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Effect of extrinsic cues on willingness to pay of wine Evidence from Hong Kong blind tasting experiment

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Effect of Extrinsic Cues on Willingness to pay of Wine: Evidence from Hong Kong Blind Tasting Experiment.

Abstract

Purpose

This study aims to examine the effect of extrinsic cues on wine consumer's willingness to pay (WTP) based on a blind tasting experiment conducted in Hong Kong.

Design/methodology/approach

Using data from a 3-stage blind wine tasting experiment, we examine how an average consumer's WTP for a bottle of wine changes as a result of knowing prior to tasting extrinsic information such as the country of origin or grape variety of an otherwise identical product.

Findings

The findings of this study align with previous research that finds subjective utility experienced by tasters can be significantly influenced by the belief or information given prior to the tasting. Subgroup analysis using a stratified sample based on the frequency of wine consumption and the wine taster's prior experience with wine (grouped into expert and novice categories) suggests that it is the novice consumers that have a stronger response to the pre-tasting knowledge when evaluating wine. Experienced wine consumers, on the other hand, do not seem to respond strongly to the pre-tasting knowledge of the extrinsic attributes in their evaluation of wine.

Originality/value

The studies of taste preference and role of extrinsic characteristics in wine evaluation and consumption in the rapidly growing Asian market is increasingly important for the wine industry. The evidence from this study suggests the importance for producers and marketers to consider consumer heterogeneity and product differentiation when pricing and distributing their wine.

Keywords: blind wine tasting experiment, willingness-to-pay, extrinsic cues, novice and experts, wine

1 INTRODUCTION

Wine is a product with multiple attributes such that evaluation of wine in either a tasting or purchasing setting is often considered complicated and perplexing for the consumers. It has been found in previous studies that the type of attributes (cues) utilized in the evaluation of wine differs depending on the consumers' culture, knowledge and experience of wine (Barber et al., 2007; Bruwer, 2014; Johan Bruwer et al., 2017; Lockshin et al., 2001; Lu et al., 2016; Sáenz-Navajas et al., 2014a; Ulrich R. Orth et al., 2005). A number of studies document that

there exist large variations in quality perception of wine among consumers regardless of degree of wine knowledge and experience (Hodgson, 2008; Hopfer and Heymann, 2014), suggesting that a wine experience is a function of multiple factors that may include highly subjective experiences and memories of the taster. These findings indicate the importance of empirical studies in identifying heterogeneous and often time-varying consumer segments for better producer understanding of consumer wine consumption and behaviour. In this study, we use data from a Hong Kong based study to estimate the role of extrinsic cues on consumers' willingness to pay for tasted wine. Although studies have shown systematic differences in wine preference and knowledge between Western and Asian cultures (Jia-Gui Li et al., 2011; Simon Somogyi et al., 2011; Yoo et al., 2013), there is a lack of studies that evaluate effects of specific attributes on the consumption behavior of Asian consumers.

In western settings, where there is a traditionally rich background for wine culture and experience, there have been extensive studies that examine how extrinsic cues affect wine consumer's Willingness to Pay (WTP) (Brooks, 2003; Dimitris Skuras and Aleka Vakrou, 2002; Pierre Balestrini and Paul Gamble, 2006; Sáenz-Navajas et al., 2013) . The focus of extrinsic cues varies by study. For example, country of origin has been found as a major factor that influence consumers' WTP (Martínez-Carrasco Martínez et al., 2006; Veale and Quester, 2009). Some studies found that price is a factor that is highly and positively correlated with consumers' evaluation of the sensory experience in wine tasting (Goldstein et al., 2008; Plassmann et al., 2008; Veale and Quester, 2009). A number of blind tasting experiments have found that non-sensory information such as shape of bottle and type of label plays a larger role than sensory information in determination of consumer WTP (Combris et al., 2006; Lange et al., 2002; Lecocq et al., 2005).

The wine market in Asia is expanding rapidly due to increases in demand mainly from China where the value of wine imports has been growing at a rate of 7% annually between 2000 and 2009, compared to 5.5% in the rest of the world, and the upward trend is expected to continue with a burgeoning Chinese middle-class (Anderson and Wittwer, 2015). Studies of taste preference and role of extrinsic characteristics in wine evaluation and consumption in the rapidly growing Asian market are increasingly important for the wine industry (Duhan et al., 1999; Lockshin and Corsi, 2012). For example there has been relatively little research done on the effect of country of origin on the perception of wine quality by consumers in an emerging Asian market but what has been done reveals extrinsic cues are important evaluators. For example, Balestrini and Gamble (2006) report that Chinese consumers are more likely to use extrinsic cues than intrinsic ones in evaluating wine quality. A study conducted on wine consumers in Hong Kong shows that they give the highest weight to the country of origin information over grape variety and brand name and the lowest weight to alcohol content in their evaluations (Tang et al., 2015). These studies often rely on survey responses from consumers in non-experimental settings which limit the generalizability of the results.

