

Title: Purchasing Cues of Millennial Chinese Online Wine Consumers

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1. Summary

Goals: to determine the relative impact of wine ecommerce product page attributes on Chinese Millennial online shoppers.

Research Methodology: a survey and 6-attribute choice-based conjoint (CBC) experiment (origin, price, sales, rating, description and image) produced 476 complete responses, with an incidence rate after demographic screening of 100% and 74% modelling accuracy. Mean Utilities were used to calculate Importance and produce a market simulator for calculating relative preference share.

Key Findings: Price is the most Important attribute, then Image, Description, Ratings, Sales and finally Origin. Attribute Importance varied more across behaviour-based segments than demographic segments though several segments revealed meaningful level preference differences.

Weaknesses/Challenges: Utility scores are arbitrarily scaled and not comparable across attributes; Importance figures potentially obscure level preferences; certain segments are too small to be reliable; market simulator reliability depends on base case and competitive profiles and sample representativeness.

Contribution to Body of Knowledge on Wine: this is one of the few studies of Chinese wine consumers to look at revealed rather than stated preferences and treat marketing attributes as interdependent variables rather than observing them separately, reflecting real-life choices. It is also one of the first to look exclusively at Chinese Millennial online wine consumers.

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2. Introduction

China's wine market has grown tremendously over the past decade and will likely become a top 3 global market in volume and value over the next decade (Vinexpo/IWSR, 2017). 30% of China's wine sales were online in 2015 (KEDGE, 2016), which is ~2x UK and ~15x US penetration (Higgins et al., 2015). Online purchasing is especially strong among Millennials, who comprise 58% of Chinese internet users (Nahal, Ma and Tran, 2015). Their wine consumption is growing 14% annually, double the rate among those over 35 (Walters and Kuo, 2016).

There was limited academic research on either purchasing behaviour within the Chinese market (4 papers), Millennials (8) or online purchasing (10) between 2003-2012 (Lockshin and Corsi, 2012). Individual Chinese e-retailers like Pudaowines have conducted user surveys but their samples tended to be more wine-engaged and knowledgeable than the general population. By contrast, this study's survey pool includes both current consumers and potential future consumers of wine, with a broader range of socioeconomic status and geographic distribution; only age (20-40) and a minimum monthly income of RMB5,000 was specified.

Existing industry studies mainly use ratings or rankings-based methods such as Best Worst Scaling. The Choice-modelling approach used here seeks to overcome those methods' limitations by enabling comparison of the relative importance of product attributes and using revealed as opposed to stated preferences, as the latter rarely reflect actual behaviour (Lockshin and Hall, 2010).

Currently limited research exists on the individual elements under investigation in this project (China, Millennials, ecommerce). Work that brings these powerful factors together is ground-breaking, with the potential to unlock an explosive source of ten-year growth for the wine industry, assuming Chinese Millennials are as amenable to

online wine purchasing as media reporting on their attitudes and current purchasing behaviour in related product categories suggests (Cheng, 2016; Kuo et al., 2015; Li, 2016; Lu and Yiu, 2015; Ngai and Cho, 2012; Russell, 2016; Tanner, 2016a and b; Tung and Foo, 2016).

Understanding the relative values of different product attributes across consumer segments will help online actors (China-based wine importers, distributors and ecommerce platforms) drive sales growth with more effective product pages, targeting increasingly niche groups. As China is a global leader in wine ecommerce – ecommerce is expected to represent 70% of China's wine and spirits sales by 2020 (Tung, 2016) – these learnings may eventually apply to Millennial and other e-savvy wine consumers globally, laying the groundwork for further academic work into online shopping behaviour.

3. Literature Review

3.1 Choice Modelling

Choice-based Modelling describes a set of analytical tools derived from 1920s psychometrics work by L.L. Thurstone and developed by researcher Daniel McFadden's 1970s and 1980s economics work. Choice-based Modelling has facilitated research into consumer groups' and individuals' decision processes when selecting between products with multiple attributes.

Stated preference methods such as Best Worst Scaling (BWS) have often been used to generate consumer segments based on purchase motivations (Goodman, Lockshin and Cohen, 2006); their results are both simple to analyse and communicate (Goodman, Lockshin and Cohen, 2005). However, because Discrete Choice Experiments (DCE – a Choice-based Modelling tool) can be used for revealed preference studies and incorporate bundles of attributes rather than merely examining individual attributes' effects, they have been shown upon several occasions to be stronger indicators of an attribute's relevance than stated preference methods (Louviere, Hensher, and Swait, 2000; Pennings and Smidts, 2003).

3.2 Visual vs Verbal Data

DCE are able to accommodate both visual and verbal attributes. Because ecommerce relies on both visual and verbal representations of any product, DCE are a natural choice to model preference in this channel. Studies suggest response to visual stimuli such as packaging cannot be reliably measured using purely verbal representations (Imram, 1999; Smead, Wilcox and Wilkes, 1981). DCE using visual stimuli show higher consumer preference heterogeneity and average importance of packaging design vs studies using only verbal cues (Mueller, Francis and Lockshin, 2007).

Individuals differ in the extent to which they rely on visual versus verbal data, though it remains unclear whether this is more ability- or preference-driven (Childers, Houston and Heckler, 1985). Need For Cognition (NFC) has been shown to influence which factors a consumer relies on, with high-NFC individuals more likely to prefer verbal information and use fewer factors than low-NFC individuals (Deliza, MacFie and Hedderley, 2003; Sojka and Giese, 2001). Visual representations may bias decisions by focusing attention on a reduced set of options and possibly even lead to false comparisons while having an outsize impact on customer satisfaction and loyalty (Lurie and Mason, 2007). However, since the design of the DCE deliberately mimics the experience of online shopping in this case, any biases arising in the experiment should reflect those in the real world.

3.3 Wine Consumer Behaviour

Studies of various sizes of consumer groups and their purchase motivations for wine in different contexts are abundant. Many studies address the impact of product attributes on purchasing intention and consumption behaviour e.g. brand (Lange et al., 2002), country or region of origin (Berríos and Saens, 2015; McCutcheon, Bruwer and Li, 2009; Orth, McGarry Wolf and Dodd, 2005), packaging design (Boudreaux and Palmer, 2007; Rocchi and Stefani, 2006; Silayoi and Speece, 2007), perceived quality (Charters and Pettigrew, 2003) and sensory attributes (Gianluca, Donato and Cavicchi, 2006). These are joined by some multi-dimensional studies, usually using Discrete Choice Experiments (Lockshin et al., 2006).

Other studies describe differences in consumption behaviour based on demographics like age (MacDonald, Saliba and Bruwer, 2013), gender (Bruwer et al., 2005), income and geography (Goodman, Lockshin and Cohen, 2007). Other consumer studies investigate the impact of behavioural factors such as attitude (Van Zanten, 2005); purchase frequency (Chrysochou et al., 2011; Thach and Olsen, 2015); intended consumption occasion (Bruwer, Fong and Saliba, 2013; Hall, Lockshin and O'Mahony, 2001) or purchasing channel (Stening and Lockshin, 2001); consumer involvement (d'Hauteville, 2003; Lockshin, Quester and Spawton, 2001) or product knowledge (Forbes, Cohen and Dean, 2008; Rao and Monroe, 1988).

The range of available wine consumer behaviour studies is regularly surveyed in Literature Reviews. The most recent, by Lockshin and Hall (2010), suggests that as a whole, studies have shown only weak correlation between attitude and behaviour, with involvement appearing to be a better predictor of consumer behaviour than demographics or nationality. Generally, studies that bring together multiple product factors tend to generate a more accurate picture of their relative importance for purchasing behaviour than single-factor studies (Lockshin et al., 2006).

3.4 Ecommerce

Over the past two decades, b2c (business to consumer) ecommerce has experienced tremendous growth. In 2016, global retail ecommerce sales were US\$1.9 trillion (eMarketer, 2016), or 8.7% of total worldwide retail spending. eMarketer predicts steady growth to 2020, when sales will reach US\$4.1 trillion or 14.6% of total retail spending.

Asia-Pacific is expected to remain the largest retail ecommerce market in the world with sales of over US\$1 trillion for 2016, and nearly tripling to US\$2.7 trillion by 2020. Of that, China's sales were US\$0.9 trillion in 2016, or 47% of worldwide sales (all eMarketer, 2016).

Worldwide global online purchasing intentions for categories similar to wine, like groceries, rose 5 points to 27% between 2011 and 2014. 17% of global respondents claimed to purchase alcoholic drinks online (both Nielsen, 2014c) and, promisingly for the sector, 25% in Asia-Pacific (Nielsen, 2014a).

Individual psychological factors (Smith and Rupp, 2003) and subjective or objective product knowledge (Kolyesnikova et al., 2010) are considered more reliable drivers of behavior than external environment or demographics (Li and

Zhang, 2002). Generally, factors for and against online shopping are rated consistently across geographies (Breneman et al., 2005; Bressolles and Durrieu, 2010; Choi and Lee, 2003; Zhou, Dai and Zang, 2007), but some distinctions are seen within countries between urban and rural areas (Hsieh et al., 2013). A few studies continue to show that individual user traits such as gender (Jayawardhena, Wright and Dennis, 2007) and income (Jusoh and Ling, 2012) are major factors in acceptance.

Better pricing, broader product assortment and convenience are seen as key drivers of online shopping (Feindt, Jeffcoate and Chappell, 2002; Jeffcoate, Chappell and Feindt, 2002; Nielsen, 2014b; Schaupp and Bélanger, 2005). Limiting factors for ecommerce adoption include structural issues like regulatory barriers, internet penetration and state of infrastructure for online vs brick and mortar retail; platform-related issues like confusing websites, discomfort around credit card use, confidence in online payment systems and misuse of personal data; and pragmatic issues like the impossibility of product testing and challenges with delivery and product return (Dean et al., 2012; Kumar, 2015; Kumar and Maan, 2014; Nielsen, 2014a).

The nature of the ecommerce platform strongly affects its effectiveness. Website quality (Wolfenbarger and Gilly, 2003), defined as clear organisation of product information (Laroche et al., 2005) and perceived ease of use (Lim and Ting, 2012) were found to be important determinants of success. Furthermore, website factors such as perceived playfulness (Celik, 2011) and markers of trust and credibility (Constantinides, 2004; Kim and Eom, 2002; Sung and Gibson, 2005) are important.

Meanwhile, tools external to the website also influenced online purchasing choice. An investigation of different forms of advertising (loosely defined) by Nielsen

(2015a) revealed that recommendations from friends remain the most credible form (83% of respondents indicated they trusted this form), followed by branded websites (70%) and consumer opinions posted online (66%). Use of online reviews differs between high and low-involvement consumers, with low-involvement more influenced by review quantity and high-involvement more influenced by review quality (Lee, 2009).

3.5 Wine Ecommerce

The 2015 global online wine market was worth over €6 billion (US\$6.6 billion). The sector grew continuously through 2011-2015 thanks both to new consumers and the maturation of existing platforms; growth is now no longer governed by supply of online outlets but rather consumer demand (all KEDGE, 2016).

Also, according to KEDGE, China has the largest proportion of wine consumers who shop online (30%), followed by the UK, France and the US, where only 7% purchase wine online (Sonoma State University and Wine Business Institute, 2016). The world's most popular ecommerce website for wine was not a wine-specific platform, but amazon.com, while the second was China-based alcoholic beverage site jiuxian.com, and the third Spain-based wine site, Lavinia.es (KEDGE, 2016).

Around the world, wine ecommerce tends to be concentrated among a particular consumer demographic: male (Ewing, 2014); well-educated and high-income (Bruwer and Wood, 2005; Santos and Ribeiro, 2012); 35-45, the age at which wine product involvement seems to be highest (Bruwer and Buller, 2013). Personality traits of individual consumers also affect willingness to purchase online, including agreeableness and openness to experiences. Meanwhile, neuroticism and need for cognition negatively affect shopping intention (all Bosnjak, Galesic and Tuten, 2007).

The type of product that thrives in ecommerce channels also tends to be quite specific, with factors like producer, geographic origin and certification taking priority (Cho, Bonn and Kang, 2014; Nomisma, 2001). Involvement is an important determinant of product factor preferences, with high-involvement consumers generally showing less brand loyalty and more preference for traditional wine origins (Bruwer and Buller, 2013).

There are a few drivers of success both intrinsic and extrinsic to the individual wine ecommerce platform. Wine's price- and information-sensitivity make website functionality pivotal to success (Scorrano, 2008). A site's information search quality has been shown to directly affect its quantity of wine sold (Durrieu and Bouzdine-Chameeva, 2008). Early research suggested that a more customer-oriented interface is preferred (Quinton and Harridge-March, 2003), and the resultant contribution to sales and profitability can be significant (Thach and Eaton, 2001).

A 2012 literature review concluded that despite numerous studies on the impact of wine product traits and consumer demographics on ecommerce since 2003, there have been few novel findings or generalisable results due to the one-off, convenience samples used (Lockshin and Corsi, 2012). More research was encouraged on retail marketing, online influences on consumers, the premium and luxury wine sectors, emerging markets and the relationship between quality and consumer behaviour.

3.6 Millennial Wine Consumers

Marketers have identified rising worldwide Millennial wine consumption as a major opportunity for wine brands to grow and compensate for the waning impact of Baby Boomers. Globally there are around 2 billion Millennials with 86% residing in

emerging markets, depending on exact definitions (Nahal, Ma and Tran, 2015). 83 million Americans were born between 1982 and 2000, more than the Baby Boomer generation (Market Watch, 2015); they comprise 25% of the US population and 36% of wine drinkers (Wine Market Council, 2016).

Some broad income, gender and age-driven distinctions exist within the Millennial wine consumer group. Wine confidence is driven in part by age and gender: older female Millennials are more apprehensive about purchasing wine (Barber, Almanza and Donovan, 2006). However, in the US women are responsible for 57% of wine consumption by volume, and the most involved female wine consumers tend to be older Millennials (Wine Market Council, 2015).

Globally, Millennials are distinguished by their promiscuity in alcoholic beverage choice and openness to diverse wine styles such as white and rosé (Mueller, Remaud and Chabin, 2011). US Millennials are responsible for the growth of “casual” categories e.g. red blends like Apothic. Price points are generally higher; US\$15-20 and US\$20+ perform well among Millennials (all Market Watch, 2015). Millennials have also embraced alternative packaging formats like 3-litre boxes, 187 mL bottles and Tetra Paks, particularly for informal gatherings, because of their high functionality and value (Johnston and Velikova, 2015). Choice of purchase channel tends to be driven more by geography than generation (Mueller, Remaud and Chabin, 2011).

Worldwide, Millennials are more likely to be hedonic success- and status-oriented and less social values-driven when purchasing wine (Mueller, Remaud and Chabin, 2011). However, there are geographic distinctions: for US Millennials, sustainability is a strong motivating factor (Market Watch, 2015), as is self-image (Nahal, Ma and Tran, 2015). Even within the Anglophone world, attitudes to price

and the particular status of established “luxury” wines like champagne vary (Charters et al., 2011). There are also differences in how distinct Millennial behaviour is from other generations’: in New World wine producing countries like New Zealand, Millennials do not differ significantly from the previous generation (X), except that Millennials drink wine more frequently and more in everyday contexts than special occasions (Fountain and Lamb, 2011).

In traditional wine-producing regions such as northern Italy, Millennials tend to follow their region’s traditional wine consumption model, with strong awareness of the various functions of alcoholic beverages for different consumption occasions (Agnoli, Begalli and Capitello, 2011). Millennial wine consumers from Old World countries like Spain are more likely to value region of origin than those in New World countries like the US, who generally rely on their own previous experience with the wine (de Magistris et al., 2011). Wine involvement and consumption in traditional markets is more likely to increase with age, while in North America it is more likely to decrease (Mueller, Remaud and Chabin, 2011).

