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Article

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Wine Economics and Policy

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University of Florence

Suggested Citation: Gokcekus, Omer; Gokcekus, Samin (2019) : Empirical evidence of lumping and splitting: Expert ratings' effect on wine prices, Wine Economics and Policy, ISSN 2212-9774, Elsevier, Amsterdam, Vol. 8, Iss. 2, pp. 171-179,
<https://doi.org/10.1016/j.wep.2019.09.003>

This Version is available at:

<https://hdl.handle.net/10419/284484>

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Empirical evidence of lumping and splitting: Expert ratings' effect on wine prices

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Received 9 December 2018; revised 25 July 2019; accepted 26 September 2019

Available online 4 October 2019

Abstract

Categorization is essential to everyday cognition, aiding in the organization and comprehension of information and salient stimuli. In many cases, we partake in the process of “lumping” and “splitting,” where similar items are lumped together, while dissimilar items are split apart in an exaggerated manner. To test whether or not lumping and splitting plays a role in how expert ratings affect prices, we examined pinot noir wines from the Willamette Valley AVA with the *Wine Spectator's* ratings (1984–2008). Regression analyses revealed a sharp distinction in the relationship between price and bottle quality between wines rated below 90, and wines with 90 + ratings. Wines with ratings below 90 were lumped together in to a “single mental cluster.” Wines with 90 + ratings were similarly lumped together. Not only is getting into a higher mental cluster statistically and economically significant, but there is also a “mental quantum leap” from a rating of 89–90. Moreover, the impact of expert scores on prices was magnified by an additional premium, attributable to two status indicators—sub-AVA and single vineyard—in higher clusters.

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Keywords: Lumping; Splitting; Categorization; Wine; Expert ratings; Status; Reputation

1. Introduction

“There are in Paris scarcely fifteen art-lovers capable of liking a painting without Salon approval. There are 80,000 who won't buy so much as a nose from a painter who is not hung at the Salon.”

Pierre-Auguste Renoir

In a vast and ever-changing world, humans are forced to organize and comprehend it all in order to live adequately and comfortably. Information is constantly available to us, and it is essential for the brain to somehow categorize it in a way that is not only accurate, but also easy to access and understand.

Mental categorization and related cognitive processes have been studied in both sociology and psychology. It has been argued that categorization is a basic cognitive process which allows us to contextualize our surroundings (Lenneberg, 1967; Gyori, 2013). Jean Piaget (1952) concluded that we organize our thoughts, behaviors, and experiences in to “schemes” (or systems) that allow us to make sense of the world around us. As we are presented with new experiences and more information, we create categories to divide them into smaller groups that we can understand. However, these categories do not always reflect the actual facts of the external world; they are formed to create functional and adaptive structures of reality (Gyori, 2013). We create distinct mental clusters that fit our social perspective, instead of identifying pre-existing and natural ones (Zerubavel, 1996).

Sociologist Eviatar Zerubavel (1991) identifies two cognitive acts that are essential for mental categorization and classification — lumping and splitting. We use these processes

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Peer review under responsibility of UniCeSV, University of Florence.

to create “discrete chunks” of experiences and information. Lumping refers to the practice of grouping things that are perceived as similar, together. We form “single mental clusters” by grouping similar things together; where the perceived similarity of the constituent elements outweighs the differences among them (Zerubavel, 1996). Because we strengthen our perception of the similarity and connection between these elements, we are likely to see them as “interchangeable variants of a single unit of meaning” (Zerubavel, 1996). On the other hand, splitting refers to the practice of separating things that are perceived as different by exaggerating the perceived differences among them at the intercategorical level. This can explain why we perceive grape juice as similar to orange juice, but very different from wine even though they are derived from the same fruit (ibid.). Together, these two complementary processes allow us to create “islands of meaning” in seas of stimuli (Zerubavel, 1991).