It is well established in both theoretical and empirical sensory and marketing literature why extrinsic cues are of more importance for novice consumers (D'Alessandro and Pecotich, 2013; Maheswaran, 1994; Perrouty et al., 2006; Sáenz-Navajas et al., 2014b). Consumer level of expertise has been found to be strongly positively correlated with use of extrinsic cues such as country of origin. Maheswaran (1994) suggests that there are certain conditions under which such consumer heuristics are operational in the product evaluation. He suggests that stereotypical information such as country of origin is likely to be used in a different manner depending on the consumers' level of expertise and that it is more utilized in the presence of ambiguous attribute information. This hypothesis is highly applicable to the blind wine

tasting context as the taste profile of wine has numerous intrinsic characteristics that are often difficult to synthesize for novice wine drinkers to evaluate. In the presence of ambiguity in evaluation of the "true" characteristics of wine, consumers with a higher degree of ambiguity would rely more on extrinsic attributes such as country of origin in their evaluation.

Although strong links between the level of expertise with wine and dependence on extrinsic cues for wine evaluation uniformly applies to all consumers, regardless of consumers country of origin, it is an empirical question whether there are any heterogeneous effects of extrinsic cues on evaluations made by consumers in Hong Kong, as a result of distinct cultural features. A number of studies find that Chinese consumers have cultural features that are somewhat distinct from western counterparts, such as perceiving wine much more as a status good and healthy beverage than their wine drinking western counterparts (Hu et al., 2008; Lockshin et al., 2017; Simone Pettigrew and Steve Charters, 2010).

One of main contributions of our study to the current literature is that we examine the extent to which extrinsic cues affect consumer's Willingness to Pay (WTP) using experimental data in a emerging and significant market that has been under-studied from a wine evaluation perspective. There are two specific questions that our study aims to answer:

1) Are there any extrinsic cues that significantly affect willingness-to-pay (WTP) for a bottle of wine for Hong Kong consumers?
2) Does the response of a Hong Kong consumer to extrinsic information such as country of origin or grape variety vary by the level of the wine consumers' involvement and prior experience with wine?

The importance of understanding consumer market segment heterogeneity for producers and marketers has been emphasized (Cuellar and Claps, 2013). This study seeks to provide

empirical evidence of the effect of extrinsic cues on the WTP of consumers from the rapidly growing Asian market using a blind tasting experiment.

2 Method

2. 1 Data

Participants

The experiment took place in a boutique hotel considered by Trip Advisor to be one of the best of its kind in Hong Kong. Due to a number of constraints, random sampling was not possible, so the experiments employed on-site sampling in a controlled setting. Hotel guests walking by the study site were invited to sample some wine and answer a few questions.[i] Very few people turned down the offer leading to a high response rate.[ii] Six hundred nineteen people participated in the experiment, reaching the goal of 200 people per each stage (1^{st} stage: 216 participants, 2^{nd} stage: 202, 3^{rd} stage: 201). The questionnaires were distributed after each tasting by student research assistants who received careful instruction about how the survey should be conducted.

Blind Tasting Procedure

The tasting experiment was conducted between 1 July 2014 and 31 August 2014 at the Hotel ICON, teaching and research hotel in Hong Kong. The experiment consisted of three stages. Six wines (three reds and three whites) of similar price range (15-20 USD) from five different countries and six different regions were served in each stage. Two wines from the U.S were selected from the emerging cold hardy variety and four wines were selected based on countries of origin with a better reputation for producing wine. Specifically the wines used in the experiment include: 1.Thandi (2013), Chardonnay, Western Cape, South Africa 2. Tassel Ridge (2012), Brianna, Iowa, USA 3. G.H. von Mumm (2011), Riesling, Rheingau, Germany 4. Vina Guria (2009), Tempranillo, Rioja, Spain 5. Danzinger Vineyards (2013), Marquette,

Wisconsin, USA 6. Norton (2010), Malbec, Argentina. The first stage was purely blind tasting where no information about the wine was provided to the participants. In the second stage, the participants were provided with country of origin information prior to the tasting. In the third stage, no information was hidden from participants. They were given full information on the wine attributes such as its grape variety, region and winery of origin. In each stage, participants were asked to taste and rate each wine according to selected attributes and assign their WTP for that particular wine. There was a brief gap between red and white wine tasting where participants were asked to drink water and fill out a survey sheet that consists of questions pertaining to demographics, wine consumption patterns and preference. All responses were confidential. Once data were collected, they were analyzed using standard and appropriate statistical procedures.

