The Effect of Tasting Sheet Sensory Descriptors on Tasting Room Sales

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o *Purpose: To study the impact that tasting sheet sensory descriptors have on wine sales in tasting rooms that rely on direct-to-consumer sales to sell the majority of their wines, such as those in New York wine regions.*
o *Design: Nine tasting rooms participated in the study that took place on weekends (Friday, Saturday, and Sunday) during a six-week period in July and August 2012. Tasting rooms alternated tasting sheets by weekend, one including sensory descriptors and one without any sensory descriptors. At the end of each weekend, tasting room managers compiled daily wine bottle and (in the case of seven wineries) dollar sales information. A multivariate statistical model was created to measure the relationship between the treatment (tasting sheet with or without descriptors) and wine sales, controlling for other variables that could influence wine sales.*
o *Findings: We found that tasting sheets without sensory descriptors increased both bottle and dollar sales, with dollar sales being statistically significant at the ten percent level. Other variables that impacted wine sales included the specific tasting room, the day of the weekend, and festivals occurring in the area.*
o *Practical implications: Many tasting rooms, particularly in New York, rely on the tasting room for the majority of wine sales. Determining factors that affect sales can help tasting room managers/owners optimize the tasting room experience for maximized profits.*

Keywords: Sensory Descriptors, Tasting Room, Wine Sales, New York Wine Region

Wine sensory descriptors are used to attract consumers to a particular wine and influence their purchase decision. Consumers perceive wine purchase as a risk, not only because the product is complex, challenging, and intimidating, but also because the sensory experience is the greatest concern. The inclusion of sensory descriptors may reduce risk and help consumers with purchasing decisions, especially when they are unable to sample the wine. In winery tasting rooms, sensory descriptors are often included on tasting sheets to describe a wine's aroma and flavor to customers. Determining the importance of tasting sheet sensory descriptors on overall wine sales in the tasting room is important, especially to wineries that rely on tasting rooms as the primary source of sales (such as many in New York), because the majority of their sales are made in the tasting room (Stonebridge Research, 2010).

Previous studies in both the food and wine industry show that sensory descriptors increase product sales and consumer appeal. Existing literature, however, focuses on retail settings that may offer a wide selection from many brands and do not, for the most part, allow sampling before purchase. This means that consumers must make choices based on brand recognition and not taste. In a winery tasting room, on the other hand, consumers are encouraged to try many different wines before purchasing. A consumer's decision when supplied with samples, as opposed to just sensory descriptors, may not be the same, as suggested by Swahn et al. (2010). There has been no research to determine the effect that sensory descriptors provided with product samples have on consumer choice. Furthermore, there have been no studies investigating the efficacy of sensory descriptors included on tasting sheets. Therefore, we conducted a study in collaboration with nine New York tasting rooms to determine the impact of tasting sheet sensory descriptors on wine sales.

1. LITERATURE REVIEW

Sensory descriptors are used to encourage consumer preference and reduce consumer risk when choosing a new wine. For example, studies have established that consumers consider simple taste and smell descriptors to be important label information for wine choice (Charters et al., 2000), and find elaborate back-label taste descriptions to be valuable when purchasing wine for a special occasion (Mueller et al., 2010). In restaurant settings, descriptive menu labels have not only been found to increase sales by 27 percent, but also increase customers' perceptions of the meal and restaurant (Wansink et al., 2001). A second study by Wansink et al. (2005) confirmed that descriptive menu labels resulted in an improved perception of food by customers as more appealing. Tuorila et al. (1998) found that ratings for unfamiliar foods were enhanced with the products were described with positive information. These studies support the idea that not only sales but also overall quality of a product are enhanced by descriptors, which may suggest major impacts on smaller wineries, such as those in New York, that have little to no national market sale and rely on direct-to-consumer tasting room sales to return a profit.