Zerubavel (1996) goes on to argue that when we are examining what separates clusters from one another we experience “mental quantum leaps.” We perceive the change from December 31st to January 1st as much more significant than the change from January 1st to January 2nd; objectively they are exactly the same. Similarly, someone who is 18 is considered an adult, and is more likely to be associated with a 30-year-old than a 16-year-old (ibid.). Our splitting of relationships, age, the law, and time clearly demonstrate this “leap” which highlights the importance of social meaning, and not just objective reality, in the way that we understand the world. Essentially, mental quantum leaps can also be understood as signs or signals of social meaning. The date changing to January 1st is a signal of a new year; turning 18 is a signal of becoming an “adult;” however the jump from January 1st to January 2nd carries no social meaning — it is not a signal of anything because it is simply a change within the same category.

Classification and categorization are not just sociological constructs. These categories are at the forefront of our understanding, and affect all aspects of our world. It is possible that this process of categorization may have important implications for better understanding how the wine industry works (Zhao, 2005; Gokcekus and Finnegan, 2017). Specifically, considering the presence of lumping and splitting and the effects of these phenomena in determining status and reputation may be vital to the way prices are determined in wine markets. The aim of this paper is to empirically test the idea that the mental processes of categorization and classification, in the form of lumping and splitting, can have an effect on the relationship between a wine's rating and its price by differentially affecting its status and reputation.

2. Status, reputation, and wine ratings

Although they are often treated as synonymous, Sorenson (2014) argues that “status,” a term often used in sociology, is distinct from the notion of “reputation,” more commonly used in economic literature. He goes on to claim that status is a concept more closely associated with social meaning, or, as

Benjamin and Podolny (1999) simply put, a measure of affiliation. Products or organizations of a high status are perceived as having a high value “precisely because not everyone has it.” Essentially, status is about exclusivity and “relative social standing” (Sorenson, 2014). Nevertheless, people may perceive high status as a marker of high quality, but this is not necessarily the case.

On the other hand, rather than being solely determined by a social position, reputation can be influenced by many different factors. Benjamin and Podolny (1999) argue that, for wine, quality is especially important. Specifically, a reputation for high quality is created by past displays of high quality goods and an assumption of a consistently high quality that is maintained over time (Sorenson, 2014). Sorenson also argues that “reputation promotes signaling,” as costly choices (or outcomes that are dependent on costly choices in the production, distribution, and advertisement of a product) are perceived as a “signal” of higher quality and, consequently, higher reputation.

In their study of viticulture in the Alsace region of France, Negro, Hannan and Fassiotto (2015, p. 585) discuss signaling in terms of markets and categories. They claim that something can be understood as a market signal when the “cost[s] of producing the signal ... decrease with increases in the agent's quality.” Furthermore, they claim that becoming the member of a “category,” particularly when that category has a “sharp boundary,” can be a signal of reputation. Their notion of a “sharp boundary,” meaning that producers are either “fully in or out,” can be related to the idea of the mental quantum leap. A 17 year old may be older than a 16 year old, but they are unable to make the leap to the category of adult. When this “leap” is necessary to become a member of a certain category, the perceived increase in reputation provided by that category membership will be higher (Negro et al., 2015). However, when keeping Sorenson's (2014) distinction in mind, it seems that exclusive category membership may not only be a signal of reputation, but also a signal of status; category membership in categories with sharp boundaries seem to additionally be a sign of exclusivity and relative social standing — a description more fitting to the sociological concept of status.

A clear and accessible demonstration of these phenomena can be found at most wine stores. Wine ratings are provided as points within a range. For example, both Robert Parker and the *Wine Spectator* use a 50–100 point scale. The *Wine Spectator*, utilized in our analysis, has a “tasting formula” in order to ensure accurate and objective ratings. As detailed on their website, editors of the *Wine Spectator* blind-taste wines that are submitted to them by wineries and U.S. importers. Wines that are not submitted are also purchased and evaluated. Detailed information on their tasting practices, outlined on the *Wine Spectator* website, is provided in Table 1.

In addition to the 50–100 point scale, the *Wine Spectator* designates 6 categories—Classic, Outstanding, Very good, Good, Mediocre, and Not recommended. In a sense, the *Wine Spectator* creates six mental clusters. These categories, their

Table 1
Tasting format for the *Wine Spectator*.

