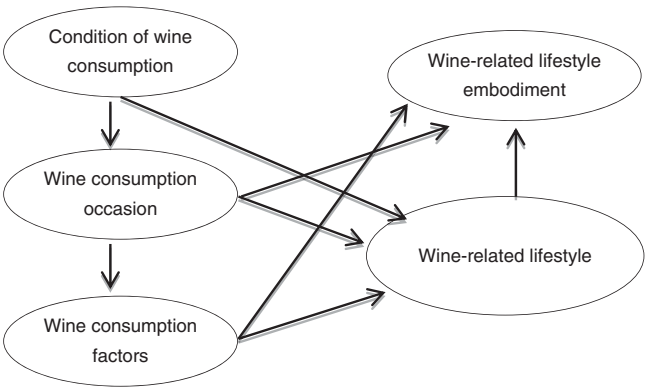

Figure 1.
Variable structure of wine-related lifestyle constitutive equations

Table V.
Results of KMO and Bartlett

Item	Inspection result of KMO and Bartlett tests	Approximate χ^2	Number of degrees of freedom	Significance level
Result	0.886	14,764.538	253	0

It can be seen from Table V that the Bartlett sphericity test value of the Kaiser–Meyer–Olkin metric is 0.886 and $p < 0.05$, indicating a high degree of internal consistency for data on each variable.

To ensure correlation between variables, further reliability tests were performed. The results are shown in Table VI.

It can be seen from Table VI that the Cronbach's α coefficient of each variable in the model is higher than 0.7, indicating that variable reliability is high; thus, the four latent variables in the model setting and the design of 26 observable variables is reasonable.

Maximum likelihood estimation was used to fit and correct the model, and it was concluded that the common fitting indexes after the model fitting were as follows: comparative fit index (CFI); normed fit index (NFI); incremental fit index (IFI); root mean square error approximation (RMSEA); and Akaike information criterion (AIC). Through these measurements, such common indicators can be used to determine the degree of model fit and model correction. The results of the common fitting index calculation are shown in Table VII.

It can be seen from Table VII that the smaller the chi-square value in the absolute fitting index the better the fitting degree after correction and the closer the RMSEA value to the critical value of 0.05. The relative fitting index is higher than 0.90 for CFI, NFI and IFI, and the information index AIC is relatively small. The calculation results of the whole index show that the fitting degree of the model is good after data fitting.

The results show that the structural equation model has a high degree of consistency through the reliability test of the model data, and the reliability test of each latent variable also shows the presence of a strong correlation among the latent variables. Simultaneously, it is shown that the selection of five latent variables and 26 observable variables is correct in the process of initial model design. Moreover, it shows that people's lifestyles have changed in the process of wine consumption, and the embodiment of the wine lifestyle indicates that the lifestyle related to wine is gradually accepted by people.

Data analysis

The fitting result of the structural equation is calculated by the commonly used fitting index. The results of calculations clearly show that the overall fitting degree of the equation is simultaneously good from the three dimensions of absolute fitting index, relative fitting index and information index. This shows that the WRL can be explained by wine consumption situation, consumption factors, and the embodiment of the wine lifestyle. The effect between the latent variables after fitting the equation is shown in Table VIII.

It can be seen from Table VIII that below the significance level of 0.01, the interaction between potential variables is significant, something that validates the theory of WRL models in Figure 1 and indicates that all kinds of factors related to wine have obvious

Variable	Number of measurable variables	Coefficient of Cronbach's α
Condition of wine consumption	4	0.8583
Wine consumption factors	10	0.7891
Wine consumption occasion	6	0.8622
Wine-related lifestyle embodiment	6	0.9486

Table VI. Reliability test of variables

Fit index	χ^2 value	CFI	NFI	IFI	RMSEA	AIC
Result	283.9	0.983	0.944	0.976	0.052	355.919

Table VII. Computation results of common matching index

Table VIII.
Effect standardization results in potential variable of model

項目	Wine consumption occasion	Wine consumption factors	Wine-related lifestyle	Wine-related lifestyle embodiment
Condition of wine consumption (value of *t*)	0.584*** (13.543)		0.134*** (3.735)	
Wine consumption occasion (value of *t*)		0.814*** (32.459)	0.414*** (4.265)	0.865*** (6.874)
Wine consumption factors (value of *t*)			0.345*** (13.323)	0.629*** (31.659)
Wine-related lifestyle (value of *t*)				0.953*** (24.679)

Note: ***Significant less than 0.01 level

influence on people's lifestyles. The main influencing factors of the WRL are wine consumption occasion and wine consumption factor, with wine consumption occasion having a significant impact on wine consumption factor. This also reflects the changes in people's lifestyles over their wine consumption history.