1.1 Direct-to-Consumer Sales

Direct distribution is a profitable sales channel used widely by wine producers across the world (Gurau and Duquesnois, 2008). While direct-to-consumer sales have grown to include Internet and wine club shipments, they are traditionally seen as sales

made in the tasting room (Teaff et al., 2005; Zucca, 2010). These sales are especially important to wineries with a smaller annual case production that have little to no national market share, few or no distribution channels, and high production costs (Zucca, 2010). Many New York wineries do not produce enough wine to discount large amounts to distributors and wholesalers and still make a profit, so they rely on direct-to-consumer sales to sell full priced bottles and increase profit margins (Dodd, 1995). Fortunately, from 2010 to 2011, direct-to-consumer sales increased by five percent in New York, with an average of thirty-six dollars spent at New York wineries per visit (Tinney, 2012). One factor influencing this increase in direct-to-consumer sales may result from the lessened amount of risk consumers face when purchasing wine from a tasting room versus a retail outlet.

1.2 Wine Purchase as a Risk

Wine purchase in a tasting room involves consumer choice and decision-making about a complex product. Many consumers find wine to be a challenging and intimidating product to purchase because of its complexity (Taylor et al., 2008). Furthermore, the taste of wine is seen as the risk of most concern to consumers (Mitchell and Greatorex, 1988). Tasting rooms alleviate the uncertainty of consumer choice, reducing the risk involved in making a decision based on an unpredictable outcome (Taylor, 1974) by allowing consumers to sample their product before purchasing. Tasting room visitors subsequently use tastings as risk-reduction strategies, and count on the tastings to help them make ultimate purchasing decisions (Bruwer and Alant, 2009). Many tasting rooms provide added guidance to visitors through tasting sheets designed to supply additional information to help consumers find wines to match their taste preferences.

1.3 Tasting Sheet Sensory Descriptors

Tasting sheets, or tasting notes, list information about featured tasting room wines. These notes often include sensory descriptors as well as other supplemental information (Bender, 2008), such as awards, food pairings, price, discounts, and wine club membership options (Held, 2012). This study focused on the effect of sensory descriptors, and other supplemental information was not considered.

Sensory descriptors, such as those found on the "Wine Aroma Wheel" (Noble et al., 1984; Noble et al., 1987), supply information about the wine and can be objective or subjective. Objective sensory descriptors often include analytical wine traits derived from grape growing and winemaking practices (Bender, 2008). These descriptors can be confirmed by scientific analysis. For example, a semi-dry wine can be confirmed by measuring residual sugar. In contrast, aesthetic descriptors apply to those subjective terms that act metaphorically to describe the wine to a consumer who may not understand the scientific terminology (Bender, 2008). For those consumers who may not understand such concepts as residual sugar or acidity as they relate to wine, aesthetic descriptors can act as a bridge to help connect these analytical wine traits with familiar concepts. However, aesthetic descriptors are determined by a reviewer's palate and can vary among tasters. These descriptors may help create an imaginative experience of a wine that will enhance the consumer's judgment of its quality regardless of the analytical traits (Dilworth, 2008). For this reason, the function of aesthetic descriptors is debatable.

Previous studies have investigated the importance of aesthetic sensory descriptors

to wine sales. Krumme (2009) noted that expensive wines tend to be described in terms of their authenticity and fullness of flavor. Aesthetic descriptors used for expensive wines are often more specific, and foods recommended for pairing with these wines tend to be more luxurious (Krumme, 2009). A second study by Ramirez (2010) presented the idea that longer wine descriptions were associated with higher bottle prices. He found that the use of more subjective descriptors added more monetary value than technical, scientific terms (Ramirez, 2010). Descriptors that consumers can relate to will also have more influence than an objective term that they do not understand. Quandt (2007) views these aesthetic descriptors as ambiguous adjectives and phrases that illogically portray wines. The argument made is that random words could be picked from a list of descriptors and sound just as convincing to consumers as professional reviews (Quandt, 2007). While these reviews hold much authority among consumers and help them determine their wine choice, the descriptors simply sound appealing and may not represent what the consumer will actually taste or smell.