Like most consumer groups, Millennials tend to consider wine purchasing high-risk, but their risk reduction strategies and purchasing cues differ. They are more likely than older consumers to seek information from friends/family or shelf talkers, but are reluctant to ask questions of service staff (Atkin and Thach, 2012). Brand is relatively important, region of origin less so, with medals (Orth, 2002), label imagery and alcohol content (Atkin and Thach, 2012) also acting as major purchasing cues.

However, scepticism remains in some quarters over whether Millennials are indeed such a significant a factor in global wine consumption, particularly in the US. 44% of US Millennial households’ annual incomes are <US\$70,000 and 15% <US\$36,000; meanwhile only 16% of US Baby Boomer households are <US\$70,000

and 55% are >US\$130,000, representing a great disparity in purchasing power. The Wine Market Council's claim (later corrected downward) that Millennials represent 42% of wine consumption volume in the US has been challenged by Silicon Valley Bank, which estimates it is only 10-20%. SVB predicts that Millennials will surpass older generations in market share only in 2025, making them a far less attractive target market than originally thought (all Bohmrich, 2016).

3.7 Chinese Wine Consumers

The Chinese wine market was the fourth largest in the world by value (US\$15.5 billion) and fifth by volume (153.1 million 9-litre cases) in 2016 (Vinexpo/IWSR, 2017). It was the world's fourth largest import market (52.76 million 9-litre cases) and is predicted to grow 79.3% between 2016 and 2020. Although import levels are still lower than pre-austerity and the average price of imported wine has declined since 2013 (Mintel Group, 2016), some hope for consumption volume lies in the predicted growth of the drinking-age adult population by 32 million before 2020 (Vinexpo/IWSR, 2016). Also, China's annual per-capita consumption is still only 1.34 L (Vinexpo/IWSR, 2017), vs 10 L in the UK in 2014 (WSTA, 2014), leaving ample room for growth.

The actual nature of Chinese wine consumers is challenging to track because of official figures' unreliability, necessitating approximations from studies of self-identified wine consumers. According to Wine Intelligence's 2016 study, urban upper-middle class (minimum annual income ¥60,000) imported wine drinkers total 48 million, or 11% of the adult urban population aged 18-54, up 25% from 2014. Overall, the group skews young: 43% of those surveyed were 18-29. This group is less price-conscious than older consumers and less likely to drink from "mainstream

countries.” Camillo (2012) found that education, profession, position, income, wine knowledge and wine-related activities also affected likelihood of wine consumption.

Consumer preferences are consistent across regions – 75% of consumption is red and Cabernet Sauvignon and Merlot are the most popular varieties (Wine Australia, 2016). French wines comprised 42% of imports with 22.0 million cases in 2016; Australia placed second with 8.6 million cases; Spain and Chile followed (Vinexpo/IWSR, 2017). Spanish wines have tended to be the fastest growing import (+55.6% between January-May 2014 and the same period in 2015). Chinese wine, which historically represented around 80% of consumption, continues to decline, partly due to problematic pricing strategies (Gao, 2016).

China’s increased imported wine consumption can be attributed to lower tariffs, greater disposable income and an expansion of the middle class (Wine Intelligence, 2016). Middle class Chinese drink more imported wine and more frequently, with 35% now drinking imported wine at least once a month. The growth of ecommerce is another factor: 49% of Wine Intelligence’s 2016 survey respondents had bought wine online in the last 6 months vs 43% from hypermarkets, 42% from imported food and drink stores (but 61% from wine specialists). Finally, consumption occasions have also grown more varied, with increased consumption at home, though restaurants and banquets remain important (Zhang, 2015).

To investigate individual motivations, Wine Intelligence (2015a) sub-categorised imported wine consumers by consumption behaviour and motivations into Developing Drinkers, Adventurous Connoisseurs, Prestige-seeking Traditionalists, Social Newbies, Health Sippers and Frugal Occasionals. There was a general trend away from prestige-driven consumption and towards taste- and price-conscious consumption, embodied by Developing Drinkers who comprise 19% of the 38 million

in the study. Other studies have developed similar motivation-based typologies (Sánchez, Masson and Celhay, 2016; Somogyi et al., 2011), with some showing greater importance for particular factors such as health and abstract qualities related to the luxury image of wine such as “wine-related feelings” (Zhang, 2015).

Across studies, there is broad consensus about which wine attributes influence purchase choice e.g. taste, wine type and style, previous experience with the wine, origin, brand name and recommendations (Camillo, 2012; Yu et al., 2009), with extrinsic cues generally outweighing intrinsic ones. Country of origin was singled out in several studies as an especially important extrinsic cue (Balestrini and Gamble, 2006; Lee et al., 2009; Qing and Hu, 2016), particularly when purchasing for others’ consumption, while cues like medals, awards and vintage had less impact. Price points were determined by consumption occasion, with consumers generally willing to pay more for gifts than everyday consumption (all Yu et al., 2009). However, these apparent preferences may be shaped by product availability in large-volume channels such as supermarkets (Lee et al., 2009).

The impact of intrinsic factors is harder to measure. The way Chinese consumers describe wine flavours was covered in an Ehrenberg-Bass paper (Corsi, Cohen and Lockshin, 2014) that showed Chinese consumers prefer to use generic descriptors such as smooth (平滑), fruity (果香), sweet (甜), mellow (醇), and lengthy aftertaste (回味). Among aroma-based descriptors, consumers were far more amenable to the fruit aromas rather than the vegetable, meat and spice descriptors often used by wine marketers. There is little evidence that marketers’ choice to use Chinese vs Western descriptors affects willingness to purchase.

Finally, several studies have found significant regional variation (Qing and Hu, 2015; Zhang, 2015) in purchase choices and total expenditure. Shanghai and

Beijing consumers were, somewhat predictably, more likely to try different styles and brands, while lower-tier city inhabitants were more likely to stick to familiar or sommelier-recommended wines (Wine Intelligence, 2016). Taste preferences for “sweet” wines (not necessarily what would be called sweet wines in the West) and certain regions of origin were regionally determined (Zhang, 2015).

3.8 Ecommerce in China

China has approximately 720 million internet users, a penetration of 52.2% (International Telecommunication Union, 2016). Around 418 million are Millennials (Nahal, Ma and Tran, 2015). The highest internet penetration is found in Beijing, Shanghai, Guangzhou, Tianjin, Zhejiang and Fujian Provinces, where it is over 60% (Wine Intelligence, 2015b). Internet penetration is 92.6% in the UK, 91.1% in Japan, 88.5% in the US, 74.1% in Hong Kong and 34.8% in India (International Telecommunication Union, 2016).

China is the most enthusiastic adopter of ecommerce worldwide with online retail value over ¥4 trillion in 2015 and 35% growth over the past four years even as hypermarket sales declined (Lannes et al., 2016). An estimated 150,000 new Chinese online shoppers join the existing hundreds of millions daily (Ding, Han and Lannes, 2015). Chinese Millennials are significantly more likely than older Chinese to shop online (Nielsen, 2015c).

The highest penetration categories are apparel and accessories, electronic goods and tourism/virtual products (Feng, 2014c). Luxury goods are especially strong, with 93% of Chinese consumers saying they have shopped online for luxury goods (Mak and Feng, 2014). FMCG online sales continue to grow, though growth has slowed from 14% in 2014 to 6% in 2016, partly due to slowing premiumisation

(Nielsen, 2016a). Fresh goods are especially challenged because although China's cold storage capacity is among the top 3 globally, it is low per capita (Nielsen, 2015d).

A relatively generous percentage of Chinese online purchasing is of foreign products, with ¥100 billion+ spent on foreign goods online in 2014 (Burbank, 2014). Those shopping for foreign products online tend to be 26-30 (40%), high income (60% have monthly household income >¥11,000) and female (57%) (Feng, 2014c).

Reasons for the rapid growth of ecommerce include: advanced online vs offline distribution infrastructure: 45% of Taobao's online sales originated in cities that don't have those goods in physical stores (Kuo et al., 2015); increased comfort with digital payment systems: 86% of Chinese paid for some online purchases using digital payment systems vs India where 83% is COD (Nielsen, 2016c) and mobile payment rose from 0% penetration in China in 2011 to 25% in 2015 (Zipser, Gong and Chen, 2016); and more attractive vendor cost structure: while concession and personnel costs of an apparel store in a T1 (tier-one) Chinese city would be 25-30% of revenue, an online store only requires a platform fee of 5-10% plus logistics costs of 5-7% (Ding, Han and Lannes, 2015).

Consumers' key incentive for purchasing online is still price (Feng, 2013). Thanks to rising consumer goods prices, many Chinese shoppers are actively seeking online discounts or bulk buy opportunities (Feng, 2014a). Other important factors like high-quality products and reliable online reviews (Feng, 2014c) are helping drive growth. A clear advantage of ecommerce is the ease of information search: 60% of online consumers use search engines vs only 45% of in-person consumers (Feng, 2013). Other top choices for information search include social media and category-specific websites (Feng, 2014b).

Finally, the choice of device for online shopping is particularly skewed towards mobile in China, with 55% of online purchases made on mobile phones (Ding et al., 2015) vs 15% in the US (BI Intelligence, 2016).

3.9 Wine Ecommerce in China

China has the highest intent for online shopping and purchase of alcoholic beverages of 60 countries Nielsen studies (Feng, 2014b), rising 20 points to 34% from 2011-2014. Of the 48 million persons identified as imported wine consumers, 21 million bought wine online (Wine Intelligence, 2016). Although wine is only 5% of total alcohol sales in China, it is 34% of online alcohol sales. 84% of online wine sales are imported rather than domestic wine (Tanner, 2015), compared to brick and mortar where domestic wine sales are 4x those of imported. Wine Australia (2016) predicts that within 10 years >50% of China's wine purchases will be made online.

52% of Millennial wine consumers buy wine online, the highest rate among age groups (ASC Fine Wines, 2016). Online wine purchasing is also concentrated in certain Chinese provinces, with Guangdong leading along with Shanghai and Beijing and three other eastern coastal provinces: Jiangsu, Zhejiang and Fujian (Tanner, 2015). The typical online wine shopper is female, 26-35 years old, resides in southern China and purchases wine for <¥100 (Li, 2016).

Almost half of online wine sales are French, with Chinese in second place, then Spanish, Italian and Australian. Red is predominant (77.4%), followed by sparkling, white and then other styles (all Tanner, 2015). JD.com (at 35%) and Tmall.com (at 32%) were the most popular platforms (Wine Intelligence, 2016).

Although nearly 2/3 of online wine shoppers identified price as a main reason for online purchasing, motivations are no longer limited to lower prices; quality

(important to around 25%) and value for money also factor (Wine Intelligence, 2016). Other important factors include wine familiarity, promotions and region of origin; followed by moderately important factors like friends' recommendations, grape variety(s) and others' comments. Trophies and label design are generally considered unimportant (all Li, 2016).

Promotion is clearly a key differentiating factor in ecommerce, where the selection is exponentially greater than in a physical retail setting. Social media plays a key role in marketing and even, increasingly, sales; Weibo and WeChat remain the two vital platforms (Wine Intelligence, 2015b).

3.10 Chinese Millennial Consumers

28.4% of the Chinese population or 385 million people are Millennials vs 21% who are Boomers; China's median age is only 36.3 years (Nahal, Ma and Tran, 2015). In China, Millennials are subdivided into "balinghou" (post-80s generation) and "jiulinghou" (post-90s generation) whose traits differ: the post-90s are known for being more open-minded, rebellious, individualistic and authority-questioning than the post-80s (Russell, 2016).

Chinese Millennials' aggregate income is projected to grow US\$3 trillion as average annual incomes increase from US\$5,900 to US\$13,000 (Lu and Yiu, 2015). They are also expected to make up more than 1/3 of the urban population by 2020, over which time their share of total consumption would grow from 45% to 53% (Walters and Kuo, 2016).

Strong purchase categories for post-80s and post-90s Millennials' consumption include luxury goods – Chinese Millennials were predicted to spend US\$4,362 per

person on luxury goods in 2016 (Tanner, 2016a) – leisure activities and dining out (CBRE, 2016), all encouraging categories for wine marketers.

The differences between this generation and previous ones are myriad. Millennials have fully experienced China's consumerist rise – surpassing US young adults in materialism and conspicuous consumption (Podoshen, Li and Zhang, 2011) – and shift away from family-centrism. Between 1980 and 2014, per-capita Chinese living space increased from 9 sqm to 32 sqm (Tanner, 2016b) as more people live individually rather than in extended family groups (CBRE, 2016).

These developments are partly due to this generation's greater financial independence through higher education – Chinese Millennials are 8x more likely to have a university degree than those over 35 (Kuo et al., 2015) – and exposure to foreign values while studying abroad – 459,800 people studied abroad in 2014 (Chinese Ministry of Education, 2015). This group is markedly more likely than previous generations to travel abroad – 16-35 year olds already comprise 50% of Chinese travellers abroad (Counter Intelligence Retail, 2016).

Another defining trait of Chinese Millennials is their connectedness: 92% of Chinese 18-30 year olds own a smartphone (Telefónica and Financial Times, 2013), and 60% of WeChat's 700 million active monthly users are Millennials (Tanner, 2016a). 86% of Nielsen's post-90s survey respondents (Feng, 2014e) go online 1-2 times daily and Chinese Millennials spend an average of 27 hours online a week (Counter Intelligence Retail, 2016), >5 hours more than their US counterparts. 60% of younger Chinese Millennials shop online at least once a month (Tung and Foo, 2016).

Purchase motivations reflect this digital native status, with post-90s relying heavily on friends' or social media Key Opinion Leaders' (KOLs') comments or

recommendations (Feng, 2014e). 32% of this group trust their friends' opinions most vs only 19% who value brand names (Tung and Foo, 2016). Millennials are increasingly pursuing different goals in their consumption, with a pragmatic shift towards value, functionality and convenience (somewhat contradicted by their attraction to luxury goods) and a pursuit of greater health and more meaningful life experiences (Cheng, 2016).

However, Chinese Millennials' abandonment of traditional Chinese values should not be overstated; 91% of Millennials still value family traditions (JWT Intelligence 2013). While Millennials' tendency to save money is undeniably lower than previous generations – they only save 25% of their monthly pay cheque (CBRE, 2016) and upper-middle class Millennials averaged 40% higher spending than previous generation consumers with comparable incomes (Kuo et al., 2015) – the group's aspirations for home ownership (90% want to buy property in future – CBRE, 2016) in an increasingly expensive market has driven greater saving. Although 61% of Millennials still live with their parents, almost half (47%) are actively saving for their first homes vs only 37% of US Millennials (Nielsen, 2014e). Fortunately, even in the most expensive Chinese cities – Beijing and Shanghai – the basic costs of living are only half those in New York, leaving a greater share of income for shopping and leisure activities (CBRE, 2016).

4. Research Questions and Objectives

The focus of this investigation is Millennial online shoppers in China. Millennials were defined as persons currently aged 20-40. The hypothesis was that attributes of a wine's product web page would vary in Importance for different subgroups of Millennials, allowing marketers to tailor their approach for specific target audiences.

The research attempts to answer these questions:

- 1) Are Chinese Millennial consumers more affected by qualitative, quantitative or visual information; does this vary across the price spectrum?
- 2) How do demographics affect attribute preferences?
- 3) How closely are consumers' stated reasons for purchasing wine reflected by their revealed preferences?
- 4) How Important are attributes that a wine marketer cannot directly control like Sales or Ratings?
- 5) Is the type of descriptive language used Important or are consumers relatively indifferent between language styles?