Through the four attribute variables (wine consumption occasion, wine consumption factor, wine lifestyle and the embodiment of the wine lifestyle), principal component analysis (PCA) is conducted in combination with the consumption situation and the consumption scene (the rotation method adopts the orthogonal rotation method with Kaiser standardization). The results are shown in Table IX.

At the beginning of model establishment, this paper attempted to analyze the consumption behavior of people to explain the relationship between the consumption of wine and changes in people's daily-life patterns. In view of the vagaries involved in accurately quantifying lifestyles, structural equations are used to identify factors that influence lifestyle changes. The model identifies the variables that influence people's WRLs by screening the variables and fully verifies the reliability of the variables. The result of the standardization of the model's various

Table IX.
Rotational component matrix of attribute variables

Variable	Component A	B	C	D	E
Price (100–300) of bottle	0.039	0.005	0.133	0.067	0.453
Price (300–500) of bottle	0.052	0.003	0.126	0.866	0.041
Price (500–700) of bottle	0.137	0.126	0.013	0.835	0.022
Price (700–900) of bottle	0.106	0.104	0.725	0.852	0.045
Price (900–1,100) of bottle	0.056	0.151	0.087	0.021	0.090
Price (1,100–1,300) of bottle	0.104	0.719	0.045	0.094	0.012
Price (1,300–1,500) of bottle	0.820	0.717	0.056	0.152	0.081
Price (> 1,500) of bottle	0.616	0.191	0.184	0.073	0.006
Drinking frequency per day	0.095	0.810	0.032	0.076	0.198
Drinking frequency 2–4 per week	0.727	0.098	0.029	0.006	0.094
Drinking frequency once per week	0.270	0.026	0.813	−0.099	−0.075
Drinking frequency once per month	0.255	0.011	0.067	0.861	−0.135
Drinking frequency of others	0.002	0.003	0.071	0.008	0.643
Age 18–24 years	0.025	0.064	0.025	0.031	0.810
Age 25–34 years	0.718	0.042	0.546	0.544	0.004
Age 35–44 years	0.826	0.852	0.798	0.596	0.003
Age 45–54 years	0.664	0.086	0.053	0.592	0.014
Age 55–64 years	0.115	0.191	0.086	0.052	0.070
Age above 65 years	0.036	0.146	0.018	0.011	0.007
Purchasing channel is online	0.521	0.504	0.628	0.783	−0.746

latent variables' effects fully verifies that the WRL is positively correlated with current wine consumption, wine consumption occasion and wine consumption factor. This lifestyle change can be reflected in the variable the embodiment of the wine lifestyle. Until now, the structural equation model has fully confirmed the main factors proposed in this paper as influencing people's WRLs. Moreover, PCA, factor analysis and clustering analysis are considered the primary factor analysis methods. However, PCA can keep as much as possible variable information, and variable information is unrelated to each other. PCA can help obtain scientific and effective information and simplify the WRL issue, which is multivariable and complicated. Additionally, strong interpretability in factor analysis and packet classification in clustering analysis is not the main objective in this research. Using the results of an analysis in Table VIII, five principal components (market segments) are obtained as follows:

(1) Principal component group A: the group attribute is characterized by the age range 35–54 years; consumption frequency of 2–4 times per week; and consumption price of CHY1,300–1,500 (partially higher than 1,500 yuan).

(2) Principal component group B: the group attribute is characterized by the age range 35–44 years; consumption frequency is daily; and consumption price is CHY1,100–1,500.

(3) Principal component group C: the group attribute is characterized by the age range 35–44 years (some ages are between 25 and 34 years); consumption frequency is weekly; consumption price is CHY700–900; and wine-tasting knowledge level is higher.

(4) Principal component group D: the group attribute is characterized by a large age range (25–54 years); frequency of consumption is once per month; and consumption price is CHY300–700.

