

**FACTORS INFLUENCING PREMIUMS ON
LOCAL WINES: AN EXPLORATORY
ASSESSMENT OF KANSAS WINE**

by

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ABSTRACT

While understanding consumer decisions about food choices is complex, the nature of wines makes it even more difficult to decipher how consumers arrive at their choices. Given the perceived importance of “local”, how willing are consumers to pay for locally-produced wine? And, what characteristics of the wine influence the premium that consumers pay for it? These are the two related questions that this research seeks to address. The research uses a case study approach to explore how five wine characteristics of local Kansas wine influence the premium consumers are willing to pay. The five characteristics are appearance, aroma, body, taste and finish.

The study uses four pairs of wine in the following groups: sweet white, dry white, semi-sweet red and dry red. Each pair is made up of a Kansas wine and a non-Kansas wine. A very well-defined set of focus group participants were invited to taste these wine without knowing the identity of the wines and score them according to their characteristics and then provide an indication of how much they are willing to pay.

The case results indicate that the focus group participants were willing to discount Kansas wines in all cases of the four pairs. The factors affecting the discount were finish for sweet white wines, appearance for sweet red wines, taste and aroma for dry white and dry red wines. The implication of this exploratory case study is that while most local residents proclaim their willingness to pay a premium for local wines, when tested against national or international competitors, consumers are unwilling to pay a premium for these local wines because the local wines lack the desired quality the international wines have.

The information is important because it provides direction for an entrepreneur seeking to develop local wines to focus on understanding and addressing the characteristics

which influence consumers' willingness to pay a premium even as she determines which particular wines current players in the local Kansas industry has the potential to be competitive if they address the characteristics upon which they are penalized by consumers. This, despite this being an exploratory case study, it provides important direction for entrepreneurial action.

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CHAPTER I: INTRODUCTION

While understanding consumer decisions about food choices is complex (Lancaster, 1966), the nature of wines makes it even more difficult to decipher how consumers arrive at their choices. This is because, by its nature, wine consumption is influenced by not just its intrinsic attributes but also by extrinsic characteristics.

Consumer behavior researchers have used one attribute or multiple attribute models to analyze quality indicators. Single attribute models have been criticized for their simplicity. Within the multi-attribute approach, Szybillo and Jacoby (1974) classified the quality indicator attributes into intrinsic and extrinsic. Intrinsic attributes involve the physical composition of the product that cannot be changed without altering the nature of the product itself. Extrinsic attributes are product-related, but not part of the physical product itself.

Lockshin and Hall (2003) assessed over 75 articles relating to wine choice behavior. They observed that the majority of them studied of the following items: region, taste, color, type, alcohol content, age, price, brand, and label. In particular, price, region and brand seem to be the most influential attributes considered in literature. Also, lifestyle, culture and traditions influence consumption behavior across countries and the importance that purchases place on the various wine characteristics.

It also appears that wine consumers' behavior is influenced by the consumers' age. The Wine Marketing Council, referenced by, Chang and Thach (2016) identifies four generational cohorts of wine consumers in the US. The Swing Generation, aged 70-82 years, is comprised of 30 million people. Considered to be cautious, disciplined and self-sacrificing, this generation is drinking less wine due to health reasons. The Boomer

Generation, aged 51-69 years, includes 77 million people. They are considered to be optimistic and driven. Boomers are currently buying and drinking the most wine in America. Gen Xers, aged 39-50 years, include about 44 million people, are considered skeptical, individualistic, but also community minded. This is primarily a cocktail generation, but is now drinking more wine. Millennials, aged 21-38 years, include 70 million people. This group is optimistic, team-orientated and assertive – and it drinks a lot of wine.

Generational Theory is a widely accepted social history theory that describes and explains changes and differences in public attitudes over time. According to Carpenter, Quenani-Petrela and Wolf (2005, p. 186), “the core wine consuming population, estimated at 15.7 million, is relatively small compared to the total adult U.S. population ages 21-59 of 142.6 million” (Carpenter, Qenani-Petrela and McGarry Wolf 2005, 186). The Wine Market Council (WMC) defines core wine consumers as individuals who drink wine at least once per week. Although, core wine drinkers account for only 11 percent of wine drinkers they account for 88 percent of wine consumed. U.S. adults over 40 years make up approximately 63 percent of the core wine consumer market (Carpenter, Qenani-Petrela and McGarry Wolf 2005).

Locally-grown and locally-produced are credence attributes that are getting increased attention in the market (Calantone, et al. 2009). An increasing number of local wineries have emerged in Kansas since the passage of the Farm Winery Act in 1985, illustrating an emerging market opportunity for local wine market. For example, the number of wineries in the state increased from 13 in 2005 to 38 (Appendix C) as of January 2016. In the absence of Kansas’ continuing restrictive alcohol laws and regulations, this

growth could even be higher, judging by the industry's growth in neighboring states (Amanor-Boadu and Ross, 2006).

It is plausible to expect that the growth in local wineries is supported by demand for local wine. The idea of "local" has been an important credence in the promotion and marketing efforts of many wineries across the country, including Kansas. Indeed, terroir has always been important in the wine industry; consider such products as Bordeaux and Champagne becoming the names of specific wine categories because they are produced in specific regions.

1.1 Research Question and Objectives

Given the perceived importance of "local", how willing are consumers to pay for locally-produced wine? And, what characteristics of the wine influence the premium that consumers pay for it? These are the two related questions that this research seeks to address. The traditional characteristics of the wine often used in consumer research are appearance, aroma, body, taste and finish. By local, this study is referring to wines produced by Kansas wineries, making non-local all wines that are not produced in Kansas.

The overall objective of the research is to identify the premiums consumers are willing to pay in four categories of wines: sweet white; dry white; semi-sweet; red and dry red. There are two specific objectives:

1. Estimate the premiums that consumers are willing to pay for Kansas wines compared to national wines in their categories; and
2. Identify the intrinsic characteristics of the wine influencing the premiums consumers are willing to pay for the wines.

1.2 Methods

This is an exploratory research seeking to provide an indication for an entrepreneur with an intent to build a winery in Kansas. Which of the four categories of wines – i.e., sweet white, dry white, semi-sweet red and dry red – does Kansas wineries present an advantage over their national competitors? This advantage would be presented by higher ranking scores for the different characteristics and a willingness to pay a higher price for them. This belief underscores the pricing of local products being marketed on the basis of their terroir, including wines, in many places. If this belief about local products is untrue, then many producers would price their products out of their markets without being aware of their shortcoming. They would also not be able to focus on their principal sources of competitive disadvantage in product characteristics, becoming over-dependent on their local-ness as a demand influencing variable.

The research uses two focus small groups whose members were selected because of their acquaintance with the researcher. The group tasted two wines in each category blindly. One of the wines in each category was a Kansas wine and the other was a national or international wine. This limited number of focus groups and focus group members and the small number of wine options in each category was a result of the cost of collecting data through direct experiments in which consumers were tasting products that can be very expensive. As such, the study is seen as an exploratory study to identify the indicative answers to the research question and allow the development of resources to conduct a larger study in future. The data collected from the focus group participants were analyzed using statistical and econometric methods with Microsoft Excel spreadsheet and STATA 14 statistical package.

1.3 Layout of Thesis

The thesis is organized as follows. The literature review of consumer demand for wine and other products based on attributes is presented in Chapter 2. The review covers the following specific topics: wine attributes, consumer wine preference by generation, and locally grown. The structure and conduct of the tasting experiments used with the focus groups are presented in Chapter 3 and Chapter 4 presents the results and their discussion from the experiments. The study's conclusions and recommendations are presented in the final chapter of the thesis.

CHAPTER II: LITERATURE REVIEW

This chapter presents the literature on wine consumers' willingness to pay for wine based on attributes. It is divided into three categories: Wine Attributes, Consumer Wine Preference by Generation and Local. This chapter also provides examples of prior research that supports the methods and tools that were used to solve the problem.

2.1 Wine Attributes

Consumer wine choice is based on several attributes or quality cues such as grape variety, producer, aroma, body, taste, finish, color, bottle shape, price, functional characteristics, external appearance, guarantee, brand name or designation of origin. It is important for companies to understand these preferences as they design marketing strategies (M. Brugarolas Molla-Bauza, et al. 2006). Table 2.1 lists the wine attributes that Cinquanta, Corduas and Ievoli analyzed in their study. The table captures the importance that Italian consumers put on the attributes moving from most influential (G1) to least (G5).

The attributes in the most influential cluster (G1) are shown to cover taste, aroma and ease of pairing with foods to enhance the meal experience. It also includes price-quality trade-off perceptions, suggesting that there is a strong link between these two variables in consumer choice decisions (Greatorex and Mitchell 1989). In the second-most influential cluster (G2) are attributes such as the wine's reputation as determined by the type of grape used and its origin. Since certain grapes do well only in certain regions, it is not surprising that region will influence perception of quality. These top clusters relate to consumer indicators and the wine's identity. The third cluster of most-influencing attributes include the producer of the wine – reputation of the estate and other identifying characteristics – as well as the “performance” of the wine, described as its embedded pleasantness and its alcohol content and color. It also includes the information presented

about the product on its label, helping consumers make the appropriate choice given their needs. G4 covers characteristics that are external to the wine itself as product but on the creativity of the marketing that surrounds and supports it – the shape of the bottle, branding name, terroir and label restrictions. That the terroir is in this cluster of characteristics instead of higher up the scale provides some indications of its importance to Italian consumers. This may be because Italians are focused on selecting their wines on the intrinsic characteristics instead of these extrinsic ones because of the choices they have in wines. According to (Malorgio, et al. 2011) report there being around “6000 firms” in the Italian wine industry. The least cluster influencing Italian wine consumers are protected geographical status, another characteristic associated with origin. Thus, despite the guarantee of certain production processes defined by these protection, Italian consumers do not seem to value them too much in their choice decisions about their wines (Cinquanta, Corduas and Ievoli 2013).

Table 2.1: Wine attributes

Wine attributes	Most Influential to Least
Wine complexity or taste	G1
Aroma/bouquet	G1
Food-pairing	G1
Quality-price ratio	G1
Grape variety	G2
Region of origin	G2
Producer	G3
Alcoholic degrees	G3
Color	G3
Drink's pleasantness	G3
Wine features described by the label information	G3
Bottle shape	G4
Brand name and label appearance	G4
Protected geographical status	G5

Source: (Cinquanta, Corduas and Ievoli 2013)

2.1.1 Wine Packaging and Brand

Although Cinquanta et al. (2013) observe that the shape of the bottle and the information on the label and similar packaging characteristics are not high on the choice influencing scale, there is evidence that packaging is important. Combris, Lecocq and Visser (1997) referenced by Charters et al. (2000) (Charters, Lockshin and Unwin 2000, 94) suggest that the objective characteristics of a bottle, particularly label characteristics, present significant influence on price. They noted that the back label had a greater influence on first time consumers and high involvement wine purchasers.