2.2 Regression Model

We used the conventional hedonic-type model to estimate determinants of WTP (Nerlove, 1995). The following equation is estimated via an OLS regression:

$$WTP_{ij} = \alpha + \sum_{j=1}^{3} \beta_j S_{ij} + \boldsymbol{X_{ij}\delta} + \varepsilon_{ij} \qquad (1)$$

where WTP_{ij} is the participant i's WTP in Stage j=1,2,3, S_j is the binary indicator variables for three stages (omitted category is stage 1 where pure blind tasting was conducted), $\boldsymbol{X}$ is a vector of demographic information of participant i and ε_{ij} is the random disturbance term. α, β and $\boldsymbol{\delta}$ are the parameters to be estimated, and β_j is the coefficient of interest that shows the average change in WTP as a result of knowing the extrinsic characteristics of wine prior to tasting. In other words, β_j captures the extrinsic cue premium that consumers are willing to pay. The β_j is unbiased under the unconfoundedness assumption $S \perp (WTP_{ij})|\boldsymbol{X}$, which requires that conditional on $\boldsymbol{X}$, there are no unobserved characteristics that simultaneously affects both participation of different stages of experiment

and the their WTP. Our sampling methods makes the unconfoundedness assumption more plausible.

3 Results

3.1 Descriptive statistics

The descriptive statistics of participants per each stage are reported in Table 1. For consistency of the sample size across specifications within each stage in the regression analysis, observations with missing values in key covariates were dropped from the sample prior to statistical analysis. The final sample includes 481 observations (1st stage: 171 obs, 2nd stage: 148 obs, 3rd stage: 162 obs). Certain characteristics such as frequency of wine consumption, number of international trips and marital status are fairly similar across the stages, whereas other variables such the participants' age and ethnic group does vary between stages. The participants are equally from both genders, mostly under 30, and half of them are married. Chinese and European residents constituted the majority of participants.

3.2 Eliciting WTP

The WTP for the wine was elicited using a payment card type survey instrument. The blind tasting participants were asked to select a pricing option from a multiple choice set of 10 categories that ranged from “less than US$10” to “US$50 or more.” The mean values are calculated using the middle point in each interval. The midpoint of the open interval "US50 or more" is calculated by adding the bottom interval.[iii] Figure 1 presents box plots of value of WTP by stage and type of wine.

3.3 Effect of extrinsic cues

The estimation results of equation (1) without demographic controls are presented in Table 2. It appears that there exists a statistically significant effect of extrinsic cues on consumers’ WTP. Compared to WTP in the blind tasting in stage 1, revealing country of origin information in stage 2 has a negative effect ranging from $2.7 USD to $4.8 USD on

WTP on wines from Iowa, Wisconsin, Germany and Argentina, whereas no statistically significant effect is found for wines from South Africa and Spain. However, one should be cautious in drawing inference from these estimates, as participants of the experiment at each stage were not randomly sampled. The compositional difference in the demographic composition of participants, shown in Table 1, may have biased the estimated coefficients given that factors affecting WTP, such as culture, knowledge and experience, systematically vary by different demographic groups. In order to adjust for the compositional differences in each stage and minimize bias, demographic controls were added, with the results reported in Table 3.[iv] With demographic controls in the model, statistically significant estimates in Table 1 disappear for Germany and Argentina, although the estimates are marginally significant and the signs are still negative. Some interesting patterns to note include the observation that females seem to have higher WTP than males, and younger consumers appear to have higher WTP than older consumers. Chinese consumers generally exhibited a much higher WTP compared to consumers from North America and Europe. Finally, the number of international trips is positively correlated with WTP. Given the fact that Hong Kong has a duty-free wine market since 2008, the higher WTP for a bottle of wine of Hong Kong Chinese consumers may be attributable to the increasing popularity of wine in the region and a common perception that wine is beneficial to health ("Wine in Hong Kong, China," n.d.).

3.4 Consumer Heterogeneity: Expert vs. Novice comparison.

The consumer is defined as a novice if they drink wine rarely or less than once a month, while an expert is defined as a consumer who drinks wine more than once a week. There are some issues involved in our categorization of novice and experts because the distinction should be made based on multiple dimensions such as knowledge about the wine, prior experience and frequency of drinking. Our inference in this study is based on the assumption that there is a high positive correlation between the frequency of drinking and

other dimensions that defines the novice and expert. While this stratification is less than ideal, the degree of expertise in wine and consumption frequency have been shown to be highly correlated (Johnson and Bastian, 2007), and experience-based distinction of expert and novice has been used in previous studies (Parr et al., 2002). Multiple characteristics of consumers by this stratification can be shown in Table 4 and Figure 1. There is a sizable difference in preferences between the novice and expert groups. For example, 48% of consumers in the expert group have a preference for dry wines, whereas only 13% of consumers in the novice group answered that they like dry wines. Instead, the largest portion of the novice group prefers sweet wines. This preference for sweetness among our novice sample supports other research that examined consumer preference based on the frequency of wine consumption. Numerous studies suggest novice drinkers are quite limited to basic perceptual features such as sweetness as a primary dimension in wine evaluation. The inclination to sweetness for novice wine tasters has been found to be associated with their limited perceptual or linguistic knowledge on multiple dimensions such as tannin, balance, body, alcohol, flavor and aftertaste (Lawless, 1984; Melcher and Schooler, 1996; Solomon, 1990).