(5) Principal component group E: the group attribute is characterized by a relatively narrow age range (18–24 years); frequency of consumption is not fixed; and most of the consumption price is less than CHY100.

Based on the structural equation model and PCA, and in combination with the demographic data of the survey sample, the five principal components are organized as follows:

(1) Principal component group A is called the wine business consumption type. Its consumption purpose is mainly socializing, as well as entertainment, rather than the love of wine. Their preference is for wine of a relatively higher price. Wine has become indispensable to their lifestyle because of the need to socialize.

(2) Principal component group B is called the wine enthusiast consumption type. They drink for relaxation and enjoyment and have a long wine-drinking history. Wine has become a very important part of their lifestyle.

(3) Principal component group C is called the wine enjoyment consumption type. They often drink at home, preferring to drink alone or to share the joy of drinking wine with friends. Wine is an important part of their lifestyle.

(4) Principal component group D is called the wine fashion consumption type. Wine-drinking occasions with groups at a bar or banquet are characteristic of this group. For them, the purpose of drinking is to flaunt and catch up with fashion. Their product selection is greatly influenced by other people, and the wine that they select is medium- or high-priced. Wine has become an important part of their lifestyle.

(5) Principal component group E is called the wine novice consumption type. Individuals belonging to this group partake of wine drinking as part of their maturing process, and their knowledge of wine is relatively poor. Their selection of wine is greatly influenced by other people, and they choose to purchase products that are more affordable. They are still in the early stages of WRL development.

Discussion

In this study, we confirm the five wine market segments by primarily using WRL tool to analyze the Chinese online wine market. Wine enjoyment consumption segmentation is the same as the WRL market segmentation in studies conducted in Australia called enjoyment-oriented social wine drinkers. The common ground between enjoyment segmentation in China and Australia is that they all like wine and enjoy wine drinking. In my opinion, the scale and proportion of wine enjoyment consumption is an important index of wine market-ripe. Wine novice consumption segmentation in China is similar to the basic wine drinkers in the Australian market. All of them have low levels of wine knowledge and involvement in wine. Those belonging to the wine novice consumption segment in China or basic wine drinkers in Australia are in the initial process of entering WRL. The wine business consumption segmentation is special because the government and businessmen play an important part in the Chinese wine market. The most expensive wine is consumed by the components of this segment. For future research, we can do an analysis of time series after obtaining data for the years 2018, 2019 and 2020 from YMW. Moreover, a cross-cultural comparison on the WRL segmentation should be conducted between in the Chinese and Australian markets.

Conclusion

On the basis of a consumer survey to obtain actual consumption data, this work of research established a structural equation model combined with the influencing factors of WRLs and derived four principal component attributes on the basis of statistical analysis using SPSS software. The study combined the demographic variables of the survey sample with the four main components, organizing them into five types of market segments: wine business consumption type, wine enthusiast consumption type, wine enjoyment consumption type, wine fashion consumption type, and wine novice consumption type. We hope that this model provides a reference for further online wine market segmentation research.

References

Ahmad, R. (2003), "Benefit segmentation: a potentially useful technique of segmenting and targeting older consumers", *International Journal of Market Research*, Vol. 45 No. 3, pp. 373-388.

Arsil, P., Li, E., Bru, J. and Ly, G.R. (2018), "Motivation-based segmentation of local food in urban cities", *British Food Journal*, Vol. 120 No. 9, pp. 2195-2207.

Aurifeille, J.M., Quester, P.G., Hall, J. *et al.* (1999), "Investigating situational effects in wine consumption: a means-end approach", *European Advances in Consumer Research*, Vol. 58 No. 4, pp. 104-111.

Balestrini, P. and Gamble, P. (2006), "Country of-origin effects on Chinese wine consumers", *British Food Journal*, Vol. 108 No. 5, pp. 396-412.

Bang, Y.T. and Du, J.Q. (2010), "Identification of factors affecting Chinese wine consumers' loyalty", *International Review of Business Research Papers*, Vol. 6 No. 5, pp. 320-333.

Berni, P., Begalli, D. and Capitello, R. (2005), "An occasion-based segmentation approach to the wine market in Denmark", *Journal of International Food and Agribusiness Marketing*, Vol. 17 No. 1, pp. 117-145.