Wine packaging in Italy, especially the label, is crucial to selling wine since it establishes the identity of the product and gives cues to purchasers about what they should expect to find inside the bottle (Cinquanta, Corduas and Ievoli 2013). The packaging cues are pertinent in conveying the image of wine which is related to reputation and price.

Mueller and Szolnoki (2010) looked at extrinsic cues such as branding, labeling, packaging and price to determine their relative impact on consumer informed product evaluation. They observed that wine was found to be a product for which the evaluation of intrinsic sensory characteristics of wine are affected by extrinsic attributes. They also found that packaging and brand were the strongest variables influencing consumer choice, an observation that may seem counter to that made by Cinquanta et al in their wine attribute scaling presented in Table 2.1. On the other hand, grape variety and country of origin were found to be least important. Lastly, consumers' purchase intent was mainly influenced by their experience with the product and price.

Branding is closely aligned with the packaging since the latter is a principal means for transmitting information about the former. It shows up in the wine attributes table above and in the discussions about packaging and its importance. Ehrenberg (1988, p. 183)

observes that “Consumer purchase brands of products, and the brand names are the key unit of decision” (Repeating Buying Facts, Theory and Applications 1988). Although more and more wines, especially those from new producing countries such as Chile, South Africa and New Zealand, carry brand names, there are many different cues on the package that influence purchases. They include region, sub-region and country of origin, the vintage date, the grape variety and/or blend, the producer, style, the wine maker, and the specific vineyard.

2.1.2 Consumption Situation and Purchase Location

The situation where the consumer drinks or intends to drink wine influences preferences and may modify the perception of a given attribute. Hall and Locksin (2003) note that the importance of price is affected by the consumption occasion, with a willingness to pay higher prices corresponding to social situations when one needs to impress and lower prices connected to personal relaxation in private (Cinquanta, Corduas and Ievoli 2013).

The consumption situation is a function of the distribution channels and their related purchase locations. Generally, the distribution of wine and other alcoholic beverages are controlled in many jurisdictions because of the age-related constraints on consumption. On one hand, in the US, wine cannot be purchased by people under the age of 21 years and the strictness of the regulations differ across the country. In Europe, the rules are a lot different. However, the quality and supply of the wine may also influence the channels through which it is distributed. In Spain, for example, quality wine is distributed mainly through two distinct channels: hotels and restaurants and retailers. Wine distributed through hotels and restaurants are consumed in those establishments and present specific consumption situations – with friends in a public sphere. On the other hand, wines

distributed through retail channels are consumed at home, making location an important marketing variable. Molla-Bauza et al. (2006) note that about two-thirds of quality red wine purchases in Spain in 2000 occurred in hotels and restaurants. This channel, by default of the embedded service and situation, also have higher price points compared to the retail distribution channel.

2.1.3 Taste

Taste is essentially about sweetness and dryness. Sweetness is an attribute determined by the residual sugar levels. The lower the residual sugars, the dryer the wine. Koewn and Casey (1995) found that the taste of a wine was a dominant factor for wine consumers. Similarly, Thompson and Vourvachis (1995) found that taste was highly correlated to wine choice and noted that this was to be expected as it is frequently found to be the key factor wine choice. The nature of taste allows wines to be classed along the sweet-dry continuum. Thus we have sweet, semi-sweet, semi-dry and dry wines. However, these points are not cast in stone and do move according to consumer preferences. In other words, a semi-sweet wine may come off as semi-dry for some consumers and vice versa. Also, taste preferences have been noted to be influenced by age and experience of the consumer, with young and inexperienced consumers often preferring wines on the sweet side of the scale while older and/or experienced consumers preferring wines on the dry side of the scale.

2.1.4 Price

Price has been shown to be an important determinant of demand in economic theory and empirical research. In general, there is a negative relationship between price and quantity demanded, holding all other things, such as quality and income, constant. However, as with other products, Oczkowski (2001) has observed that wine prices are

positively related to quality, reputation and preferred objective characteristics (Oczkowski 2001). Koewn and Casey (1995) found that price was extremely important to all respondents, in a study of wine purchasing influences. Similarly, Jenster and Jenster (1993) determined that price was an overriding criterion in making purchase decision among European wine consumers. Generally, price is an important cue to quality when there are few other cues available. When the product cannot be evaluated before purchase, and when there is some degree of risk in making a wrong choice, price becomes the signal.

Amanda Hesser (2003) interviewed a number of wine industry stakeholders about the science and art of wine pricing. She quotes Mannie Berk, the owner of the Rare Wine Company, an importer in Sonoma, California, thus: "It's finding the right point in the market where you're priced appropriately in relation to other wines that are similar in stature and style and level, where both merchants and consumers will be eager to buy the wine." Christian Miller, director of research at Motto Kryla is also quoted as saying: "Almost all the high-priced wines around the world are produced in small amounts. It's the oldest economic rule of all. When you have a very small supply, with all things being equal, you can charge a higher price." Mr. Miller added: "The thing you're paying for as you move up would be prestige, scarcity and to some extent intensity of flavor" (Hesser 2003).

2.2 Consumer Wine Preference by Generation

Alcoholic beverages demand has been known to be influenced by age, and different generational cohorts have been shown to prefer certain beverages (Gaines, 2006; Agnoli, Begalli and Capitello, 2011). Mostly it is a question of price-alcohol content but it is also taste and preferences determined, with younger generational cohorts preferring beer while people in their mid-30s and upwards tend to have an affinity for wine. For example,

Agnoli, Begalli and Capitello (2011) estimated that while more than 30% of Generation Xers Baby Boomers and Traditionalists consumed wine on a daily basis, only 10% of Generation Yers did. Contrarily, while 6.1% of Generation Xers consumed beer on a daily basis, only about 1.5% of Traditionalists did.

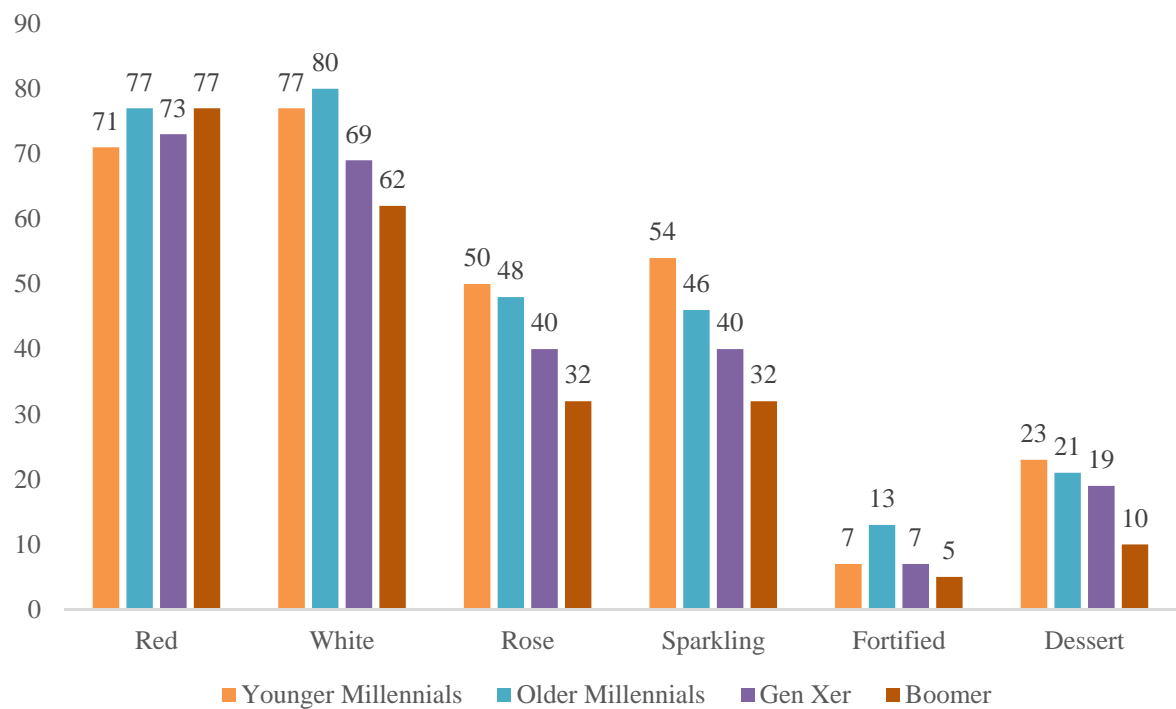
Research conducted by Sonoma State University (Chang and Thach 2016) seems to be the most recent looking specifically at wine preferences across the generational cohorts. The study reveals that Millennials, Gen Xers and Boomers are currently consuming wine at higher levels than in previous times. Using data on 1,055 self-identified wine consumers collected using an online survey conducted in 2015, the study shows that Older Millennials consume wine on a daily basis at a higher frequency than any other generation. Older Millennials also scored the highest as strongly agreeing to the statement that they consider wine to be a central part of their lifestyle. Figure 2.1 shows respondent preference by wine color, with the preference prevalence across all generations for red wine being between 71% and 77%, but increasing from Young Millennials to Older Millennials. For white wines, on the other hand, the study showed that, Young and Older Millennials preferred white wine at a higher percentage than GenXers and Boomers. The Sonoma State University study also showed that liquor stores and grocery stores were the most common locations for purchasing wines in the US. Table 2.2 provides the summary statistics of the respondents to contextualize the results. For example, the sample comprised 59% female and 41% male located in all 50 states. Their median annual income range was \$70,000 - \$99,999 (Chang and Thach 2016).

Table 2.2: Frequency of Wine Consumption by Generation

Generation	Daily	Several Times Per Week	Occasional (Once a week or less often)
Younger Millennials		12%	39%
Older Millennials		22%	43%
Gen Xer		16%	39%
Boomer		13%	41%

Source: (Chang and Thach 2016)

Figure 2.1: Percentage of Generations Preferring Wine Type



Source: (Chang and Thach 2016)

Carpenter et al. (2005) used a survey approach to collect data from a random sample of 416 alcohol consumers in San Luis Obispo County in February 2002. Their results showed the price point differentials across age cohorts. Generation Y consumers were shown to demand inexpensive wines that they believe represent a good value, in the \$5.00 to \$9.00 dollar range. Contrarily, Generation X wine consumers were found to care more about brand name and quality and were willing to typically spend more money to

purchase it. Generation X and Y consumers perceive New World wines to be less expensive than do Baby Boomers. Furthermore, Generation Y consumers perceive the New World wines to be of higher quality than do consumers from the other generations. This study revealed the emerging competition for California wine as New Producers discovered the emerging American wine consumer and started presenting products that were competitive in both quality and price to both domestic and European wines.