Our results also revealed that only 18% of the expert group prefers white wine over red, compared to 46% of the novice group who prefer white wine over red wine. Similar patterns of transitioning from white to red wine as consumers' wine experience increases has been documented for Australian consumers (Melo, Colin, Delahunty, Forde, & Cox, 2010). These sharp differences in taste preference between novice and experienced drinkers suggests wine marketers would be wise to take these results into consideration in order to meet the growing demand from Asian wine consumers.

The regression results for experts and novice wine drinkers are shown in Tables 6 and 7, respectively. The results show that extrinsic cues have an effect on WTP in an opposite direction for the two groups. While extrinsic cues have a positive effect on the WTP of the expert group for Chardonnay from South Africa and Tempranillo from Spain, any negative effects observed in the estimates using an aggregated sample (see Table 3) are absent from the expert group. On the other hand, strong negative effects of extrinsic cues, similar to the estimated effects in Table 3, are found for the novice group, which suggests that most variances between stages come from the novice group.

The stronger reliance on extrinsic cues for the novice group, when it comes to WTP for a particular wine is consistent with previous studies. Han (1989) shows that consumers evaluation of a product for which they have little prior knowledge is more likely to be influenced by their perception of the country that a product comes from, especially when the quality difference is difficult to distinguish. In terms of preference by the county of origin, this study is somewhat consistent to a previous study that finds Chinese consumers place a higher premium on wines from European countries over new world wine producers from the Americas (Lockshin et al., 2017).

3.5 Variance explained between stages

Based on the regression results discussed earlier in the paper, we analyzed the relative contribution to between-stage variance that can be attributed to the novice group. In this section, we examined between and within variance of WTP, which shows the within and between variance ratio for each of the six wines. The F-statistics and statistical significance are reported in Table 5. The ratio of 3.31 in the first column of the table indicates that ratio of between mean squared error over within mean squared error is 3.31 for Tempranilo from Spain and 3.82 for Chardonnay from South Africa are due to variances across stage 1 and

stage 2 for the expert group. The F-statistics presented in Table 5 reveals that statistically significant between-stage variances mostly come from the novice group. Moreover, most of the variances are from between the first and second stages rather than the second and third stages. These results, together with patterns depicted in Figure 2 suggests that most of the variance comes from the novice group between the 1st and 2nd stages. This indicates that country of origin information prior to tasting has the most notable impact on the WTP of the novice group. The novice group already has a higher WTP for a bottle of wine to begin with, which may be in part due to the novice consumers' perception of wine as a status good. [v]

4 Discussion

As mentioned previously, quality perception is a function of consumers' assumed knowledge, involvement in wine drinking and nationality of origin (Lu et al., 2016; Sáenz-Navajas et al., 2014).The rapidly growing Asian wine market necessitates studies be conducted on Asian consumer taste preferences as this is important information for both consumers and producers.

The findings of this study (Table 3) suggest that WTP patterns of Hong Kong consumers in response to the extrinsic cues provided are quite consistent with previous literature, from mostly western countries, that demonstrated wine is a product for which consumer tastes are highly heterogeneous. Multiple factors, other than the taste of wine itself, can influence subjective evaluation of wine. The results from the sub-group analysis using stratification based on wine drinking frequency suggest that reliance on extrinsic cues for wine evaluation may be especially strong for novice wine drinkers (Tables 6 and 7). This finding is also similar to that reported in previous studies that found novice drinkers rely mainly on country of origin information in their wine evaluations, while experts relied on sensory quality

although in a complex manner with no discernible systematic pattern. (D'Alessandro and Pecotich, 2013; Perrouty et al., 2006; Sáenz-Navajas et al., 2014).

Higher premiums placed by the Chinese and novice consumers is consistent with the hypothesis that prior knowledge of the product is correlated with a degree of reliance on extrinsic cues when evaluating wine quality and value. Another possible explanation is linked to culture. In a qualitative study that interviewed 36 Chinese-born wine consumers in Australia it was found that Chinese wine consumers consider wine as a healthier beverage than traditional Chinese alcoholic beverages and it is also seen as a status good that is culturally sophisticated (Lockshin et al., 2017; Simon Somogyi et al., 2011).

5 Conclusion

This study examines the effect of extrinsic cues on wine consumers' WTP using data from a blind wine tasting experiment conducted in Hong Kong. It should be noted that although the experiment was conducted in Hong Kong with the sample population dominated by Chinese Hong Kong residents it also included Europeans and North American participants. The findings of the present study show that general patterns in the effect of extrinsic cues on WTP of wine are consistent with the previous literature that was mostly conducted in Western countries. However, the results do show that Hong Kong Chinese consumers place a higher premium on a bottle of wine than their Western counterparts. The novice group also places an extra premium on a bottle of wine versus the experienced drinker group. These results suggest that, in general, extrinsic cues play a bigger role in evaluation of wine in the Asian market especially with novice wine drinkers than they might in western societies. Our estimated extrinsic cue effect on WTP may be more pronounced in the real consumption setting where quality assessment is only limited to the extrinsic cues that are available through the information on the bottle of wine (Mueller et al., 2010). One possible

reason that consumers in Hong Kong rely more heavily on extrinsic cues for WTP than their counterparts in western societies is risk reduction behavior in the presence of uncertainty (Stephen Lacey et al., 2009; Trent Johnson and Johan Bruwer, 2004). Additionally Chinese consumers might have a cultural incentive to minimize the risk of choosing bad wine and deviation from the norm (Simon Somogyi et al., 2011) and therefore rely on extrinsic cues that over time have formed quality images in their mind of wine produced in different regions of the world.