Wine judgments will vary from person to person, but consumers may be manipulated by the objective and subjective descriptors they read on a tasting sheet just as they are influenced by back label wine attributes (Thomas and Pickering, 2003). However, a previous study that confirmed sensory descriptors to be important when purchasing wine also demonstrated that consumers struggled to match these descriptors with corresponding wines (Charters et al., 2000), and untrained consumers have been found incapable of matching wine descriptors with a corresponding wine (d'Hauteville, 2003; Weil, 2007). A study by Swahn et al. (2010) investigating the effect of sensory descriptors on apple choice found that consumer preference rankings differed when they sampled the apples versus when they relied solely on sensory descriptors to make their choice. These findings call into question the necessity of sensory descriptors, especially in tasting rooms.

Thus, while there is some disagreement about the reliability of sensory descriptors (particularly aesthetic descriptors), there is evidence that consumers are influenced by them and find them to be useful in purchase decisions. However, most of these studies apply to a grocery store or restaurant setting that would offer many different brands with an overwhelming number of different styles and varieties. Tasting rooms, on the other hand, typically allow visitors to sample a limited selection of one brand. There has not been enough research to determine the necessity of sensory descriptors in the tasting room or their effect on tasting room sales. The purpose of this study is to examine the impact of sensory descriptors, both objective and aesthetic, on bottle sales made in the tasting room.

2. METHODS
2.1 Tasting room selection
In response to an e-mail proposal sent to all wineries in New York state, seven wineries volunteered the use of nine tasting rooms for the study (two wineries operated two separate tasting rooms). Participating tasting rooms were located in three New York wine regions, including eight in the Finger Lakes, one in Lake Erie, and one in Long Island, and ranged in size from approximately 4,000 to 20,000 gallons of wine produced annually. All participating wineries rely on the tasting room as their primary sales channel.

2.2 Modified Tasting Sheet

Participating wineries provided the tasting sheets currently in use in their tasting room in electronic media format. These files were edited to create two modified tasting sheets; one sheet listed sensory descriptors for each wine included, and a second sheet omitted wine sensory descriptors. For this study, sensory descriptors included any adjective used to describe the flavor or aroma of the finished wine, both subjective and objective. Awards, pairings, grape varieties used, and viticulture practices noted on the original tasting sheet remained on the modified tasting sheet (see Figure 1). The modified tasting sheet kept winery logos, fonts, borders, and other aesthetic qualities identical to the original sheet.

Figure 1. Original and modified tasting notes from a Finger Lakes winery.
2011 PINOT GRIS---NEW RELEASE!!!------16.00
Deep lakes and sloping shorelines create the perfect climate for growing Pinot Gris, producing rich and fruitful flavors. Dry and full-bodied with decadent flavors of pink grapefruit, honeysuckle and lemon meringue. Enjoy this wine with grilled salmon and fresh herbs or cream-based soups like chowders and vichyssoise.

2011 PINOT GRIS---NEW RELEASE!!!------16.00
Deep lakes and sloping shorelines create the perfect climate for growing Pinot Gris. Enjoy this wine with grilled salmon and fresh herbs or cream-based soups like chowders and vichyssoise.

2.3 Pre-study interviews

Initial interviews were conducted with tasting room managers from each participating tasting room to determine clientele demographics, special events taking place at the winery or in the area, and information about the design and use of tasting sheet. Researchers were specifically interested in learning how sensory descriptors were created and used, and how tasting room attendants present the tasting sheet to customers.

2.4 Project design

The study was performed every Friday through Sunday over a six-week period from July 13 until August 18. Tasting rooms were randomly organized into two groups, one initiating the study with a tasting sheet listing descriptors, and one with the sheet sans descriptors. Tasting rooms alternated tasting sheets each weekend for the six-week period so that the treated tasting sheet (no descriptors included) was used just as frequently as the non-treated tasting sheet (descriptors included). Total wine bottles sold at the end of each day were recorded by each winery and reported the following week. In some cases, tasting rooms provided their dollar sales information as well. A follow-up interview was conducted with one member of certain tasting room's staff at the end of the study to discuss any differences noticed in customer behavior as tasting sheets were alternated.

