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Winery Distribution Choices and the Online Wine Buyer

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Abstract

Direct to consumer (DTC) wine sales are an increasingly important distribution channel for wineries, particularly due to online wine sales growth. This research profiles the online wine buyer. Based on the responses of 918 wine consumers, the online wine buyer is an older, married man, with a high income. The online wine buyer is more likely to be a wine connoisseur. Despite access and comfort with technology, millennials are unlikely online buyers. From this research, online retailers and wineries gain positioning knowledge for appealing to individuals interested in online purchases. This research also identifies expansion opportunities through untapped consumer markets.

Keywords: online; consumer behavior, wine purchasing; online buying; Millennials

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Introduction

E-commerce represents 4% of total retail trade sales in the United States with $259 billion in value (eMarketer 2013; U.S. Census Bureau 2012). Nearly three quarters of U.S. internet users make purchases online, amounting to 191 million online purchasers in 2013 (eMarketer 2013; Statista 2014;). The demographic profile of online shoppers has broadened to include ordinary American shoppers; while at the same time significant generational differences in purchase patterns have emerged in online shopping patterns (Laudon and Traver 2007). The internet enables expansion into otherwise unreachable markets. E-commerce has emerged as one of the most important methods of doing business and holds considerable potential to increase sales (Limayem et al. 2000).

The food and beverage retail commerce category, which is one of the smaller e-commerce categories, is expected to experience a compound annual growth rate of 17% between 2012 and 2017 (eMarketer 2013). In the case of small wineries, the internet has the potential to allow them to reach a much wider audience. Wine e-commerce experienced growth of 38% in 2010 (VinterActive LLC 2011). While online wine purchasing currently represents 5% of the total wine market in developed countries and just 2% of global wine sales, select areas are significantly higher (Lockshin and Corsi 2012). Online wine sales in Britain have reached 15% of total wine sales (Pfanner 2013).

As the wine industry continues to grow, it is likely that online direct-to-consumer wine sales will grow as well. Sales of wine through the direct-to-consumer channel increased by 15% between 2013 and 2014, representing more than $1.8 billion in transactions in 2014 (Wines & Vines 2015). The direct-to-consumer channel is largely recognized as the fastest growing segment of wine sales, with the majority of those shipments going to California, Texas, New York, Florida, and Illinois (Wines & Vines 2015). There are, however, challenges associated with direct-to-consumer shipping in some states due to wine shipping laws. In 2005, there were just 27 states that allowed direct-to-consumer wine shipping, but as of 2015 that number has increased to 40 (Taylor 2014). Although state laws impede some potential direct-to-consumer sales, pressure from wineries and directly from consumers is likely to increase the number of states that allow internet wine sales and further grow this sales channel (First Research 2013). Direct-to-consumer wine sales rose 245% in 2014 as a result of changes in the Montana legislature easing the restrictions on shipments (Wines & Vines 2015). Other legislative changes in Massachusetts and North Dakota are expected to produce similar increases.

Capturing the millennial consumer is of increased interest to the wine industry. Born between 1977 and 1999, millennials are the most recent generation to come of drinking age (Olsen et al. 2007). The millennial generation currently makes up 14% of the legal drinking population, but will grow to approximately 40% of the drinking population over the next ten years (First Research 2013). The millennial generation currently makes up 28% of core wine drinkers; with core meaning that they average at least one glass of wine per week (Wine Market Council 2011).

The millennial generation grew up with the internet at their fingertips and is considered to be technologically savvy (Olsen et al. 2007). They are also heavily engaged in digital social networks and connect to them frequently (Lecat and Pelet 2011). Nielsen research shows that millennials lead online buying globally for most consumer good categories (Nielsen, 2014).

Because of this comfort with the internet, technology, and buying consumer goods online, it would seem millennials would be the prime demographic to take advantage of the increasing opportunities to purchase wine online. However, recent research suggests that the internet is the least common location for millennials to buy wine (Thach 2011).

Smaller wineries are predicted to benefit from the growth in direct-to-consumer shipments if they can market and position themselves correctly (IBISWorld 2012). Understanding who the online wine buyer is will be key to taking advantage of the growth in online direct-to-consumer wine sales. If millennials are not buying wine online as they do in other categories, who is the online wine purchaser? As such, this research aims to complete two research objectives. First, develop a profile for the online wine buyer in 2013. Second, investigate the behavioral intentions and barriers to online wine commerce for the millennial generation. The information gathered from this study will help businesses interested in using online sales as a direct-to-consumer medium understand more about the nature of online wine buyers and what will (or will not) drive them to purchase wine online, particularly in the case of millennial wine buyers.

Review of Literature

As the use of e-commerce sites have grown, so has our understanding of the behavioral inclinations of online shoppers. Online shopping venues offer convenience, selection variety, lower prices, original services, personal attention, and access to information (Zhou et al. 2007). However, online shoppers tend to be more concerned about possible losses (e.g., security of information and vendor reliability) than with perceived gains (e.g. different convenience-type attributes) (Bhatnagar and Ghose 2004).

Research on online shopping can be largely categorized as taking a consumer-oriented view or a technology-oriented view (Zhou et al. 2007). The technology-oriented view studies consumer acceptance of online shopping based on the technical specifications (user interface features, website content and design, and system usability) of an online store, while a consumer-oriented view includes consumer demographics, cognitive/psychological characteristics, perception of risks and benefits, shopping motivation, and shopping orientation. Santos and Riberio (2012) conveniently classify the variables (both technology-oriented and consumer-oriented) that influence the disposition of online wine buyers into categories that include motivation, socio-demographics, prior online shopping experiences, and barriers to online shopping. These categories serve as a useful way to organize the relevant literature on online wine buying.

