

“Nothing Good Ever Came from New Jersey”: Expectations and the Sensory Perception of Wines*

Robert H. Ashton^a

Abstract

The influence of expectations on the sensory perception of wines is investigated in three studies in which New Jersey and California red wines are blind tasted. Studies 1 and 2, in which only the color of the wines is known prior to tasting, demonstrate that neither wine club members nor experienced wine professionals can distinguish between New Jersey and California wines in terms of personal enjoyment. In contrast, Study 3, in which tasters are informed that some (though not which) of the wines are from New Jersey, finds that when a wine is believed to be from New Jersey it receives lower enjoyment ratings than when the identical wine is believed to be from California—regardless of whether the wine is *actually* from New Jersey or California. The results enhance our understanding of the role of expectations in the interpretation of subjective experiences. Implications for wine producers and wine consumers are explored. (JEL Classification: C91)

Keywords: California wines, expectations, New Jersey wines, nonsensory cues, sensory perception.

I. Introduction

Expectations have been shown in many contexts to exert a strong influence on the interpretation of subjective experiences, affecting not only our perceptions of such experiences but also our memories of them (e.g., Carlsmith and Aronson, 1963; Darley and Gross, 1983; Klaaren et al., 1994; Wilson et al., 1989). The source of such expectations could be one’s own experiences, the reports of others, or the presence of certain cues in a particular setting. In the specific domain of foods and beverages, it is well known that expectations formed by exposure to a variety of external

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^aThe Fuqua School of Business, Duke University, 100 Fuqua Drive, Durham, NC 27708; e-mail: robert.ashton@duke.edu.

cues can enhance or degrade the pre-consumption perception of a product and that such enhancement or degradation can influence subsequent sensory perception during consumption (Cardello, 1994; Deliza and MacFie, 1996). The influence of expectations on sensory perception has been demonstrated with a wide range of foods and beverages, including natural yogurt, soy, liver paté, and beer (e.g., Bowen et al., 1992; Hurling and Shepherd, 2003; Lee et al., 2006; Schifferstein et al., 1999; Tuorila et al., 1998; Wansink et al., 2000).

The sensory perception of wines is a case in point. Studies in which wines are tasted blind, except for nonsensory cues that are provided to consumers prior to tasting, find that such cues have a substantial impact on tasters' sensory perceptions. Nonsensory cues that have been studied include the wine's price (Plassmann et al., 2008; Veale and Quester, 2008), its country of origin (Veale and Quester, 2008), and the type of label that appears on the bottle (Brochet, 2001). In these studies, consumers perceive that wines they believe are more expensive, to come from France, instead of, for example, Chile, and that wines poured from bottles with Grand Cru labels taste better, even though they are unknowingly tasting the *same* wine.

In contrast, blind-tasting studies in which no external cue is provided find that consumers are generally unable to distinguish among wines that differ on nonsensory attributes often thought to be important. Examples are Ashton (2014) and Goldstein et al. (2008), who studied wines that varied widely in price; Weil (2001), who studied wines from "excellent" vs. "average" vintages; and Weil (2005), who studied wines designated as "reserve" vs. "regular" bottlings, but who did not disclose any of these distinctions prior to tasting.

The present paper reports three studies that, together, exploit what is known about the sensory perceptions of wine consumers when they do and do not have their expectations set by the provision of nonsensory cues prior to tasting. In these studies, three different groups of participants blind-taste the same six red wines, four from California and two from New Jersey, and rate the extent to which they enjoy each. In Study 1 (wine club members) and Study 2 (wine professionals), participants know only the color of the wines prior to tasting—similar to the Ashton (2014), Goldstein et al. (2008), and Weil (2001, 2005) studies. The results of Studies 1 and 2 provide a "baseline" of ratings for Study 3, in which participants are given a nonsensory cue prior to tasting—similar to the Brochet (2001), Plassmann et al. (2008), and Veale and Quester (2008) studies. Specifically, participants in Study 3 are informed that two of the six wines (but not *which* two) are from New Jersey. Participants first identify the wines they believe to be from New Jersey and then rate all six wines. If their *expectations* about the wines, rather than the wines themselves, dominate their sensory perceptions, participants will "downgrade" the wines that they believe to be from New Jersey relative to participants who believe that the same wines are from California—regardless of whether the wines identified as from New Jersey are *actually* from New Jersey or California.

The contention that wine consumers will downgrade wines they believe to be from New Jersey relative to wines they believe to be from more familiar wine-producing locations such as California takes as given that consumers *expect* New Jersey wines will not be enjoyable, a notion that seems uncontroversial. Davidson (2013), for example, discussing the success of some New Jersey winemakers in securing the Outer Coastal Plain (OCP) designation for their wines, says: “The OCP has only one real challenge: It’s in southern New Jersey, a state associated with many things—Springsteen, Snooki, industrial pollution, the mob—but not great wine.” A similar point is made in a *Morning Edition* segment on National Public Radio, which also focused in part on the OCP designation, which is now prominently displayed on many New Jersey wine labels. The segment was given the following title (Smith, 2013): “The Trick to Selling Fancy Wine from New Jersey: Don’t Say It’s from New Jersey.” A third anecdote concerning consumers’ expectations about New Jersey wines is provided by one of the participants in Study 1. After blind-tasting the four California and two New Jersey wines (knowing only their color) and rating the extent to which they enjoyed each wine, participants were informed that two of the wines were from New Jersey. One of the participants, without waiting to hear *which* two wines were from New Jersey, exclaimed: “Nothing good ever came from New Jersey!”—hence the title of this paper.