Beverland, M. (2003), "An exploratory investigation into NZ consumer behaviour", *The Australian and New Zealand Wine Industry Journal*, Vol. 18 No. 1, pp. 90-98.

Brangule-Vlagsma, K., Pieters, R.G.M. and Wedel, M. (2002), "The dynamics of value segments: modeling framework and empirical illustration", *International Journal of Research in Marketing*, Vol. 19 No. 3, pp. 267-285.

Brunner, T.A. and Siegrist, M. (2011), "A consumer-oriented segmentation study in the Swiss wine market", *British Food Journal*, Vol. 113 No. 3, pp. 353-373.

Bruwer, J. (2014), "Consumer behaviour insights and wine", in Charters, S. and Gallo, J. (Eds), *Wine Business Management*, Pearson, Paris, pp. 145-161.

Bruwer, J. and Buller, C. (2013), "Product involvement, brand loyalty and country-of-origin (COO) brand preferences of Japanese wine consumers", *Journal of Wine Research*, Vol. 24 No. 1, pp. 38-58.

Bruwer, J. and Huang, J. (2012), "Wine product involvement and consumers' BYOB behaviour in the South Australian on-premise market", *Asia Pacific Journal of Marketing and Logistics*, Vol. 24 No. 3, pp. 461-481.

Bruwer, J. and Li, E. (2007), "Wine-related lifestyle (WRL) market segmentation: demographic and behavioural factors", *Journal of Wine Research*, Vol. 18 No. 1, pp. 19-34.

Bruwer, J. and Li, E. (2017), "Domain-specific market segmentation using a latent class mixture modelling approach and wine-related lifestyle (WRL) algorithm", *European Journal of Marketing*, Vol. 51 No. 9, pp. 1552-1576.

Bruwer, J., Li, E. and Reid, M. (2001), "Wine-related lifestyle segmentation of the Australian domestic wine market", *Australian and New Zealand Wine Industry Journal*, Vol. 16 No. 1, pp. 104-108.

Bruwer, J., Li, E. and Reid, M. (2002), "Segmentation of the Australian wine market using a winerelated lifestyle approach", *Journal of Wine Research*, Vol. 13 No. 3, pp. 217-242.

Bruwer, J., Ro, B. and Herbst, F. (2017), "Domain-specific market segmentation: a wine-related lifestyle (WRL) approach", *Asia Pacific Journal of Marketing and Logistics*, Vol. 29 No. 1, pp. 4-26.

Camillo, A. (2012), "A strategic investigation of the determinants of wine consumption in China", *International Journal of Wine Business Research*, Vol. 24 No. 1, pp. 68-92.

Changbo, S. and Wei, P. (2002), "Status and development of China's wine market", *Food and Machinery*, No. 2, pp. 151-153.

Charters, S. and Pettigrew, S. (2006), "Product involvement and the evaluation of wine quality", *Journal of Qualitative Market Research*, Vol. 9 No. 2, pp. 181-193.

Dibb, S., Stern, P. and Wensley, R. (2002), "Marketing knowledge and the value of segmentation", *Marketing Intelligence and Planning*, Vol. 20 No. 2, pp. 113-119.

Dubow, J.W. (1992), "Occasion-based versus user-based benefit segmentation: a case study", *Journal of Advertising Research*, Vol. 32 No. 2, pp. 11-18.

Elizabeth, C.T. (2006), "Market segment analysis to target young adult wine drinkers", *Agribusiness*, Vol. 22 No. 3, pp. 307-322.

Geraghty, S. and Torres, A.M. (2009), "The Irish wine market: a market segmentation study", *International Journal of Wine Business Research*, Vol. 21 No. 2, pp. 143-154.

Goodman, S., Lockshin, L.S. and Cohen, E. (2007), "Influencers of consumer choice in a retail setting: more international comparisons", *Australian and New Zealand Wine Industry Journal*, Vol. 22 No. 6, pp. 40-46.

Guimei, G. and Junxia, M. (2015), "Global wine industry economic data release", *Chinese and Foreign Grapes and Wine*, No. 6, pp. 64-65.

Hua, L., Junwei, H. and Jiagui, L. (2000), *Wine Market Science*, Shaanxi People's Publishing House, Xi'an.

Jing, C., Xiaoyu, C. and Ming, P. (2017), "Research status of China'sfruit wine production technology and its future development trend", *Food Industry Science and Technology*, Vol. 38 No. 2, pp. 383-389.