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5. Research Methods

1) The key attributes and levels of wine ecommerce pages in China were identified through careful review of the most successful platforms and existing academic literature:

a) Quantitative:

- i) Community Score: five levels: 3/5, 3.5/5, 4/5, 4.5/5 and 5/5 (in reality products were not listed with an average score below 3/5, so the decision was made to replicate this situation in the experiment).
- ii) Monthly Sales: five levels based on typical figures from tmall.com (largest online retail platform in China).
- iii) Price: eight levels selected based on Ehrenberg Bass' study of Chinese wine consumer preferences (Corsi, Cohen and Lockshin, 2014), shifted downward to reflect lower average pricing in online channels.

b) Qualitative:

- i) Country of Origin: six levels: France, Australia, Chile, New Zealand, Italy and Spain (the most common origins of imported wine in China).
- ii) Verbal Description: seven levels. To avoid biasing the results, the descriptors were those identified as most favourable within each wine description type in the Ehrenberg-Bass study (Corsi, Cohen and Lockshin, 2014). To have sufficient level choices and avoid biasing results due to incidental preferences for specific descriptors (e.g. strawberry) rather than descriptor styles (e.g. Western), two options were given for each descriptor style (except the Category-based descriptor "dry red wine" which is a legal term that is standard across platforms).

(1) Category-based descriptors: dry red wine

- (2) Generic descriptors e.g. smooth, mellow, sweet, fruity (two options)
 - (3) Western aroma descriptors e.g. strawberries, plums, blackberry (two options)
 - (4) Chinese aroma descriptors e.g. yangmei, wolfberry, red date, Chinese hawthorn (two options)
- c) Visual: nine levels. All visuals were selected according to typical image types found on tmall.com, jd.com and yesmywine.com, China's three largest volume imported wine retailers.
- i) Image:
 - (1) Close-up – screwcap
 - (2) Close-up – cork
 - (3) Vineyard
 - (4) Winery
 - (5) Close-up – traditional-looking wine label
 - (6) Young consumers enjoying the product
 - (7) Celebrity with the product
 - (8) Food pairing suggestion – Western
 - (9) Food pairing suggestion – Chinese
- 2) From this information, Saul Dobson of the University of Bath designed a Modified Multi-attribute Choice-Based Conjoint Model, a type of DCE, featuring 15 choices of 3 product profiles each (see section 9.3 for details).
- 3) An 11-question questionnaire (see section 9.2) with basic demographic and structured questions on wine consumption and purchasing frequency, quantity and price; consumption occasions, purchasing channels and stated attitudes towards wine was attached to the model.

- 4) The survey was then processed by several Chinese market research firms:
 - a) Translated and pre-tested by the Shanghai-based team of Anovax
 - b) Mounted by InterfaceAsia-Holden and distributed digitally both by InterfaceAsia-Holden, with cash incentives of RMB10 per response and through Weixin by Wine 100 with incentives of 1 bottle of wine per response, screened as follows:
 - i) Aged 20-40
 - ii) Monthly income >RMB5,000
 - iii) Moderate current consumers of wine (consume wine at least one time per month and have purchased imported red wine at least once in the past three months)
 - c) Given a population size of approximately 418 million Millennial internet users in China (International Telecommunication Union, 2017; Nahal, Ma, Tran, 2015), the goal was 500 completed surveys for a statistically valid sample size at the 95% confidence level with a ~4% margin of error. The statistical model was designed to be reliable with a minimum of 400 responses.
- 5) The conjoint model and questionnaire data were used to generate a Utility and preference share model permitting comparison between demographic and preference-based segments.

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6. Results and Analysis

Ultimately, 476 surveys were collected with a 100% incidence rate. The modelling accuracy achieved was 74% (vs average 65-70%).

The first four tables display the sample's demographics (1), stated purchasing behaviour (2), consumption occasions (3) and attitudes towards wine (4) from the structured questionnaire portion of the survey, hence all data are self-reported.

Response was almost evenly split between males (55.3%) and females (44.7%), reflecting relatively high female participation in the Chinese online wine marketplace (Zhang, 2015). The age range was consistent with previous findings that young millennials (20-29) are the largest group of Chinese online wine shoppers (Tanner, 2015).

Respondents were almost evenly split between eastern (26.7%: Shanghai, Nanjing, Hangzhou), northern (22.7%: Beijing, Shenyang, Tianjin) and southern (21.2%: Guangzhou, Shenzhen, Dongguan) cities, with slightly fewer from central/western cities (12.4% Chengdu, Wuhan, Chongqing), reflecting stronger wine e-commerce penetration in the East, North and South (Tanner, 2015).

Education was the least evenly distributed variable, with most respondents in the Bachelor's Degree segment (67.6%); this is consistent with findings that education among wine ecommerce consumers is high (Bruwer and Wood, 2005; Santos and Ribeiro, 2012). Finally, while monthly income segments were evenly sized up to RMB15,000, above that each segment became increasingly small. To ensure sufficient segment size, those with >RMB15,000/month income were grouped together.

Table 1: Demographics

Variable	Percentage (%)
Gender	
Male	55.3
Female	44.7
Age Group (years)	
20-25	13.2
26-30	33.2
31-35	30.7
36-40	22.9
Current City of Residence	
Shanghai	18.9
Beijing	16.2
Guangzhou	14.9
Chengdu	5.7
Nanjing	5.0
Shenzhen	4.8
Shenyang	4.0
Wuhan	3.8
Chongqing	2.9
Hangzhou	2.7
Tianjin	2.5
Dongguan	1.5
Other	17.0
Highest Level of Education Completed	
Middle School	0.2
High School Diploma	5.9
Trade/Technical/Vocational Training	2.7
3 Year College	16.0
Bachelor's Degree	67.6
Post-graduate and Above	7.6
Current Monthly Personal Income	
RMB5001-7500	26.1
RMB7501-10,000	25.0
RMB10,001-15,000	21.4
RMB15,001-20,000	12.8
RMB20,001-25,000	4.8
RMB25,001-30,000	5.0
RMB30,001-50,000	2.7
RMB50,001 plus	2.1

Table 2: Purchasing Behaviours

Variable	Percentage (%)
Frequency of Consumption (at least a glass) in 2016	
At least two times a year	3.8
3-4 times a year	5.7
Once a month	11.6
2-3 times a month	18.5
Once a week	19.5
2-3 times a week	22.9
4-6 times a week	13.0
Every day	5.0
Location of Purchase (more than one occasion) in 2016	
Supermarkets	59.9
Wine specialist retail outlets in China	57.8
Online wine outlets based in China	55.0
Dining places e.g. Restaurants, Cafes	31.3
Bars, Pubs, Nightclubs	26.3
Direct from vineyards	22.9
Online wine outlets based outside of China	20.2
Wine specialist retail outlets overseas	17.2
Convenience stores	14.3
Wine auction houses/Wine clubs	12.6
Other places I use to buy wine	8.0
Most Common Purchase Price in 2016 (bottle retail price)	
Less than RMB 50	1.3
RMB 51-100	9.7
RMB 101-150	17.4
RMB 151-200	27.5
RMB 201-250	17.2
RMB 251-300	12.2
RMB 301-500	11.1
RMB501 plus	3.6
Purchase Frequency (at least a bottle): Online¹	
Infrequently, just a few times a year	<i>out of 283</i> 8.8
About 3-4 times a year	18.4
About 5-6 times a year	16.3
At least once a month	21.6
2-3 times a month	17.7
Every Week once or twice	11.0
Weekly 3-4 times	3.5
Weekly more often 5 or more times	2.8
Purchase Frequency (at least a bottle): Offline Retail	
Infrequently, just a few times a year	<i>out of 400</i> 10.0
About 3-4 times a year	11.0
About 5-6 times a year	15.5
At least once a month	25.5

¹ For the subsequent variables, only those who answered the question have been counted in the total.

2-3 times a month	22.0
Every Week once or twice	10.8
Weekly 3-4 times	4.0
Weekly more often 5 or more times	1.3
Purchase Frequency (at least a bottle): Offline Direct	<i>out of 136</i>
Infrequently, just a few times a year	20.6
About 3-4 times a year	10.3
About 5-6 times a year	19.9
At least once a month	16.9
2-3 times a month	12.5
Every Week once or twice	9.6
Weekly 3-4 times	5.1
Weekly more often 5 or more times	5.1
Purchase Frequency (at least a bottle): Offline On-Premise	<i>out of 184</i>
Infrequently, just a few times a year	11.4
About 3-4 times a year	10.9
About 5-6 times a year	13.6
At least once a month	25.5
2-3 times a month	20.7
Every Week once or twice	9.8
Weekly 3-4 times	7.1
Weekly more often 5 or more times	1.1
Purchase Volume: Online	<i>out of 283</i>
Usually just one bottle	17.3
Usually 2-3 bottles	42.0
4-6 bottles	27.2
7-12 bottles	7.4
More than 12 bottles	6.0
Purchase Volume: Offline Retail	<i>out of 400</i>
Usually just one bottle	27.8
Usually 2-3 bottles	44.8
4-6 bottles	18.3
7-12 bottles	1.0
More than 12 bottles	3.3
Purchase Volume: Offline Direct	<i>out of 136</i>
Usually just one bottle	12.5
Usually 2-3 bottles	39.0
4-6 bottles	27.9
7-12 bottles	9.6
More than 12 bottles	11.0

Table 3: Consumption Occasions

Variable: Consumption Occasion	Segment²	Percentage (%)
Just for personal consumption by myself Most Common 2 nd 3 rd	Off- premise: Personal	27.7 13.2 12.8
For consumption over food at home with friends Most Common 2 nd 3 rd	Off- premise: Social	13.2 21.4 15.3
For sharing with friends when we are being serious and discussing wines Most Common 2 nd 3 rd	Off- premise: Social	11.6 13.0 8.2
For adding to my wine collection, for drinking at a later date Most Common 2 nd 3 rd	Collecting	11.3 5.3 7.6
For adding to my wine collection and selling the wine at a later date Most Common 2 nd 3 rd	Collecting	10.3 5.3 5.0
For giving as a gift to friends and family members Most Common 2 nd 3 rd	Gifting	6.9 12.8 14.5
For consumption at parties and casual occasions Most Common 2 nd 3 rd	Off- premise: Social	6.3 13.4 13.0
Consumption at a restaurant Most Common 2 nd 3 rd	On- premise	4.6 7.1 9.7
Others not mentioned above Most Common 2 nd 3 rd	Other	4.4 2.9 4.0
For giving as a gift to colleagues and business acquaintances Most Common 2 nd 3 rd	Gifting	3.6 5.5 9.9

² These segments will be used for subsequent analysis of respondents' Primary Consumption Occasions

Table 4: Consumer Attitudes

Variable	Segment³	Percentage (%)
Wine is ideal with food, I enjoy having food and wine together.	Food	47.7
I prefer to drink wine because it is healthier than other alcohol.	Health	44.7
I drink wine because I have read it is good for health.	Health	42.9
I am quite interested in wine and learning more about it.	Knowledge	40.1
Wine is about the pleasure from enjoying with friends.	Social	38.7
I like to find out more about wine – the countries it comes from and the types of wines.	Knowledge	35.1
I use wine to bring a special feeling to any occasion.	Atmosphere	34.0
Every time I eat good food I think of drinking wine with the meal.	Food	32.6
Wine brings sophistication to any drinking occasion.	Atmosphere	31.9
Wine is ideal for socializing with colleagues and business associates.	Social	25.4
Wine is now a serious hobby – I collect wines and read about wines regularly.	Knowledge	22.5
I am considered to be quite knowledgeable about wine.	Knowledge	21.6
For me wine is more for special occasions and celebrations, not for regular consumption.	Atmosphere	17.0
I usually only drink when others I am with suggest it	Social	7.4
Wine is just another drink. I don't get too excited about it	Indifferent	6.7

³ These segments will be used for subsequent analysis of respondents' Stated Attitudes to Wine

Table 5: Conjoint Model Mean Utilities and Importance⁴

Attribute	Mean Utility	Importance (%)
Community Rating 5 out of 5 4.5 out of 5 4 out of 5 3.5 out of 5 3 out of 5	0.953 0.431 0.056 -0.658 -0.782	13.8
Monthly Sales Figure (bottles) 35 122 653 1,240 6,444	-0.819 -0.436 0.023 0.477 0.756	13.4
Bottle Price RMB45 RMB95 RMB150 RMB195 RMB250 RMB325 RMB485 RMB888	-0.948 0.001 1.275 1.372 1.004 0.353 -0.775 -2.281	30.3
Country of Origin France (FRA) Italy (ITA) New Zealand (NZL) Spain (ESP) Australia (AUS) Chile (CHI)	0.310 0.108 0.012 -0.026 -0.182 -0.222	12.0
Description Smooth and Mellow (generic 1) Sweet and fruity (generic 2) Dry red wine (Category-based) Yangmei and red date (Chinese 1) Strawberry and plum (Western aroma descriptor 1) Strawberry and blackberry (Western aroma descriptor 2) Chinese hawthorn & wolfberry (Chinese aroma descriptor 2)	0.333 0.156 0.112 0.044 -0.058 -0.089 -0.498	14.6
Image Celebrity enjoying wine Vineyard Winery Traditional style label close-up	0.466 0.230 0.187 0.137	15.9

⁴ Mean Utilities for all segments are listed in Appendix TK

Cork closure close-up	-0.020	
Young Chinese consumers enjoying wine	-0.038	
Chinese food pairing suggestion	-0.162	
Western food pairing suggestion	-0.232	
Screwcap closure close-up	-0.567	

Table 5 displays two key outputs of the conjoint experiment: the sample's mean Utilities and Importance for each attribute (see appendix 9.3 for details on how these are calculated). These were then used to generate a market simulator to show relative preference share of different product profiles.

For conducting Sensitivity analysis (see 9.3) on the market simulator, the following base case has been used: test profile (B), of moderate appeal, plus two competitors – a less appealing profile (A), and a more appealing profile (C) – that are held constant. As individual attribute levels are changed, the percentage point change in B's relative preference share from the base case level (Δ over Base Case) indicates B's Sensitivity to that attribute – a higher level of relative preference share indicates a favourable attribute level.