II. The Judgments of Princeton and Paris

The decision to focus on New Jersey and California wines was inspired by the “Judgment of Princeton,” a blind tasting of New Jersey and French wines held in Princeton, NJ, on June 8, 2012, at the annual meeting of the American Association of Wine Economists (AAWE). The tasting involved nine wine industry professionals (producers, columnists, restaurateurs, etc.) from the United States, France, and Belgium who tasted six New Jersey and four French reds (and six New Jersey and four French whites), rating each on a 20-point scale.¹ The Princeton tasting was patterned closely after the “Judgment of Paris,” the May 24, 1976, blind tasting of French and California wines that revolutionized the wine world (Taber, 2006): In that tasting, nine renowned members of the French wine establishment, to whom California wines were largely unfamiliar, tasted six California and four French reds (and six California and four French whites), rating each on a 20-point scale.

In the Paris tasting, both the top-scoring red wine and the top-scoring white wine were from California. In the Princeton tasting, both the top-scoring red and white wines were from France, but the largely unknown New Jersey wines fared remark-

¹ The Princeton tasting is described in detail by Ashenfelter and Storchmann (2012), Ginsburgh and Zang (2012), Quandt (2012), Taber (2012), and Ward (2012).

ably well against the much more famous (and expensive) French wines.² For example, one of the New Jersey reds, from Heritage Vineyards, placed third in terms of average scores, and one of the New Jersey whites, from Unionville Vineyards, placed second. Therefore, just as the Paris tasting had done 36 years earlier, the Princeton tasting demonstrated that, in blind tastings, wines that are largely unknown can elicit similar overall sensory perceptions as their more familiar counterparts, even among experienced wine tasters. The present studies both extend and deepen research on this issue by pitting New Jersey wines against California wines and by highlighting the influence of pre-tasting expectations.

Two of the four California wines chosen for the present studies are marketed as cabernet sauvignons, which, under California law, requires them to be at least 75 percent from the cabernet sauvignon grape: Heitz Cellar Cabernet Sauvignon Napa Valley 2007 (\$40) and Worthy Sophia's Cuvée Cabernet Sauvignon Napa Valley 2007 (\$30). The other two California wines are marketed as blends: Orin Swift Papillon Napa Valley 2009 (\$70) and Artesa Elements Red Wine Sonoma County 2009 (\$20). The two New Jersey wines, both marketed as "Bordeaux Blends," are Heritage Vineyards Estate Reserve BDX 2010 (\$35/\$70) and Unionville Vineyards Red Montage 2010 (\$30).³ The goal in choosing these six wines was to include representative wines that are widely available to consumers.

III. Study 1

A. Method

The procedures involved in Study 1 were very similar to those of the blind tastings reported by Ashton (2014), and the participants were drawn from the same pool of wine consumers. The tasters were 15 members of the Wine Appreciation Club in the full-time MBA program at the Fuqua School of Business, Duke University. Before they began tasting, the only thing that they knew about each wine was its color. The tasting, conducted in April 2013, lasted about one hour, divided about equally between the tasting itself and a follow-up debriefing.

Participants were instructed to rate the extent to which they enjoyed each wine on a scale from 1 ("I did not enjoy this wine at all") to 10 ("I enjoyed this wine as much as or more than any red wine I have ever tasted"). Participants were also instructed to

²Taber (2012, 146) describes the price differences in the Princeton study as follows: "The eight French wines ranged in price from \$70 to \$650 wholesale, with most in the \$100–150 range. The New Jersey wines cost from \$12 to \$50, and the majority were under \$40."

³Note that the Heritage Estate Reserve BDX is the New Jersey wine that placed third overall in the Judgment of Princeton tasting. Prior to the tasting, it sold for \$35, but the winery doubled the price after the tasting results were publicized—thus the designation (\$35/\$70) above. The Unionville Red Montage was not included in the Princeton tasting, but was served at social events during the AAWE meetings.