How are <i>Wine Spectator</i> tastings set up?	<ul style="list-style-type: none"> • All official <i>Wine Spectator</i> tastings are held in private rooms, under optimum conditions. • Our tasting coordinators organize the wines into flights by varietal, appellation or region. • Each flight may consist of 20–30 wines, and no more than two flights are tasted by a taster each day. • Bottles are coded and bagged, and all capsules and corks are removed. Other necessary efforts are made to conceal the wines' identity from the tasters. • The tasters are told only the general type of wine (varietal and/or region) and the vintage. No information about the winery or the price of the wine is available to the tasters while they are tasting.
How are the wines tasted?	<ul style="list-style-type: none"> • Each tasting begins with a previously rated wine, which is tasted non-blind as a reference point. • Other previously rated wines are included among the blind wines to ensure consistency. • The tasters enter notes and ratings directly into our database prior to removal of the bags. • While entering their reviews, the tasters only see the code that matches that of the bag covering the wine they are tasting, and blank spaces for their note, score and drink recommendation. • Ratings are based on potential quality: how good the wines will be when they are at their peak. For ageable wines, we suggest a year or range of years to start drinking the wine. • Additional comments may be added to a tasting note after the identity of the wine has been revealed, but the score is never changed. • Price is not taken into account in scoring, though the notes may be edited to include comments about price and value after the scores are determined.
How many times is a wine tasted?	<ul style="list-style-type: none"> • All wines that taste corky or show other major flaws are blind-tasted again from new bottles.
What are the scoring guidelines?	<ul style="list-style-type: none"> • Wines that score highly are also frequently tasted again from new bottles, in order to confirm our impressions. • Tasters for <i>Wine Spectator</i> score wines using our 100-point scale. • Ratings reflect how highly our taster regards each wine relative to other wines.

Source: <http://www.winespectator.com/display/show/id/tasting-format>

Table 2
Lumping and splitting by the *Wine Spectator*.

Mental Cluster	Criterion	Description
Classic	95–100	A great wine
Outstanding	90–94	A wine of superior character and style
Very Good	85–89	A wine with special qualities
Good	80–84	A solid, well-made wine
Mediocre	75–79	A drinkable wine that may have minor flaws
Not recommended	50–74	

Source: <http://www.winespectator.com/display/show/id/scoring-scale>

descriptions, and criterion used by the *Wine Spectator* are summarized in Table 2.¹

Benjamin and Podolny (1999, pp. 567–568) argue that wine ratings are particularly good indicators of product quality, because: 1) there is high convergent validity among ratings of different evaluators, and 2) this convergent validity is not based on “external cues” like “regional origin, producer, or price” but on “aesthetic properties of the wine itself.” Experts have high reliability overall and the rating of wines is highly systematized, which the authors attribute to the use of scientific methods, a strict classification system, and the development of terminologies particularly for use in wine evaluation.

If wine ratings are reliable indicators of product quality, it is plausible to assume that consumers use these ratings when choosing the wines that they will buy. However, a quick observation of prices at a wine store clearly demonstrates that wines with ratings of 90 and above are clearly marked (while others are not). This indicates an active marketing strategy of differentiating those wines from others. In other words,

lumping and splitting a la Zervavabel seems to describe the distinction between wines exhibited in stores. Additionally, the choice to display only 90 + ratings seems to be indicative of a mental quantum leap, giving wines with a 90 + rating membership to a group with a sharp category boundary; they are either in (90+) or out.

A photograph of the riesling isle of a local wine store in New Jersey, USA clearly demonstrates this practice.² 90 + ratings are clearly marked, but the ratings of other wines are not included. The 2012 Selbach Oster (top right) received a rating of 89; the 2016 Dr. Loosen (top left) an 87. These ratings fall within the *Wine Spectator*'s “Very good” category, but are not displayed in store.

Yet, when determining the effect of wine ratings on prices, economists have treated these ratings as if they compose a constant continuum with each point equidistant from the preceding and following one (Jones and Storchmann, 2001; Hadj Ali and Nauges, 2007; Hadj Ali, Lecoq & Visser, 2008; Dubois and Nauges, 2010; Gokcekus and Finnegan, 2013).³ Using a “simple linear regression,” Cuellar and Claps (2013) found that a one point increase in Wine Spectator rating led to a 7% increase in price for wines from Napa and Sonoma counties. However, they also note the findings of those who argue that the relationship is not strictly linear. For instance, Gibbs et al. (2009) demonstrate not only that wine ratings have become more influential on price over time, but also that additional points lead to significantly higher prices when

¹ Given the emphasis wine stores put on 90 + wines, it is very likely that typical wine buyers simplify their categorization to two mental clusters, 90 + and others.