2.3 Locally Grown

Growing segments of world consumers seek higher quality, healthiness, and variety in their food. Accordingly, demand for agri-food products with credence attributes is increasing rapidly. Many studies suggest that credence attributes have an impact on some consumer groups' buying intentions, specifically on the amount they are willing to pay to acquire products. In this study, the researchers analyze consumers' motivations for buying agri-food products that are "locally grown." They clarify whether consumers are willing to pay a premium for "locally grown" products because they value the "locally grown" attribute itself, or because they mainly value "locally grown" as a signal of other desirable product attributes, such as freshness or its environmental friendliness. Marketers who understand why potential consumers are willing to pay a premium for credence attributes can make their consumer-targeting strategies more effective.

Batte et al. (2006) explored consumer attitudes towards locally-grown strawberries using data collected from shoppers whom were 18 years of age or older from 17 locations including; six farm markets, four farmers' markets, and seven retail grocery stores. They used structural equation modeling to separate direct from the indirect effects of "locally grown" on consumers' attitudes towards strawberries. The methods included: a series of eight choice experiments and a survey that asked attitudinal questions as well as economic

and demographic questions. The choice experiment was set up as a pair comparison for the respondent to indicate a preference for either product (one locally produced and one non-locally produced) or to indicate no preference. It was found that consumers were willing to pay an average of 64 cents more per quart for strawberries purchased in a grocery store. Also, consumers who purchased strawberries at direct markets would pay nearly \$1.17 more per carton that was grown locally rather than berries identified simply as “produced in the U.S” (Batte, et al. 2006). This shows substantial evidence that some consumers are willing to pay premium prices for food characterized as locally produced.

Marketing differentiated food products as “local” provides an opportunity for farms to capture a greater share of consumers’ food budgets, and for rural communities to generate greater incomes. Successful product differentiation and profitable product placement require more specialized knowledge of those food characteristics valued by consumers. As such, clarifying and quantifying the appeal of locally-grown produce provides valuable information to those interested in marketing. In the case of the fresh strawberries, purchase location was important.

CHAPTER III: DATA COLLECTION, ANALYTICAL METHODS AND SUMMARY STATISTICS

Data for this research question were collected using two focus groups organized into wine tasting panels with the help of a structured questionnaire. The focus group interviews and wine tasting occurred in Columbus, Nebraska and in Wichita, Kansas. The focus group participants were all known to the researcher and were invited based on their willingness to contribute to the research and their experience with consuming wine.

This exploratory study on the willingness to pay for Kansas wine and the factors influencing it involved data collected from 34 participants in the two focus groups. The interviews occurred on January 9, 2016 in Columbus, NE and on January 24, 2016 in Wichita, KS. The wines used in the study were selected specifically to reflect the five credence and other attributes of interest to this research: grape variety; estate; locale; taste structure; and price. They were also selected to represent color and sweetness. The grape varieties used in the production of the selected wines were influenced by the possibility of being grown in Kansas. The characteristic profile of the different wines used is presented in Table 3.1.

Table 3.1: The Price, Grape and Producers of Wines Used in the Experiments

Wine Name	Winery	Grape Variety	Type	Local Category	Retail Price
Sauvignon Blanc	Cupcake Vineyards	Sauvignon Blanc	Dry White	International	\$9.99
Dandy Horse	Wheat State Wine Co.	Vidal Blanc	Dry White	Local	\$17.99
Elderberry Dry	Wyldehood Cellars	Elderberry	Dry Red	Local	\$8.99
Cabernet Sauvignon	Barefoot	Cabernet Sauvignon	Dry Red	National	\$6.46
Moscato d'Asti	Cupcake Vineyards	Moscato	Sweet White	International	\$11.99
El Gato	Grace Hill Winery	Moscato	Sweet White	Local	\$11.99
Sweet Red Blend	Barefoot	Grenache Noir, Pinot Noir, Zinfandel, Petite Sirah, Barberfa	Sweet Red	National	\$5.99
Dodging Tornadoes	Grace Hill Winery	Chambourcin	Sweet Red	Local	\$14.99

The selected wines included four locally-produced Kansas wines, two California wines and two international wines – one each from New Zealand and Italy. The eight wines included in the study were distributed equally between red and white and dry and sweet.

Table 3.1 shows that prices ranged from \$5.99 for the Sweet Red produced by Barefoot to \$17.99 for Dandy Horse, Vidal Blanc by Wheat State Wine Co. It also shows that the Kansas wines generally exhibited higher prices than their counterpart non-Kansas wines.

To prepare focus group participants for the data collection process, they were given the following verbal instructions on how to examine and score the appearance, aroma, body, taste and finish of the wines before the tasting began. The specific instructions are as follows:

Appearance: Appearance refers to the wine’s clarity not color. To examine appearance, tilt the glass at a 45-degree angle in front of a white background and examine the color. Swirl the glass and note the “legs” or “tears” on the side of the glass. This may indicate a higher alcohol level. Then examine the color. A 5 in appearance would mean that the wine is clear, no off colors and leggy. A 1 would be cloudy, off colored with sediment.

Aroma: Aroma refers to the wine’s total smell. The Kobrand aroma chart (Kobrand Corporation, 2015) is the standard industry tool for describing aroma. To check for aroma, avoid distracting scents like perfume or cigarettes before tasting. Swirl the wine in the glass to aerate it and optimize the release of aromas. Isolate the different aromas and note their intensity. Identify individual aromas you detect. A 5 would indicate several complex aromas. A 1 would be little to no aroma or a vinegary smell. Figure 3.1 shows a full range of aromas that can be used to describe wine.

Figure 3.1: The Kobrand Aroma Chart

The Kobrand Aroma Chart																	
Light Fruit	Dark Fruit	Floral	Spice	Herbaceous or Vegetal	Earthy	Mineral											
Citrus Lime Grapefruit Lemon Orange Peel Blood Orange Green Green Apple Pear Gooseberry Grape Skin Green Plum Stone Fruits Apricot Nectarine Peach Tropical Pineapple Litchi Melon Banana Kiwi Mango Coconut Guava Passion Fruit	Red Cherry Wild Cherry Sour Cherry Raspberry Red Currant Strawberry Wild Strawberry Cranberry Black Blackberry Black Raspberry Boysenberry Black Currant Black Cherry Plum Blueberry Dried Raisin Prune Fig	Honeysuckle Orange Blossom Elderflower Apple Blossom Rose Petal Lilac Violet Pear Blossom Jasmine Lavender Confection Marmalade Jam Honey Caramel Butterscotch Toffee Brown Sugar Molasses Bubblegum	Nutmeg Cinnamon Pepper Clove Ginger Licorice Cardamom	Cut gGrass Hay Lemongrass Asparagus Sage Dill Mint Eucalyptus Tea Dried Herbs Anise Bell Pepper Tomato Skin	Mushrooms Wet Leaves Moss Forest Floor Barnyard Truffles Beeswax	Flint Slate Steel Pencil Lead Petrol Rubber Tar Wet Stones											
							Vanilla Almond Hazelnut Walnut Chestnut Chocolate Coffee Cola Espresso	Wet Wool Leather Gamey Musk Lanolin Saddle Leather	Nut & Bean	Oak Cedar Smoke Tobacco Sawdust Sandalwood	Bread Fresh Bread Biscuits Brioche Toast Butter Yeast						
												Animal	Woody	Liqueur Cassis Kirsch			
															Wet Wool Leather Gamey Musk Lanolin Saddle Leather	Oak Cedar Smoke Tobacco Sawdust Sandalwood	Fresh Bread Biscuits Brioche Toast Butter Yeast
			Wet Wool Leather Gamey Musk Lanolin Saddle Leather	Oak Cedar Smoke Tobacco Sawdust Sandalwood	Fresh Bread Biscuits Brioche Toast Butter Yeast												
						Wet Wool Leather Gamey Musk Lanolin Saddle Leather	Oak Cedar Smoke Tobacco Sawdust Sandalwood	Fresh Bread Biscuits Brioche Toast Butter Yeast									
									Wet Wool Leather Gamey Musk Lanolin Saddle Leather	Oak Cedar Smoke Tobacco Sawdust Sandalwood	Fresh Bread Biscuits Brioche Toast Butter Yeast						
												Wet Wool Leather Gamey Musk Lanolin Saddle Leather	Oak Cedar Smoke Tobacco Sawdust Sandalwood	Fresh Bread Biscuits Brioche Toast Butter Yeast			
															Wet Wool Leather Gamey Musk Lanolin Saddle Leather	Oak Cedar Smoke Tobacco Sawdust Sandalwood	Fresh Bread Biscuits Brioche Toast Butter Yeast
Wet Wool Leather Gamey Musk Lanolin Saddle Leather	Oak Cedar Smoke Tobacco Sawdust Sandalwood	Fresh Bread Biscuits Brioche Toast Butter Yeast															
			Wet Wool Leather Gamey Musk Lanolin Saddle Leather	Oak Cedar Smoke Tobacco Sawdust Sandalwood	Fresh Bread Biscuits Brioche Toast Butter Yeast												

Source: (Kobrand Corporation 2015)

Body: Body is the impression of weight on the palate. Body is often described as light, medium or full-bodied. A 5 is full of texture and weight and you can feel the wine in your mouth. A 1 is little to no texture in your mouth.

Taste: To analyze taste, first cleanse your mouth with a cracker or bread before taking your first sip. Swish the wine around your palate and evaluate its flavors, texture and

body. Determine whether the flavors confirm the aromas. Form conclusions about the wine's characteristics and grape variety. Note how long the wine's flavors last in the mouth and how they evolve after you've swallowed. A 5 would be several flavors detected. A 1 would be little or few flavors.

Finish: Finish is the aftertaste and with wine it should linger. A basic metric of quality is how long a wine's taste remains on the palate. A 5 is when the flavor lingers in the mouth. A 1 is when the taste ends abruptly or has no taste.