Table 6: Base Case for Market Simulator

Attribute	A: less appealing	B: test	C: more appealing	None
Relative Preference Share (%)	8.3	14.5	72.0	5.2
Rating	3 out of 5	4 out of 5	5 out of 5	
Sales	35	653	6,444	
Price	RMB888	RMB95	RMB195	
Origin	Chile	New Zealand	France	
Description	Chinese Hawthorn & Wolfberry	Yangmei & Red Date	Smooth and Mellow	
Image	Screwcap	Cork	Celebrity	

Table 7: Sensitivity Analysis (Rating)

Rating	B: Δ over Base Case (% points)
3 out of 5	-3.3
3.5 out of 5	-2.7
4 out of 5 (Base Case)	0
4.5 out of 5	+1.8
5 out of 5	+5.4

Table 8: Sensitivity Analysis (Sales)

Sales	B: Δ over Base Case (% points)
35	-2.9
122	-1.2
653 (Base Case)	0
1,240	+1.3
6,444	+2.9

Table 9: Sensitivity Analysis (Price)

Price	B: Δ over Base Case (% points)
RMB45	-0.6
RMB95 (Base Case)	0
RMB150	+5.3
RMB195	+7.3
RMB250	+7.1
RMB325	+5.8
RMB485	+2.7
RMB888	-3.1

Table 10: Sensitivity Analysis (Origin)

Origin	B: Δ over Base Case (% points)
Chile	-1.6
Australia	-1.2
Italy	-0.4
New Zealand (Base Case)	0
Spain	+0.3
France	+0.9

Table 11: Sensitivity Analysis (Description)

Description	B: Δ over Base Case (% points)
Chinese hawthorn & wolfberry	-3.4
Strawberry and plum	-2.0
Strawberry and blackberry	-1.8
Dry red wine	-1.0
Sweet and fruity	-0.2
Yangmei & red date (Base Case)	0
Smooth and Mellow	+0.9

Table 12: Sensitivity Analysis (Image)

Image	B: Δ over Base Case (% points)
Screwcap	-3.1
Western Food	-2.6
Cork (Base Case)	0
Vineyard	+0.1
Winery	+0.1
Chinese Food	+0.2
Consumers	+0.3
Traditional Label	+1.6
Celebrity	+2.0

Research Questions

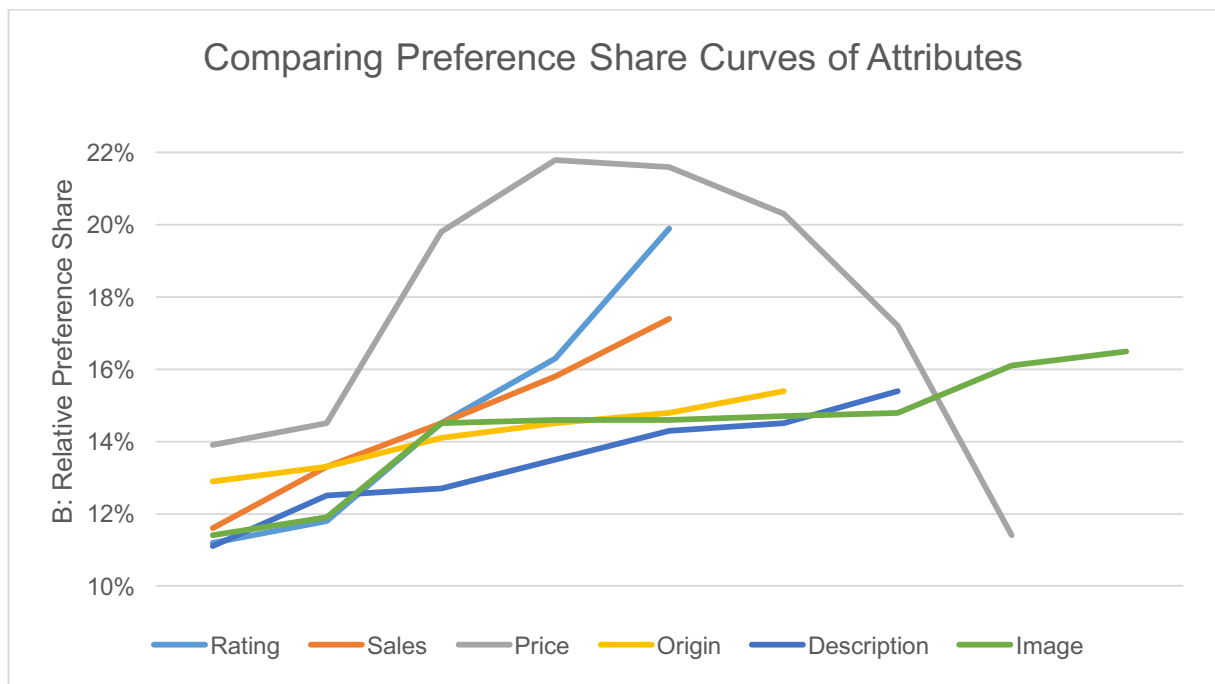
6.1 Are Chinese Millennial consumers more affected by qualitative, quantitative or visual information; does this vary across the price spectrum?

The most Important attribute is quantitative: Bottle Price (30.3%). Next is Image at 15.9%, though a post-hoc Tukey's HSD test shows Image Importance only differs from the next most Important attribute, Description, to a 93% confidence interval. The next band of attributes are all similar in Importance i.e. differences are not statistically significant to a 95% confidence interval: Verbal Description (14.6%), Community Rating (13.8%) and Monthly Sales Figure (13.4%). Finally, Country of Origin (12.0%) is least Important.

Origin's low Importance contradicts studies that highlight the Importance of origin for wine purchasing (Balestrini and Gamble, 2006; Lee et al., 2009; Qing and Hu, 2016). However, it does reflect findings that Millennials (Orth, 2002), consumers from outside traditional wine cultures (de Magistris et al., 2011) and low-involvement consumers (Bruwer and Buller, 2013), who are well-represented in our sample given the relative immaturity of China's wine market, all focus less on origin than on other cues.

As discussed by Wine Intelligence (2016), price remains by far the greatest purchasing factor, although lower price is not necessarily better. Observing the shape of attributes' Preference Share curves, Price is the only attribute with a parabolic curve. Peak Utility is reached at RMB195/bottle and the test profile B's preference share reaches a maximum value of 21.8% (compared to 13.9% for RMB45 and 11.4% for RMB888), suggesting wine is a Giffen Good (a good for which a higher price increases demand) for this group up to RMB195. This can perhaps be explained by the fact that wine's luxury image ("wine-related feelings" referenced in Zhang, 2015) and commensurate high price are key to its appeal.

Chart 1: Comparing Preference Share Curves of Attributes

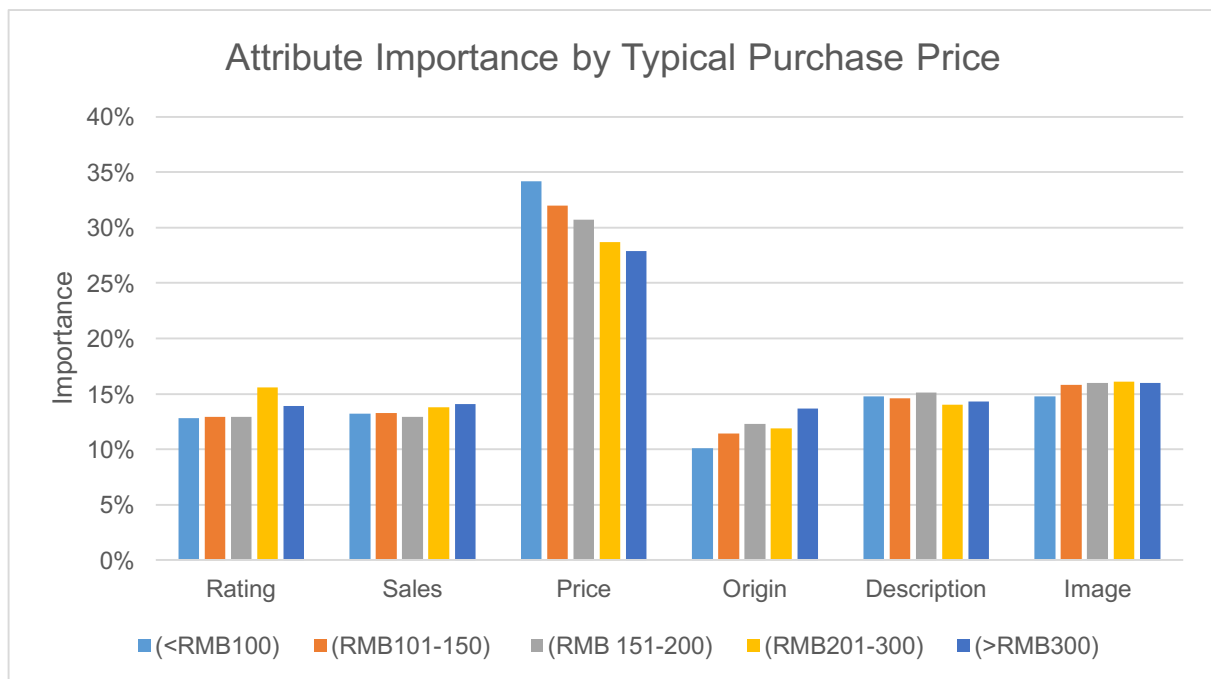


To understand whether Importance varies by price point using segments based on self-declared Typical Purchase Price is reasonable because the segments did in fact assign their highest mean Utilities to price levels within their stated price range e.g. the RMB201-300 segment's highest mean Utility (1.389) was assigned to the Price level RMB250.

Table 13: Attribute Importance by Typical Purchase Price⁵

Attribute	Importance (<RMB100) <i>52 total</i>	Importance (RMB101-150) <i>83 total</i>	Importance (RMB 151-200) 131 <i>total</i>	Importance (RMB201-300) 140 <i>total</i>	Importance (>RMB300) <i>70 total</i>	p-value
Rating	12.8%	12.9%	12.9%	15.6%	13.9%	0.0125
Sales	13.2%	13.3%	12.9%	13.8%	14.1%	0.8569
Price	34.2%	32.0%	30.7%	28.7%	27.9%	0.0071
Origin	10.1%	11.4%	12.3%	11.9%	13.7%	0.0002
Description	14.8%	14.6%	15.1%	14.0%	14.3%	0.5594
Image	14.8%	15.8%	16.0%	16.1%	16.0%	0.6751

Chart 2: Attribute Importance by Typical Purchase Price



⁵ In the current and subsequent Utility tables, abbreviated titles are used for the sake of space

Although the attribute Importance trends generally held across price points, there were a few differences. One-way ANOVA tests comparing the effects of Typical Purchase Price on attribute Importance show a statistically significant effect at the 95% confidence interval on Rating ($p=0.0125$), Price ($p=0.0071$) and Origin ($p=0.0002$) Importance. Post-hoc Tukey's HSD tests were run on these three attributes and statistically significant differences in Importance at the 95% confidence interval were found between the following levels:

- Rating: between RMB151-200 and RMB201-300 ($p=0.0183$). For there to be an identifiable trend of increased reliance on Rating as price point rises, a higher Importance score for rating might be expected from the >RMB300 group, when in fact it is only 13.9%.
- Price: between <RMB100 and RMB201-300 ($p=0.0229$) and <RMB100 and >RMB300 ($p=0.0219$). Given the segments are based on typical purchase price, it is highly expected outcome that RMB201-300 and >RMB300 segments showed a statistically significant difference in Price Importance compared to <RMB100.
- Origin: between RMB201-300 and >RMB300 ($p=0.0351$); <RMB100 and RMB151-200 ($p=0.0234$); <RMB100 and >RMB300 ($p=0.0010$) and RMB101-150 and >RMB300 ($p=0.0119$). With an Importance of 13.7%, >RMB300 is the segment most clearly affected by Origin, likely because consumers focusing on higher price points are likely to be high-involvement (Bruwer and Buller, 2013) and thus likely to place more value on specific origins such as France, and/or to show strong preferences for their favoured countries because they are able to differentiate more clearly between origins.

6.2 How do demographics affect attribute preferences?

To answer this question, the sample has been segmented by a number of different demographics (Gender, Age, City Tier, Education, Income and Geographic Location) and wine-related behaviour (Purchase Channel, Online Purchase Frequency and Primary Consumption Occasion). Single-factor ANOVA or Welch's two tail t-tests have then been used to detect statistically significant differences in Importance between segments to a 95% confidence interval. Where these differences were significant, post-hoc Tukey's HSD tests have been used to determine which segments differ significantly from each other.

Overall, few statistically significant differences in attribute Importance were found between demographic segments: there were no statistically significant differences to the 95% confidence interval between Gender-, Age-, City Tier-, Education- or Income-based segments, although there were statistically significant differences between Geographic Location segments. Among behavioural segments, there were statistically significant differences between Purchase Channel-, Online Purchase Frequency- and Primary Consumption Occasion-based segments, as well as Typical Purchase Price-based segments as discussed in 6.1.

Table 14: Attribute Importance by Gender

Attribute	Importance (M) <i>263 total</i>	Importance (F) <i>213 total</i>	p-value (two tail)
Rating	13.7%	14.0%	0.7066
Sales	13.2%	13.7%	0.5432
Price	30.9%	29.6%	0.2064
Origin	11.8%	12.2%	0.4139
Description	14.2%	15.0%	0.1340
Image	16.1%	15.6%	0.3059

Table 15: Attribute Importance by Age

Attribute	Importance (20-25) <i>63 total</i>	Importance (26-30) <i>158 total</i>	Importance (30-35) <i>146 total</i>	Importance (36-40) <i>109 total</i>	p-value
Rating	14.2%	13.8%	14.4%	12.9%	0.3721
Sales	14.4%	12.9%	13.8%	13.2%	0.5587
Price	28.2%	29.9%	30.3%	32.2%	0.1499
Origin	12.4%	12.4%	11.5%	11.9%	0.2495
Description	15.0%	14.9%	13.9%	14.6%	0.3988
Image	15.8%	16.0%	16.2%	15.3%	0.6747

Table 16: Attribute Importance by City Tier

Attribute	Importance (1 st Tier City) 261 <i>total</i>	Importance (2 nd Tier City) 127 <i>total</i>	Importance (other) 88 <i>total</i>	p-value
Rating	13.9%	14.0%	13.4%	0.8098
Sales	14.1%	12.8%	12.5%	0.1363
Price	30.0%	31.2%	29.8%	0.5827
Origin	12.1%	12.0%	11.9%	0.9374
Description	14.1%	14.6%	15.7%	0.0833
Image	15.8%	15.4%	16.8%	0.2048

Table 17: Attribute Importance by Education

Attribute	Importance (Middle/High School) 29 <i>total</i>	Importance (Tech/Trade or 3-Year Degree) 89 <i>total</i>	Importance (Bachelor's) 322 <i>total</i>	Importance (Post-grad) 36 <i>total</i>	p-value
Rating	12.5%	12.8%	14.6%	13.8%	0.0581
Sales	12.6%	13.9%	13.6%	14.0%	0.6626
Price	30.3%	30.3%	30.2%	30.8%	0.9946
Origin	11.8%	12.6%	11.9%	12.2%	0.6094
Description	15.8%	14.4%	14.2%	14.0%	0.1408
Image	17.0%	16.0%	15.5%	15.1%	0.1224

Table 18: Attribute Importance by Income

Attribute	Importance (RMB5,000-7,500) <i>124 total</i>	Importance (RMB7,501-10,000) <i>119 total</i>	Importance (RMB10,000-15,000) <i>102 total</i>	Importance (>RMB15,000) <i>131 total</i>	p-value
Rating	13.2%	14.0%	13.5%	14.2%	0.6715
Sales	13.7%	13.1%	14.4%	13.0%	0.5249
Price	31.2%	30.5%	30.9%	29.5%	0.5971
Origin	11.9%	11.7%	12.2%	12.1%	0.8571
Description	14.9%	14.6%	13.8%	14.7%	0.5994
Image	15.0%	16.1%	15.2%	16.4%	0.1238

Table 19: Attribute Importance by Geographic Location

Attribute	Importance (North) <i>108 total</i>	Importance (East) <i>127 total</i>	Importance (South) <i>101 total</i>	Importance (Central /West) 59 <i>total</i>	p-value
Rating	14.5%	15.0%	13.1%	13.1%	0.1558
Sales	12.1%	14.6%	14.1%	13.4%	0.1105
Price	29.9%	29.4%	32.3%	29.8%	0.2319
Origin	12.2%	12.0%	11.5%	12.7%	0.4305
Description	14.4%	14.3%	13.8%	14.6%	0.7606
Image	16.8%	14.7%	15.2%	16.4%	0.0155

Table 20: Attribute Importance by Purchase Channel

Attribute	Importance (Online) <i>292 total</i>	Importance (Offline only) <i>184 total</i>	p-value
Rating	14.3%	12.7%	0.0218
Sales	13.5%	13.2%	0.6264
Price	29.8%	31.7%	0.0985
Origin	12.1%	11.8%	0.5910
Description	14.3%	15.1%	0.2110
Image	16.0%	15.4%	0.3087

Table 21: Attribute Importance by Online Purchase Frequency

Attribute	Importance (1-6 times per year) <i>123 total</i>	Importance (1-3 times a month) <i>111 total</i>	Importance (1-7 times a week) <i>49 total</i>	p-value
Rating	14.2%	15.2%	14.9%	0.6447
Sales	13.1%	14.4%	13.1%	0.4950
Price	31.2%	29.6%	26.9%	0.0778
Origin	12.1%	11.5%	12.9%	0.1883
Description	14.0%	13.9%	14.3%	0.8937
Image	15.2%	15.5%	17.9%	0.0111

Table 22: Attribute Importance by Primary Consumption Occasion

Attribute	Importance (Collecting) <i>103 total</i>	Importance (Off-premise: Personal) <i>132 total</i>	Importance (Off-premise: Social) <i>148 total</i>	Importance (Gifting) <i>50 total</i>	p-value
Rating	13.8%	14.2%	14.6%	12.9%	0.5572
Sales	14.6%	13.6%	13.2%	12.6%	0.3942
Price	26.6%	32.3%	30.7%	31.9%	0.0012
Origin	12.7%	11.8%	11.7%	11.1%	0.1320
Description	14.5%	13.4%	14.3%	16.0%	0.0545
Image	17.7%	14.8%	15.5%	15.6%	0.0006

However, just looking at Importance can obscure preference differences for individual attribute levels, which will be covered in detail by segment.