Research suggests consistency in the socio-demographic characteristics of online wine buyers over time and across cultures. In contrast to other shopping experiences, men tend to have more positive sentiments toward online shopping than women (Alreck and Settle 2002). This demographic characteristic appears to hold true for online wine buyers as well. Santos and Riberio's (2012) profile of the Portuguese wine buyer, as well as Bruwer and Wood's (2005) profile of the Australian online wine buyer, suggest that men are most likely to purchase wine online. In addition, evidence suggests that online wine buyers are typically well-educated, have high incomes, and are relatively young (Santos and Riberio 2012; Bruwer and Wood 2005).

The motivations that influence online purchasing are better prices, convenience, better service, security of financial information (Limayem et al. 2000). Stening and Lockshin (2001) studied the online purchasing patterns of 700 wine customers and found that, compared to in-store retail purchases, online wine purchases consisted of higher priced wines. In addition, online wine shoppers had a larger shopping basket overall (Stening and Lockshin 2001). They speculated that online purchases tended to be for expensive and hard to find wines, versus the convenience purchases that were made in-store. Contrary to Stening and Lockshin's (2001) findings, Bruwer and Wood's (2005) research found that Australian online wine consumers were utilizing online resources to find bargains, but were also interested in the extra information provided online. Wine is both an information and price-sensitive product when it comes to online retailing (Bruwer and Wood 2005). Lynch and Ariely (2000) furthered our understanding of wine information and price sensitivities, concluding that consumers want maximally transparent wine buying environments, and that price sensitivity declines as the cost of searching for quality information declines.

The online consumer represents not only a shopper, but also a computer user (Koufaris 2002). This dual role implies the importance of the consumer's technology skills. Ease of use is continually shown to be one of the most important factors to the behavioral intention of online shoppers (Faqih 2013). Even more directly, computer skills have been used to directly predict online purchasing, further suggesting the likelihood of millennials being more comfortable than older generations with online shopping (Hoffman and Novak 1997).

Aljukhadar and Senecal (2011) used a sample of 407 participants in an online consumer panel to survey them regarding their pattern of internet use, internet experience, and psychological characteristics. Using data from this survey, the authors were able to differentiate online consumers into three global segments: basic communicators (consumers who use the internet mainly to communicate via e-mail), lurking shoppers (consumers who employ the internet to navigate and shop heavily), and social thrivers (consumers who exploit the internet's interactive features to interact socially by chatting, blogging, video streaming, and downloading). More specific to wine, online wine buyers have been classified based on their web functionality needs. Through an online survey mechanism, Bressolless and Durreiu (2008) classified visitors to 28 wine websites based on their typology after asking them to complete a precise task on the site. Six consumer groups were identified, with the majority of respondents (57%) classified as secure seekers, opportunists, or novices (Bressolless and Durreiu 2008). These categories reveal a wide array of expectations regarding the website's functionality but do little to explain the demographics and purchasing characteristics associated with those web visitors.

Security, trust, difficulty in completing the online purchase, and shipping are barriers typically cited for buying wine online. Bruwer and Wood's (2005) work on understanding the Australian wine consumer revealed that security of personal and financial information was the most important risk and respondents identified website functionality as the most important navigational issue. Trust is related to security, and to develop trust in an online environment the web retailer must recognize the online buying process, generate credence through images and reputation, and establish credibility through personal contacts (e.g. use of avatars, product knowledge of support staff) (Harridge-March and Quinton 2005; Quinton and Harridge-March 2008). Online spending can be predicted according to the level of comfort in providing information online (Spake et al. 2011). Sheridan et al. (2009) found that first-time U.S. online wine buyers had problems trying to buy online because of the legal and technical differences across states, while Santos and Ribeiro's (2012) research identified shipping costs as the single largest barrier for online wine purchases.

Online buyers evolve as they develop more experience purchasing online (Hernandez et al. 2010). The perceptions that prompt someone to repurchase online are not the same as the perceptions of a first-time online buyer (Hernandez et al. 2010). Tracking a potential consumer's clickstream on a website can be a powerful predictor of purchasing behavior. Information related to prior purchases, consumer demographics, search terms, choice decisions, and eventual purchases can all be used by online retailers to predict a consumer's future purchases (Van den Poel and Buckinx 2005). More generally, consumers who have a preference for shopping online typically have prior experience with online purchases, and those with prior online purchases are more likely to have future online purchase intentions (Brown et al. 2003; Shim and Drake 1990).

Millennials' buying habits have become increasingly important to the wine industry as more members of this generational segment become of legal drinking age. In general, millennial wine consumers prefer cheaper wines that they believe represent a good value ($5-$9 range). Millennials perceive New World wines to be higher quality, more so than other generations (Lecat and Pelet 2011; Wolf, Carpenter, and Qenani-Petrela 2005). Millennial wine purchases are often motivated by convenience, thus the preference of supermarkets for wine purchases (Lecat and Pelet 2011). Lecat and Pelet (2011) suggest that the recall of wine websites by millennials is quite low, but that millennials are open to wine advice and new wine experiences. Millennials, in general, have been shown to lack subjective knowledge on wine and are, subsequently, more likely to be influenced by marketing activities (e.g. labels and promotions) (Chrysochou et al. 2012).