Table 1
Means (Standard Deviations) of Enjoyment Ratings and Place-of-Origin Judgments of California and New Jersey Wines: Studies 1 and 2

<i>Wines</i>	<i>Study 1</i>		<i>Study 2</i>	
	<i>Wine Club Members</i>		<i>Wine Professionals</i>	
	<i>Means</i>	<i>SD</i>	<i>Means</i>	<i>SD</i>
1. Artesa (CA)	5.47	(1.60)	6.50	(1.91)
2. Heitz (CA)	4.87	(1.85)	6.00	(0.82)
3. Heritage (NJ)	5.40	(1.68)	6.25	(1.50)
4. Unionville (NJ)	4.87	(1.88)	6.50	(3.11)
5. Orin Swift (CA)	5.27	(2.25)	6.00	(1.83)
6. Worthy (CA)	5.27	(1.87)	7.50	(1.00)
CA Average	5.22	(1.89)	6.50	(1.39)
NJ Average	5.14	(1.78)	6.38	(2.30)

<i>Most Likely Place of Origin</i>	<i>Study 1</i>		<i>Study 2</i>	
	<i>Percent of Responses</i>		<i>Percent of Responses</i>	
	<i>CA Wines</i>	<i>NJ Wines</i>	<i>CA Wines</i>	<i>NJ Wines</i>
Argentina	29.1	22.2	12.5	12.5
Australia	12.7	18.5	18.8	0.0
California	20.0	25.9	25.0	50.0
France	18.2	14.8	25.0	12.5
Italy	10.9	18.5	12.5	12.5
Other	9.1	0.0	6.3	12.5

indicate what they believed to be the most likely place of origin of each wine by choosing one of the following responses: Argentina, Australia, California, France, Italy, and Other (in which case, a blank was provided for anyone who wished to be more specific).

B. Results

The mean (standard deviation) of enjoyment ratings for each wine is shown in the top half of [Table 1](#), which lists the wines as they were numbered in the tasting (Artesa was labeled number 1, Heitz number 2, etc.). While participants use the entire 10-point response scale (with the exception of 10) to rate the wines, the mean ratings differ relatively little across wines. None of the differences in means even approaches conventional levels of statistical significance. The overall mean is 5.19. More importantly, the mean ratings of the California wines (5.22) and the New Jersey wines (5.14) are almost identical. Thus, in this blind tasting in which nonsensory cues are not provided, participants do not distinguish between the New Jersey and California wines in terms of personal enjoyment.

Participants also do not distinguish between the New Jersey and California wines in terms of most likely place of origin, as shown in the bottom half of [Table 1](#). The

modal response for the California wines is Argentina, followed by California and France. The modal response for the New Jersey wines is California, followed by Argentina and Australia/Italy. Overall, the results suggest that this group of wine consumers has neither a clear taste preference between these California and New Jersey wines nor a clear sense of the wines' geographic origins.

IV. Study 2

A. Method

A potential concern with Study 1 is that participants are novices with relatively little experience or knowledge in wine tasting. Clearly, both sensory and cognitive mechanisms are involved in wine tasting, both of which likely can be honed with experience (Hughson and Boakes, 2001, 2002; Morrot, 1999). It is an open question, however, whether greater experience or knowledge will translate into preferences different from those observed in Study 1.

To address this concern, Study 1 was repeated with four experienced wine professionals—the wine buyer for a large gourmet specialty store (with 25 years of experience in the wine business), a retail wine store owner (17 years), a sales representative for a wine distributor who previously had been an assistant sommelier (10 years), and a wine importer/supplier who sells to distributors (2 years). Obviously, caution must be exercised in interpreting findings from such a small number of participants, but their variety and length of experience as wine professionals may nevertheless allow Study 1's results to be supplemented in a useful way.

Study 2, conducted in July 2013, involved procedures similar to those in Study 1. In addition to rating each wine and indicating what they believed to be its most likely place of origin, the wine professionals were told to write a few words or phrases that they thought best described each of the wines. Participants in Study 1 were not asked to do this because research finds that substantial experience in tasting and communicating about wine is a necessary (though not sufficient) condition for meaningful “wine talk” (e.g., Brochet and Dubourdieu, 2001; Gawel, 1997; Lawless, 1984; Lehrer, 1975, 1983, 2009; Solomon, 1990, 1997; Weil, 2007).

B. Results

The mean ratings and place-of-origin results are presented in Table 1, alongside the corresponding results from Study 1. The wine professionals rate all six wines more highly than the novices do, by an average of about 1.25 on the 10-point scale.⁴

⁴ It is not clear why the wine professionals in Study 2 rate all the wines higher than the wine club members in Study 1 (and also higher than the wine club members in Study 3—see below). It could simply be due to

However, their mean ratings of the California wines (6.50) and the New Jersey wines (6.38) are almost identical, and, as in Study 1, none of the differences in means approaches statistical significance. Moreover, the wine professionals' place-of-origin beliefs are no more accurate than those of the novices.⁵ Thus, the results in this particular setting do not support the idea that professionals and novices differ in their appreciation for New Jersey vs. California wines.

Descriptors provided by the wine professionals are shown separately for each wine in Table 2. A total of 125 descriptors were provided or an average of about five descriptors per wine per person. I have grouped them into four categories: (1) *Fruit*, which includes descriptors related to detection of fruits, flowers, and spices in the wine's aroma or taste (52% of all descriptors); (2) *Balance*, which includes terms related to tannins, acidity, integration, balance, and finish (22%); (3) *Oak*, which is self-explanatory (10%); and (4) *Other*, which includes descriptors related to grape variety, Old World vs. New World, and a few terms that are difficult to classify elsewhere (16%).