Participants did not know the identity of the wines being tasted and they were given two different types of wine at a time. The sequence of the tasting was as follows. Each participant first received the dry white, then the dry red, next they received the sweet white and finally the sweet red. They completed their assessment sheet (Appendix B) upon completing each tasting. In addition to the scoring of the wines according to the above criteria, participants were also asked to order rank the wines on a scale of 1 (most preferred) to 8 (least preferred). They were then asked to answer the following two questions for each of the wines they tasted: (1) Would you buy it? and (2) How much would you pay for it?

3.1 Focus Group Participants' Demographic Characteristics

With demographic and socio-economic information provided by only 26 of the 34 focus group participants, it was found that females accounted for 62% with more than half (53%) being Boomers compared to 21% Millennials. The proportion of GenXers (18%) was twice that of the Swing generation. This distribution is not surprising given that the participants were all acquaintances of the researcher and thus reflected the researcher's network of friends and acquaintances. Therefore, the focus group participants are non-

random and probably non-representative of the wine-drinking public. As observed earlier, the focus group participants were chosen for convenience to reflect the potential market segment of interest to the researcher because of her interest to establish a winery in Kansas in the future. About 21 of the 26 participants had an associate's or higher level of education and were in management or professional line of employment. As such, the majority (15) of them had incomes between \$50,000 and \$100,000 while seven had incomes in excess of \$100,000.

CHAPTER IV: DATA ANALYSIS

The stated and revealed preferences as well as estimated premiums that focus group participants were willing to pay for Kansas wines included in the study are presented and discussed in this chapter. The data were analyzed using Microsoft Excel and Stata SE 14. The chapter is organized into three sections: Summary results describing the participants' preferences; focus group members' willingness to pay for Kansas wine and the factors influencing premiums/discounts for Kansas wines.

4.1 Summary Results of Focus Group Preferences

The frequency with which focus group participants consumed different alcoholic beverages was determined to provide a context for their consumption of wine. The context information was obtained from 26 of the 34 participants in the focus groups.¹ Four different alcoholic beverages were considered: wine, beer, liquor and mixed drinks. Figure 4.1 shows that while one participant indicated not consuming wine, the remainder consumed wine at various frequencies. The majority of the participants were casual consumers of alcohol, indicating that they consume alcoholic beverages only "sometimes". However, in the "often" category wine was the alcoholic beverage with the highest frequency.

The frequency of purchasing the different alcoholic beverages was also investigated. Figure 4.2 shows that while 14 of the 26 focus group participants purchased wine on a monthly basis compared to only two on a weekly basis, about nine each indicated purchasing liquor and mixed drinks on more than monthly basis, compared to five for wine.

¹ The Nebraska Focus Group were not offered the opportunity to answer the demographic and socio-economic questions. This explains the use of 26 instead of 34 respondents in these analyses.

The preferred location of alcoholic beverages among the focus group participants was dependent on the beverage. Most people purchased wine, beer and liquor in liquor stores while about an equal number of people indicated purchasing mixed drinks from liquor stores as in restaurants. The distribution is presented in Figure 4.3.

Figure 4.1: Consumption Frequency (N=26)

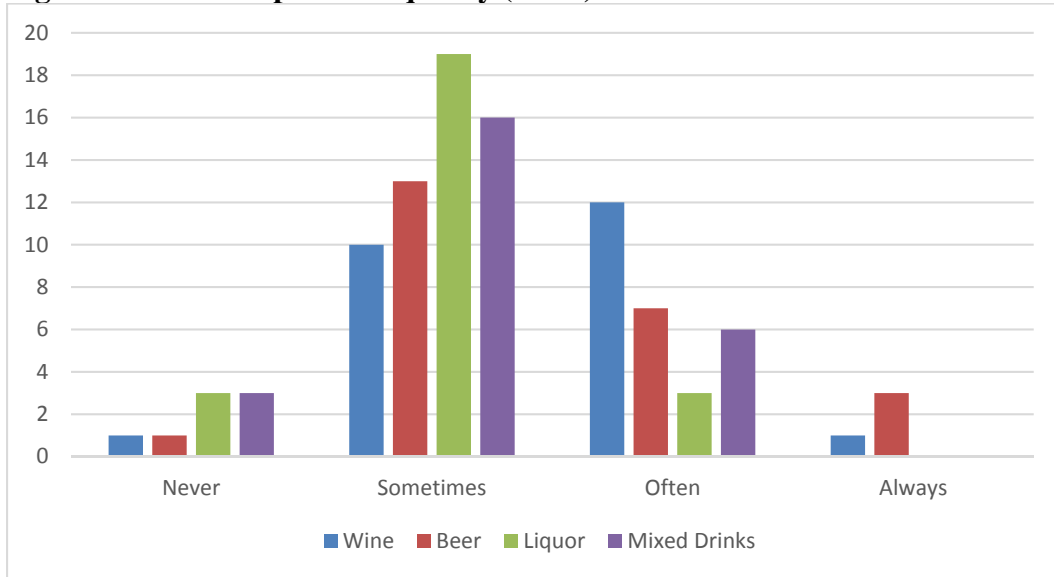


Figure 4.2: Purchase Frequency (N=26)

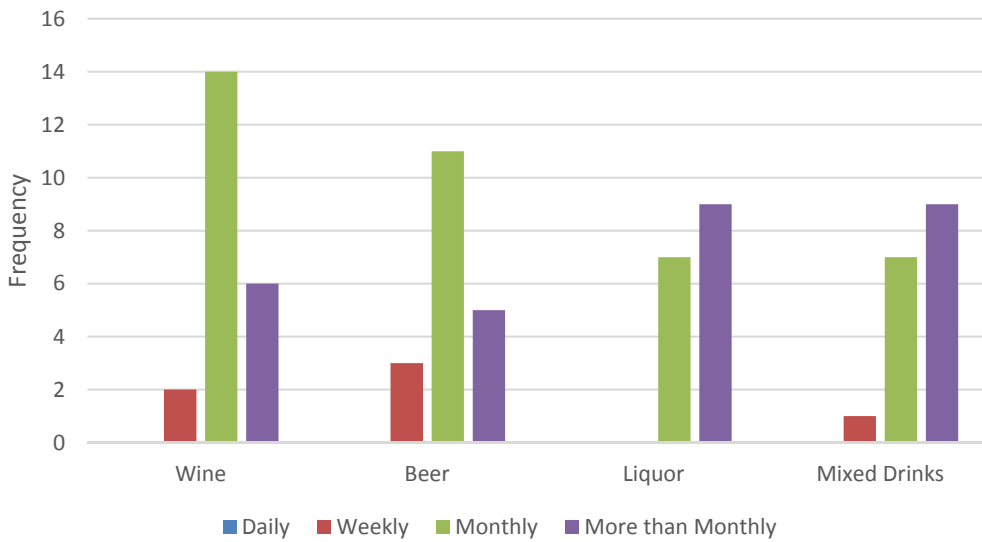


Figure 4.3: Alcoholic Purchase Locations (N=26)

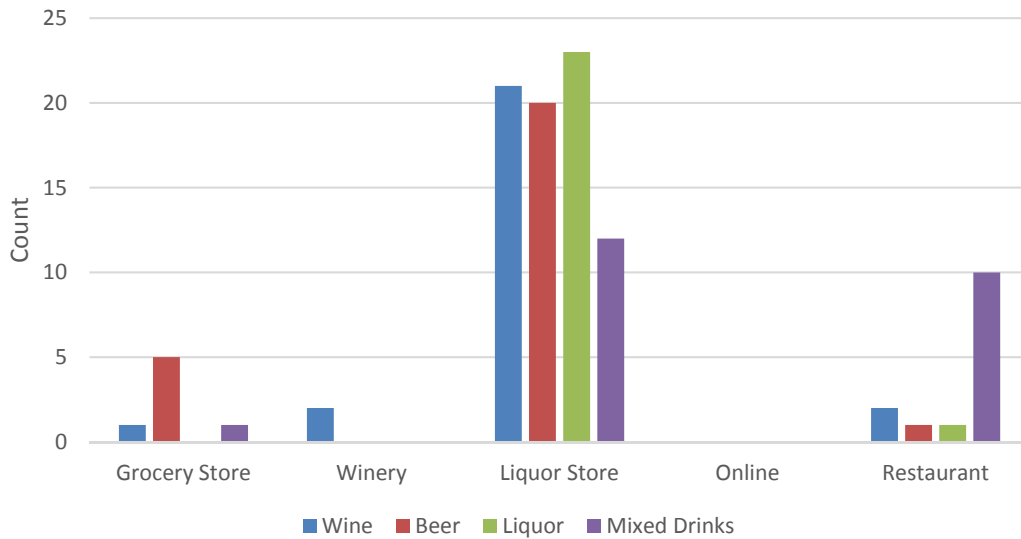


Figure 4.4 provides the results of participants' wine preferences. Their choices were the following: white, red, sweet, semi-sweet, dry, semi-dry, dessert and sparkling. The results show that red wine was preferred the most followed by white, dry and semi-sweet. Respondents were then asked to indicate how much they were willing to pay for each bottle of wine regardless of their choices. Figure 4.5 shows that most participants are willing to pay between \$10.00 and \$15.00 per bottle regardless of the wine. The highest average price per bottle was for sparkling wine at \$24.00, followed by dry at \$16.11 per bottle. On average, the participants stated they were willing to pay \$13.25 for white, \$14.29 for red, \$13.88 for sweet, \$14.79 for semi-sweet, \$11.58 for semi-dry and \$14.83 for dessert.