Barber, Dodd, and Ghiselli (2008) compared levels of objective and perceived subjective knowledge between Generation X and Generation Y (millennials). Millennials reported significantly lower levels of subjective knowledge than Generation X and were also significantly less likely than Generation X to consider themselves knowledgeable about wine. In addition, millennials are more likely to indicate that their peers know more than they do about wine (compared to Generation X). Although Generation X had been consuming wine for longer (average of 15 years compared to millennials' average of 3 years of wine drinking experience) each group reported purchasing approximately the same amount of wine each month (Barber, Dodd, and Ghiselli 2008). Research suggests that although millennials are new and uncertain wine consumers, they are interested in purchasing wine, and may be more open to unconventional methods of purchasing wine.

Although wine e-commerce is becoming a recognized sales channel, little research has been dedicated to developing a better understanding of the demographics and psychographics associated with these online wine purchases. With rapidly growing numbers, industry reports suggest that there are more than 2,500 websites dedicated to the sale of wine, beer, and other spirits (IBISWorld 2014). Access to the internet, as well as the number of online wine retailers, has increased since Bruwer and Wood's (2005) research as well as Stening and Lochshin's (2001) research, likewise, it is reasonable to believe that the online wine buyer has also changed.

Developing a complete picture of today's consumers who partake in wine e-commerce can have significant implications on the sales and marketing of wine.

Materials and Methods

Online Wine Buyer

A 21-question survey was developed consisting of questions related to demographics, wine consumption, wine purchase behavior, and a series of psychographic questions. Respondents were asked to indicate where they make their wine purchases by checking all that apply from a list of 13 different commonly used wine suppliers (e.g. grocery store, tasting room, wine clubs). Included in the list, were two online wine purchase venues (online from a winery and online from a non-winery controlled website). Respondents who selected either of those two online options were considered part of the target group.

Because questions pertained to consumer behavior and preference, five symmetric itemized rating scales were used to reduce leniency error (Smith and Albaum 2004). Respondents were asked to rate eighteen wine purchase features on a five-point desirability scale. These features included wine characteristics such as quality, price, and image. The survey asked participants to rate their identification with wine-related psychographic statements commonly used in wine research (Higgins et al. 2014).

The survey was available to subjects for six weeks in early 2013 through SurveyMonkey. A link to the survey and a brief explanation of the study was sent to wine purchasers from a Constant Contact email list of 3,000 wine purchasers. All respondents were pre-screened in the first three questions of the survey to ensure that they were of legal drinking age, had purchased wine in the past year, and live in a region that allows direct-to-consumer shipping. Failure to satisfy the pre-screening questions resulted in the termination of the survey. At the end of the survey, subjects had the opportunity to provide their email and be entered into a lottery for a chance to win two bottles of wine, therefore providing an incentive for completion of the survey (Sellitto 2006).

Millennial Online Wine Buying

Since millennials are online purchasers in other categories, the second objective of the research is to identify the inhibitors to milllennials' decisions to purchase wine online. A more qualitative study of millennials' hesitations to online wine buying was achieved using a second, independent survey. The survey sought to use initial findings from the first survey to further understand millennials' wine buying habits, reasons why they are not buying wine online, and ways to more effectively reach millennial consumers online. The target population for the second survey was millennial wine drinkers. The survey was distributed online and was available for three weeks, beginning approximately one month after the initial survey closed. Respondents were asked questions related to their wine purchases, demographics, experience purchasing wine online, and sentiments about making online wine purchases, modified from Limayem et al. (2000). Respondents were also surveyed regarding their use of technological devices.

Results

Profile of the Online Wine Buyer

By nature of the survey outlet (a database of wine purchasers), the demographics of the respondents tend to match the typical wine buyer in the U.S. as confirmed through MRI data (MRI+ MediaMark, 2014). Of the 918 surveys collected (a response rate of 30.6%), the majority of responders were female (62.5%). MRI data supports the female dominance of wine purchases at 60.2% as does prior wine research (Higgins and Llanos, 2015). The top four age categories were 21-24, 50-54, 25-29, and 55-59 at 19.6%, 16.6%, 13.6%, and 13.2%, respectively. A considerably high number of respondents (37.3%) had household incomes greater than $150,000, and the second largest income group was $75,000 to $149,000 at 27.4%. Though the study's income distribution differs from the income distribution in MRI data, both show a clear pattern; the majority of wine purchasers fall under the two highest household income groups (MRI reported that 17.1% of wine consumers had household incomes greater than $150,000 and 37.1% of wine consumers had household incomes in the $75,000 to $149,000 range). In considering education, the top three options represented were college graduate, postgraduate work, and some college, at 50.7%, 33.8%, and 13.8%, respectively. The majority of respondents stated they were "married/living with a partner" (65.0%). Table 1 presents a summary of the demographics associated with the complete sample.

A majority of respondents buy wine from the grocery store (84.3%). Almost half of the respondents buy wine from a wholesale store and tasting room, at 49.9% and 45.7%, respectively. Other common locations for wine purchases were restaurants, specialty wine shops, winery websites, convenience stores, and non-winery websites. Less than 3% of respondents purchase wine from gift shops, hotels, and wine apps. Friends and family were cited as the most frequent source for information about wine (73.3% regularly get information from friends and family), with winery websites being the second most frequently used resource for information about wine (45% indicated they regularly use winery websites for wine information). Premium quality, good value, and varietal were the most commonly used selection criteria for purchasing wines.