² The wine store is Bottle King in Livingston, New Jersey. Bottle King is the largest retailer of wine, beer, and spirits with 14 stores across the state.

³ However, for an exception see Kwong et al. (2017), who used a sample of dry red wines from Ontario to demonstrate that the relationship between wine price and quality (as determined by wine ratings) is non-linear when other factors are controlled for.

Table 3
Summary statistics for Willamette Valley pinot noirs.

Wine Spectator's Mental Cluster	Distribution		Rating		Price	
	Number	%	Mean	Standard Deviation	Mean	Standard Deviation
Not recommended	66	3.2%	70.20	4.16	\$ 17.53	\$ 9.72
Mediocre	120	5.9%	77.51	1.38	\$ 20.90	\$ 12.21
Good	311	15.2%	82.22	1.39	\$ 21.63	\$ 12.71
Very good	890	43.4%	87.13	1.36	\$ 31.10	\$ 13.07
Outstanding	652	31.8%	91.14	1.12	\$ 47.35	\$ 18.94
Classic	11	0.5%	95.00	0.00	\$ 68.55	\$ 22.84
	2,050	100%	86.59	5.06	\$ 33.97	\$ 18.30

wines are of a higher quality (rating). However, for the most part, wine ratings are treated differently by economists than they are by wine retailers.

Inconsistencies in the effect of wine ratings on wine prices are additionally muddled by the existence of appellations – formally recognized regions. For example, the Alcohol and Tobacco Tax and Trade Bureau (TTB) of the United States Department of the Treasury define the boundaries of “American Viticultural Areas” (AVAs), “designated wine grape-growing regions in the United States distinguishable by geographic features” (Wine Appellations of Origin, 2017). New AVAs, called “sub-AVAs,” can also be established within existing ones. Benjamin and Podolny (1999) claim that associations with these regions lead to *perceptions* of higher quality, but are ultimately signals that represent status. Different regions can signal varying levels of status, as outlined by Benjamin and Podolny (1999, p. 574, Table 1). In their investigation of the relationship between wine prices and Wine Spectator ratings (which are accepted as a marker of quality), Miller et al. (2007) claim that wine ratings can only account for a portion of the variance in price; signals of status, like the region that the wine is from or the way that it has been handled, are also considered.

In order for economists to accurately analyze wine ratings' effects on wine prices, the presence of lumping and splitting and the reciprocal effects of status and reputation should be considered. Accordingly, basing our research on classification literature in sociology, we examine whether or not lumping and splitting plays a role in how ratings influence wine prices. We ask the following questions: Do price setters ‘lump’ wines rated below 90 and wines rated 90 + into two discrete groups, i.e., mental clusters? If so, is a wine rated 92 considered to be similar to a wine rated 93, and a wine rated 88 considered to be similar to a wine rated 89? Moreover, is a wine rated 89 perceived as significantly different from a wine rated 90? Finally, if price setters lump wines into mental clusters, how does the effect of wine ratings change within each cluster? Do these clusters lead to differences in the premiums attached to a particular AVA or the use of grapes from a single vineyard? The above discussion and these questions lead to the following hypotheses:

Hypothesis 1. A wine in a higher cluster collects a higher premium for the same marginal improvement in bottle quality, i.e., expert rating.

Hypothesis 2. In higher clusters, premiums for different status indicators, i.e., sub-AVA and single vineyard are higher.

3. Methods: empirical analyses

In our analyses, to ensure that we were not observing the potential role of other factors, such as variety, on prices (Benfratello et al., 2009; Oczkowski, 1994; Schamel and Anderson, 2003), we focused on wines rated by the *Wine Spectator* from a particular region and variety. Specifically, we utilized 2,050 pinot noir wines from Oregon's Willamette Valley AVA, rated by the *Wine Spectator* between 1984 and 2008.⁴ Wine Spectator, in addition to ratings, provides the retail prices for these wines. Table 3 provides summary statistics for these wines.