Figure 4.4: Wine Preference

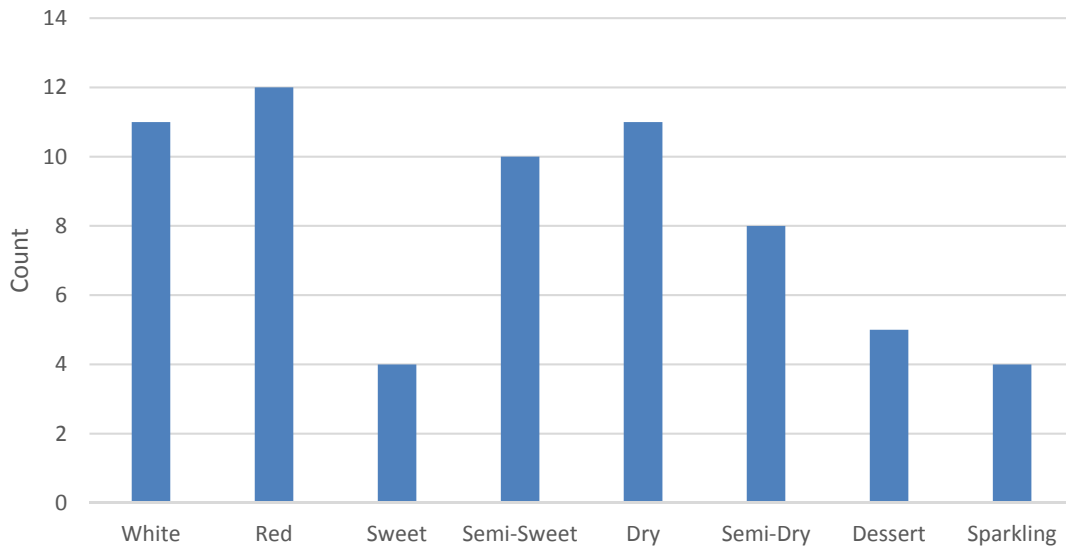


Figure 4.5: Average Wine Purchase Price

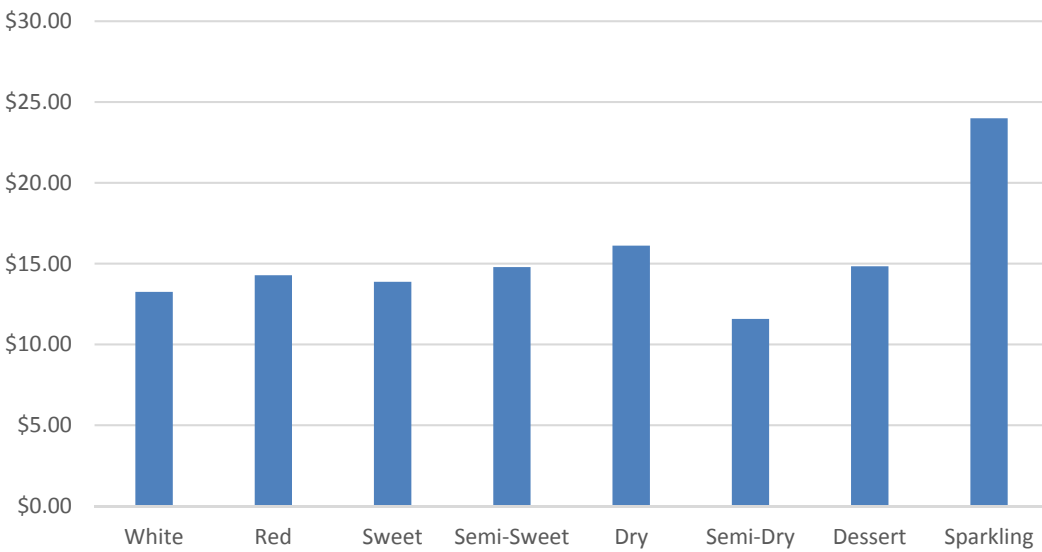


Table 4.1 shows the highest rated wines and brands for the \$10, \$15 and \$20 price point. Based on the information provided by the wine tasting participants, the Moscato d’Asti was the #1 wine in 2 out of the 3 price points and ended up rating #2 in the \$15 category. All three wines are sweet and 2 out of the 3 are white wines. Also, as the price increases the willingness to pay decreases; 19% of participants were willing to pay \$10

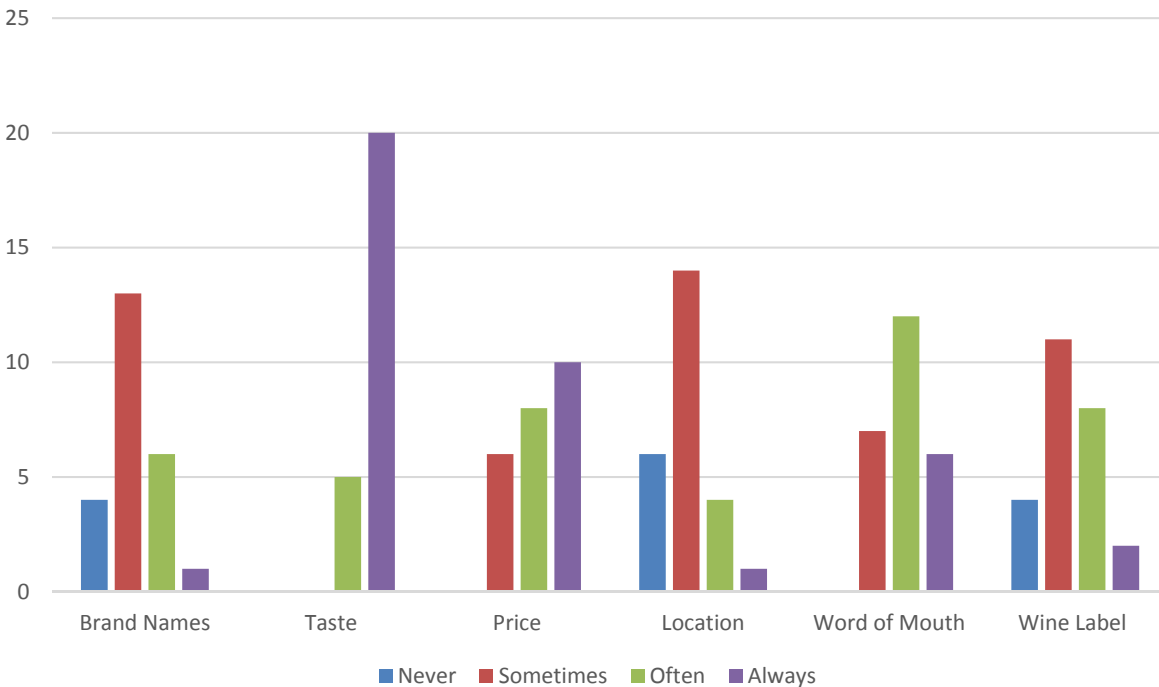
whereas only 4% of participants were willing to pay \$20. The data from Table 4.1 originated from how much the wine taster was willing to pay. This question was asked on the wine tasting tally sheet.

Table 4.1: Willingness to Pay per Price Point

Wine Type	\$10	\$15	\$20
#1 Wine	Moscato d'Asti	Sweet Red Blend	Moscato d'Asti
#1 Brand	Cupcake	Barefoot	Cupcake
Category	International	National	International
Sweetness	Sweet	Sweet	Sweet
Color	White	Red	White
Rating	4.1	2.7	1.5
Willingness to pay %	19%	14%	4%

Figure 4.6 shows the results of the factors influencing focus group members' wine purchasing decisions. In examining the purchase factors on a scale of "never", "sometimes", "often" and "always" participants were asked what influenced them the most. The following were rated the highest: brand names influenced "sometimes", taste "always", price "always", location "sometimes", word of mouth "often" and wine label "sometimes". Taste still seems to be the most important intrinsic attribute to influence the wine purchase.

Figure 4.6: Focus Group Members' Wine Purchase Factors (N=26)



4.2 Focus Group Members' Willingness to Pay for Kansas Wine

The next section of the focus group activity explored the extent to which focus group participants were willing to pay for selected Kansas wine compared to selected non-Kansas wines assumed to be in the same class of color and sweetness. This addressed the second objective of the study. The results are presented in two parts. The first shows participants' stated preferences; and the second their choice or revealed preferences.

Table 4.2 shows the results of focus group participants' stated preferences when asked to choose between locally-produced Kansas wines and their non-Kansas alternatives. The table shows that about two-thirds of them stated preferring Kansas-produced red wines to either California or foreign wines. However, only 55% of participants indicated preferring Kansas-produced white wines to non-Kansas white wines. When it came to sweet wines, all focus group participants stated their preference for Kansas-produced sweet wines. However, they were split equally between Kansas and non-Kansas semi-sweet

wines. The only products where non-Kansas wines were most preferred to Kansas wines were dry, dessert and sparkling wines.

Table 4.2: Stated Preference for Kansas-Produced Wine

Wine Type	Locally Produced %
White	55%
Red	67%
Sweet	100%
Semi-Sweet	50%
Dry	27%
Semi-Dry	63%
Dessert	20%
Sparkling	25%

Focus group participants' stated choices were collected prior to them tasting the wines or knowing the identity of the wines they tasted. Upon tasting each wine blindly, the participants were then asked to indicate how much they were willing to pay for a bottle of the wine they just tasted. Table 4.3 presents the summary statistics for their stated prices based on their taste experience. It is assumed that people are willing to pay more for products that meet their taste expectations. The table shows that the average price participants were willing to pay for Kansas wines was lower in all four wine pair categories. This would suggest that, on average, the participants viewed the selected Kansas wines to be inferior to their selected non-Kansas competitors in each of the four categories explored. For example, the mean price participants were willing to pay for a bottle of non-Kansas-produced sauvignon blanc was \$5.03 per bottle compared to \$4.62 for the Kansas white wine. The average price they were willing to pay for the non-Kansas-produced Moscato was \$10.15 per bottle compared to the Kansas Moscato at \$6.44. Given the limited information available to participants about the products, to what extent are their willingness to pay statements about Kansas-produced wines statistically different from the non-Kansas wines in the same category? We use a t-test to answer this question. This is

important because of the researcher’s interest in building a winery and determining whether consumers with the characteristics that are reflected by the focus group participants would choose her Kansas wines over the competition.

Table 4.3: Focus Group Members’ Stated Prices for Wines Used in Experiment

Wines	Locale	Mean Prices	Std. Error	95% CI	
				Lower Bound	Upper Bound
Sauvignon Blanc	International	\$5.03	\$0.99	\$3.01	\$7.05
Vidal Blanc	Kansas	\$4.62	\$1.06	\$2.47	\$6.77
Elderberry	Kansas	\$6.53	\$0.99	\$4.51	\$8.55
Cabernet Sauvignon	National	\$7.06	\$1.07	\$4.87	\$9.25
Moscato - Cupcake	International	\$10.15	\$1.06	\$7.99	\$12.30
Moscato – Grace Hill	Kansas	\$6.44	\$1.09	\$4.23	\$8.66
Sweet Red Blend - Barefoot	National	\$8.53	\$1.11	\$6.27	\$10.79
Sweet Red Blend – Grace Hill	Kansas	\$6.06	\$1.03	\$3.97	\$8.15

Premium is defined as the difference between participants’ stated price for the Kansas wine and its non-Kansas equivalent. When the premium is negative, i.e., when the Kansas price is lower than the non-Kansas price, then it is a discount. In other words, this is how much these participants would have to be compensated for them to be indifferent between the Kansas and non-Kansas products in the same class. Whether the premium (discount) is statistically significant is important because of the limited information presented to the participants. For example, it is possible that the selected wines were not the “best” in class for either the Kansas or non-Kansas wines, thereby introducing a bias into the experiment to start with. This exploratory study, then, directs attention to opportunities for the researcher to investigate deeper and identify potential areas where a clear competitive advantage may be attained.