The importance of understanding consumer market segment heterogeneity for producers and marketers has been emphasized (Cuellar and Claps, 2013). This study provides evidence that supports this claim from the rapidly growing Asian market. It is important for producers and marketers to consider consumer heterogeneity and product differentiation when pricing and distributing their wine. Investigating the country-specific contextual role of wine as a status good and its interaction with extrinsic cue effect on consumers' WTP using cross-country data would be an interesting path for future research.

6 Limitation

This study seeks to answer empirical question whether extrinsic cues affect Hong Kong consumers' average WTP based on blind tasting experiments. Although the experimental design of the study alleviates some of the concerns in making any causal links between the extrinsic cues and consumers' WTP, there are two limitations that might hamper causal interpretation of the main findings. First, it should be noted that our experiment is not based on a complete randomized assignment of the treatment status, due to multiple practical limitations. This might bias our estimates if our experimental design systematically affected the unobserved characteristics of groups who participated in the different stages of the experiment. The second limitation concerns the generalizability of the findings of this study

due to the fact that the study sample was largely limited to the guests of the boutique hotel, who might not be representative of the general population in Hong Kong.

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[i] The respondents tasted the wines. They were poured a tasters portion to evaluate.

[ii] The on-site sampling here means any voluntary participants could join the experiment without any restrictions.

[iii] Other ways of eliciting WTP such as Vickery auction is known to be more discriminative and reliable measure than simpler hedonic measure implemented in this study, however, previous study that employ both methods in a blind tasting experiment suggest that both measures lead to homogeneous inference (Lange et al., 2002).

[iv] The results from diagnostic checks including normality of residuals, heteroscedasticity, multicollinearity tests suggest that statistical assumptions required for valid hypothesis testing are met with the data. The results are available upon request.

[v] Simone Pettigrew and Steve Charters, (2010) have noted the symbolic role of wine as a means of communicating status to others among Hong Kong consumers.

Tables

Table Error! Main Document Only.**. Summary Statistics by Stages**

Stage 1					
Variable	Obs	Mean	Std.Dev.	Min	Max
Female	171	0.526	0.501	0	1
Chinese	171	0.76	0.428	0	1
Asian, non-Chinese	171	0.076	0.266	0	1
N.America	171	0.0468	0.212	0	1
S.America	171	0	0	0	0
Europe	171	0.117	0.322	0	1
Under 30	171	0.427	0.496	0	1
30-39	171	0.292	0.456	0	1
40-49	171	0.17	0.376	0	1
50-59	171	0.0877	0.284	0	1
60 or above	171	0.0234	0.152	0	1
# International trips	171	2.327	0.803	1	5
Drink wine rarely	171	0.324	0.469	0	1
Drink wine once a month	171	0.4	0.491	0	1
Drink wine more than once a week	171	0.206	0.405	0	1
Drink wine usually everyday	171	0.071	0.257	0	1
# International trips	171	2.327	0.803	1	5
Stage 2					
Female	148	0.534	0.501	0	1
Chinese	148	0.378	0.487	0	1
Asian, non-Chinese	148	0.149	0.357	0	1
N.America	148	0.149	0.357	0	1
S.America	148	0	0	0	0
Europe	148	0.324	0.47	0	1
Under 30	148	0.493	0.502	0	1
30-39	148	0.209	0.408	0	1
40-49	148	0.0811	0.274	0	1
50-59	148	0.0743	0.263	0	1
60 or above	148	0.142	0.35	0	1
Drink wine rarely	148	0.175	0.381	0	1
Drink wine once a month	148	0.351	0.479	0	1
Drink wine more than once a week	148	0.385	0.488	0	1
Drink wine usually everyday	148	0.087	0.284	0	1
# International trips	148	2.642	1.043	1	5
Stage 3					
Female	162	0.494	0.502	0	1
Chinese	162	0.556	0.498	0	1
Asian, non-Chinese	162	0.111	0.315	0	1
N.America	162	0.0864	0.282	0	1
S.America	162	0	0	0	0

Europe	162	0.247	0.433	0	1
Under 30	162	0.444	0.498	0	1
30-39	162	0.216	0.413	0	1
40-49	162	0.185	0.39	0	1
50-59	162	0.0741	0.263	0	1
60 or above	162	0.0802	0.273	0	1
Drink wine rarely	162	0.242	0.429	0	1
Drink wine once a month	162	0.329	0.471	0	1
Drink wine more than once a week	162	0.298	0.458	0	1
Drink wine usually everyday	162	0.13	0.337	0	1
# International trips	162	2.642	1.096	1	5