Gender

Females responded more positively to all Old World countries than New World countries, while Males had a strong negative reaction to Italy (mean Utility 0.060 vs 0.168 for Females) as well as Australia (-0.230 vs -0.124 for Females). Italy may be more favoured by Female consumers because of the luxury image Italy enjoys in other Female-targeted categories such as apparel and accessories.

Age

Though not statistically significant, Price was the attribute with the greatest Importance difference (p=0.1499) between age segments. Importance increased

with greater age, mainly because of low mean Utilities for the top Price level (RMB888), which was viewed more negatively by older Millennials (mean Utility - 2.730 for 36-40 vs -1.792 for 20-25). The 26-30 segment had a strong negative reaction to lower price levels (RMB45: -1.192; RMB95: -0.327), suggesting younger Millennials are less price-sensitive (Wine Intelligence, 2016) and view wine exclusively as a luxury product. This lower Importance placed on Price may be because of rising Millennial incomes over time, (Lu and Yiu, 2015).

Meanwhile, the two younger segments were slightly more likely to place Importance on Rating and Description, suggesting they are more interested in the opinions of their peers (Feng, 2014e) and the actual taste of the wine (Wine Intelligence 2015a) than price alone as an indicator of quality.

City Tier

Though not statistically significant, Description was the attribute with the greatest difference in Importance ($p=0.0833$) for city tier-based segments. The Other segment rated Description as comparatively Important (15.7% vs 14.6% overall), with a marked preference for Generic 1: Smooth and Mellow (mean Utility 0.735 vs 0.333 overall) and low Utilities for all aroma-based descriptions.

Education

Rating differences approached statistical significance ($p=0.0581$) for education-based segments. However, because this variable was not very evenly distributed, with only 29 people in the Middle/High School segment and 36 in the Post-Grad but 322 in the Bachelor's, accurate analysis is challenging.

Income

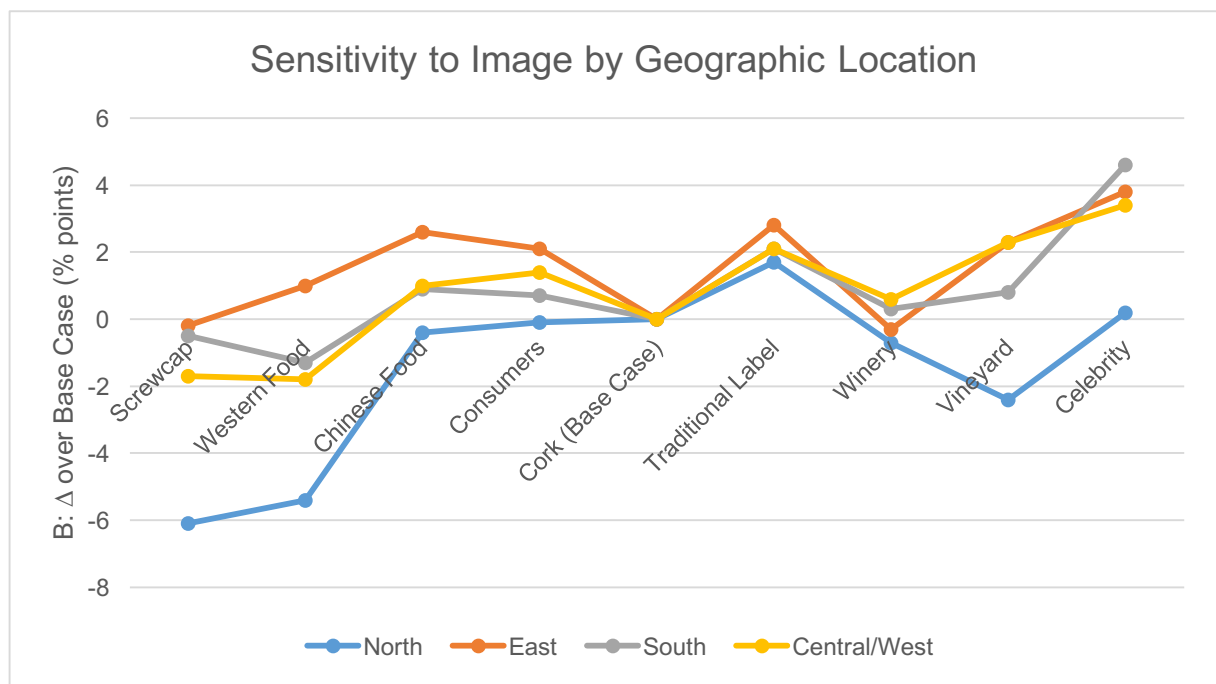
Unsurprisingly, the Importance of Price was smaller for higher-income segments. RMB10,000-15,000 were much more negatively disposed to wines at RMB95 than

might have been expected (mean Utility -0.559 vs 0.001 overall) suggesting they probably equate price with quality. Among Descriptions, RMB5,000-7,500 were especially positively disposed to Generic 1: Smooth and Mellow (0.555 vs 0.187 and 0.194 for the two higher earning groups) and negatively disposed toward all aroma-based descriptions, suggesting the price points they preferred (RMB95-250) should be marketed using more generic descriptions.

Geographic Location

Geographic location-based segments did show a significant difference in the Image attribute (ANOVA $p=0.0155$) between North (Importance 16.8%) and East (Importance 14.7%) with Tukey's HSD $p=0.0175$. North had the greatest Utility difference between Cork and Screwcap (0.838 vs. 0.547 overall), reflecting a highly traditional market that also has a strongly positive Utility for France (0.356 vs 0.310 overall) and unfavourable Utilities for Australia (-0.205 vs -0.182 overall) and Chile (-0.337 vs -0.222 overall). The North segment was also less averse to high price than the others, rating RMB888 relatively positively (-1.986 vs -2.281 overall), perhaps reflecting larger corporate and official budgets in the capital.

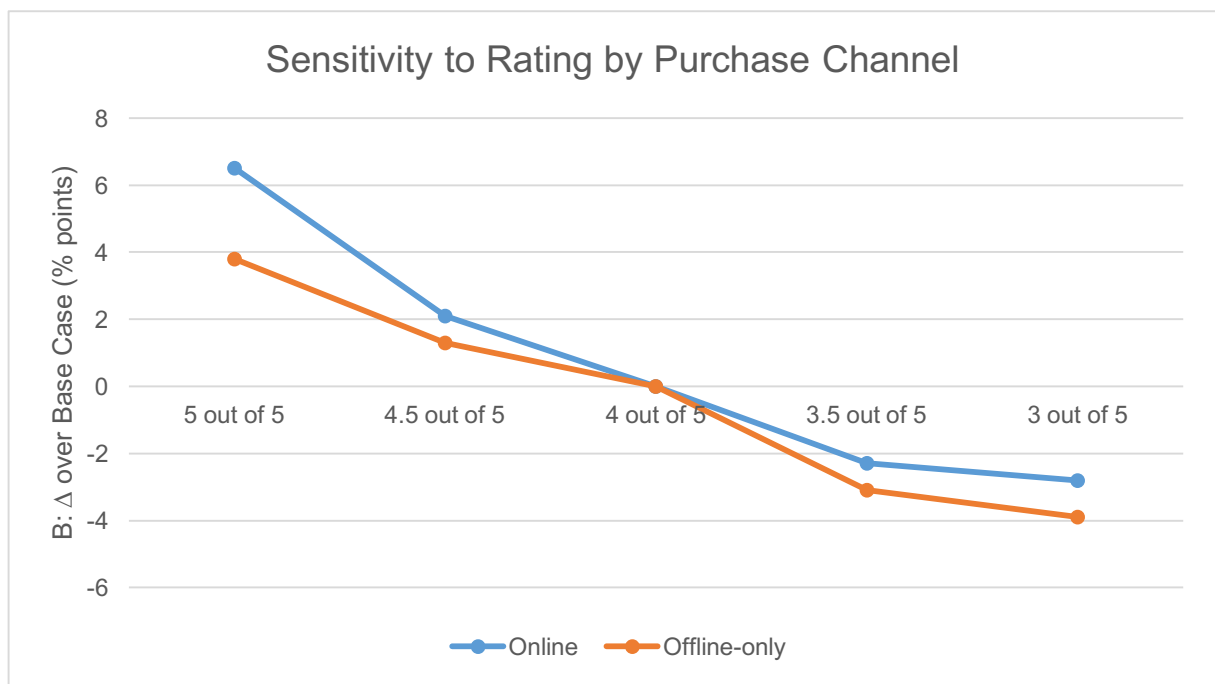
Chart 3: Sensitivity to Image by Geographic Location



Purchase Channel

There were statistically significant differences between Online and Offline-only consumers in the Importance of Rating (t-test $p=0.0218$). Ratings had a stronger impact on Online (9.3pts of relative preference share) than Offline-only (7.7pts), probably reflecting the fact that community rating and monthly sales figure do not play a role in traditional in-person retail as they do online. A final point of interest is the segments' opposing attitudes to the image of Consumers enjoying wine – Offline-only ranked it positively (mean Utility 0.105), while Online less so (-0.128), preferring Vineyard (0.241) and Winery (0.239) images, suggesting wine-specific imagery is more impactful in an online setting.

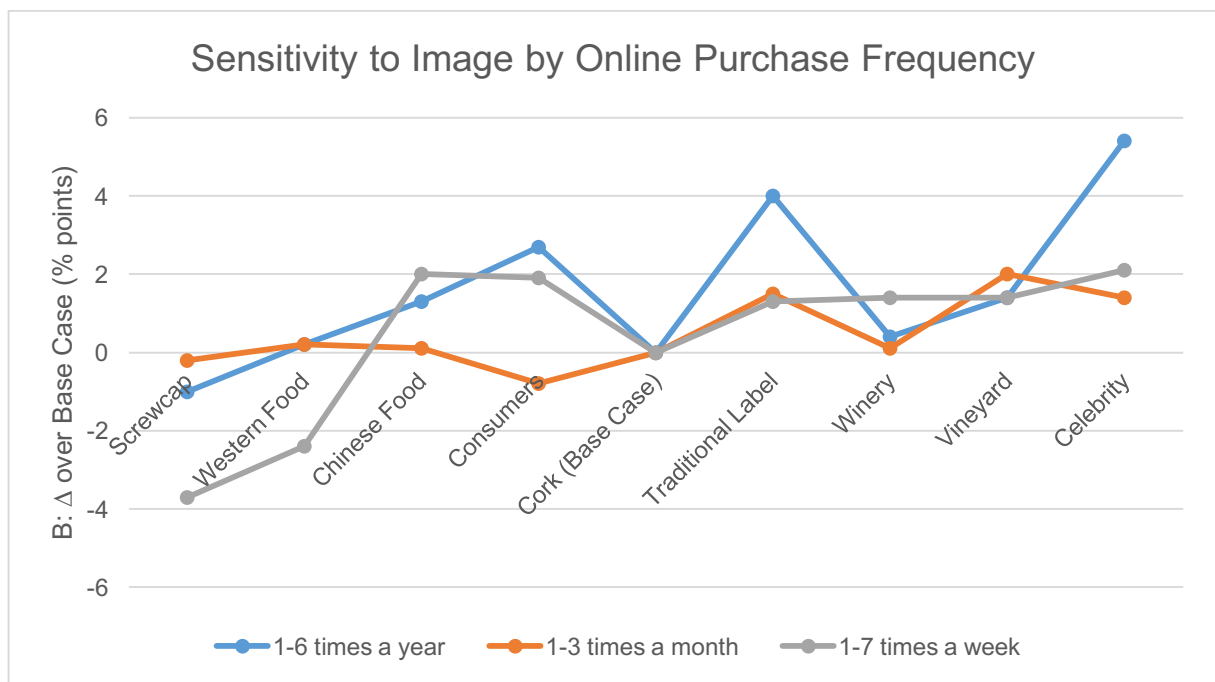
Chart 4: Sensitivity to Rating by Purchase Channel



Online Purchase Frequency

There were statistically significant differences in Image Importance between the segments (ANOVA $p=0.0111$), with frequent purchasers (1-7 times a week) placing significantly more Importance on Image than the other two segments. The degree to which frequent purchasers differentiated between Western (-2.4pts) and Chinese food (+2.0pts) pairing suggestions indicates they may be more amenable than other segments to experimenting with unusual food pairings and are likely higher-involvement. Infrequent purchasers' (1-6 times a year) greater preference share for Celebrity (+5.4pts) and Traditional Label (+4.0pts) images and relative aversion to Winery (+0.4pts) images suggests they are lower-involvement and more attracted to wine's glamorous image than the realities of its production.

Chart 5: Sensitivity to Image by Online Purchase Frequency

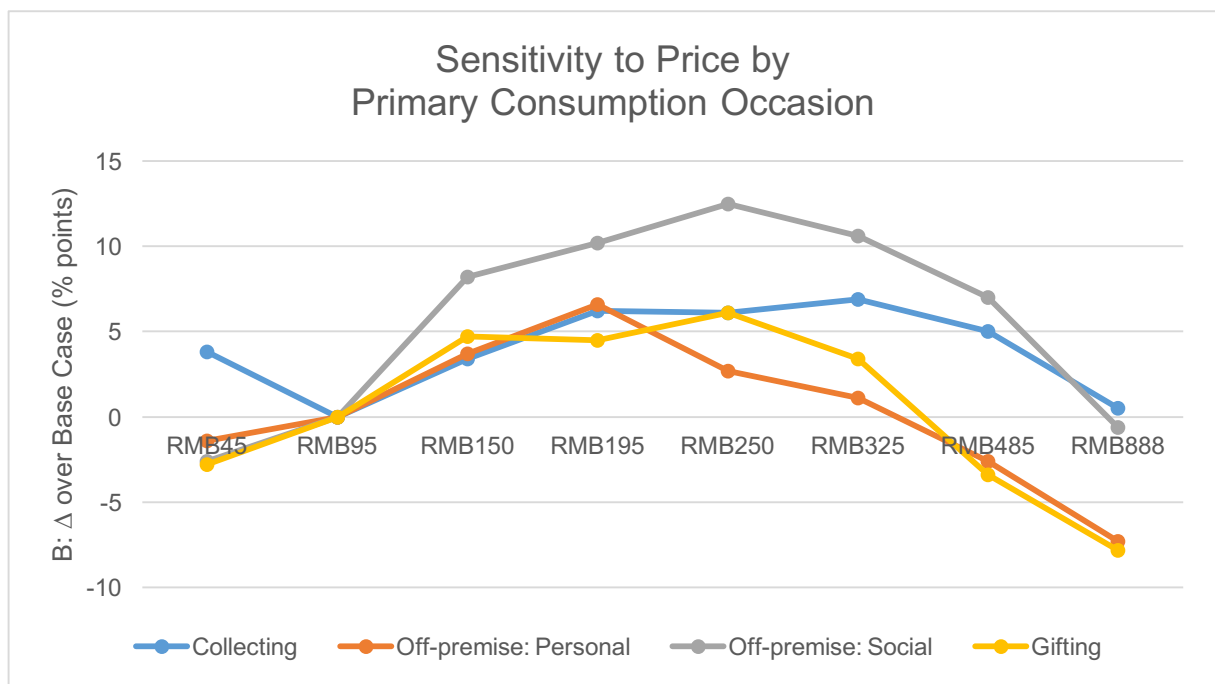


Primary Consumption Occasion

There were statistically significant differences between consumption occasion-based segments' Price (ANOVA $p=0.0012$) and Image (ANOVA $p=0.0006$) Importance levels. Image will be covered in section 6.3.