2.5 Data

Total daily bottle sales data was received from all wineries at the end of each weekend. Seven of the nine tasting rooms provided their total daily dollar sales. Tasting

room staff also provided any information on events that may have occurred at the winery. Researchers consulted regional tourism calendars online to record any festivals taking place in the areas surrounding the participating tasting rooms, and obtained weather for each region using online weather information services (Weather Underground, 2012; The Weather Channel, 2012). All sales information was organized in an Excel spreadsheet for the six-week period.

2.6 Sales Analysis

A multiple regression analysis of dollar and bottle sales data was run using Stata software, controlling for other variables that may affect total sales, including the treatment used (descriptors or no descriptors), the winery, the day of the weekend, special events in the area, and weather conditions. The total sales measures include number of bottles purchased (*Bottles*) and number of dollars spent (*Dollars*). The equations to examine the link between treatment (no descriptors) and estimate total sales are:

(1) $Bottles = \beta_0 + \beta_1 Treatment + \beta_2 B + \beta_3 D + \beta_4 E + \beta_5 F + \beta_6 G + \beta_7 H + \beta_8 I + \beta_9 Festival + \beta_{10} Saturday + \beta_{11} Sunday + \beta_{12} Rain + \varepsilon_{12}$

(2) $Dollars = \beta_0 + \beta_1 Treatment + \beta_2 D + \beta_3 E + \beta_4 F + \beta_5 G + \beta_6 I + \beta_7 Festival + \beta_8 Saturday + \beta_9 Sunday + \beta_{10} Rain + \varepsilon_{10}$

3. RESULTS
3.1 Multiple Regression Results

The parameter estimates from running a regression on equations (1) and (2) are presented in Table 1. The adjusted R-squared value for the bottle regression and dollar regression was 0.52 and 0.63, respectively. These values suggest that approximately 53 percent of variation in total bottle sales and 63 percent of variation in total dollar sales was attributed to the factors included in the model.

The parameter estimates suggest that removing sensory descriptors from the tasting sheet is associated with a $215.53 increase in wine sales in a given day, keeping everything else constant. This parameter estimate is statistically significant at the ten percent level. The bottle regression parameter estimates, for its part, suggests that removing descriptors from the tasting sheet increases wine sales by 14.33 bottles in a given day. However, this result is not statistically significant. The differences in significance may be explained by the fact that in our sample the bottles' sales measure exhibits less variability than dollar sales. This indicates that, with all other variables held constant, tasting rooms may benefit from removing descriptors from tasting sheets. This result differs from previous wine and food studies that link descriptors with increased sales. However, an important difference between these studies is the setting, as tasting rooms allow consumers to sample multiple products before purchase, while grocery store and restaurant customers cannot make a final choice based on multiple tastings.

The regression results suggest that variables like tasting room, day of the weekend, festivals and weather, significantly impact wine sales when other variables are held constant. In general, the direction of the impact of these variables is as expected. For most locations, the specific tasting room had a significant effect on total sales at the one percent level of statistical significance in both dollar and bottle sales. Differences in total wine sales among tasting rooms could be based on factors such as tasting room size, reputation, and location. Day of the weekend is a main driver of high wine sales, showing

significance at the one percent level in both bottle and dollar sales. The parameter estimates suggests that Saturdays were associated with $1,117.58 increase in dollar sales and 68.47 more bottles purchased. Sundays, on the other hand, presented conflicting results, as dollar sales increased by $253.37 and show significance at the ten percent level, but bottle sales decreased by 3.14 bottles although the coefficient is not statistically significant. Festivals negatively affected wine sales in the tasting rooms studied, and are significant at the one and five percent levels in dollar and bottle sales, respectively. Specifically, festivals in the area decreased sales by $543.15 and 29.76 bottles. This may be explained by the fact that a festival creates a central event to attend and draws business away from the tasting rooms. It is important to note, however, that wineries often have a representative booth at festivals, so decreased sales in the tasting room may be balanced by festival sales. Finally, weather had a positive but statistically insignificant affect on wine dollar and bottle sales. This minor difference is likely due to the impact of weather conditions on spontaneous tasting trips, while pre-planned wine tours would be unaffected.