Of the 918 respondents, 20.5% respondents indicated that they had previously purchased wine online from a winery, and 5% indicated that they had purchased wine from an online site other than a winery website. The 211 respondents who purchased online were isolated into an online wine buyer target group and were compared to the remaining 707 respondents.

The split between online wine buyers and those who are not online wine buyers revealed demographic differences (see Table 1). Online wine buyers tend to be older, with 77% of the online buyers over the age of 40, compared to just 50% of non-online buyers. Only 14.7% of the online buyers were in the 21 to 29 age category (millennials), compared to 38.8% of the respondents who do not purchase online in that same age category. Consistent with prior expectations, the gender gap narrows with online buyers. In the original sample, 62.5% of the sample was female, compared to just 52.2% of the online wine buyers. Likely a function of the age difference, online wine buyers were more likely to be married (p=.000), have children living at home (p=.001), and have higher household incomes (p=.000). These findings are largely consistent with the profile of the Australian online wine buyer developed by Bruwer and Wood

(2005), suggesting that the online wine buyer is typically male, over 40 years of age, married, and has a higher than average household income.

Table 1. Comparative Demographics of Online Wine Buyers Respondents (n=918)

Variable	Category	Overall Sample	Online Buyers (n=211)	Non-online buyers (n=707)	Chi-squared value	Chi-squared p-value
Gender	Female	62.5%	52.2%	66.4%	12.668	.000
	Male	37.5%	47.8%	33.6%		
Income in USD	< $20,000	9.7%	2.7%	12.2%	30.412	.000
	$20,000 - $49,999	11.3%	6.4%	13.2%		
	$50,000 - $74,999	14.2%	13.3%	14.5%		
	$75,000 - $149,999	27.4%	29.3%	26.8%		
	> $150,000	37.3%	48.4%	33.3%		
Employment	Full-time	63.9%	66.5%	63%	1.659	.436
	Part-time	17.2%	14.3%	18.2%		
	Not-employed /Retired	18.9%	19.2%	18.8%		
Education	Some college or less	15.6%	10.8%	17.3%	6.092	.192
	College graduate	50.7%	52%	50.2%		
	Post graduate work	33.8%	37.3%	32.5%		
Children under 18 living at home	Yes	20.5%	28.8%	17.3%	12.011	.001
	No	79.5%	71.2%	82.7%		
Marital Status	Single	33.6%	19.2%	39%	27.462	.000
	Married / living with partner	65%	78.3%	60.1%		
	Widowed	1.3%	2.5%	.9%		
Age	21-29	33.2%	14.7%	38.8%	74.396	.000
	30-39	5.7%	8.1%	5%		
	40-49	13.6%	19.4%	11.9%		
	50-59	29.8%	38.9%	27%		
	60-69	10.1%	16.1%	8.3%		
	70+	3.5%	2.8%	3.7%		

Note. Some categories were aggregated from the options presented in the survey for ease of presentation in this manuscript.

Respondents were asked to indicate their level of agreement with commonly used psychographic statements related to wine using a five-point scale (Higgins et al., 2014). Testing was done through an independent samples t-test. Compared to those who don't purchase wine online, online purchasers were more likely to consider themselves wine enthusiasts (p=.005), enjoy talking about wine (p=.003), consider themselves knowledgeable about wine (p=.012), and consider themselves wine connoisseurs (p=.012). See Table 2 for full results.

Behaviorally, online wine buyers tend to differ from wine consumers who don't purchase wine online. Online wine buyers reported buying 7.7 bottles per month, compared to 5.7 for those who don't purchase online (p=.001). In addition, online wine buyers spend more on wine, having reported $134 in monthly wine spending compared to $81.6 for respondents who don't purchase wine online (p=.000). Nearly 30% of online purchasers normally spend more than $18.50 on a bottle of wine, compared to just 17% of respondents who don't purchase wine online (p=.003).

Table 2. Agreement with Wine Statements between Target Groups

Statement	Online Buyer (n=211)	Non-Online Buyer (n=707)	Independent Sample T Test	Degrees of Freedom	P-Value from an Independent Samples T-Test
I would be willing to try new and non-traditional wine varietals	3.38	3.36	.450	779	.653
I am a wine enthusiast	3.13	2.95	2.836	781	.005
I enjoy talking about wine with my friends	3.03	2.85	2.991	778	.003
I know a lot about wine	2.51	2.36	2.530	779	.012
I consider myself a wine connoisseur	2.38	2.22	2.520	775	.012

Note. (where 1 = strongly disagree and 5 = strongly agree)

Online wine buyers also seek out different characteristics in their wine purchases (see Table 3 for comparisons made using an independent samples t-test). Compared to consumers who don't purchase wine online, online buyers are more likely to be interested in wines that are considered premium quality (p=.032). Online buyers also demonstrate more interest in the wine's production characteristics, with interest in wine that is grown in an environmentally friendly way (p=.071). Online buyers are more interested in wine from a recognized growing region (p=.025), from a family owned winery (p=.005), and from a boutique winery (p=.011). Online wine buyers report more interest in both new and old world wines (p=.022 and p=.027, respectively), compared to those who don't buy wine online. In addition, online buyers are less interested in wine offered at a sale price (p=.000) and less interested in the wine's label design (p=.001).