It is important not to "overinterpret" the data in Table 2, so perhaps the main observation should be that it is difficult to discern major differences across wines in the descriptors provided. However, one thing stands out in Table 2 (at least for me): Substantially more "fruit"-related descriptors are provided for Heritage (15) than for any of the other wines (10, on average); moreover, the variety of such descriptors is greater for Heritage (coffee, vanilla, sage, tea leaf, toast, and moss, in addition to the usual red- and black-fruit descriptors). Thus, these wine professionals perceive a broader range of fruit-related aromas/tastes in this New Jersey wine than in any of the others.

the professionals' greater experience with wines if such experience has the effect of enhancing wine appreciation generally. Another possibility concerns the locations in which the studies were conducted: Studies 1 and 3 were conducted in a university classroom, while Study 2 was conducted in a retail wine store (on a Sunday when the store was closed). After the three studies were completed, I became aware of research that lends support to the possibility that the tasting location may influence participants' sensory perceptions. Sauvageot (1999) had participants blind-taste the same three wines in a classroom at the University of Burgundy in Dijon and in the winery of a wine-maker in Burgundy. All three wines were rated significantly higher when tasted in the winery. Sauvageot (1999, 69) conjectures that "in a winery, the students would think that the wines presented by a wine-grower are necessarily of good quality, even if they are part of a series of analyses." Analogously, it is possible that conducting Study 2 in a retail wine store could have influenced the wine professionals' ratings, instead of or in addition to their greater experience with wines.

⁵Interestingly, all four wine professionals indicate that they believe the Heritage Vineyards Estate Reserve BDX, the New Jersey wine that placed highly in the Judgment of Princeton tasting, is from California. This is the only wine on which all four agree (although mistakenly). In contrast, the other New Jersey wine, the Unionville Vineyards Red Montage, elicits strong *disagreement* among the professionals, and is the only wine to do so. Unionville is believed to be from Argentina, France, Italy, and Virginia. Despite this level of disagreement, the Unionville is rated, on average, about the same as the Heritage.

Table 2
Descriptors Provided by Wine Professionals: Study 2

	<i>1. Artesa (CA)</i>	<i>2. Heitz (CA)</i>	<i>3. Heritage (NJ)</i>	<i>4. Unionville (NJ)</i>	<i>5. Orin Swift (CA)</i>	<i>6. Worthy (CA)</i>
Fruit	blackberry, black raspberry, macerated fruit, violets, soft fruit nose, midpalate dark cherry, very mild mocha tones, moderately intense nose, dusty, black fruit, spicy, vanilla	dusty, rose plum, steeped tea, desiccated earth, tart cherry nose, mild barnyard backtones, balanced fruit—cassis, cherry, not much aromatics, blackberry, allspice	blueberry, blackberry, black cherry, vanilla, sage, coffee and spice aromas, moss, cocoa, chocolate, blue fruit, herbs, dark fruit at first, medium toast, Bing cherry, tea leaf	tart cherry, flinty, roasted herbs, violets, purple flowers, minty on nose and palate, aromatic, dried flowers, fruit, moderate intensity aromas	blackberry, black cherry (2), dark plum, pretty nose—black cherry, anise, subtle oak spice, rich fruit palate leans toward blackberry and blueberry, not much on nose, glue, chemical aromas, intense cooked fruit, spices, blueberry	tomato paste, black cherry, dried fruit tones—baking spices, rhubarb and cherry pie, moderate fruit, slight cassis
Balance	brief finish, moderate acidity, low to moderate finish, fresh acidity that lasts on finish	zesty medium length finish, light to moderate body, moderate acidity, moderate finish	out of balance, moderate flavor, approachable	moderate tannins, not much integration, good balance, chewy, good finish, balanced tannins	nice texture, balanced, soft tannins, length on finish	moderate tannins give midpalate some grip, lengthy finish, good balance and integration, moderate acidity, elegant with backtones, balanced, medium tannins
Oak	oak, mild oak tannins, blend of American and French oak, 10 months	well integrated oak tones, American oak/treated	strong new oak on nose, overwhelms fruit, oak, oak, and more oak, French oak	big oak on nose—American oak? More new oak?, possibly French oak	finish full of oak, French oak, 10+ months	American and French oak
Other	malbec, garnacia	sangiovese?, shiraz, New World	cabernet, pinot noir, New World (2)	malbec, ripe, Old World	shiraz or malbec?, merlot, nice!, hot climate, overextracted	immediately think Rhone, grenache, possibly cabernet or merlot

V. Study 3

A. Method

Study 3, conducted in October 2013, involved the same six wines as the earlier studies. Participants were 18 members of the Fuqua Wine Appreciation Club who had not participated in Study 1. For this study, the wines were grouped into two subsets, with two California and one New Jersey wine in each. Thus, Study 3 was designed as two "triangle tests" (Amerine and Roessler, 1983; Peynaud, 1987), and the tasters' first task was to identify which wine in each triangle was from New Jersey. Participants were then asked to explain *why* they believed that the wine they chose in each triangle was the New Jersey wine and finally to rate all six wines on the same 10-point scale used in the earlier studies. The Worthy (CA), Unionville (NJ), and Heitz (CA) wines comprised one triangle, while the Orin Swift (CA), Heritage (NJ), and Artesa (CA) wines comprised the other. Aside from this design change, the tasting procedures were the same as those in Study 1.