Gifting consumers' lower preference share for high priced wines, particularly relative to the Personal consumption segment, contradicts findings in the existing literature (Yu et al., 2009). However, the Personal segment's downward preference share trend starting at a lower level (RMB195 vs. RMB250 for Gifting and Social; and RMB325 for Collecting) is more consistent with the notion that those purchasing only for themselves tend to favour lower price points.

Chart 6: Sensitivity to Price by Primary Consumption Occasion



6.3 How closely are consumers' stated reasons for purchasing wine reflected by their revealed preferences?

Because the questionnaire elicited both stated and revealed preferences, there is an opportunity to investigate how accurately consumers' self-declared motivations correspond to their actual product choices, shown elsewhere to be weak (Lockshin and Hall, 2010). In the survey, respondents were asked to select consumption occasions (first, second and third choice) then in the CBC experiment they selected Image levels, which have been assumed to reflect their underlying attitudes in the ways outlined in table 23.

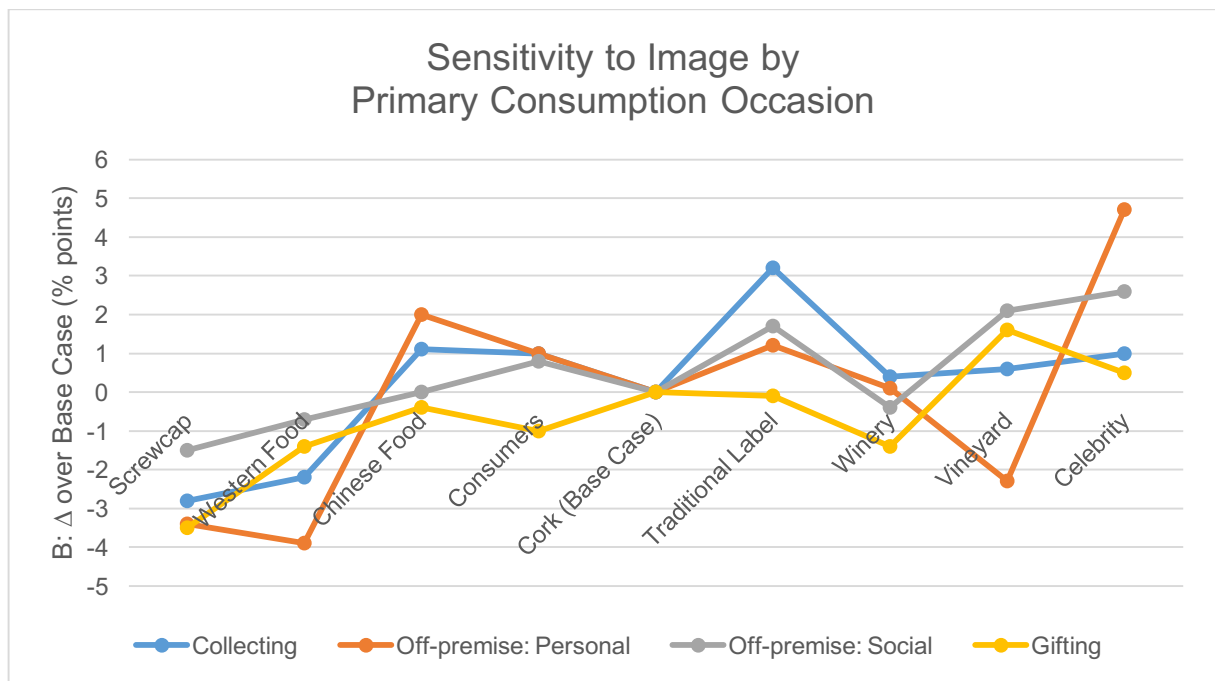
The table lists hypothesized relationships between Image levels and Primary Consumption Occasions, sometimes linking an image to more than one occasion. The occasions have been aggregated into mutually exclusive segments to simplify analysis. Two segments were especially small – On-premise (22) and Other (21) – and have been discarded from subsequent analysis.

Table 23: Hypothesized Associations of Consumption Occasion and Image

Primary Consumption Occasion	Image
Collecting <i>103 total</i> <ul style="list-style-type: none"> • For adding to my wine collection, for drinking at a later date • For adding to my wine collection and selling the wine at a later date 	<ul style="list-style-type: none"> • Traditional Label • Vineyard • Winery • Cork • Screwcap (negative)
Off-premise: Personal Consumption <i>132 total</i> <ul style="list-style-type: none"> • Just for personal consumption by myself 	<ul style="list-style-type: none"> • Screwcap
Off-premise: Social Consumption <i>148 total</i> <ul style="list-style-type: none"> • For consumption over food (e.g. lunch or dinner) at home with friends • For sharing with friends when we are being serious and discussing wines • For consumption at parties and casual occasions 	<ul style="list-style-type: none"> • Western Food • Chinese Food • Consumers
On-premise <i>22 total</i>	<ul style="list-style-type: none"> • Western Food

<ul style="list-style-type: none"> Consumption at a restaurant 	<ul style="list-style-type: none"> Chinese Food
<p>Gifting 50 total</p> <ul style="list-style-type: none"> For giving as a gift to friends and family members For giving as a gift to colleagues and business acquaintances 	<ul style="list-style-type: none"> Celebrity Traditional Label Cork Screwcap (negative)
<p>Other 21 total</p> <ul style="list-style-type: none"> Others not mentioned above 	

Chart 7: Sensitivity to Image by Primary Consumption Occasion



Segmenting Sensitivity to Image attribute by Primary Consumption Occasion yields a general idea of different segments' preferences for each Image level. Overall, the Celebrity image is most favoured and Western Food and Screwcap least. However, significance tests must be run on the other levels' Utilities to determine whether the observed differences are statistically significant.

Tukey's HSD tests reveal which differences are statistically significant to at least the 95% confidence interval:

Table 24: Statistically Significant Pairs (Collecting)

Treatment Pair	p-value
Celebrity vs Chinese Food	0.0069
Celebrity vs Western Food	0.0033
Celebrity vs Screwcap	0.0010
Vineyard vs Screwcap	0.0172
Winery vs Screwcap	0.0027
Traditional Label vs Screwcap	0.0087
Consumers vs Screwcap	0.0081

The Collecting segment unsurprisingly placed most value on Traditional Label (+3.2pts of relative preference share), consistent with the fact that most collectible wines use this type of label to evoke heritage and tradition and appeal to collectors. Vineyard (+0.4pts) and Winery (+0.6pts) differed significantly from Screwcap (-2.8pts), the least favoured level, supporting the hypothesis that this segment views them favourably because they are attracted to imagery that demonstrates the provenance of the wine. Finally, Celebrity (+1.0pts) was also rated highly, suggesting collectors are also driven by wine's glamorous image.

However, this segment is no more negatively disposed towards Screwcaps than the other segments, invalidating that hypothesis. Cork (base case) doesn't differ significantly from any of the other levels and is thus not a strong positive, also invalidating that part of the hypothesis.

Table 25: Statistically Significant Pairs (Off-premise: Personal)

Treatment Pair	p-value
Celebrity vs Vineyard	0.0010
Celebrity vs Winery	0.0040
Celebrity vs Traditional Label	0.0010
Celebrity vs Cork	0.0010
Celebrity vs Consumers	0.0010
Celebrity vs Chinese Food	0.0010
Celebrity vs Western Food	0.0010
Celebrity vs Screwcap	0.0010
Vineyard vs Western Food	0.0041
Vineyard vs Screwcap	0.0010
Winery vs Western Food	0.0010
Winery vs Screwcap	0.0010
Traditional Label vs Western Food	0.0042
Traditional Label vs Screwcap	0.0010
Cork vs Screwcap	0.0010
Consumers vs Western Food	0.0027
Consumers vs Screwcap	0.0010
Chinese Food vs Screwcap	0.0010

The Personal consumption segment showed the greatest preference for Celebrity (+4.7pts) and strong aversion to Screwcap (-3.4pts) – although this is unexpected given our expectation that personal consumers would appreciate screwcaps’ greater convenience, it perhaps suggests they are driven more by wine’s glamorous image and hence find screwcaps unattractive. Their strong preference for the Chinese food pairing suggestion (+2.0pts) vs Western Food (-3.9pts) suggests they are more open to experimental pairings than other groups.

Table 26: Statistically Significant Pairs (Off-premise: Social)

Treatment Pair	p-value
Celebrity vs Winery	0.0395
Celebrity vs Cork	0.0010
Celebrity vs Consumers	0.0010
Celebrity vs Chinese Food	0.0010
Celebrity vs Western Food	0.0010
Celebrity vs Screwcap	0.0010
Vineyard vs Cork	0.0425
Vineyard vs Consumers	0.0017
Vineyard vs Chinese Food	0.0077
Vineyard vs Western Food	0.0207
Vineyard vs Screwcap	0.0010
Winery vs Screwcap	0.0010
Traditional Label vs Screwcap	0.0010
Cork vs Screwcap	0.0010
Consumers vs Screwcap	0.0201
Chinese Food vs Screwcap	0.0051
Western Food vs Screwcap	0.0017

This segment showed a significant difference ($p < 0.01$) between Screwcap (-1.5pts) and both Western (-0.7pts) and Chinese Food (0pts), reflecting fairly positive attitudes to the food images and thus supporting the hypothesis. However, the difference between the Consumers (+0.8pts) and Screwcap images was less significant ($p = 0.02$), so that part of the hypothesis is less strongly supported.

Table 27: Statistically Significant Pairs (Gifting)

Treatment Pair	p-value
Celebrity vs Screwcap	0.0010
Vineyard vs Screwcap	0.0010
Winery vs Screwcap	0.0103
Traditional Label vs Screwcap	0.0171
Cork vs Screwcap	0.0243

This segment is strongly averse to Screwcap (-3.5pts), supporting that portion of the hypothesis, but it is less favourable to Celebrity (+0.5pts) than the other segments so that portion is less strongly supported, suggesting perhaps wine's glamorous image

is less of a motivator for gifting than expected. This segment shows a statistically significant preference for both Traditional Label (-0.1pts) and Cork (base case) to Screwcap but only to the 95% confidence interval, still suggesting that these traditional packaging elements are an important factor when choosing a gift.

6.4 How Important are attributes that a wine marketer cannot directly control like Sales or Ratings?

As discussed in question 1, attributes that a marketer can't directly control, like Ratings (13.8%) and Sales (13.4%) are comparatively less Important. Origin – over which marketers are unlikely to have control – is least Important (12.0%). Meanwhile, attributes marketers can control such as Description (14.6%) and Image (15.9%) are comparatively Important, though of these only Image shows a statistically significant difference in Importance from the other attributes. This suggests there is a lot of scope for marketers to tailor product pages to consumer preferences. Price is still the most Important attribute (30.3%) but this should not discourage marketers since retail price is somewhat under the marketer's control, particularly in brand owner-controlled channels like Tmall.

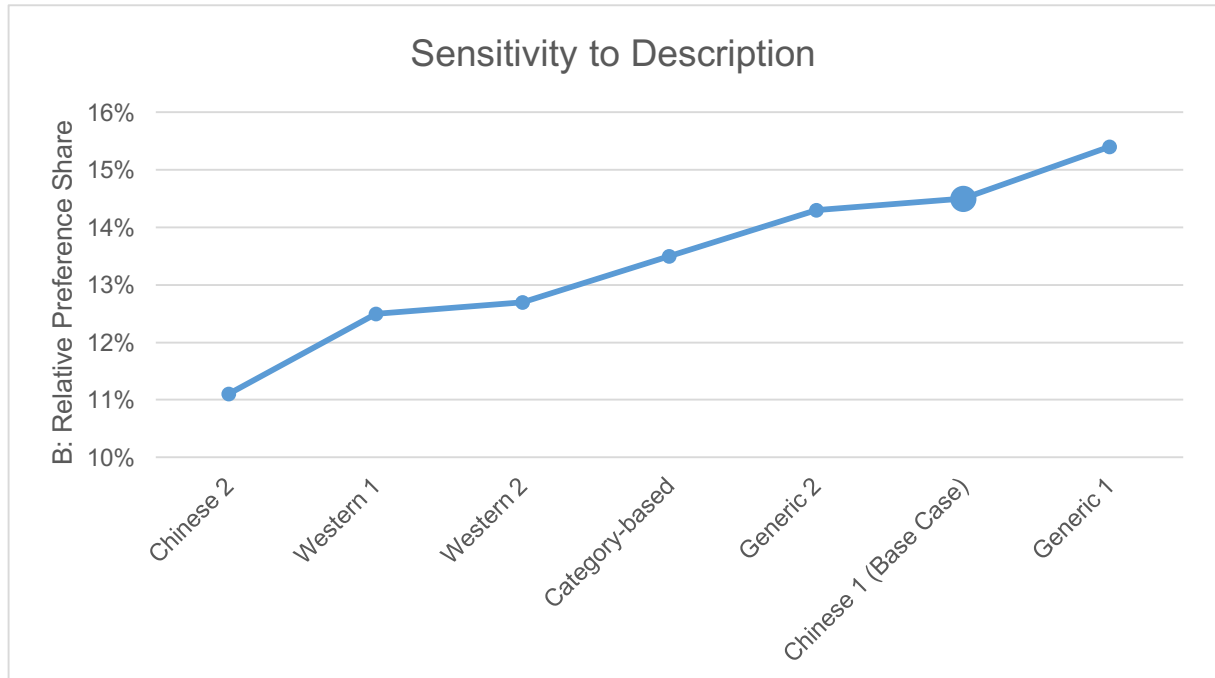
However, Importance should not be confused with impact on preference share – Sensitivity analysis reveals that moderately Important attributes like Rating have a potential impact of 8.9 percentage points on preference share, while the more Important attribute Image has an impact of only 5.1 points (see Tables 7 and 12). This is because, unlike Rating, Sales and Price, Origin, Description and Image levels are not ordinal and thus the levels preferred by individuals are much more likely to vary, increasing these attributes' apparent Importance. Origin's Importance (12.0%) is particularly high relative to the percentage of its mean Utility range over total mean Utility range (5.7%), suggesting there was the least consensus among respondents over which origin they preferred. This is somewhat surprising given the clear dominance of the Chinese online market by France (Tanner, 2015).

This all suggests that while it is critical that marketers focus on tailoring the Important attributes of their product pages specifically to groups with similar

preferences or behaviours using cluster or latent-class analysis, ultimately ordinal attributes like Rating will still have a strong impact on preference share.

6.5 Is the type of descriptive language used Important or are consumers relatively indifferent between language styles?

Chart 8: Sensitivity to Description



Description is a moderately Important attribute for the study sample (14.6%). Tukey's HSD test results for mean Utility scores show a statistically significant preference to the 99% confidence level for Generic Description 1 (Smooth and Mellow) (relative preference share 15.4%) over all the specific aroma-based descriptions and the Category-based description Dry Red Wine (13.5%).

There is also a statistically significant preference to the 99% confidence level for all the other Description levels over Chinese 2 (Chinese Hawthorn and Wolfberry) (relative preference share 11.1%). None of the remaining levels (Chinese 1, Western 1, Western 2, Generic 2) shows a statistically significant difference from the Category-based level.

This suggests that generic descriptors are a safe choice because their effects are likely to be either positive or neutral, while the use of Chinese descriptors is

risky: while a favourable descriptor e.g. Chinese 1 can generate a high preference share (only Generic 1 gained a higher relative preference share), an unfavourable descriptor like Chinese 2 can have a strong negative effect (-3.4pts of relative preference share).