Table 3. Wine Characteristics Important during Purchase

Characteristic	Online Buyer (n=211)	Non-Online Buyer (n=707)	Mean Difference	Independent Sample T Test	Degrees of Freedom	P-Value
From a family owned winery	3.57	3.38	.184	2.823	755	.005
From a boutique winery	2.99	2.83	.151	2.544	390	.013
Grown in an environmentally friendly way	3.40	3.26	.131	1.811	753	.071
From a recognized growing region	3.74	3.61	.130	2.247	421	.025
New world wine	3.19	3.06	.127	2.302	755	.022
Old world wine	3.04	2.91	.125	2.216	757	.027
Premium quality product	4.21	4.10	.117	2.143	755	.032
A complement to food	3.90	3.81	.092	1.644	424	.101
Sale priced	3.67	3.90	-.234	-3.809	359	.000
Label design	3.19	3.42	-.224	-3.339	751	.001

Note. (where 1 = not at all important and 5 = very important)

In the search for information about wine, online buyers tend to exhibit characteristics that are different from the typical wine buyer. Online buyers are more likely to use a smartphone application for wine information (16.1%), compared to non-online shoppers (9.9%) (p=.018). Likewise, online buyers are more likely to use a tablet application for wine information (p=.011). Other sources of information that are more likely to be used by online buyers include winery websites (p=.000), Google (p=.061), print media (p=.000), and friends/family (p=.000). There were no significant differences between the two groups in the use of Yahoo, Facebook, Twitter, and blogs for wine information. A demographic, behavioral, and psychographic profile of the online wine buyer is presented in Table 4.

Table 4. Profile of the Online Wine Buyers

	Online Buyers
Demographics	Older (77% are 40+) men
Household	Married with Children
Income	Higher household incomes
Wine knowledge	Wine enthusiasts or connoisseurs, enjoy talking about wine
Purchase habits	Each month purchase 2 bottles more and spend $50 more than traditional buyers
Wine types	Premium quality, recognized growing regions, family owned and boutique wineries
Information search	Wine apps, online sites, print media

Results from a bivariate probit model, where the dependent variable is whether or not the respondent is an online purchaser, confirm the initial findings. Table 5 presents the parameter estimates and significance levels for the estimated model. The covariates included in the model were bottles purchased per month, while factors included dummy variables to represent those who spent an average of $18.50 or more per bottle, male, over the age of 40, had incomes greater than $75,000 per year, married, and had children. The model itself is significant with a likelihood ratio chi-squared of 67.6 (p= .000). Holding everything else constant, variables with a positive sign indicate that the variable contributes to the likelihood of purchasing online. As expected, males who are over the age of 40 are more likely to purchase wine online (p values of .007 and .014, respectively), as well as those with children (p=.042). Interestingly, wine bottles per month has a negative value associated with the parameter estimate and suggests that for each additional bottle purchased, the z-score of the model decreases by .001. The meaning behind this finding could have to do with the cost of shipping large quantities of wine or that those interested in large quantities of wine are located in areas where wine access is high, negating the need to purchase wine online. These results also suggest an interest in buying premium wines online, as those who were, on average, spending more than $18.50 per bottle of wine were more likely to purchase wine online.

Table 5. Online Wine Buyer Parameter Estimates from a Bivariate Probit Model

	Parameter Estimate	Std. Error	Significance
Intercept	.371	.410	.365
Average price of a bottle purchased > $18.50	.342	.1267	.007 ***
Male	.347	.1080	.001 ***
Over the age of 40	.358	.1453	.014 **
Income greater than $75k	.112	.1494	.452
Married	.084	.1594	.599
Children	.268	.1322	.042 **
Bottles per month	-.021	.0079	.008 ***

Note. Notation of ***, **, and * refers to significance values less than .001, .05, and .1, respectively.

Millennial Online Wine Buyer

To better understand why millennial wine consumers were among the age groups least likely to purchase wine online despite being heavy purchasers of other goods online, a second independent survey was designed and distributed online (Nielson 2014). A total of 161 millennial wine drinkers completed the second survey. The majority of survey respondents were 21 to 24 years old (51%), female (68%), employed full-time (56%), and single (63%) with no children under 18 living at home (87%). Respondents were educated, with 38% completing some college and 42% with college degrees. Respondents tended to have lower incomes than the original sample with 40% reporting annual household incomes under $24,999 and the majority (63%) of incomes under $49,999. The majority of respondents own or regularly use a smartphone (96%) and a computer (94%).

The majority of millennial respondents purchase between one and five bottles of wine each month in the $10.00-$14.99 price range (85%). They purchase wine from grocery stores (85%), tasting rooms (53%), and liquor stores (53%), while 66% of respondents purchase wine most frequently from grocery stores. These findings are consistent with prior research on the millennial wine consumer (Lecat and Pelet 2011; Wolf, Carpenter, and Qenani-Petrela 2005).

Respondents were asked questions to explore their online wine purchasing history, plans for the future, and general feelings regarding online wine shopping. The majority of millennial respondents had never purchased wine online (79%) and indicated that they are unlikely (33%) or extremely unlikely (30%) to purchase wine online in the near future. Despite the lack of wine purchases online, 53% of millennial respondents are using winery websites to find information about wine, compared to just 40% using wine magazines. Table 6 showcases some of the key differences between millennial wine buyers and the general wine buyers from the first survey.