Table 4.4 shows focus group participants were willing to pay a discount of about \$0.41 per bottle for Vidal Blanc if they had to choose between it and the Sauvignon

Blanc. Similarly, participants discounted the Kansas Elderberry by \$0.53 per bottle relative to the Cabernet sauvignon. These discounts were found not to be statistically significant at or below the 10% level of significant. As such, their willingness to pay for these pay may be deemed to be statistically the same, in other words, they were indifferent between the pairs as far as price goes. On the other hand, the discounts on the dry and sweet reds were both statistically significant, the former one being statistically significant at the 1% level while the latter was found to be statistically significant at the 10% level. Therefore, on these two, focus group participants clearly indicated that the Kansas wine had to be improved significantly to match its competitive equivalent on the basis of price. Thus, for the sweet reds, for example, the discount may be interpreted as focus group participants requiring to be paid about \$2.47 to make them indifferent between the Grace Hill and Barefoot sweet red blends. In other words, the price for Grace Hill’s sweet red blend has to be more than \$2.47 lower than Barefoot’s for them to consider purchasing it.

Table 4.4: Estimated Price Premium (Discount) for Local Wine Over Non-Local Wine

Premiums	Mean	SE	Pr(T > t)	Statistical Significance
Vidal Blanc – Sauvignon Blanc	\$(0.41)	\$1.26	0.756	
Elderberry - Cabernet Sauvignon	\$(0.53)	\$1.61	0.743	
Moscato (Grace Hill - Cupcake)	\$(3.71)	\$1.22	0.005	***
Sweet Red Blend (Grace Hill – Barefoot)	\$(2.47)	\$1.27	0.061	*

1% significance level = ***; 5% significance level = **; 10% significance level = *

Where are opportunities for Kansas wines presented in this experiment to enhance their performance to be competitive? We assess the pairwise statistical significance tests between the products for each of the sensory characteristics – appearance, taste, aroma,

body and finish. This exercise would provide insights about where participants perceived Kansas wines as most lacking or where they could make the most improvements.

4.2.1 Appearance

Table 4.5 shows focus group members' pairwise ranking on wine appearance. This study confirms the sentiments of Almenberg and Dreber (2009), who indicated the ambiguity of the wine tasting experience for many consumers (Almenberg and Dreber 2009). For example, the mean appearance ranking was slightly higher for Sauvignon Blanc at 4.12 then it was for the Vidal Blanc (4.09), the Kansas wine in that group. In the dry red category, the Kansas made wine, Elderberry received a higher average ranking (4.00) than the Cabernet Sauvignon at 3.79. In reviewing the ranking of appearance for Moscato, it was found that Grace Hill had a higher average at 4.12 compared to Cupcake at 4.03. In the sweet red blend category, Barefoot had a higher average mean at 4.12 than Grace Hill at 3.94. Now that we have reviewed the average appearance scores, let's determine if there are statistically significant differences.

Table 4.5: Summary Statistics on Appearance for Wines Used

Wines	Locale	Mean	Std. Error	95% CI	
				Lower Bound	Upper Bound
Sauvignon Blanc	International	4.12	0.14	3.84	4.40
Vidal Blanc	Kansas	4.09	0.15	3.79	4.39
Elderberry	Kansas	4.00	0.15	3.70	4.30
Cabernet Sauvignon	National	3.79	0.14	3.50	4.09
Moscato - Cupcake	International	4.03	0.17	3.68	4.38
Moscato – Grace Hill	Kansas	4.12	0.15	3.81	4.42
Sweet Red Blend - Barefoot	National	4.12	0.13	3.85	4.39
Sweet Red Blend – Grace Hill	Kansas	3.94	0.16	3.62	4.26

Table 4.6 aids in testing the hypothesis that the average ranking for appearance of the non-Kansas wine is higher than the Kansas wine because of the fact that participants have already indicated a premium for the non-Kansas wine. In other words, the null hypothesis is that Appearance (Non-Kansas) = Appearance (Kansas) and the alternative hypothesis is that Appearance (Non-Kansas) > Appearance (Kansas). The results show that we fail to reject the null hypothesis. Even in the case of Moscato where the mean is negative, indicating that the Kansas wine scored higher than the non-Kansas wine at the mean, the t-test indicated the absence of a statistical difference between them at the 5% or even the 10% level.

Table 4.6: Summary Statistics on Paired Category Differences for Appearance

Appearance	Mean	SE	T	Pr(T > t)	Statistical Significance
Vidal Blanc – Sauvignon Blanc	0.03	0.11	0.27	0.39	
Elderberry - Cabernet Sauvignon	0.21	0.14	1.42	0.08	
Moscato (Grace Hill - Cupcake)	-0.09	0.12	-0.72	0.75	
Sweet Red Blend (Grace Hill – Barefoot)	0.18	0.17	1.03	0.16	

1% significance level = ***; 5% significance level = **; 10% significance level = *

4.2.2 Aroma

Table 4.7 presents the results of the test of difference between Kansas and non-Kansas wines on the basis of their aroma rankings. The first pairwise ranking is for dry white, Sauvignon Blanc (non-Kansas wine) had a higher score at 3.38 than Vidal Blanc at 2.82. The next pairing is for dry red, Cabernet Sauvignon (non-Kansas wine) had a higher mean score at 2.71 than Elderberry at 2.47. For sweet white, Cupcake Moscato (non-Kansas wine) had a higher mean score than Grace Hill Moscato at 3.06. The only pairwise

ranking where a Kansas wine received a higher mean score for aroma was in the sweet red category. Grace Hill’s Sweet Red Blend received a mean score of 3.26 while Barefoot’s Sweet Red Blend received a 3.15.

Table 4.7: Summary Statistics for Aroma by Wine

Wines	Locale	Mean	Std. Error	95% CI	
				Lower Bound	Upper Bound
Sauvignon Blanc	International	3.38	0.16	3.05	3.72
Vidal Blanc	Kansas	2.82	0.21	2.39	3.26
Elderberry	Kansas	2.47	0.16	2.14	2.81
Cabernet Sauvignon	National	2.71	0.20	2.29	3.12
Moscato - Cupcake	International	3.32	0.16	2.99	3.65
Moscato - Grace Hill	Kansas	3.06	0.19	2.67	3.45
Sweet Red Blend - Barefoot	National	3.15	0.18	2.78	3.51
Sweet Red Blend - Grace Hill	Kansas	3.26	0.19	2.87	3.66

The hypothesis is that the average aroma score for non-Kansas wine is the same as the Kansas wine and the alternative is that the former is higher. Table 4.8 shows that the null was rejected for the Vidal Blanc and Sauvignon Blanc pair at the 5% level and for the Moscato’s (Cupcake and Grace Hill) at the 10% level. We are unable to reject the null hypothesis for the other two groups.

Table 4.8: Summary Statistics on Paired Category Differences for Aroma

Aroma	Mean	SE	T	Pr(T > t)	Statistical Significance
Vidal Blanc – Sauvignon Blanc	0.56	0.25	2.20	0.02	**
Elderberry - Cabernet Sauvignon	-0.24	0.24	-0.98	0.83	
Moscato (Grace Hill - Cupcake)	0.26	0.20	1.33	0.10	*
Sweet Red Blend (Grace Hill – Barefoot)	-0.12	0.25	-0.47	0.68	

1% significance level = ***; 5% significance level = **; 10% significance level = *

4.2.3 Body

The mean scores for body for the various wines are presented in Table 4.9. It shows that for dry white, Sauvignon Blanc (non-Kansas wine) scored 3.18 compared to 2.94 for Vidal Blanc. For the dry red, Elderberry presented a higher mean body score at 3.26 than Cabernet Sauvignon at 3.24. For sweet white, Cupcake Moscato (non-Kansas wine) had a higher mean score at 3.24 than Grace Hill Moscato at 3.18. Grace Hill's Sweet Red Blend received a mean score of 3.41 while Barefoot's Sweet Red Blend received a 3.32. Table 4.10 shows that given the foregoing mean body scores, none of the categories exhibited high enough difference for us to reject the null hypothesis.

Table 4.9: Summary Statistics for Body by Wine

Wines	Locale	Mean	Std. Error	95% CI	
				Lower Bound	Upper Bound
Sauvignon Blanc	International	3.18	0.17	2.83	3.53
Vidal Blanc	Kansas	2.94	0.17	2.60	3.28
Elderberry	Kansas	3.26	0.15	2.95	3.58
Cabernet Sauvignon	National	3.24	0.19	2.84	3.63
Moscato - Cupcake	International	3.24	0.16	2.90	3.57
Moscato – Grace Hill	Kansas	3.18	0.20	2.78	3.57
Sweet Red Blend - Barefoot	National	3.32	0.16	2.99	3.65
Sweet Red Blend – Grace Hill	Kansas	3.41	0.17	3.07	3.76

Table 4.10: Summary Statistics on Paired Category Differences for Body

Body	Mean	SE	T	Pr(T > t)	Statistical Significance
Vidal Blanc – Sauvignon Blanc	0.24	0.22	1.05	0.15	
Elderberry - Cabernet Sauvignon	0.03	0.19	0.15	0.44	
Moscato (Grace Hill - Cupcake)	0.06	0.23	0.25	0.40	
Sweet Red Blend (Grace Hill – Barefoot)	-0.09	0.20	-0.45	0.67	

4.2.4 Taste

Now that we know that the body attribute is not statistically significant let's now analyze the focus group members' mean ranking for taste shown in Table 4.11. The first pairwise ranking is for dry white, Sauvignon Blanc (non-Kansas wine) had a higher score at 3.24 than Vidal Blanc at 2.91. The next pairing is for dry red, Elderberry had a higher mean score at 3.21 than Cabernet Sauvignon at 2.88. For sweet white, Cupcake Moscato (non-Kansas wine) had a higher mean score at 3.74 than Grace Hill Moscato at 2.63. The only pairwise ranking where a Kansas wine received a higher mean score for aroma was in the sweet red category. Grace Hill's Sweet Red Blend received a mean score of 3.32 while Barefoot's Sweet Red Blend received a 3.29. As we saw within the body attribute, the results were evenly split for taste. The red Kansas wines received a higher average ranking than their pair while the white Kansas wines scored lower than their pair. Now that we have reviewed the average taste scores, let's determine if there are statistically significant differences.