The results of Study 1, in which the mean ratings of the California and New Jersey wines are essentially identical in the absence of the "New Jersey cue," suggest that this new sample of participants from the same population of tasters will have considerable difficulty in correctly identifying the New Jersey wines based solely on sensory perception. Other research, showing that expectations in general strongly influence the interpretation of subjective experiences, as well as the findings of Brochet (2001), Plassmann et al. (2008), and Veale and Quester (2008) in the specific context of wine, suggests that these tasters will "downgrade" their ratings for the wines that they believe (correctly or incorrectly) to be from New Jersey.

B. Results

I first consider the extent to which the tasters correctly identify the New Jersey wine in each of the two triangles. With 18 tasters and three choices, there should be six correct identifications in each triangle by chance alone. This is precisely what occurs. Moreover, simply by chance there should be two tasters who correctly identify *both* New Jersey wines. However, there is only one taster who does so.

The means and standard deviations of participants' ratings of each wine are presented in Table 3. Overall, the mean ratings in Study 3 are very similar to those in Study 1 (see Table 1). The grand mean across all wines is 5.24 in Study 3, compared to 5.19 in Study 1. The mean ratings for California (New Jersey) wines in Study 3 are 5.25 (5.22), compared to 5.22 (5.14) in Study 1. Again, none of the mean differences approaches statistical significance. Thus, these two samples of tasters from the same population express very similar preferences, on average, across the six wines.

The key comparison in Study 3 concerns the ratings of participants who believe that a particular wine is from California vis-à-vis those who believe that the identical wine is from New Jersey. If the participants' expectations about the sensory

Table 3

Means (Standard Deviations) of Enjoyment Ratings of California and New Jersey Wines: Study 3

Wines	Overall		Identified as CA		Identified as NJ	
	Means	SD	Means	SD	Means	SD
1. Artesa (CA)	5.33	(2.03)	5.70	(2.11)	4.88	(1.96)
2. Heitz (CA)	5.39	(2.03)	5.85	(1.86)	4.20	(2.17)
3. Heritage (NJ)	5.33	(2.03)	5.67	(2.02)	4.67	(2.07)
4. Unionville (NJ)	5.11	(1.91)	5.92	(1.62)	3.50	(1.38)
5. Orin Swift (CA)	5.22	(1.47)	5.64	(1.15)	3.75	(1.71)
6. Worthy (CA)	5.06	(1.66)	5.73	(1.42)	4.00	(1.53)
CA Average	5.25	(1.78)	5.73	(1.59)	4.29	(1.78)
NJ Average	5.22	(1.94)	5.79	(1.79)	4.08	(1.78)

properties of California and New Jersey wines dominate their sensory experience of the wine itself, wines that they believe to be from California will receive higher ratings than wines that they believe to be from New Jersey, regardless of the wines' actual geographic origins.

This result does indeed obtain. Across all six wines, the mean rating when the wines are believed to be from California (New Jersey) is 5.75 (4.22), a significant difference ($t = 4.44$; $p = .000$, one-tailed). Moreover, this result holds without regard to whether the wine is *actually* from California or New Jersey. California wines correctly (incorrectly) believed to be from California (New Jersey) are rated 5.73 (4.29), a significant difference ($t = 3.47$; $p = .001$). Similarly, New Jersey wines incorrectly (correctly) believed to be from California (New Jersey) are rated 5.79 (4.08), again a significant difference ($t = 2.70$; $p = .005$).⁶

The reasons that participants provide for identifying a particular wine in each triangle as being from New Jersey are shown in Table 4. With 18 tasters and two New Jersey wines, there are 36 entries in Table 4. Twelve of the 36 entries correspond to the wines that actually *are* from New Jersey, while the other 24 correspond to the wines that are from California.

Many participants say their reason for identifying a particular wine as being from New Jersey is that it is their least favorite or that they simply do not like it, with several stating explicitly that they do not believe good wine is produced in New Jersey. The following examples (from Table 4) are typical:

It is stronger and more acid. I believe good wines are not from New Jersey.

⁶Three of the individual wines (Worthy, Unionville, and Orin Swift) are statistically significant at $p = .01$ when identified as California vs. New Jersey, while a fourth (Heitz) is significant at $p = .06$. The remaining two wines (Heritage and Artesa) do not reach conventional levels of statistical significance.