Millennial respondents were asked to indicate their level of agreement with a set of statements that explore various motivators and deterrents for online wine purchasing (see Table 7). The statements were adapted from prior research on the factors that influence online purchasing, but were modified to be appropriate for a wine purchasing environment (Limayem, Khalifa, and Frini 2000). Despite findings from prior research, the majority of millennial respondents believe their financial information is secure when purchasing wine online (64%) and don't believe privacy violations are a major problem (57%). Millennial consumers purchase wine to consume within the next month and, therefore, believe that it is not worth waiting for a wine shipment. Millennials feel that the cost of shipping makes buying wine online too expensive, that they can get better service by purchasing wine face-to-face, and do not believe that buying wine online is more convenient. Interestingly, the most strongly agreed upon statement relates to a preference to purchase wine with an experiential connection (67% agreement). While it is possible to make online purchases for wines that you have an experiential connection with, perhaps in millennials' relatively limited tasting history, their database of wine connections is still being developed and, thus, it is more difficult to make purchases online with those experientially connected products.

Table 6. Profile of General Wine Buyers Compared to Millennial Wine Buyers

	General Wine Buyers	**Millennial Buyers**
Monthly wine purchases	6	4
Monthly wine spending	$95.66	$30
Wine purchase prices	$10 - $18.49	$10 - $14.99
Purchase venues	Grocery store, tasting rooms, and specialty wine shops	Grocery stores, tasting rooms, liquor stores
Purchase online	70% have never purchased online	79% never have purchased online
Wine information sources	Friends and family, Google, print media	Winey websites, print media, Facebook

Note. General wine buyers are wine buyers from the first survey, while millennial buyers are those from the second survey designed specifically for millennial respondents.

Table 7. Agreement with Online Wine Purchasing Consequences

Statement	**% Who Agree or Strongly Agree**	**% Who Disagree or Strongly Disagree**	**Independent Sample T Test**	**P-Value**
I prefer to purchase wine that I have an experiential connection with	67%	8%	11.49	.000
I believe my financial information is secure when purchasing wine online	64%	11%	13.98	.000
I typically buy wine to consume within the next month, therefore it is not worth waiting for a wine shipment	55%	30%	6.36	.000
The cost of shipping makes buying wine online too expensive	50%	9%	10.28	.000
Shopping for wine online is more convenient than regular shopping; I can do it anytime and anywhere	39%	31%	2.11	.0354
Purchasing wine online allows me to save money; I can buy the same or similar products at cheaper prices than regular stores	26%	24%	.72	.4723
I don't trust the quality of the wine I can purchase online	22%	38%	4.24	.000
Privacy violations are a major problem when purchasing wine online	17%	57%	11.49	.000
I can get better service (pre-sale, sale, and post-sale) from Internet stores	13%	36%	6.26	.000

Note. (where 1 = strongly disagree and 5 = strongly agree)

The sample was further split between millennials who had purchased online (13.5% of the sample) versus those who had not purchased online. Even within this millennial sample, respondents who have purchased wine online are significantly more likely (than respondents who have never purchased wine online) to be 25 years old or older, employed full-time, married/living with a partner, a college graduate or postgraduate, with an annual household income over $75,000. Respondents who have previously purchased wine online are significantly more likely to purchase more than ten bottles of wine a month. They are also significantly more likely to buy wine that is $15.00 a bottle or more. Respondents who have never purchased wine online are more likely to buy one to two bottles of wine a month in the $5.00-$14.99 price range.

Results from an independent sample t-test, suggest that respondents who had previously purchased wine online are more likely to agree that online purchasing saves them money (p=.011), that it is more convenient than regular shopping (p=.004), and that their financial information is secure (p=.011). They are also more likely to disagree that the quality of wine available for purchase online is untrustworthy (p=.001) and, surprisingly, they are more likely to believe that the cost of shipping makes buying wine online too expensive (p=.002). Respondents who have never purchased wine online are more likely to agree with the statement, "I typically buy wine to consume within the next month; therefore, it is not worth waiting for a wine shipment" (p=.000).

Summary and Conclusions

As the wine industry explores direct-to-consumer distribution channels through wine clubs, tasting room sales, and online sales, understanding the consumer that is most likely to use those distribution channels is increasingly important. Online wine buyers are more likely to be highly involved wine consumers who appear to know more about wine and dedicate additional resources to wine purchases. In a sample of 918 wine consumers, 211 respondents indicated that they purchase wine online. Online wine buyers purchase more wine at higher average prices, are more likely to talk about wine with friends, are more likely to consider themselves knowledgeable about wine, and are more likely to seek out information about wine. They also tended to be males over the age of 40 with higher household incomes. The male-dominated nature of online wine buying is consistent with other research on the online market space (Alreck and Settle 2002).

Despite the digital nature of the millennial generation, the 21 to 29 age group was least likely to purchase wine online and, thus, that segment of the population was the focus of a second, independent survey. Consistent with findings from the first survey, the majority of millennials surveyed in the second survey have never purchased wine online (79%). Of the respondents who have purchased wine online before, almost half (48%) aren't likely to do so again in the near future. Older millennials who have higher incomes and full-time jobs are more likely to partake in online wine purchases. Buying wine online is not thought of as a way to save money, but as an outlet to purchase nicer wines for special occasions or gifts. The top three deterrents to millennials purchasing wine online are that millennials prefer to buy wine that they have an experiential connection with, that they typically buy wine to consume within the next month (and don't think it is worth waiting for a wine shipment), and that they think the cost of shipping makes buying wine online too expensive. The majority of millennials purchase their wine from grocery stores.