Table 2. Regression Analysis: Effect on WTP without demography controls

	Chardonnay, S.Africa (1)	Brianna, Iowa (2)	Riesling, Germany (3)	Tempranillo , Spain (4)	Marquette, Wisconsin (5)	Malbec, Argentina (6)
1.Stage (Omitted)						
2.Stage	-1.097	-4.449***	-3.457**	0.418	-4.752***	-2.766*
	(1.330)	(1.495)	(1.415)	(1.505)	(1.371)	(1.408)
3.Stage	-0.281	-5.623***	-3.488***	0.068	-2.152	-2.455*
	(1.244)	(1.482)	(1.348)	(1.348)	(1.422)	(1.393)
_cons	22.942***	26.175***	26.491***	21.383***	21.377***	23.094***
	(0.896)	(1.022)	(0.963)	(0.951)	(1.028)	(0.960)
N	481	481	481	481	481	481
adj. R-sq	-0.003	0.029	0.014	-0.004	0.020	0.006

Note: Robust standard errors are in parentheses. Significance level: * p<0.1, ** p<0.05, *** p<0.01

Table 3. Regression Analysis: Effect on WTP with demography controls

	Chardonnay, S.Africa (1)	Brianna, Iowa (2)	Riesling, Germany (3)	Tempranillo , Spain (4)	Marquette, Wisconsin (5)	Malbec, Argentina (6)
1.Stage (Omitted)						
2.Stage	-0.296	-1.546	-1.397	0.505	-2.864*	-1.962
	(1.392)	(1.509)	(1.416)	(1.647)	(1.461)	(1.483)
3.Stage	0.185	-3.832***	-2.436*	0.002	-1.205	-2.045
	(1.266)	(1.452)	(1.334)	(1.385)	(1.417)	(1.401)
Gender: male (Omitted)						
female	2.054*	1.634	2.325**	-0.542	0.304	2.549**
	(1.064)	(1.191)	(1.113)	(1.218)	(1.116)	(1.152)
Age: under 30 (Omitted)						
30-39	-2.425*	0.740	-0.549	-1.729	-1.991	-2.186
	(1.386)	(1.617)	(1.475)	(1.497)	(1.462)	(1.541)
40-49	-3.260*	-2.357	-0.014	-1.915	-2.130	-1.389
	(1.731)	(1.822)	(1.701)	(1.916)	(1.738)	(1.722)
50-59	-3.008	-2.226	-1.566	-0.643	-2.276	1.069

	(1.978)	(2.254)	(2.207)	(2.568)	(2.029)	(2.378)
60 or above	-3.019	-5.963***	-4.609**	-3.762	-1.591	-2.360
	(2.078)	(2.202)	(2.204)	(2.610)	(1.960)	(2.356)
Nationality: HK-chinese (Omitted)						
asian, non-chinese	1.562	2.873	2.351	3.071	1.638	-2.041
	(1.959)	(2.443)	(1.972)	(2.233)	(2.021)	(2.057)
north american	-4.387**	-9.015***	-6.849***	-0.144	-7.607***	-1.703
	(1.740)	(1.971)	(2.032)	(2.399)	(1.910)	(2.226)
europe	-4.792***	-7.706***	-6.248***	-2.787	-8.752***	-4.228**
	(1.480)	(1.670)	(1.569)	(1.706)	(1.387)	(1.656)
number of international trips	1.076*	-0.248	0.709	1.307*	1.224*	1.162*
	(0.634)	(0.663)	(0.647)	(0.730)	(0.642)	(0.662)
_cons	21.600***	27.516***	24.898***	19.700***	20.803***	20.614***
	(1.801)	(1.863)	(1.755)	(2.049)	(1.760)	(1.802)
N	481	481	481	481	481	481
adj. R-sq	0.054	0.158	0.100	0.005	0.110	0.025

Note: robust standard errors are in parentheses. Significance level: * p<0.1, ** p<0.05, *** p<0.01

Table 4. Preference Difference: Expert vs. Novice

Variable	Obs	Mean	Std.Dev.	Min	Max	MEan Diff Test
Novice						
Preference: white wine over red wine	293	0.457	0.499	0	1	***
Preference: dislike fruity red	293	0.280	0.450	0	1	***
Preference: dislike fruity white	288	0.326	0.470	0	1	
Tendency: Try new wines	266	37.58	32.95	0	1	**
Expert						
Preference: white wine over red wine	186	0.177	0.383	0	1	***
Preference: dislike fruity red	185	0.357	0.480	0	1	***
Preference: dislike fruity white	184	0.337	0.474	0	1	
Tendency: Try new wines	185	0.339	0.387	0	1	**