In our analyses, we utilized the following regression model:

$$Price_{it} = \beta_0 + \beta_1 Score_{it} + \beta_j \sum_{j=2}^7 Sub - AVA_{ij} + \beta_8 Single\ vineyard_{it} + e_{it} \quad (1)$$

In this model, i is wine i ; t is the year the wine was evaluated by the *Wine Spectator*, and $t = 1984, 1985, \dots, 2008$; $Price$ is the retail price of a bottle of wine in constant 1997 prices; $Score$ is the *Wine Spectator* rating, $Sub-AVAs$ are sub-regional dummies assigned the value of “1” for a winery's geographic location within Willamette Valley - namely, Chehalem Mountains, Dundee Hills, Eola-Amity Hills, McMinnville, Ribbon Ridge, and Yamhill Carlton District sub-AVAs - and “0” otherwise; $Single\ vineyard$ is a dummy variable indicating whether the wine is a single vineyard wine or not; and e_{it} is a well-behaving random error term.

To test our two hypotheses, we estimated this model based on three different samples. First, we estimated by utilizing the entire data set, second by utilizing the sub-sample of wines with 90 and above rating, and third by utilizing the sub-sample of wines with less than 90 rating. Table 4 summarizes these three regression results.

⁴ Willamette AVA was established in 1984. Thus, our data set includes the ratings for the first 25 years of this particular AVA.

Table 4
Regression results with and without lumping and splitting at 90 points.

	Without lumping and splitting		With lumping and splitting	
	OLS ALL	Robust ALL	Robust ≥ 90	Robust < 90
Score	1.270 (20.97)***	1.221 (23.20)***	3.186 (8.84)***	0.778 (12.20)***
Chehalem	–1.004 (–0.84)	–0.210 (–0.20)	–0.533 (–0.27)	–0.198 (–0.17)
Dundee	6.489 (7.65)***	4.921 (6.67)***	8.570 (5.95)***	2.435 (2.91)***
Eola sub-AVA	–1.559 (–1.59)	–1.436 (–1.68)	–1.926 (–1.06)	–1.330 (–1.45)
McMinnville	–0.915 (–0.45)	–0.602 (–0.34)	2.032 (0.47)	–1.138 (–0.61)
Ribbon	3.941 (3.33)**	4.276 (4.16)***	5.723 (3.43)***	1.824 (1.37)
Yamhill	0.652 (0.70)	1.063 (1.31)	0.793 (0.53)	0.826 (0.88)
Single vineyard	5.119 (7.41)***	5.775 (9.62)***	6.937 (7.60)***	3.922 (5.22)***
Constant	–81.425 (–15.81)***	–78.232 (–17.48)***	–255.702 (–7.81)***	–40.999 (–7.67)
R ²	0.28	0.32	0.28	0.14
F-value	100.440***	121.350***	31.47***	28.69***
No. of Obs.	2,050	2,050	652	1,387

t-values in parentheses; significance levels (two-tailed) 0.001 (***), 0.01 (**), and 0.05 (*).

The estimated coefficients are not standardized.

4. Results

Four main findings emerged from these regression results

- (1) There is a significant difference between the estimated coefficients of 90 + rated wines and the others (F-statistics = 24.97 and $p \leq 0.001$). In other words, the estimated coefficients change significantly if we split the sample in to two groups at 90 points.
- (2) For wines rated less than 90 points, there is a \$0.78 premium for each additional point, i.e., change in quality, and for wines rated 90 or above points, the premium is \$3.19. Based on a two-sample *t*-test, the difference between these two quality premiums are statistically significant ($p \leq 0.001$).
- (3) For a wine from a sub-AVA with an excellent status in the Willamette Valley AVA, namely Dundee Hills, getting 90 or above points pays a significantly higher sub-AVA status premium, \$8.57 versus \$2.44.
- (4) Single vineyard premium also differs significantly. Rather than getting a \$3.92 premium, a 90 or above rated wine collects a \$6.94 premium. The premium differences between the two clusters are statistically significant ($p \leq 0.001$) based on the results of a two-sample *t*-test.