Given that millennials have a tendency to purchase lower priced wines, it makes sense that shipping costs represent a greater proportion of the total purchase cost and, thus, become a barrier to online purchases. For wineries or wine shops interested in increasing online sales to millennials, it is recommended that they explore ways to decrease the cost of shipping wine. Alternatively, perhaps removing the perception of high shipping costs through education and marketing to millennials may be just as effective as actually decreasing the costs of shipping. A number of online wine retailers regularly offer free shipping deals on select wine purchases, indicating there are opportunities to reduce the shipping cost barrier of wine purchases online.

Millennials make purchases based on experiential connections. Building an experiential connection to wine through an online environment may be one of the most significant challenges to increasing millennial involvement in online wine sales. Mora and Moscarola (2010) label the wine consumer who desires an experiential connection with the wine as the "hedonistic" consumer and suggest that more than a particular feature of the wine, the emotions carried by the consumer are the driving force behind purchases for the hedonistic consumer. Mora and Moscarola (2010) further suggest tasting experiences and wine tourism as sources to encourage consumer emotions as related to wine. In the online context, an application that allows a consumer to track the wines they have tasted with links to online purchase opportunities of that wine would appear to be a viable option to promote experiential connections online, which may entice millennials to purchase wine online.

This research provides greater insight into the development of the online wine consumer; however, the research is not without its limitations. The research is based on the willing participation of more than 1,000 survey respondents (918 in the first survey and an additional 161 in the second survey). The study assumes that there is no response bias in the survey data and that the respondent's answers were not misrepresented (intentionally or inadvertently). In addition, this research opens the door to future research. Experimental research involving simulated online wine purchases may be helpful to further understand the differences between wine consumers who choose to buy online, millennial or not, and may be useful in helping to understand approaches to breaking down online purchase barriers. Another potential barrier to wine purchases online that was not fully explored in this research is the role of complicated interstate shipping regulations. Future research could focus on what role, if any, this has on online purchases. Additionally, how local access to wine impacts the decision to purchase wine would be an interesting area of study. Though this research provides much insight into the online wine buyer, there are many opportunities for additional research, especially as technologies develop for further direct to consumer wine distribution.

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References

Aljukhader, M. and S. Senecal. 2011. “Segmenting the Online Consumer Market.” *Marketing Intelligence and Planning* 29(4): 421-435.

Alreck, P. and R.B. Settle. 2002. "Gender effects on Internet, catalogue and store shopping." *The Journal of Database Marketing* 9(2): 150-162.

Barber, N., T. Dood, and R. Ghizelli. 2008. “Capturing the Younger Wine Consumer.” *Journal of Wine Research* 19(2): 123-141.

Bhatnagar, A. and S. Ghose. 2004. "A latent class segmentation analysis of e-shoppers." *Journal of Business Research* 57(7): 758-767.

Bressolles, G. and F. Durrieu. 2008. “A typology of online consumers of wine websites based on electronic service quality's dimensions.” *2008 19th International Conference on Database and Expert Systems Applications*. 479-484.

Brown, M., N. Pope, and K. Voges. 2003. “Buying or browsing? An exploration of shopping orientations and online purchase intentions.” *European Journal of Marketing* 37(11): 1666-1684.

Bruwer, J. and G. Wood. 2005. “The Australian Online Wine-Buying Consumer: Motivational and Behavioral Perspectives.” *Journal of Wine Research* 16(3): 193-211.

Chrysochou, P., A. Krystallis, A. Mocanu, and R. Lewis. 2012. “Generation Y preferences for wine: An exploratory study of the U.S. market applying the best best-worst scaling.” *British Food Journal* 114(4): 516-528.

eMarketer. 2013. “US Retail Ecommerce: 2013 Forecast and Comparative Estimates”, eMarketer. New York, NY.

Faqih, K. 2013. “Exploring the influence of perceived risk and internet self-efficacy on consumer online shopping intentions: Perspective of technology acceptance model.” *International Management Review* 9(1): 67-77.

First Research. 2013. “Wineries”, Industry Profile database. February 2013.

Harridge-March, S. and S. Quinton. 2005. “Initiation of Trust and Management of Risk in On-Line Retailing: UK On-Line Wine Market.” *International Journal of Wine Marketing* 17(2): 5-20.

Hernandez, B., J. Jimenez, and J. Martin. 2010. “Consumer behaviour in electronic commerce: The moderating effect of e-purchasing experience.” *Journal of Business Research* 63(9): 964-971.

Higgins, L., and E. Llanos. 2015. “A healthy indulgence? Wine consumers and the health benefits of wine.” *Wine Economics and Policy* 4(1): 3-11.

Higgins, L., M.M. Wolf, and M. Wolf. 2014. “Technological change in the wine market? The role of QR codes and wine apps in consumer wine purchases.” *Wine Economics and Policy* 3: 19-27.

Hoffman, D.L. and T.P. Novak. 1997. “Measuring the flow experience among web users.” *Interval Research Corporation* 31.

IBISWorld. 2012. “Global Wine Manufacturing.” IBISWorld Industry Report C1123-GL, [Accessed August 14, 2014] IBISWorld database.

IBISWorld. 2014. “Online beer, wine, & liquor sales in the US: Market Research Report.” IBISWorld Industry Report OD5087. [Accessed August 14, 2014] IBISWorld database.