Table 4
Reasons Provided for Identifying Each Wine as Being from New Jersey: Study 3

<i>1. Worthy (CA)</i>	<i>2. Unionville (NJ)</i>	<i>3. Heitz (CA)</i>	<i>4. Orin Swift (CA)</i>	<i>5. Heritage (NJ)</i>	<i>6. Artesa (CA)</i>
The wine had an off taste.	1 and 3 are very similar wines. 2 had a very strong taste that I particularly did not like.	Different body and structure than other two. Flavor difference is tough to explain—greater and smoother mouth feel. Sweeter, but that is likely a reflection of the other grapes and not necessarily region.	Most unfamiliar to me. Bitter; strong aftertaste.	It has the worst taste and a lighter color than the other two wines. The taste is bitter, pungent, and tart.	Too strong a taste. Soft and ruddy.
Wine 1 seemed the most distinct; I would guess that the most unusual wine would be from NJ.	Most acidic of the three wines—seemed to have not as smooth of a finish.	It's not as rich as the other two.	5 had some character and 6 seemed more alcoholic. To me, both characteristics are indicative of a longer growing season that is available in California vs. New Jersey.	Feels weaker, has a special smell I never smelled with California wines.	Tasted sweet, almost like grape juice, compared to the other two wines.
No particular reason besides the fact that 2 and 3 had the same finish. It was smoother than both 2 and 3.	It was my least favorite. Tastes cheap.	First sensation on tongue is a non-fruit sensation, almost unnatural. Tastes more blended than the others—not one identifiable overwhelming flavor, so leads me to believe a mix of grapes. Potential limit for supply in NJ would necessitate more mixed-batch productions.	Sweetish, un-bold.	5 has a smoother finish than 4 and 6, so I think that's the NJ wine, although this is counterintuitive to what one would think. The aroma of 5 was also different than 4 and 6.	Less earthy flavors and a little more toned down than the other two.
Flavors were slightly duller than the other two wines.	1 and 3 are similar to California, which I have tasted before.	Almost a diluted taste. Least favorite of group.	It's difficult to tell because they taste very much alike, but it has a stronger more acid taste.	Least favorite—earthy, which could indicate immature grapes or practices, yet lighter color—not sure but could indicate younger vines, woody smell could indicate newer barrels used in aging.	I believe that NJ wines are not as good as those from California. The one I don't like was wine 6 and I believe that wine is from NJ.
Tasted harsh and bitter compared to the other two, after initially tasting sweet.	Sweetish, very little nose, un-bold.	I didn't enjoy it at all; it was too sour.			Earthiest of the three wines.
It is stronger and more acid. I believe good wines are not from New Jersey.	It seems "weaker" for me, less dominant flavor, missing scent/smell, the alcohol a little bit odd. I assume the weather in NJ is not so ideal, the landscape neither, and maybe the soil is weak, too.	I didn't like it, found it acid.		I looked for the most unusual tasting wine.	I don't like it very much and I have an image of New Jersey as not very strong.
Very strong, bitter, unnatural aftertaste. I consider NJ wines to have the poorest taste in a blind study.				Different style with smelly element. Have never tasted a smelly California wine. Flavor potentially a result of growing conditions but also barrels used for aging.	Dark color; tastes like something other than grapes.

I don't like it very much and I have an image of New Jersey as not very strong.

It seems "weaker" for me, less dominant flavor, missing scent/smell, the alcohol a little bit odd. I assume the weather in NJ is not so ideal, the landscape neither, and maybe the soil is weak, too.

Clearly, these are statements about the participants' *expectations* concerning New Jersey wines. However, these types of reasons are attached to wines that are actually from California as often as to wines from New Jersey.

Other participants provide specific reasons for not liking the wines that they identify as being from New Jersey, often describing various faults they perceive (e.g., off taste, diluted taste, unnatural aftertaste, smelly, immature grapes, tastes like something other than grapes). Still others, while not mentioning faults per se, describe ways in which they perceive their chosen wines to *differ* from the others (e.g., sweet, bitter, sour, stronger, weaker, duller, earthiest, least earthy). Again, however, such descriptors are attached to wines that are actually from California as often as to wines from New Jersey.

VI. Discussion and Conclusion

The studies reported here demonstrate the influence of expectations on the sensory perception of wines. Study 1, involving wine club members, finds no difference in the mean enjoyment ratings of a sample of New Jersey and California wines when tasters know only that they are tasting red wines. Study 2 replicates this result with experienced wine professionals. In contrast, Study 3, in which tasters from the same wine club are informed that some of the wines are from New Jersey and some are from California, finds that when wines are believed to be from New Jersey they receive significantly lower mean ratings than when the same wines are believed to be from California, regardless of the wines' actual place of origin.

In Study 3, the average magnitude of the ratings difference when wines are believed to be from California vs. New Jersey is about 1.5 points (5.75 vs. 4.22) on the 10-point response scale employed. I am not aware of direct evidence that bears on the "practical significance" of a difference of this magnitude. At an intuitive level, however, it seems reasonable to maintain that a difference equal to 15 percent of the response scale is likely to be important for both wine producers and wine consumers. If this is correct, then the question for producers is how to achieve greater awareness and acceptance of their wines vis-à-vis those of better-known competitors, and the question for consumers is whether (and how) they wish to experiment with wines for which their expectations may be low.