Having found a significant difference between wines rated 90 + and others, next we estimated equation (1) by dividing our sample of wines into four categories, according to the

Wine Spectator's mental clusters, namely Outstanding (90 + points), Very good (85–89 points), Good (80–84 points), and Mediocre or Not recommended (less than 80 points) wines.⁵ Table 5 summarizes the estimated coefficients for *Score*, *Sub-AVAs* (Dundee and Ribbon), and *Single vineyard*.

According to these results, moving down through the *Wine Spectator* categories lowers the single vineyard and sub-AVA status premiums. For instance, the single vineyard premium declines from \$6.94 in the Outstanding to \$4.46 in the Very good category. Similarly, the sub-AVA status premium for a wine from the Dundee Hills sub-AVA goes down from \$8.57 in Outstanding, to \$4.13 in Very good, and becomes statistically insignificant in lower clusters. The premium of \$5.72 for the Ribbon Ridge sub-AVA in the Outstanding cluster becomes statistically insignificant right after this cluster. Finally, while each additional point increases price by \$3.19 in the Outstanding cluster, it adds \$2.23 in the Very good, and \$0.91 in the Good clusters.

We again found significant differences between the ways wines are priced based on the mental clusters they belong to. Accordingly, we conducted further regression analyses to see if there is a reason that wine stores clearly highlight the 90 + wines; in other words, if the mental quantum leap between “Outstanding” and “the others” is similar to the distinction between winners and losers. We estimated the model by utilizing the wines with a rating greater than or equal to 80, 81, ..., 89, 90, 91, respectively. Fig. 2 presents the change in premium attached to each additional point given by the *Wine Spectator* in these ranges, as a result of incrementally changing the sample: For instance, compared to the \$0.49 difference between all 88 + wines and all 89 + wines, the difference between all 89 + and 90 + wines is \$1.12.

5. Discussion and concluding remarks

These results show that lumping and splitting and the mental quantum leap are observed when examining the effects of wine ratings on price. There is a sharp distinction in the relationship between price and bottle quality between wines that have ratings below 90, and wines that have 90 + ratings, which can be seen in finding (1). Wines with ratings below 90 have been lumped together in to a “single mental cluster,” while wines with 90 + ratings were lumped together. The two groups have also been split apart. Getting into a higher mental cluster is statistically and economically significant – showing the “mental quantum leap” from a rating of 89–90 (Zerubavel, 1996); 90 + wines pass the “sharp boundary” in to the higher mental cluster (Negro et al., 2015). This is in line with Sorenson's (2014, p. 65) claim that status “exists as a category, rather than as a continuous scale.”

⁵ Because there were only 11 wines in the “Classic” category, separate analysis was not possible. Classic wines, which all had a rating of 95, were incorporated in to the “Outstanding” category.

Table 5
Estimated key coefficients for different *Wine Spectator* mental clusters.

	Outstanding (90s)	Very Good (85–89)	Good (80–84)	Mediocre or Not Recommended (less than 80s)
Score ($\widehat{\beta}_1$)	\$ 3.186***	\$ 2.228***	\$ 0.906*	\$ 0.284
Single vineyard premium ($\widehat{\beta}_8$)	\$ 6.937***	\$ 4.456***	\$ 1.534	\$ 0.389
Dundee Hills sub-AVA premium ($\widehat{\beta}_4$)	\$ 8.570***	\$ 4.132***	\$ 0.406	-\$ 1.945
Ribbon Ridge sub-AVA premium ($\widehat{\beta}_7$)	\$ 5.723***	\$ 1.877	\$ 3.665	-\$1.665
R ²	0.28	0.13	0.04	0.03
F-value	31.47***	16.75***	1.59	0.70
No. of Obs.	652	890	311	186

Significance levels (two-tailed), 0.001 (***), 0.01 (**), and 0.05 (*).

The estimated coefficients are not standardized.