Koufaris, M. 2002. “Applying the technology acceptance model and flow theory to online consumer behavior.” *Information Systems Research* 13(2): 205-223.

Laudon, K. C., and C.G. Traver. 2007. *E-Commerce: Business, Technology, and Society*. 5th ed. Prentice Hall, Upper Saddle River, NJ.

Lecat, B. and J.E. Pelet. 2011. “The Behavior of the Y-Generation vis-à-vis Wine Consumption and Wine Purchase Thanks to Digital Social Networks”, Paper presented at the 6th AWBR International Conference, Bordeaux, June 9-10.

Limayem, M., M. Khalifa, and A. Frini. 2000. “What Makes Consumers Buy from Internet? A Longitudinal Study of Online Shopping.” *IEEE Transactions on Systems, Man and Cybernetics, Part A: Systems and Humans* 30(4): 421-432.

Lockshin, L. and A.M. Corsi. 2012. “Consumer Behavior for Wine 2.0: A Review Since 2003 and Future Directions.” *Wine Economics and Policy* 1(1): 2-23.

Lynch, J. and D. Ariely. 2000. “Wine Online: Search Costs Affect Competition on Price, Quality, and Distribution.” *Marketing Science* 19(1): 83-103.

Mora, P. and J. Moscarola. 2010. “Representations of the emotions associated with a wine purchasing or consumption experience.” *International Journal of Consumer Studies* 34(6): 674-683.

MRI+ MediaMark. 2014. “Fall 2013 Product- Beverages: Wine,” Retrieved August 14, 2014, from MRI+ MediaMark.

Nielsen. 2014. “Age Matters with Digital Shoppers,” Retrieved February 4, 2015 from http://www.nielsen.com/us/en/insights/news/2014/age-matters-with-digital-shoppers.html

Olsen J.E., L. Thach, and L. Nowak. 2007. “Wine for My Generation: Exploring How U.S. Wine Consumers are Socialized to Wine.” *Journal of Wine Research* 18(1): 1-18.

Quinton, S., and S. Harridge-March. 2008. “Trust and Online Wine Purchasing: Insights into UK Consumer Behaviour.” *International Journal of Wine Business Research* 20(1): 68-85.

Pfanner, E. 2013. “Buying Wine on the Web”, New York Times, 1 February.

Santos, J. and J. Ribeiro. 2012. "The Portuguese online wine buying consumer: Characteristics, motivations and behavior." *EuroMed Journal of Business* 7(3): 294 – 311.

Sellitto, C. 2006. "Improving Winery Survey Response Rates: Lessons from the Australian Wine Industry." *International Journal of Wine Marketing* 18(2): 150-152.

Sheridan, M. J., J. Cazier, and D. May. 2009. “Leisure, Wine and the Internet: Exploring the Factors that Impact the Purchase of Wine Online.” *International Journal of Electronic Marketing and Retailing* 2(3): 284-297.

Shim, S. and M.F. Drake, 1990. “Consumer intention to utilize electronic shopping.” *Journal of Direct Marketing* 4(2): 22-33.

Smith, M. S. and G.S. Albaum. 2004. “Measurement and Scaling in Marketing Research.” *Fundamentals of Marketing Research*. 1st ed. Thousand Oaks: SAGE Publications, Inc., pp. 371-410.

Spake, D., Z. Finney, and M. Joseph. 2011. “Experience, comfort, and privacy concerns: Antecedents of online spending.” *Journal of Research in Interactive Marketing* 5(1): 5-28.

Statista. 2014. “Number of digital shoppers in the United States from 2010 to 2018.” New York, NY.

Stening, S. and L. Lockshin. 2001. “A Comparison of On-Line and In-Store Customers in the Wine Retail Sector.” *Australia and New Zealand Wine Industry Journal: Wine Marketing Supplement* 16(6): 138-144.

Taylor, R. 2014. “U.S. Wine Shipping Laws, State by State.” *Wine Spectator*. Accessed online: http://www.winespectator.com/webfeature/show/id/50258

Thach, L.C. 2011. “Wine for Breakfast: Exploring Wine Occasions for Gen Y.” Paper presented at the 6th AWBR International Conference, Bordeaux, June 9-10.

U.S. Census Bureau. 2012. Statistical Abstract of the United States Wholesale and Retail Trade. 131st ed. Washington D.C.: Government Printing Office.

Van den Poel, D., and W. Buckinx. 2005. “Predicting online-purchasing behaviour,” *European Journal of Operational Research* 166(2): 557-575.

VinterActive LLC. 2011. VinQuest™ 2011 Research Report. Windsor, CA. May. pp. 1-73

Wine Market Council. (2011), “U.S. Wine Consumer Trends & Analysis report highlights.” Available online: [http://winemarketcouncil.com/?page_id=35], accessed March 2013.

Wines & Vines. 2015. “2015 Direct to Consumer Wine Shipping Report.” ShipCompliant and Wines & Vines. Available online: http://www.winesandvines.com/pdf/2015Direct-to-Consumer-Shipping-Report.pdf

Wolf, M., S. Carpenter, and E. Qenani-Petrela. 2005. “A Comparison of X, Y, and Boomer Generation Wine Consumers in California.” *Journal of Food Distribution Research* 36(1): 186-191.

Zhou, L, L. Dai, and D. Zhang. 2007. “Online Shopping Acceptance Model- A Critical Survey of Consumer Factors in Online Shopping.” *Journal of Electronic Commerce Research* 8(1): 41-62.