From the producers' standpoint, the research literature on consumer learning may be helpful, especially the literature on learning from first-hand or direct experience (as opposed to learning from education, i.e., second-hand, indirect learning based

on verbal or written descriptions). Hoch and Deighton (1989) provide a comprehensive account of the process of consumer learning from experience, as well as tactics that producers can use to influence various points in the process. Effective tactics depend on whether the product is a “top dog” brand (well established with substantial market share) or an “underdog” brand (relatively unknown with low market share); in general, underdogs have much to gain and little to lose by encouraging and facilitating consumer learning from direct experience, whereas top dogs benefit by impeding such learning.

The problem for underdogs is that consumer learning from experience can be slow. Hoch and Deighton (1989) identify three determinants of the effectiveness of learning from experience: familiarity, motivation, and ambiguity. Consumers who are unfamiliar with a particular domain may be more easily persuaded to try something new, but learning from experience can be difficult because they do not have well-developed knowledge structures for assimilating what they are learning. Motivation to learn is a necessary condition for learning but entails the possibility that novice consumers may not know what they don’t know, while more experienced consumers may think that they already know all they need to know. Finally, learning from experience can be problematic in ambiguous information environments, for example, settings in which quality has a large subjective component (as in wines). In spite of these difficulties, certain tactics have been found effective for underdog brands, including comparative advertising, side-by-side displays or sales promotions, blind taste tests, personal selling, targeting small groups of customers who are considered opinion leaders, and developing alternative distribution channels such as “home parties,” where customers are exposed only to the underdog brand.

As mentioned earlier, some New Jersey winemakers have already pursued tactics aimed at changing the underdog status of their wines, such as securing the OCP designation to differentiate their more “serious” wines from traditional New Jersey wines and publicizing the results of blind tastings of their offerings vis-à-vis more established wines. Overcoming the negative New Jersey wine stereotype will undoubtedly be extremely challenging given the wide availability of high-quality, moderately priced wines with which consumers are already familiar. However, a similar statement regarding California wines could have been made some years ago—before the Judgment of Paris forever changed consumers’ expectations.

To the extent that underdog wines are successful at overcoming consumers’ “lethargy and lack of curiosity” (Hoch and Deighton, 1989, 11), consumers face a dilemma: how to allocate their resources between repeatedly consuming wines that are familiar and for which expectations are high and experimenting with wines that are unfamiliar and for which expectations may be low. Those who try to do both may find the right balance difficult to achieve.

At a broader level, this same dilemma is analyzed by James March (1991) in a classic paper on organizational learning. March describes two sets of adaptive processes that are pursued by organizations—“the exploration of new possibilities and

the exploitation of old certainties” (March, 1991, 71). March notes that exploration involves search, variation, experimentation, discovery, and risk taking, while exploitation involves efficiency, implementation, execution, and refinement. Both exploitation and exploration are essential for organizations, but they compete for limited resources—the more an organization engages in one, the less it engages in the other. Achieving an optimal balance between the two is challenging, with the result that exploitation often drives out exploration. In a similar way, wine consumers may favor re-experiencing the familiar over exploring the unfamiliar unless something disrupts their expectations.

References

- Amerine, M.A., and Roessler, E.B. (1983). *Wines: Their Sensory Evaluation*. New York: W.H. Freeman.
- Ashenfelter, O., and Storchmann, K. (2012). Editorial: The Judgment of Princeton and other articles. *Journal of Wine Economics*, 7, 139–142.
- Ashton, R.H. (2014). Wine as an experience good: Price versus enjoyment in blind tastings of expensive and inexpensive wines. *Journal of Wine Economics*, 9, 171–182.
- Bowen, D.J., Tomoyasu, N., Anderson, M., Carney, M., and Kristal, A. (1992). Effects of expectancies and personalized feedback on fat consumption, taste, and preference. *Journal of Applied Social Psychology*, 22, 1061–1079.
- Brochet, F. (2001). Chemical object representation in the field of consciousness (application presented for the Grand Prix of the Académie Amorm following work carried out toward a doctorate from the Faculty of Oenology, University of Bordeaux).
- Brochet, F., and Dubourdieu, D. (2001). Wine descriptive language supports cognitive specificity of chemical senses. *Brain and Language*, 77, 187–196.
- Cardello, A.V. (1994). Consumer expectations and their role in food acceptance. In H. J. H. MacFie and D. M. H. Thomson (Eds.), *Measurement of Food Preferences*. Glasgow: Blackie Academic and Professional.
- Carlsmith, J.M., and Aronson, E. (1963). Some hedonic consequences of the confirmation and disconfirmation of expectancies. *Journal of Abnormal and Social Psychology*, 66, 151–156.
- Darley, J.M., and Gross, P.H. (1983). A hypothesis-confirming bias in labeling effects. *Journal of Personality and Social Psychology*, 44, 20–33.
- Davidson, A. (2013). Bottle binge: How New Jersey could make itself the next Napa. *New York Times*, March 17, www.nytimes.com/2013/03/17/magazine/.
- Deliza, R., and MacFie, H.J.H. (1996). The generation of sensory expectation by external cues and its effect on sensory perception and hedonic ratings: A review. *Journal of Sensory Studies*, 11, 103–128.
- Gawl, R. (1997). The use of language by trained and untrained experienced wine tasters. *Journal of Sensory Studies*, 12, 267–284.
- Ginsburgh, V., and Zang, I. (2012). Shapley ranking of wines. *Journal of Wine Economics*, 7, 169–180.
- Goldstein, R., Almenberg, J., Dreber, A., Emerson, J. W., Herschkowitsch, A., and Katz, J. (2008). Do more expensive wines taste better? Evidence from a large sample of blind tastings. *Journal of Wine Economics*, 3, 1–9.
- Hoch, S.J., and Deighton, D. (1989). Managing what consumers learn from experience. *Journal of Marketing*, 53, 1–20.