This is possibly explained by the relative novelty of using Chinese descriptors for wine, and thus a lack of familiarity on the part of marketers with applying these terms correctly. Also, while consumers are more likely to overlook a Western aroma descriptor that isn't familiar to them e.g. plum, they may react negatively to a Chinese descriptor that is both familiar and unfavourable to them e.g. hawthorn.

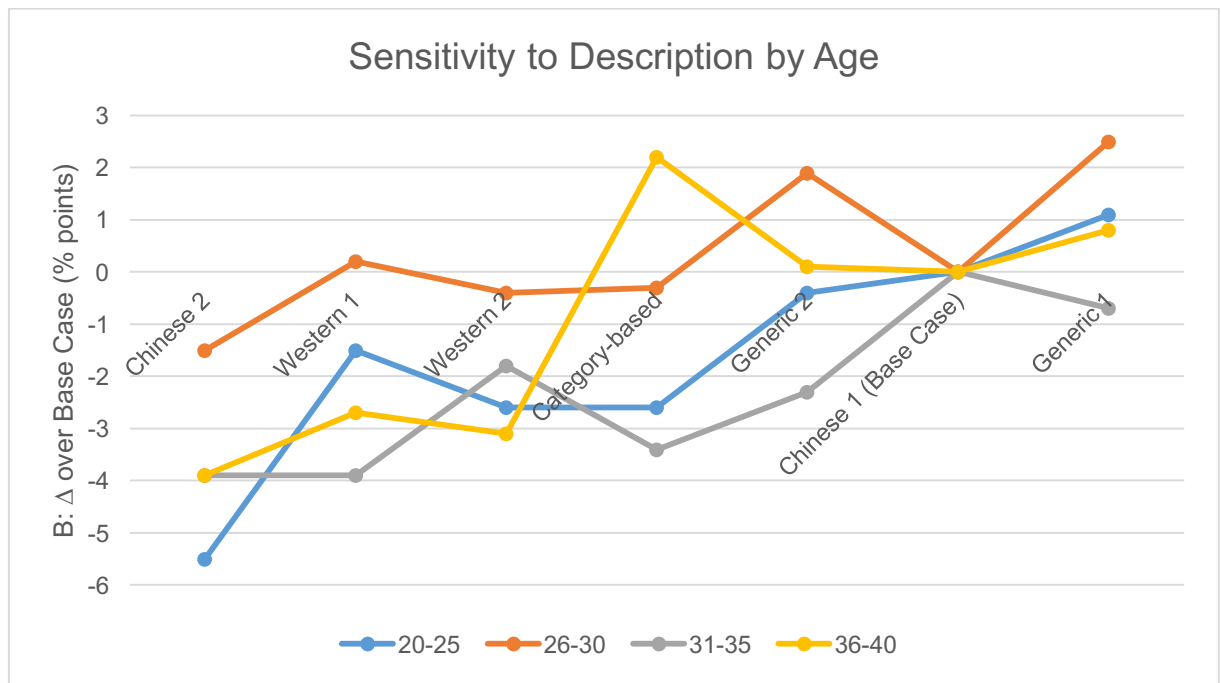
Comparing the Importance of Description across demographic and behavioural segments by running single-factor ANOVA or Welch's t-tests shows that none of the segmentation methods yield statistically significant differences in Description's attribute Importance i.e. consumers don't vary greatly in the value they place on the Description attribute as a whole. However, this does not mean their attitudes to individual description levels are homogenous – in the discussion to follow, segments' preferences for individual attribute levels are analysed.

Table 28: Description Importance differences by Segment Type

Segment Type	p-value of differences in Description Importance
Gender	0.1340
Age	0.3988
City Tier	0.0833
Geographic Location	0.7606
Education	0.1408
Income	0.5994
Purchase Channel (online vs offline-only)	0.2110
Online Purchase Frequency	0.8937
Online Purchase Volume	0.2782
Primary Consumption Occasion	0.0545

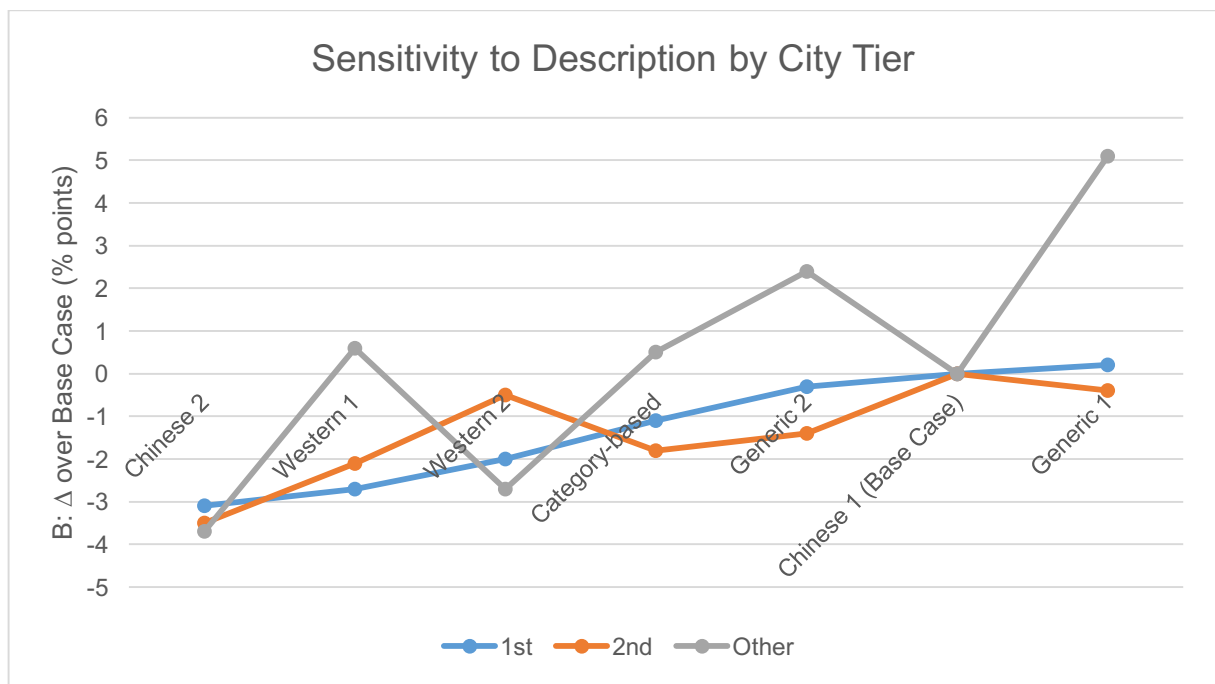
Specific Differences

Chart 9: Sensitivity to Description by Age



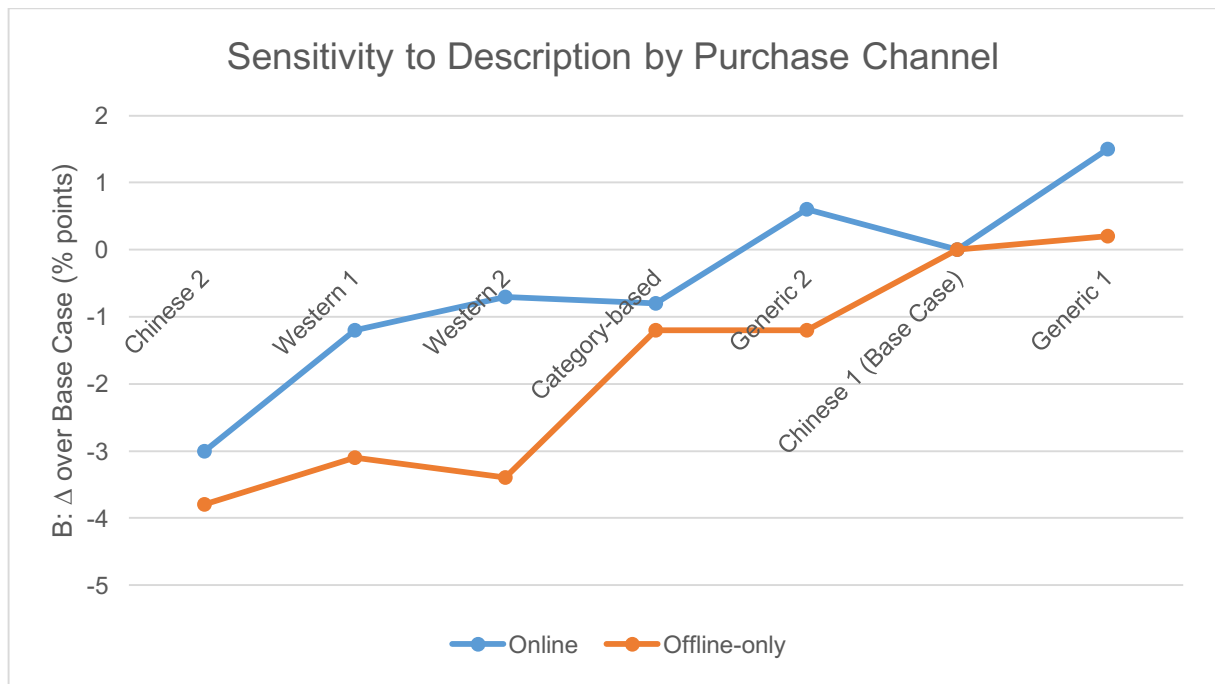
The 20-25 segment showed little interest in Category-based (-2.6pts) and more Sensitivity to the specific type within a category e.g. Chinese 1 (base case) vs Chinese 2 (-5.5pts); 36-40 meanwhile was especially drawn to the Category-based descriptor (+2.2pts). These points both suggest that more nuanced language tends to appeal to younger Millennials, who tend to have more exposure to international influences from travel (Counter Intelligence Retail, 2016) and overseas education (Chinese Ministry of Education, 2015) and are thus perhaps more amenable to wine-specific language.

Chart 10: Sensitivity to Description by City Tier



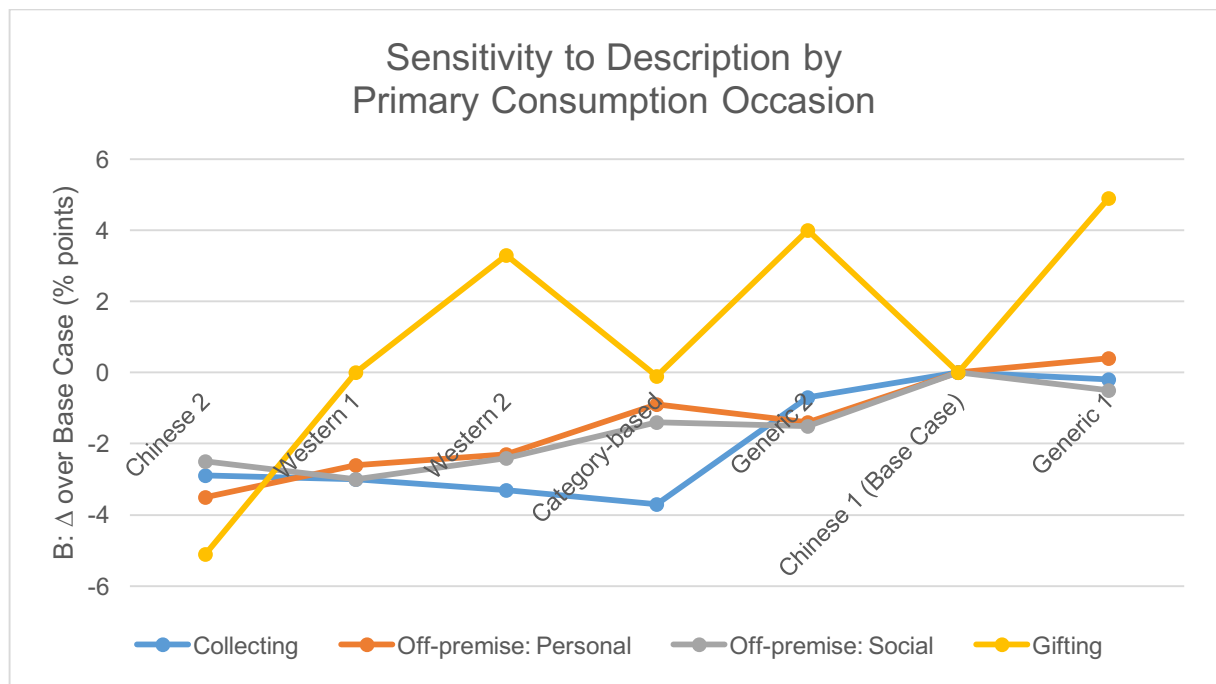
Those living outside 1st and 2nd Tier cities were dramatically more likely to favour generic descriptions like “Smooth and Mellow” (Generic 1: +5.1pts). This is perhaps because these markets are less wine-involved and so these non-specific descriptors are less intimidating and more overtly positive without forcing consumers to make a value judgment based on sometimes unfamiliar aromas e.g. blackberry.

Chart 11: Sensitivity to Description by Purchase Channel



Online was more positively disposed toward aroma-based descriptions than Offline-only (-0.7 to -3.0pts vs -3.1 to -3.8pts), suggesting physical retail consumers are better targeted with simple, generic descriptors while online consumers are more open to learning about wine through specific aroma descriptors, perhaps because there is no opportunity for sampling in an online environment.

Chart 12: Sensitivity to Description by Primary Consumption Occasion



Interestingly, the Gifting segment was more positively disposed to Western aroma descriptors (1: 0pts; 2: +3.3pts), perhaps reflecting more experience shopping for wine internationally. Social also diverged from other segments with marked preference for Chinese 1 (base case, relative to which all levels caused a loss of market share up to -3.0pts), but aversion to other aroma-based descriptions, suggesting more Sensitivity to specific descriptions.

7. Conclusions

This study was designed to help gauge the relative Importance of key attributes of internet product pages for wine in China among Millennial consumers. Price was the most Important attribute, then Image; the subsequent attributes, Ratings, Descriptions and Sales figures, didn't differ from each other in Importance to a statistically significant degree; Origin was the least Important.

Since most marketers, brand owners especially, cannot easily change their country of origin or directly control community ratings or monthly sales figure, the Importance of their image and description choices should be encouraging. However, Sensitivity analysis showed less Important attributes with ordinal levels like Ratings and Sales had a greater impact on relative preference share than more Important attributes like Descriptions and Image and thus cannot be disregarded.

Demographics generally did not play as large a role in determining preference as purchasing behaviours such as purchase channel and purchase frequency, consistent with previous findings (Li and Zhang, 2002). The Image attribute showed the most statistically significant Importance differences between segments. Consumers' stated purchase motivations for wine were somewhat reflected in their choice of images, e.g. the Off-premise: Social segment was more positively disposed towards Chinese and Western food pairing suggestions than the sample.

However, demographic segments did reveal some notable distinctions in Sensitivity to attribute levels. Especially notable was the distinction between the youngest and oldest Millennials' attitudes to Price and Description – especially compared to 36-40, 20-30 year olds were less averse to high prices, more averse to low prices and more amenable to aroma-based descriptors vs generic or category-based descriptors. This should be encouraging news for wine marketers since this

more wine-sophisticated, less traditional group is growing in spending power over time (Lu and Yiu, 2015).

The general preference for generic descriptors such as “smooth” and “mellow” over specific aroma descriptors is consistent with previous research (Corsi, Cohen and Lockshin, 2014). However, the sample’s preference for a Chinese aroma description over both Western descriptions and the strong divergence in reaction to two different Chinese aroma descriptions are new and intriguing findings. They suggest that while Chinese aroma descriptions are a potentially powerful tool, there is greater Sensitivity to specific language choices and so marketers must proceed with caution.

7.1 Limitations

Market simulators generated from conjoint Utilities rest on several assumptions, including equal distribution of products, advertising, length of time on market and market awareness. It is also assumed that the attributes used in the experiment fully describe the products and no other attributes influence market share. The output of the market simulator is only accurate insofar as the base case and competitive profiles are accurately representative of the market. All of these assumptions can cause divergence between preference shares and actual observed market share.