Note: Mean difference t-test conducted: * p<0.1, ** p<0.05, *** p<0.01

Table 5. Analysis of Variance (F-statistics) by stages

	1st vs. 2nd		**2nd vs. 3rd**	
	Expert	**Novice**	**Expert**	**Novice**
Tempranilo, Spain	3.31*	0.89	1.35	0.69
Marquette, Wisconsin	0.56	7.71***	0.14	4.57**
Malbec, Argentina	0.04	5.68**	1.34	1.79
Chardonnay, South Africa	3.82*	3.07*	0.21	1.57
Brianna, Iowa	0.12	4.14**	0.46	0.57
Riesling, Germany	0.00	2.94*	0.22	0.00

Note: Significance level: * p<0.1, ** p<0.05, *** p<0.01

Table 6. Regression Analysis: Effect on WTP for expert group with demography controls

	Chardonnay, S.Africa (1)	Brianna, Iowa (2)	Riesling, Germany (3)	Tempranillo, Spain (4)	Marquette, Wisconsin (5)	Malbec, Argentina (6)
1.Stage (Omitted)						
2.Stage	5.331**	2.049	1.732	5.411**	0.580	2.030
	(2.187)	(2.391)	(2.248)	(2.669)	(2.493)	(2.437)
3.Stage	4.176**	-0.183	0.702	2.851	0.920	-0.885
	(1.848)	(2.297)	(2.165)	(2.152)	(2.410)	(2.229)
male (Omitted)						
female	2.293	-0.416	1.886	0.128	-0.712	4.623**
	(1.679)	(1.677)	(1.652)	(1.901)	(1.662)	(1.856)
under 30 (Omitted)						
30-39	-1.118	2.074	-2.088	-5.203*	-6.802***	-3.103
	(2.318)	(2.566)	(2.513)	(2.824)	(2.496)	(2.898)
40-49	-0.137	-1.368	-3.923*	-4.125	-3.284	-3.668
	(2.781)	(2.387)	(2.189)	(2.981)	(2.709)	(2.510)
50-59	-2.752	-0.461	0.712	-2.344	-2.176	-1.922
	(2.727)	(3.282)	(3.160)	(4.182)	(2.743)	(3.384)
60 or above	-2.957	-5.090**	-3.750	-5.412*	-2.132	-3.879
	(2.668)	(2.285)	(2.646)	(3.163)	(2.664)	(3.107)
chinese (Omitted)						
asian, non-chinese	4.098	2.120	4.002	3.733	5.552	-4.609
	(3.869)	(4.817)	(3.919)	(4.577)	(4.809)	(3.961)
north american	-3.541	-7.515***	-7.124***	-3.810	-9.019***	-2.975
	(2.558)	(2.295)	(2.567)	(3.051)	(2.474)	(3.066)
europe	-2.693	-4.812**	-4.049*	-3.279	-7.494***	-3.304
	(2.165)	(2.156)	(2.240)	(2.501)	(2.172)	(2.608)
number of internaltion trips	0.654	-0.092	0.030	1.239	0.293	0.041
	(0.851)	(0.844)	(0.778)	(1.009)	(0.797)	(0.928)
_cons	16.327***	21.452***	22.207***	18.962***	21.482***	21.831***
	(2.498)	(2.976)	(2.454)	(3.358)	(3.251)	(3.038)
N	186	186	186	186	186	186
adj. R-sq	0.037	0.099	0.063	0.032	0.113	0.027

Note: robust standard errors are in parentheses. Significance level: * p<0.1, ** p<0.05, *** p<0.01

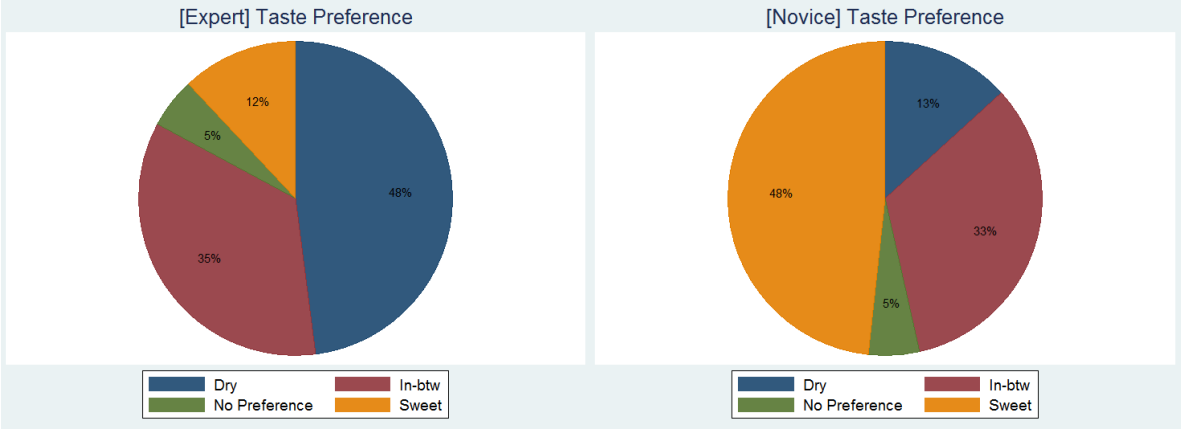
Table 7. Regression Analysis: Effect on WTP for novice group with demography controls