Lumping and splitting also occurs in accordance with the *Wine Spectator's* own categorization system. Confirming [Hypothesis 1](#), wines in the higher clusters (Outstanding and Very good) collected a higher premium for the same marginal improvement in quality (expert rating). The premium attached to each additional point is considerably higher for the Outstanding wines than for the Very good, but both are still significant. On the other hand, although each additional point does carry a premium for Good and Mediocre wines, they are much lower and not as significant (or not significant at all).

The same relation holds in terms of markers of status, namely sub-AVA and single vineyard premiums, as considered in [Hypothesis 2](#). So, both *direct* and *indirect* effects of categorization by lumping and splitting are seen, specifically in the magnitude of the differences between premiums attached to each additional point in ratings (*direct*) and sub-AVA and single vineyard premium (*indirect*) in higher mental clusters. They are both economically and statistically significant. Furthermore, moving down from one mental cluster to the next consistently lowers the premium attached to single vineyard and sub-AVA. This is interesting when considered in addition to [Caracciolo et al.'s \(2016\)](#) conclusion that geographical designation has a big influence on perceptions of highly priced, but not cheaper, wines (although they do not consider wine ratings). More specifically, these results are consistent with [Benjamin and Podolny's \(1999\)](#) conclusion that “actors occupying high-status positions obtain greater benefit from subsequent high-status affiliations than do actors occupying low-status positions,” and [Gibbs, Tapia & Warzynski's \(2009\)](#) evidence for this phenomenon in the wine market.

However, these findings are at odds with [Zerubavel's \(1996\)](#) claim that items that are linked together are perceived as so similar, that they become “interchangeable variants of a single unit of meaning.” Although this holds true for the lower mental clusters, the same is not the case for the higher mental clusters – we still differentiate between the units that have been “lumped” together. Perhaps the distinction between the Outstanding and Very good categories vs. the Good and Mediocre/Not recommended categories can be explained in a different way: in terms of winners and losers. Wines in the Outstanding and Very good categories are clearly seen as winners. The Outstanding wines are in first place, and the Very

good in second. On the other hand, the Good and Mediocre/Not recommended wines are losers.

This is similar to the way we see winners and losers in sports, academia, and other fields. When an Olympic event takes place, the three “winners” are given their corresponding medals, bronze, silver, or gold. However, the “losers” are all losers; the differences between their performances are not perceived as significant. It does not matter if a competitor has come in 4th place or last place, they are still considered a loser. Similarly, for any graduating a class, a valedictorian and salutatorian are chosen. The valedictorian is the student with the highest academic rank in their class, while a salutatorian is the student with the second highest academic rank. These two students are seen as winners, and ranked accordingly. However, the rest of the student body is not acknowledged at all – they are all losers. Having the third highest academic rank or 20th highest academic rank makes no recognizable difference.

The distinction between the Outstanding and Very good vs. Good and Mediocre/Not Recommended wines is economically significant; the distinction between 90 + wines and the others, indicative of the mental quantum leap, is not only economically significant ([Fig. 2](#)) but also seems to have a greater social significance. This leap to become part of the exclusive category of 90 + wines is closely tied to the concept of status, which, unlike markers of reputation, is more related to social meaning than actual measures of quality. The importance placed on 90 + ratings is easy to distinguish through a trip to the wine store ([Fig. 1](#)) or a review of wine literature that is targeted at the general public.

An article in the *The Economist* from 1999 cites the “frequently repeated complaint” by wine merchants and drinkers that wines with a rating above 90 “can't be bought” because of their inflated prices. Wine trader Sally [Gudgeon \(2005\)](#) writes, “A good Parker rating, which means more than 90 points, generates instant sales for the wine, at a super-premium price;” an article in the New York Times describes a 90 + rating as a “blessing” for wine producers and sellers ([Playing the rating game, 1999; Rivlin, 2006](#)). A press release by Natural Merchants (an importer of organic, biodynamic, and vegan wine) glorifies the Tarantas Spanish Cava for receiving a 90 point rating – setting a “new bar for organically grown wine” ([Tarantas Spanish Cava, 2010](#)). In 2015, [Shaw-Ross, \(2015\)](#) (an international wine importer) expanded with



Fig. 1. The Riesling isle of a local wine store in New Jersey, USA; only 90 + ratings are noted.