Table 1. Regression analysis of Total Dollar and Bottle Sales.

Variable (Factor)	Dollars	Bottles
Treatment	215.53*	14.33
	(120.64)	(12.55)
Tasting Room B	-	-110.22***
		(23.16)
Tasting Room D	-530.12***	-151.91***
	(181.99)	(22.58)
Tasting Room E	-654.47***	-199.13***
	(190.62)	(23.36)
Tasting Room F	-375.20**	-139.24***
	(181.99)	(22.58)
Tasting Room G	-1906.21***	-247.85***
	(181.99)	(22.58)
Tasting Room H	-	-79.80***
		(22.58)
Tasting Room I	-617.98***	-141.41***
	(181.99)	(22.58)
Festival	-543.15***	-29.76**
	(137.71)	(15.08)

Saturday	1246.44***	68.47***
	(142.32)	(15.47)
Sunday	253.37*	-3.14
	(137.63)	(15.05)
Rain	7.86	6.88
	(118.90)	(12.87)
R-Squared	0.63	0.52
No. Observations	126	162

*, **, *** denote statistical significance at the ten, five, and one percent levels, respectively.

4. CONCLUSIONS

This study examined the effect of tasting sheet sensory descriptors on tasting room wine sales, focusing on New York tasting rooms that rely mainly on direct-to-consumer sales. As many New York wineries rely on tasting room sales to generate the majority of their revenue, and the generation of sensory descriptors and production of tasting sheets represents time, effort, and expense, the efficacy of tasting room descriptor sheets on wine sales is of interest. The results suggest that sensory descriptors do not necessarily increase wine sales in the tasting room, in contrast to previous literature examining the effect of descriptors on food and wine products sales in retail outlets such as grocery stores and restaurants. In such outlets, sampling is rarely allowed, so descriptors are the only means consumers have to help make purchasing decisions. In contrast, tasting room visitors are often allowed to sample several wines, perhaps making sensory descriptors less important for decision-making. Complex and unfamiliar sensory descriptors may be intimidating to inexperienced consumers, who may face further frustration if they try a wine based on its sensory description but cannot recognize the same attributes, or if their expectations are not met. Descriptors that are unappealing to certain consumers may deter those who connote the descriptor with a negative sentiment, which result in less liking of the product (Wansink et al., 2000). More experienced wine tasters may have existing sensory expectations based on their knowledge of grape variety or wine style, reducing the effect of sensory descriptors on their choice. In fact, one tasting room involved in the study noted that sensory descriptors seemed to have a greater impact on wines carrying Alcohol and Tobacco Tax and Trade Bureau approved fanciful names (in contrast to wines identified by varietal), suggesting that consumers may consult descriptors more when tasting unfamiliar wines. This statement is supported by a study involving apples, which found that when presented with sensory descriptors, panelists favored apples with unfamiliar names which were favored least when identified by name alone (Swahn et al., 2010). This study suggests that consumers may choose an unfamiliar product based on the sensory expectations they create from descriptors. Further work needs to be done to assess the impact of sensory descriptors on tasting choice versus actual wine purchase and liking in the tasting room, and to determine

whether sensory descriptors are more effective with specific wine attributes, such as familiarity.

Though studies show that descriptors increased sales in settings offering a large assortment of brands and varieties, they may not be as crucial in a tasting room that offers a limited wine selection. Many tasting sheets give lengthy descriptions of each featured wine, which could be contributing to information overload and poorer purchase decisions (Jacoby et al., 1974). By removing these descriptors, there are fewer terms on the tasting sheet and less information that consumers must process. In a tasting room environment with staff to guide tasters, the extra and often repeated sensory information may not be necessary. The intimate tasting room experience and the idea of tasting room staff as guides may also contribute to the increase in sales without sensory descriptors provided on a tasting sheet. The wine tasting experience, particularly satisfaction with service, has been reported to increase consumer liking and wine purchases (Dodd and Gustafson, 1997). Thus, removing sensory descriptors may allow tasters to become more interactive, resulting in a greater chance of liking and wine purchase.

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