	Chardonnay, S.Africa (1)	Brianna, Iowa (2)	Riesling, Germany (3)	Tempranillo, Spain (4)	Marquette, Wisconsin (5)	Malbec, Argentina (6)
1.Stage (Omitted)						
2.Stage	-3.656**	-3.445*	-2.633	-2.469	-4.645**	-4.035**
	(1.744)	(1.969)	(1.853)	(2.045)	(1.837)	(1.887)
3.Stage	-1.118	-5.273***	-3.285*	-0.215	-1.025	-1.691
	(1.677)	(1.921)	(1.687)	(1.791)	(1.735)	(1.808)
male (Omitted)						
female	1.794	2.341	2.048	-0.779	0.823	1.224
	(1.411)	(1.671)	(1.486)	(1.610)	(1.460)	(1.513)
under 30 (Omitted)						
30-39	-3.576**	0.158	-0.077	-0.752	0.055	-2.045
	(1.733)	(2.044)	(1.829)	(1.804)	(1.881)	(1.842)
40-49	-5.241**	-2.504	2.760	-0.888	-2.021	-0.619

	(2.182)	(2.648)	(2.192)	(2.543)	(2.342)	(2.322)
50-59	-3.185	-3.277	-4.971	0.040	-4.042	2.343
	(2.689)	(3.096)	(3.150)	(2.990)	(2.938)	(3.378)
60 or above	2.934	-1.911	-4.353	1.449	0.930	-1.014
	(2.593)	(9.766)	(4.528)	(9.358)	(4.492)	(3.442)
chinese (Omitted)						
asian, non-chinese	0.847	3.108	1.008	3.211	0.091	-1.853
	(2.222)	(2.884)	(2.239)	(2.591)	(2.070)	(2.438)
north american	-2.839	-5.755	-1.931	8.411*	-3.358	0.525
	(2.482)	(4.066)	(3.564)	(4.605)	(3.464)	(4.432)
europe	-6.872***	-9.760***	-6.057**	-3.234	-8.836***	-5.753***
	(1.989)	(2.586)	(2.393)	(2.485)	(1.951)	(2.083)
number of internaltion trips	1.564	-0.005	2.381**	0.792	2.731***	2.344**
	(1.001)	(1.158)	(1.090)	(1.004)	(1.026)	(0.947)
_cons	23.110***	28.632***	22.832***	21.409***	17.948***	19.325***
	(2.529)	(2.692)	(2.524)	(2.670)	(2.453)	(2.318)
N	293	293	293	293	293	293
adj. R-sq	0.049	0.085	0.046	-0.002	0.058	0.018

Note: robust standard errors are in parentheses. Significance level: * p<0.1, ** p<0.05, *** p<0.01

Figures



Note: χ^2 test of difference – p<0.001

Figure Error! Main Document Only.**. Sensory Preference: Expert vs. Novice**

Note: Significance level: * p<0.1, ** p<0.05, *** p<0.01

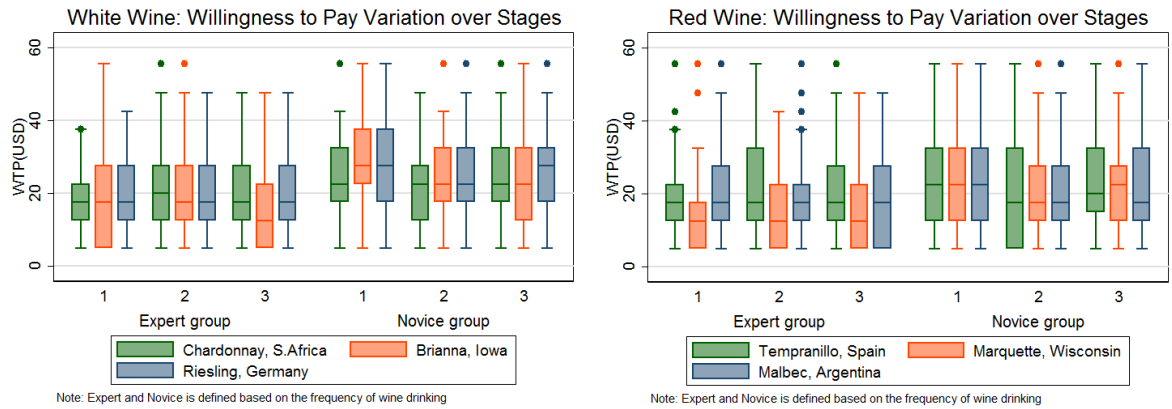


Figure 2. Box Plot, WTP variation by stages: Expert vs. Novice group