a new collection — a “premium wine division” which exclusively offers wines with “a minimum of 90 points.”⁶

Lettie Teague (2013) describes her pursuit of a good “B” (80’s) wine. The assistant manager of a local wine store in New Jersey claims that he can’t help her because, “90 is the lowest number on our rating filter.” At another store in California, she is told that they do not publicize the ratings of wines that have scores below 90 — “the wine will sell better without the number.” She claims that people are willing to buy a 90 point wine, even if they don’t know what it is, but an 88 or 89 point wine does not produce the same reaction. She mentions that her friend, a wine-drinker but not a collector, usually drinks

wines that have “at least” a 90 point rating. Although wine ratings are meant to be a marker of quality (reputation), a 90 + rating seems to be a status signal - demonstrating the mental quantum leap over the sharp category boundary. Not only is this leap indicative of cognitive processes operating in the lumping and splitting form of categorization, but it is also displaying a socially shared meaning that individuals ascribe to 90 + wines; they are a signal of high status and exclusivity. The shared social meaning that a 90 + rating entails clearly has an effect on the way wine is priced and consumed. Our findings suggest that retailers pay attention to clusters in this way; economists should do the same.

This study is not without limitations. We focus on the effects of ratings and sub-AVA and single-vineyard premiums on wine prices. However, price-setting is a complex process which can be dependent on numerous factors. Furthermore,

⁶ Their announcement is published in a magazine called *Beverage Dynamics*, which targets “retail decision makers.”

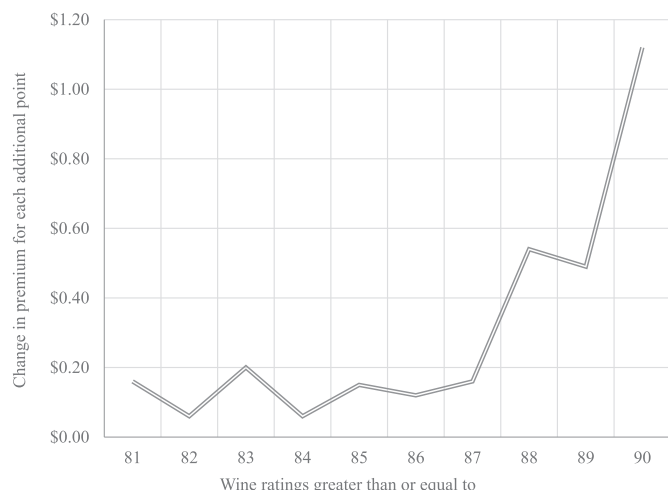


Fig. 2. Changing premiums for an additional point for wines within different ranges of ratings.

not all consumers utilize expert ratings when deciding which wines are of a high quality. As Charters and Pettigrew (2007) argue, low-involvement consumers may use other factors (like the appearance of the bottle or the price of the wine itself).

Another set of limitations stem from the specificity of the data set, but there are several paths of further investigation that could be taken to strengthen the validity of the initial results of this exploratory study. When conducting these analyses, we focused on wines of a particular variety from a particular region in order to control for other factors that could influence wine prices (other than ratings). It would be beneficial to investigate and utilize wines and wine ratings from other regions and other varieties. Similarly, this study only looks at wine ratings coming from the *Wine Spectator*. There are several other sources of ratings (Robert Parker, *Wine Enthusiast* magazine, etc.), which could also be utilized. Finally, the data set is comprised of wine prices and ratings from a specific location (United States) and time period (1985–2008). It would be necessary to conduct a further investigation of wine prices in other countries and during different time periods (particularly more recent ones) to determine if lumping and splitting continues to have an effect. Future studies could also examine the effects of lumping and splitting in other goods and services markets where rating systems are used (ex. cigars, restaurants, hotels, movies, books).

Conflicts of interest

There is no conflict of interest.

Acknowledgements

We would like to thank Clare Finnegan for her research assistance, and Neal Hulkower, attendees of Session #3C at the Eight Annual American Association of Wine Economists (AAWE) Conference in Walla Walla, Washington, USA and

two anonymous reviewers for their helpful comments and suggestions.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.wep.2019.09.003>.

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