Table 4.11: Summary Statistics for Taste by Wine

Wines	Locale	Mean	Std. Error	95% CI	
				Lower Bound	Upper Bound
Sauvignon Blanc	International	3.24	0.20	2.83	3.64
Vidal Blanc	Kansas	2.91	0.20	2.51	3.32
Elderberry	Kansas	3.21	0.20	2.80	3.62
Cabernet Sauvignon	National	2.88	0.23	2.41	3.35
Moscato - Cupcake	International	3.74	0.20	3.33	4.14
Moscato - Grace Hill	Kansas	2.63	0.23	2.16	3.11
Sweet Red Blend - Barefoot	National	3.29	0.17	2.94	3.64
Sweet Red Blend - Grace Hill	Kansas	3.32	0.19	2.93	3.71

Table 4.12 aids us in testing the hypothesis that the average mean for taste of the non-Kansas wine is the same or higher than the Kansas wine because participants have already indicated a premium for the non-Kansas wine. In the data set we did find statistical significance at the 1% level for Moscato’s Cupcake and Grace Hill to reject the null hypothesis. Interestingly enough, the mean was negative for the pairing of Sweet Red Blends. The negative mean implies the Kansas wine scored higher but in this cases the statistic is not significant. The results show that taste does play a factor in the willingness to pay scale in favor of the non-Kansas wine.

Table 4.12: Summary Statistics on Paired Category Differences for Taste

Taste	Mean	SE	T	Pr(T > t)	Statistical Significance
Vidal Blanc – Sauvignon Blanc	0.32	0.23	1.38	0.18	
Elderberry - Cabernet Sauvignon	0.32	0.30	1.09	0.29	
Moscato (Grace Hill - Cupcake)	1.10	0.26	4.21	0.00	***
Sweet Red Blend (Grace Hill – Barefoot)	-0.03	0.20	-0.15	0.88	

1% significance level = ***; 5% significance level = **; 10% significance level = *

4.2.5 Finish

In the previous subsection we determined that taste was significant in determining participants’ willingness to pay in favor of non-Kansas wine. Let’s see what the results for finish tell us (Table 4.13). The first pairwise ranking is for dry white, Sauvignon Blanc (non-Kansas wine) had a higher score at 3.35 than Vidal Blanc at 2.94. The next pairing is for dry red, Elderberry had a higher mean score at 3.18 than Cabernet Sauvignon at 3.09. For sweet white, Cupcake Moscato (non-Kansas wine) had a higher mean score at 3.47 than Grace Hill Moscato at 2.76. Grace Hill’s Sweet Red Blend received a mean score of 3.24 while Barefoot’s Sweet Red Blend received a 3.15.

Table 4.13: Summary Statistics for Finish by Wine

Wines	Locale	Mean	Std. Error	95% CI	
				Lower Bound	Upper Bound
Sauvignon Blanc	International	3.35	0.20	2.95	3.75
Vidal Blanc	Kansas	2.94	0.20	2.54	3.34
Elderberry	Kansas	3.18	0.17	2.83	3.53
Cabernet Sauvignon	National	3.09	0.26	2.56	3.61
Moscato - Cupcake	International	3.47	0.20	3.06	3.88
Moscato – Grace Hill	Kansas	2.76	0.22	2.31	3.22
Sweet Red Blend - Barefoot	National	3.15	0.19	2.75	3.54
Sweet Red Blend – Grace Hill	Kansas	3.24	0.20	2.83	3.64

The hypothesis is that the average finish score for non-Kansas wine is the same as the Kansas wine and the alternative is that the former is higher. Table 4.14 shows that the null was rejected for the Vidal Blanc and Sauvignon Blanc pair at the 10% level and for the Moscato’s (Cupcake and Grace Hill) at the 1% level. We are unable to reject the null hypothesis for the other two groups. For this group of consumers, aroma, taste and finish determine the premium/discount.

Table 4.14: Summary Statistics on Paired Category Differences for Finish

Finish	Mean	SE	T	Pr(T > t)	Statistical Significance
Vidal Blanc – Sauvignon Blanc	0.41	0.25	1.67	0.05	*
Elderberry - Cabernet Sauvignon	0.09	0.30	0.29	0.39	N/A
Moscato (Grace Hill - Cupcake)	0.71	0.28	2.56	0.01	***
Sweet Red Blend (Grace Hill – Barefoot)	-0.09	0.15	-0.59	0.72	N/A

1% significance level = ***; 5% significance level = **; 10% significance level = *

4.3 Factors Influencing Premium/Discounts

In this section, the specific factors influencing the level of premium/discount is modeled as a function of the characteristics of the wine and the demographics of the participant. The regression model is specified as follows:

$$p_{ki} = f(A_{ki}, R_{ki}, B_{ki}, T_{ki}, F_{ki}, S_i, G_i)$$

Where,

p_{ki} = Stated price difference between Kansas wine and non-Kansas wine (Price premium or discount (if negative)) for the k^{th} group of wines for the i^{th} participant

A_{ki} = Difference in appearance score by the i^{th} participant for the k^{th} group

R_{ki} = Difference in aroma score by the i^{th} participant for the k^{th} group

B_{ki} = Difference in body score by the i^{th} participant for the k^{th} group

T_{ki} = Difference in taste score by the i^{th} participant for the k^{th} group

F_{ki} = Difference in finish score by the i^{th} participant for the k^{th} group

S_i = Participant's gender, where 1 = male and 0 = female

G_i = Generation cohort, where 1 = Boomer and 0 = non-boomer

The model was run using regression routines in Stata 14 SE. The results for the sweet white are presented in Table 4.15. The results show that the whole model is statistically significant at the 1% level with an $F(7,26)$ of 2.41. The R-square is about 40% and the adjusted R-square is 23 percent. This implies that about 23% of the variability in the premium is explained by the variables in the model. The only statistically significant variable in the model, though, is finish. Gender and cohort category have no effect on the premium paid. However, a unit increase in the finish score of Moscato – Cupcake wine over the Moscato – Grace Hill wine would lead to an increase of \$1.70 in the premium paid. The opposite is also true: if the finish advantage of Moscato – Grace Hill wine should increase by 1 whole score point, the premium currently paid for the Moscato – Cupcake wine will decrease by \$1.70.

Table 4.15: Regression Results Showing Factors Influencing Sweet White Premium

Sweet White	Coef.	Std. Error	t	P>t	95% CI		Statistical Significance
					Lower Bound	Upper Bound	
Appearance	1.02	1.70	0.60	0.55	-2.47	4.51	
Body	-1.15	0.94	-1.23	0.23	-3.08	0.78	
Taste	-0.96	0.88	-1.10	0.28	-2.76	0.84	
Aroma	0.88	1.05	0.84	0.41	-1.28	3.03	
Finish	-1.70	0.99	-1.72	0.097	-3.73	0.33	*
Boomer	-2.47	2.47	-1	0.326	-7.55	2.61	
Male	-1.27	2.27	-0.56	0.582	-5.93	3.40	
Intercept	0.27	2.18	0.13	0.901	-4.21	4.75	

1% significance level = ***; 5% significance level = **; 10% significance level = *

The results for the sweet red are presented in Table 4.16. The model is statistically significant at the 1% level with an $F(7,26)$ of 1.98. The R-square is about 35% and the adjusted R-square is 17 percent. This implies that about 17% of the variability in the premium is explained by the variables in the model. The only statistically significant variable is appearance. A unit increase in the appearance score of Sweet Red Blend - Barefoot wine over the Sweet Red Blend – Grace Hill wine would lead to an increase of \$2.81 in the premium paid. The opposite is also true: if the appearance score of Sweet Red Blend – Grace Hill wine should increase by 1 whole score point, the premium currently paid for the Sweet Red Blend - Barefoot wine will decrease by \$2.81.

Table 4.16: Regression Results Showing Factors Influencing Sweet Red Premium

Sweet Red	Coef.	Std. Error	t	P>t	95% CI		Statistical Significance
					Lower Bound	Upper Bound	
Appearance	-2.81	1.30	-2.16	0.040	-5.49	-0.13	**
Body	1.34	1.63	0.83	0.417	-2.00	4.69	
Taste	-0.45	0.83	-0.55	0.590	-2.16	1.26	
Aroma	-0.02	0.91	-0.02	0.982	-1.89	1.85	
Finish	-3.35	2.12	-1.58	0.127	-7.72	1.02	
Boomer	3.41	2.51	1.36	0.186	-1.76	8.58	
Male	-2.78	2.52	-1.11	0.279	-7.96	2.39	
Intercept	-2.40	2.26	-1.06	0.299	-7.04	2.25	

1% significance level = ***; 5% significance level = **; 10% significance level = *

Table 4.17 shows the results for dry white. The model is statistically significant at the 1% level with an F(7,26) of 4.19. The R-square is about 53% and the adjusted R-square is 40.33 percent. This implies that about 40% of the variability in the premium is explained by the variables in the model. The only statistically significant variables are taste and aroma. A unit increase in the taste score of Sauvignon Blanc wine over the Vidal Blanc wine would lead to an increase of \$2.02 in the premium paid. The opposite is also true: if the taste advantage of Vidal Blanc wine should increase by 1 whole score point, the premium currently paid for the Sauvignon Blanc wine will decrease by \$2.02. A unit increase in the aroma score of Sauvignon Blanc wine over the Vidal Blanc wine would lead to an increase of \$1.91 in the premium paid. The opposite is also true: if the aroma advantage of Vidal Blanc wine should increase by 1 whole score point, the premium currently paid for the Sauvignon Blanc wine will decrease by \$1.91.

Table 4.17: Regression Results Showing Factors Influencing Dry White Premium

Dry White	Coef.	Std. Error	t	P>t	95% CI		Statistical Significance
					Lower Bound	Upper Bound	
Appearance	1.07	1.72	0.62	0.540	-2.46	4.60	
Body	-2.02	1.28	-1.58	0.127	-4.66	0.62	
Taste	-2.02	1.17	-1.72	0.097	-4.43	0.39	*
Aroma	-1.91	0.79	-2.42	0.023	-3.53	-0.29	**
Finish	1.14	1.17	0.98	0.337	-1.26	3.55	
Boomer	-1.71	2.09	-0.82	0.420	-6.02	2.59	
Male	0.31	2.33	0.13	0.895	-4.47	5.09	
Intercept	2.07	1.63	1.27	0.217	-1.29	5.43	

1% significance level = ***; 5% significance level = **; 10% significance level = *

Table 4.18 shows the results for dry red. The model is statistically significant at the 1% level with an $F(7,26)$ of 6.16. The R-square is about 62% and the adjusted R-square is 52 percent. This implies that about 52% of the variability in the premium is explained by the variables in the model. The only statistically significant variables are taste and aroma. A unit increase in the taste score of Cabernet Sauvignon wine over the Elderberry wine would lead to an increase of \$3.31 in the premium paid. The opposite is also true: if the taste advantage of Elderberry wine should increase by 1 whole score point, the premium currently paid for the Cabernet Sauvignon wine will decrease by \$3.31. A unit increase in the aroma score of Cabernet Sauvignon wine over the Elderberry wine would lead to an increase of \$2.26 in the premium paid. The opposite is also true: if the aroma advantage of Elderberry wine should increase by 1 whole score point, the premium currently paid for the Cabernet Sauvignon wine will decrease by \$2.26.