Further, because several population segments were small in size, it was necessary to exclude them from the analysis as the data generated were unreliable, making it impossible to make claims about certain groups of purchasers e.g. primarily on-premise wine drinkers.

Finally, because of the nature of the conjoint model and the fact that the sample wasn’t truly random but instead a quota-based internet sample, we can only

calculate the internal reliability of the model (74%) not its accuracy at predicting real market share. However, active efforts were made in the sample recruitment process to ensure that the demographic mix of the sample is representative of the population – they were recruited based only on moderate current wine consumption, age (20-40) and income (>RMB5,000/month) – to try and address this.

7.2 Commercial Implications

Encouragingly, this study shows relatively high engagement and consumption across the whole range of Millennial Chinese consumers, confirming their attractiveness for marketers. Also, despite only 27% earning more than RMB15,000 per month (the equivalent of ~US\$26,000/year) even with a generally high level of education (93.9% had more than a high school education), the preferred price point of RMB195 (~US\$28) is quite high. Across demographic and attitude-based segments, wine actually behaves like a Giffen good up to a certain point, meaning that a lower price point is not necessarily positive for sales (positive news for profits).

Another encouraging point is that because overall level preferences were comparatively homogenous, a product page that simply avoids the pitfalls identified in this study has the potential to attract a large portion of the Millennial market. There is still a clear preference for cork over screwcap and generic descriptors such as “smooth,” “mellow,” “sweet” and “fruity” over specific descriptors. Although currently less common, strategic use of celebrity endorsement or even images of consumers engaging with the product seem potentially more effective than more time-consuming strategies like food pairing suggestions.

The importance of visual vs verbal information despite the fact that only a single image appeared in each product profile is notable as mobile commerce grows in

relevance (Ding et al., 2015), and screen space becomes more limited. It suggests that strategic use of a few impactful images with minimal text can go a long way to improving market outcomes.

Finally, the relative unimportance of the Origin attribute should be encouraging for producers outside France, which has long been assumed to be the only acceptable origin for many wine buyers. However, Origin's divergent level Utilities among different demographic and attitude-based segments e.g. Italy's comparatively high mean Utility among female respondents, also means that marketers can note these segments' other attribute level preferences to ensure their product pages are tailored to audiences amenable to that Origin.

7.3 Recommendations for Further Research

Because limited research has been carried out on either Millennial wine Consumers, Chinese wine Consumers or online wine Consumers, particularly academic research, it is clear that this study can be no more than a first step in addressing these topics.

Many attributes of wine product pages were considered for inclusion before the final selection – e.g. wine style (white, red, rosé, sweet, fortified, sparkling) – and many levels were excluded – e.g. origins such as South Africa, Argentina, Germany. A larger-scale repetition of the existing study would permit a broader range of attributes and/or levels that might permit better understanding of consumers' preferences across the whole spectrum of available wines. A larger sample would also require fewer CBC choices, reducing the number of indifferent selections made later in the experiment due to respondent fatigue.

Due to the global nature of the internet, another interesting iteration would be to perform the same study across a range of cultures with varying degrees of similarity

to China, such as Japan or South Korea (with high levels of ecommerce penetration), India (high ecommerce penetration but low penetration for wine), or the US and UK (lower ecommerce penetration but high wine involvement). Such a study might suggest whether consumer behaviours demonstrated in the current study relate more to the respondents' age or their nationality/geographic location.

Finally, since there were notable differences between the oldest and youngest age groups in the sample, and previous research suggests that the *balinghou* and *jiulinghou* in China differ significantly in attitudes and behaviours, a repetition of the same study every few years would likely show quite telling, and hopefully encouraging, generational differences.

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9.2 Survey

Copy of final survey used (English text that was subsequently translated):

THE CHINESE MILLENNIAL WINE CONSUMER ... AND WHAT MOTIVATES ONLINE BUYING?

Hi, thanks for showing interest in this survey.

We are trying to understand the criteria that the Chinese wine drinker uses for choosing wine. The survey will only take 10 minutes and we are sure, as a wine drinker, you will find it interesting. This survey is being conducted as part of a Master of Wine Research Paper study – please click on this [link](#) to learn more.

First could you tell us a few things about yourself?

Q1. What is your gender?

Male 1

Female 2

Q2. Which of these is your age group?

Under 20 1 Terminate

20-25 2

26-30 3

31-35 4

36-40 5

41 years plus6 Terminate

Q3. In which of these cities do you currently live?

Beijing 1

Shanghai 2

Guangzhou 3

Shenzhen 4

Wuhan 5

Chengdu 6

Tianjin 7

Hangzhou 8

Dongguan 9

Nanjing 10

Shenyang 11

Chongqing 12

Other? _____

Q4. What is the highest level of education you have completed?

Middle School 1

High School Diploma 2

Trade/Technical/Vocational Training 3

3 Year College 4

Bachelor's Degree 5

Post-graduate and above 6

Q5. What is your current monthly personal income?

Below RMB5000	1	Terminate
RMB5001-7500	2	
RMB7501-10,000	3	
RMB10,001-15,000	4	
RMB15,001-20,000	5	
RMB20,001-25,000	6	
RMB25,001-30,000	7	
RMB30,001-50,000	8	
RMB50,000 plus	9	

Now we would like to know something about your wine drinking and buying habits

Q6. Which of these statements best describes how often you, yourself drank a glass of wine in the last year, that is in 2016?

At least two times a year	1
3-4 times a year	2
Once a month	3
2-3 times a month	4
Once a week	5
2-3 times a week	6
4-6 times a week	7
Every day	8

Q7. Thinking back over the last 12 months, where have you purchased wine in 2016. By that we mean on more than one occasion in 2016? PROMPT: Any other locations?

Online wine outlets based in China	1
Online wine outlets based outside of China	2
Wine specialist retail outlets in China	3
Wine specialist retail outlets overseas	4
Supermarkets	5
Convenience stores	6
Direct from vineyards	7
Wine auction houses/Wine clubs	8
Bars, Pubs, Nightclubs	9
Dining places e.g. Restaurants, Cafes	10
Other places I use to buy wine	11

Q8. How frequently would you say you buy a bottle of wine for personal consumption, for yourself or with friends from these types of outlets ...

FROM ONLINE SOURCES LIKE TMALL, ALIBABA, ETC

Infrequently, just a few times a year	1
About 3-4 times a year	2
About 5-6 times a year	3
At least once a month	4
2-3 times a month	5
Every Week once or twice	6
Weekly 3-4 times	7
Weekly more often 5 or more times	8

FROM STORES LIKE WINE RETAIL STORES, SUPERMARKETS AND CONVENIENCE STORES

Infrequently, just a few times a year	1
About 3-4 times a year	2
About 5-6 times a year	3
At least once a month	4
2-3 times a month	5
Every Week once or twice	6
Weekly 3-4 times	7
Weekly more often 5 or more times	8

FROM VINEYARDS DIRECT, FROM WINE CLUBS OR AUCTION HOUSES

Infrequently, just a few times a year	1
About 3-4 times a year	2
About 5-6 times a year	3
At least once a month	4
2-3 times a month	5
Every Week once or twice	6
Weekly 3-4 times	7
Weekly more often 5 or more times	8

FROM DRINKING AND DINING PLACES WHICH SERVE WINES E.G. BARS, PUBS, HOTELS, RESTAURANTS, CAFES

Infrequently, just a few times a year	1
About 3-4 times a year	2
About 5-6 times a year	3
At least once a month	4
2-3 times a month	5
Every Week once or twice	6
Weekly 3-4 times	7
Weekly more often 5 or more times	8

Q8. Thinking about when you purchased wine in 2016 from a retail store, from an online source, or from a wine club, vineyard or auction house, what would you say has been the most common number of bottles of wine you have purchased on a single buying occasion in 2016?

	Online Sources	Retails Stores	Wine Clubs, Auction Houses, Vineyard Direct
Usually just one bottle	1	1	1
Usually 2-3 bottles	2	2	2
4-6 bottles	3	3	3
7-12 bottles	4	4	4
More than 12 bottles	5	5	5

Q9. Thinking back on the last year, and excluding wine purchased at a bar, restaurant or hotel, what have been the most common prices you have usually paid for a bottle of wine in 2016?

Less than RMB 50	1
RMB 51-100	2
RMB 101-150	3
RMB 151-200	4
RMB 201-250	5
RMB 251-300	6
RMB 301-500	7
RMB501 plus	8

Now we would like to know more about your attitudes towards wine, wine drinking and usage and wine knowledge

Q10. Could you indicate which of these are the **“three” most common ways** that you have used the wine you purchased in 2016?

	Most Common	2 nd	3 rd
For adding to my wine collection, for drinking at a later date	1	1	1
For adding to my wine collection and selling the wine at a later date	2	2	2
Just for personal consumption by myself	3	3	3
For sharing with friends when we are being serious and discussing wines	4	4	4
For consumption over food (e.g. lunch or dinner) at home with friends	5	5	5
For consumption at parties and casual occasions	6	6	6
Consumption at a restaurant	7	7	7
For giving as a gift to friends and family members	8	8	8
For giving as a gift to colleagues and business acquaintances	9	9	9
Others not mentioned above	10	10	10

Q11. Which of these statements do you feel describe your current attitudes towards buying wine and wine drinking? PROMPT: Choose all of those you think best apply to you.

SYSTEM TO ROTATE

Wine is about the pleasure from enjoying with friends	1
Wine is ideal with food, I enjoy having food and wine together	2
I use wine to bring a special feeling to any occasion	3
For me wine is more for special occasions and celebrations, not for regular consumption.	4
Wine brings sophistication to any drinking occasion	5
Wine is just another drink. I don't get too excited about it.	6
I like to find out more about wine – the countries it comes from and the types of wines	7
I am considered to be quite knowledgeable about wine	8
Wine is idea for socializing with colleagues and business associates	9
I drink wine because I have read it is good for health	10
Every time I eat good food I think of drinking wine with the meal	11
I usually only drink when others I am with suggest it	12
I am quite interested in wine and learning more about it.	13
I prefer to drink wine because it is healthier than other alcohol	14
Wine is now a serious hobby – I collect wines and read about wines regularly	15

CONJOINT MODELING FRAMEWORK

Assuming you were buying wine on online sites like Tmall, Taobao or JD.com, which of these wine options would you most prefer? If you don't like any you can select "None of these".

SYSTEM WILL SHOW 3 COMBINATIONS PER PAGE, PLUS A "NONE OF THESE".

SYSTEM WILL ROTATE COMBINATIONS.

EACH RESPONDENT WILL SEE 15 SCREENS

Country of Origin

- France
- Australia
- Chile
- New Zealand
- Italy
- Spain

Community Rating

- 5/5
- 4/5
- 3/5
- 2/5
- 1/5

Wine popularity based on sales in the past 4 weeks?

- Sold 35 bottle in past 4 weeks
- Sold 122 bottles in past 4 weeks
- Sold 653 bottles in past 4 weeks
- Sold 1240 bottles in past 4 weeks
- Sold 6444 bottles in past 4 weeks

Bottle price?

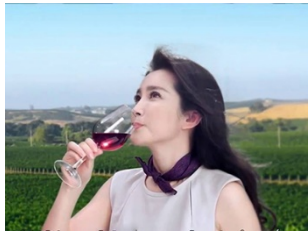
- RMB 45
- RMB 95
- RMB 150
- RMB 195
- RMB 250
- RMB 325
- RMB 485
- RMB 888

Verbal Descriptions

- Dry red wine
- Smooth and mellow with long aftertaste
- Sweet and fruity
- Strawberry and blackberry
- Strawberry and plum
- Yangmei and dried Chinese red date
- Dried Chinese hawthorn and wolfberry

Images:





9.3 Choice-Based Conjoint Analysis

9.3.1 Fundamentals

Choice-Based Conjoint (CBC) Analysis is an analytical method used to model consumer choice. Respondents are required to make several discrete choices between multiple product profiles (usually 3-5) per choice. Each product profile is comprised of levels of a fixed number of attributes. The number of attributes and levels, the number of predicted responses and the number of product profiles presented per choice determine the total number of choices that must be presented. In order to avoid respondent fatigue, an experimental design is normally used to minimize the number of choices required.

Once the experiment has been performed, respondents' choices are used to infer the relative appeal of each attribute using a logistic regression such as Hierarchical Bayes (HB), Aggregate Choice Analysis or Latent Class Analysis. Appeal is represented by a latent variable such as Utility i.e. the beta value of the choice regression model. Utilities are interval data scaled to an arbitrary constant within each attribute using dummy coding: in some cases the level with the least appeal is assigned a Utility level of 0, or – as in this case – Utility scores may be zero-centred, better reflecting their impact on the modelling.

These are the key outputs:

- Aggregate and (optionally) individual Utility scores or part-worths for every attribute level
- Attribute Importance (attribute Utility range as a percentage of total Utility range)
- Market simulator for calculating relative preference share (quoted as a percentage) using a base case consisting of a test profile and either a “none” option or one or more competitor profiles. Sensitivity analysis can be performed

on this base case. Sensitivity is expressed as the percentage point delta (Δ) over the preference share held by the test profile in the base case.

9.3.2 Specific Application

The CBC model used here incorporated a total of 6 attributes with 5-8 levels each.

To achieve a modelling accuracy above 70% with 500 responses required a total of 15 discrete choices with 3 product profiles each. The experimental design used was Sawtooth Software's Random Enumeration design with 100 designs, which are 100 computer-generated balanced fractional factorial orthogonal designs.

Utility scores for the CBC model were calculated using Hierarchical Bayes (HB) analysis, a type of multi-level regression analysis appropriate for this conjoint model because of the use of choice rather than ratings. Together this is known as CBC/HB, an algorithm that permits researchers to generate individual Utility scores for each respondent by comparing individuals' data to the sample averages. This allows for segmentation of respondents by demographics or other criteria, which was critical to answering the research questions posed here.

9.3.3 Strengths and Challenges

Strengths:

1. CBC Forces respondents to make trade-offs between favourable attributes (vs ratings-based methods, where attributes can be rated equally).
2. CBC is based on a testable theory of human decision-making (Random Utility Theory).
3. Clear frame of reference – choices are made relative to other product profiles.
4. With HB, accurate individual as well as aggregate Utility scores are produced.
5. Market simulator share data (preference share) is intuitive even for non-statisticians.

6. A conjoint market simulator can reveal interaction effects between attributes.

Challenges:

1. Choice-based conjoint models can be an inefficient way of determining consumer preferences compared to rankings-based models.
2. Predictive ability is dependent on the quality of the quota-based sample; if a non-random sample is used, this will inevitably impact sample confidence.
3. Because Utility scores are scaled to a constant within each attribute, attribute Utilities cannot be directly compared and must first be translated to "Importance" figures.
4. Utilities are interval rather than ratio data (a 2.0 score is not double a 1.0 score); however Importance and preference share have ratio scale properties (20% share is half as much as 40%).
5. Conjoint Importance is strongly affected by extreme values and random noise; however, market simulators overcome some of these weaknesses.
6. Calculating aggregate Importance from mean Utilities yields very different results than calculating individual Importance figures and taking the mean of the results – the latter are far more accurate as using mean Utilities may obscure differing preferences among individuals that may average to zero.
7. Market simulators can only test relative preference share in a particular market scenario – thus the actual profiles chosen as competitors will inevitably impact the relative preference captured by the test profile.
8. Independence of Irrelevant Alternatives (IIA): in a three-way preference share split such as that generated by this simulator, if two product profiles are very similar they may receive a larger share simply because there are two of them.

9. For the CBC/HB algorithm to be applied, it is assumed that each choice is performed individually without any memory of previous choices, or alternatively that the respondent would have made the exact same decisions regardless of the order in which the choices were presented, which is an assumption that is not actually tested in this experiment.