Jining, L. (2003), "Review of market segmentation research: review and prospects", *Journal of Shandong University Philosophy and Social Sciences*, No. 6, pp. 83-86.

Johnson, T. and Bruwer, J. (2003), "An empirical confirmation of wine-related lifestyle segments in the Australian wine market", *International Journal of Wine Marketing*, Vol. 15 No. 1, pp. 5-33.

Juhua, C., Li, L. and Yun, A. (2009), "A survey of the perceptionand consumption of wine by teachers in Qinhuangdao University", *Chinese and Foreign Grapes and Wine*, No. 11, pp. 268-272.

Li, J. (2014), *Research on the Behavior of Wine Consumers in China*, Northwest A&F University, Yang Ling.

Li, J. and Jinrong, J. (2010), "Australian wine industrydevelopment policy and enlightenment", *Agricultural Economic Issues*, No. 6, pp. 106-109.

Li, J. and Liang, D. (2007), "College students' cognition status and consumption tendency of wine products – taking the North Campus of Northwest Agriculture and Forestry University as an example", *Brewing Science and Technology*, No. 5, pp. 268-272.

Li, J., Jinrong, J. and Ligong, H. (2010), "Foreign wine market segmentation: research status and reference", *Chinese Brewing*, Vol. 29 No. 1, pp. 173-175.

Li, J., Jinrong, J. and Tayler, D. (2010), "The wine drinking behaviour of young adults: an exploratory study in China", *British Food Journal*, Vol. 13, pp. 1305-1317.

Li, J., Yabin, W. and Hecai, Y. (2016), "A review of the factors affecting wine consumer behavior", *Anhui Agricultural Sciences*, Vol. 44 No. 2, pp. 262-265.

Liu, F. and Murphy, J. (2012), "A qualitative study of Chinese wine consumption and purchasing: implications for Australian wines", *International Journal of Wine Business Research*, Vol. 19 No. 2, pp. 98-113.

Liu, H., Mc, Br. and Chen, T. (2017), "The Chinese wine market: a market segmentation study", *Asia Pacific Journal of Marketing and Logistics*, Vol. 26 No. 3, pp. 450-471.

Miaozhen, B. (2016), "Development of international wine market and its impact on China from the perspective of globalization", *World Agriculture*, No. 2, pp. 91-95.

Peicai, W. (2004), "New development of market segmentation theory", *China's Circulation Economy*, No. 4, pp. 53-56.

Schiffman, L.G. and Kanuk, L.L. (2001), *Consumer Behavior*, Pearson Education, Frenchs Forest.

Smith, W. (1956), "Product differentiation and market segmentation as alternative marketing strategies", *Journal of Marketing*, Vol. 21 No. 1, pp. 3-8.

Somogyi, S., Li, E. and Jo, T. (2011), "The underlying motivations of Chinese wine consumer behaviour", *Asia Pacific Journal of Marketing and Logistics*, Vol. 23 No. 4, pp. 473-485.

Song, W. (2014), *SPSS Statistical Analysis Daquan*, Tsinghua University Press, Beijing.

Taihong, L. (2005), *Consumer Behavior (China)*, Higher Education Press, Beijing.

Yabin, W. (2013), "The current status of WRL market segmentation and its reference", *Proceedings of the 8th International Symposium on Grapes and Wines, Xi'an, Shaanxi People's Publishing House*, pp. 307-312.

Yan, Z. and Jiaqing, Z. (2013), "Investigation and analysis of Chinese and Foreign Wine Consumption Intentions of Chinese urban residents", *China Business*, No. 27, pp. 187-189.

Ying, Y., Shangwu, C., Herve, R. (2007), "Survey of Beijing wine market and college wine consumption groups", *Brewing Technology*, No. 4, pp. 45-48.

Yu, Y., Sun, H. and Goodman, S. (2009), "Chinese choices: a survey of wine consumers in Beijing", *International Journal of Wine Business Research*, Vol. 21 No. 2, pp. 155-168.

Yunbo, Q. (2010), *Market Segmentation*, Enterprise Management Press, Beijing.

Further reading

Jietai, H. (2016), *Structural Equation Model and Its Application*, Science Press, Beijing.

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