- Hughson, A.L., and Boakes, R.A. (2001). Perceptual and cognitive aspects of wine expertise. *Australian Journal of Psychology*, 53, 103–108.
- Hughson, A.L., and Boakes, R.A. (2002). The knowing nose: The role of knowledge in wine expertise. *Food Quality and Preference*, 13, 463–472.
- Hurling, R., and Shepherd, R. (2003). Eating with your eyes: Effect of appearance on expectations of liking. *Appetite*, 41, 167–174.
- Klaaren, K.J., Hodges, S.D. and Wilson, T.D. (1994). The role of affective expectations in subjective experience and decision-making. *Social Cognition*, 12, 77–101.
- Lawless, H.T. (1984). Flavor description of white wine by "expert" and nonexpert wine consumers. *Journal of Food Science*, 49, 120–123.
- Lee, L., Frederick, S., and Ariely, D. (2006). Try it, you'll like it: The influence of expectation, consumption, and revelation on preferences for beer. *Psychological Science*, 17, 1054–1058.
- Lehrer, A. (1975). Talking about wine. *Language*, 51, 901–923.
- Lehrer, A. (1983). *Wine and Conversation*. Bloomington: Indiana University Press.
- Lehrer, A. (2009). *Wine and Conversation*. 2nd ed. New York: Oxford University Press.
- March, J.G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2, 71–87.
- Morrot, G. (1999). Can we improve taster performance? *Journal International des Sciences de la Vigne et du Vin* (special issue on wine-tasting), 29–35.
- Peynaud, E. (1987). *The Taste of Wine: The Art and Science of Wine Appreciation*. (M.Schuster, Trans). San Francisco: Wine Appreciation Guild.
- Plassmann, H., O'Doherty, J., Shiv, B., and Rangel, A. (2008). Marketing actions can modulate neural representations of experienced pleasantness. *Proceedings of the National Academy of Sciences*, 105, 1050–1054.
- Quandt, R.E. (2012). Comments on the Judgment of Princeton. *Journal of Wine Economics*, 7, 152–154.
- Sauvageot, F. (1999). Sensory evaluation. *Journal International des Sciences de la Vigne et du Vin* (special issue on wine-tasting), 61–69.
- Schiffstein, H.N.J., Kole, A.P.W., and Mojet, J. (1999). Asymmetry in the disconfirmation of expectations for natural yogurt. *Appetite*, 32, 307–329.
- Smith, R. (2013). The trick to selling fancy wine from New Jersey: Don't say it's from New Jersey. www.npr.org/blogs/money/2013/03/29.
- Solomon, G.E.A. (1990). The psychology of novice and expert wine talk. *American Journal of Psychology*, 103, 495–517.
- Solomon, G.E.A. (1997). Conceptual change and wine expertise. *Journal of the Learning Sciences*, 6, 41–60.
- Taber, G.M. (2006). *Judgment of Paris: California vs. France and the Historic 1976 Paris Tasting That Revolutionized Wine*. New York: Scribner.
- Taber, G.M. (2012). The Judgment of Princeton. *Journal of Wine Economics*, 7, 143–151.
- Tuorila, H., Meiselman, H., Cardello, A., and Leshner, L. (1998). Effect of expectations and the definition of product category on the acceptance of unfamiliar foods. *Food Quality and Preference*, 9, 421–430.
- Veale, R., and Quester, P. (2008). Consumer sensory evaluations of wine quality: The respective influence of price and country of origin. *Journal of Wine Economics*, 3, 10–29.
- Wansink, B., Park, S.B., Sonka, S., and Morganosky, M. (2000). How soy labeling influences preference and taste. *International Food and Agribusiness Management Review*, 3, 85–94.
- Ward, D.L. (2012). A graphical and statistical analysis of the Judgment of Princeton. *Journal of Wine Economics*, 7, 155–168.

- Weil, R.L. (2001). Parker v. Prial: The death of the vintage chart. *Chance*, 14, 27–31.
- Weil, R.L. (2005). Analysis of reserve and regular bottlings: Why pay for a difference only the critics claim to notice? *Chance*, 18, 9–15.
- Weil, R.L. (2007). Debunking critics' wine words: Can amateurs distinguish the smell of asphalt from the taste of cherries? *Journal of Wine Economics*, 2, 136–144.
- Wilson, T.D., Lisle, D.J., Kraft, D., and Wetzel, C.G. (1989). Preferences as expectation-driven inferences: Effects of affective expectations on affective experience. *Journal of Personality and Social Psychology*, 56, 519–530.