Table 4.18: Regression Results Showing Factors Influencing Dry Red Premium

Dry Red	Coef.	Std. Error	t	P>t	95% CI		Statistical Significance
					Lower Bound	Upper Bound	
Appearance	-1.53	1.42	-1.08	0.292	-4.45	1.39	N/A
Body	-0.55	1.46	-0.38	0.707	-3.55	2.45	N/A
Taste	3.31	0.88	3.76	0.001	1.50	5.12	***
Aroma	2.26	1.00	2.26	0.033	0.20	4.32	**
Finish	0.17	1.13	0.15	0.882	-2.16	2.50	N/A
Boomer	-3.61	2.62	-1.38	0.179	-9.00	1.77	N/A
Male	1.33	2.59	0.51	0.611	-3.99	6.65	N/A
Intercept	0.65	2.05	0.32	0.753	-3.56	4.86	N/A

1% significance level = ***; 5% significance level = **; 10% significance level = *

CHAPTER V: CONCLUSION

Given that the number of farm wineries continue to increase in Kansas, it is important for future entrepreneurs to thoroughly understand how willing consumers are to pay premiums for locally-produced wine before they enter the market because of their inherent scale disadvantage. This study is an exploratory study that does exactly that. We analyzed the traditional characteristics of wine which are often used in consumer research: appearance, aroma, body, taste and finish. This study paired up Kansas produced wine against non-local/international/national wine. We tested the statistical differences between the paired wines in each category to understand which premiums were truly different. We identified the premiums consumers were willing to pay in four categories of wines: sweet white; dry white; semi-sweet; red and dry red. The methods that were used in this study were a survey instrument and blind wine tasting sessions conducted in two locations. The data were analyzed using Microsoft Excel and Stata SE 14.

The two specific objectives of these research were: (1) Estimate the premiums that consumers are willing to pay for Kansas wines compared to national wines in their categories; and (2) Identify the intrinsic characteristics of the wine influencing the premiums consumers are willing to pay for the wines. Through this research, we determined the selected pairs of wine in the focus group experiment resulted in discounts on all the local wines. In other words, the participants in the focus groups were only willing to purchase the locally-produced wines instead of its paired non-local wine if they are rewarded by paying a lower price. This is contrary to most of the studies that show that people are willing to pay premiums for locally-produced products. The study also shows that the wine attributes contributing to the discount were taste and aroma in the case of dry

white and dry red wines, and appearance and finish in the case of sweet red and sweet white respectively. This implies that there is an opportunity for the local wines used in the experiment to enhance their attribute profiles against the non-local wines in order to enhance the probability that consumers will reward them with higher prices.

5.1 Suggestions for Further Study

As an exploratory endeavor, this research does not provide any inferential power. Thus, the results are informative but cannot be extrapolated to other wines or to randomly sampled consumers. Therefore, it is suggested that future research into this use a larger number of focus groups and a larger set of wines in each of the categories. For example, Kansas wines in the same category may be paired against each other while non-Kansas wines may be paired against each other to ensure some level of randomized control experiments to enhance the inferential power of the results. While the approach used here was essentially cost-driven, future research may explore the potential of engaging industry and other interested agencies to overcome this challenge and improve the power of the results.

Another consideration for future research would be to have participants rate their wine knowledge, drinking experience and disclose level of involvement within the wine industry. This would allow the researcher to categorize participants and place some extraneous value on their knowledge in their attribute rankings and their valuation of the wines.

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APPENDIX A

Wine Tasting Focus Group Survey DEMOGRAPHIC INFORMATION

Participant ID:

1. **Age:**

2. **Gender:**
 Male Female

3. **Children at home:**
 Yes No

4. **Household Income level:**
 Less than \$25,000 \$25,000 – \$50,000 \$50,000-\$100,000 \$100,000 - \$250,000

 More than \$250,000

5. **Highest education achieved:**
 High school diploma Associates Degree Bachelor's degree Master's degree PhD

6. **Profession:**
 - a. **Management**
 - b. **Professional**
 - c. **Hourly - Clerical/Non-Production**
 - d. **Hourly- Laborer/Production**

CONSUMER INFORMATION

7. Do you drink alcohol? Please check which one applies.

Yes	No
-----	----

If No, thank you for coming.

8. How often do you consume the following beverages:

Beverage	Never	Sometimes	Often	Always
Wine				
Beer				
Liquor				
Mixed Drinks				

9. How frequently do you purchase the following alcoholic beverage

Beverage	Daily	Weekly	Monthly	More than Monthly
Wine				
Beer				
Liquor				
Mixed Drinks				

10. Where do you most often purchase your alcoholic beverage?

Beverage	Grocery store	Winery	Liquor Store	Online	Restaurant
Wine					
Beer					

Liquor					
Mixed Drinks					

11. Please check your preferences for the types of wine presented below.

White	Red	Sweet	Semi-sweet	Dry	Semi-dry	Dessert	Sparkling

12. For the types of wines you indicated as your preference, please indicate how much you typically pay per bottle.

Type	White	Red	Sweet	Semi-sweet	Dry	Semi-dry	Dessert	Sparkling
\$/bottle								

13. Which of your preferred products are locally produced? (Check all that apply)

Type	White	Red	Sweet	Semi-sweet	Dry	Semi-dry	Dessert	Sparkling
Locally Produced								

14. To what extent would you be willing to pay a premium for your selected wines were produced by a local winery with local grapes? Your premium may be negative if you would pay less than you pay for the non-local wine.

Type	White	Red	Sweet	Semi-sweet	Dry	Semi-dry	Dessert	Sparkling
\$/bottle								

15. Please indicate the extent to which the following influence your decisions when purchasing wine. (0 = Never; 1 = Sometimes; 2= Often; 3= Always)

	0	1	2	3
Brand Name				
Taste				
Price				
Location				
Word of mouth				
Wine Label				

APPENDIX B

	Dry White		Dry Red		Sweet White		Sweet Red	
	#1	#2	#3	#4	#5	#6	#7	#8
Rate the following: 1-5 (5 is the highest)								
Appearance								
Aroma								
Body								
Taste								
Finish								
Total								
Max	25	25	25	25	25	25	25	25
Wine Rating (1-8) 1 is the wine you liked the best								
Would you buy this wine? Yes or No								
How much would you pay for this wine?								

APPENDIX C

County	Owner	Business Name	City
Barton	Rosewood Services Inc	Rosewood Winery	Pawnee Rock
Bourbon	Robert P. Duncan & Denise S. Duncan	Vinedo Del Alamo	Fort Scott
Cherokee	Vogel Property Group LLC	Vogel Family Vineyards	Galena
Coffey	Fuga Winery LLC	Fuga Winery LLC	Waverly
Cowley	Randall Storey & Rebecca Storey	Windswept Winery	Udall
Cowley	Versato LLC	Mabels Homestead Vineyards	Arkansas City
Cowley	Wheat State Wine Co LLC	Wheat State Wine Co	Winfield
Douglas	Anthony K Kugler	Kuglers Vineyard	Lawrence
Douglas	Bluejacket Crossing Vineyard & Winery LLC	Bluejacket Crossing Vineyard & Winery	Eudora
Douglas	Gregory A Shipe	Davenport Orchards & Vineyards	Eudora
Douglas	White Tail Run Winery LLC	White Tail Run Winery	Edgerton
Franklin	Leland H Gerhardt & Donnita J Gerhardt	Pome on the Range Orchard & Winery	Williamsburg
Gray	Tierra Del Sol Vineyards LLC	Tierra Del Sol Vineyards	Cimarron
Harvey	Sollo Vineyards LLC	Grace Hill Winery	Whitewater
Jefferson	Crooked Post Winery LLC	Crooked Post Winery	Ozawkie
Jefferson	Don Bryant	Jefferson Hill Farm & Winery	McLouth
Johnson	Aubrey Farms LLC	Aubrey Vineyards	Overland Park
Johnson	Gilbert Hermes LLC	White Wind Vineyard & Winery	Shawnee
Johnson	Hoff Farms Inc	Stone Pillar Vineyard & Winery	Olathe
Johnson	KC Pumpkin Patch LLC	KC Wine Co	Olathe
Leavenworth	Free State Vineyards LLC	Free State Vineyards	Lawrence
Leavenworth	Holy Field Vineyard & Winery LLC	Holy Field Vineyard & Winery	Basehor
Lyon	Emporia Winery LLC	Twin Rivers Wine & Gourmet Shoppe	Emporia
Marion	Vinduska Meadery LLC	Vinduska Meadery	Marion
Miami	Dennis J Reynolds	Somerset Ridge Vineyard & Winery	Paola
Miami	Graue Vineyards Middle Creek Winery LLC	Middle Creek Winery	Louisburg
Miami	Nighthawk Vineyard & Winery LLC	Nighthawk Vineyard & Winery	Paola
Miami	Sunnye Ridge Winery LLC	Sunnye Ridge Winery	LaCygne
Pottawatomie	Highland Community College	Highland Community College	Wamego
Pottawatomie	Oz Winery LLC	Oz Winery	Wamego
Riley	LAWE LLC	Liquid Art Winery and Estate	Manhattan
Saline	Smoky Hill Vineyards & Winery Inc	Smoky Hill Vineyards & Winery	Salina
Shawnee	Glaciers Edge Vineyard & Winery LLC	Glaciers Edge Vineyard & Winery	Wakarusa
Sumner	Wyldeewood Cellars Inc	Wyldeewood Cellars	Peck
Trego	Shiloh Vineyard LLC	Shiloh Vineyard	WaKeeney
Wabaunsee	Prairie Fire Winery LLC	Prairie Fire Winery	Paxico
Wyandotte	Marc Rowe & Pamela Rowe	Rowe Ridge Vineyard & Winery	Kansas City
Wyandotte	Wine Barn LLC	Wine Barn	Kansas City