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TOWARD VALUING WILLAMETTE VALLEY PINOT NOIR AS A CULTURAL GOOD

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Toward Valuing Willamette Valley Pinot Noir as a Cultural Good[*]

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Abstract

This paper addresses the question of whether the price of Willamette Valley Pinot noir (WVPn) reflects its value as a cultural good as opposed to just another commodity or agricultural product. First, the characteristics of WVPn are matched to Throsby's six cultural value characteristics: aesthetic, spiritual, social, historical, symbolic, and authenticity. Then two of Throsby's assessment methods, expert appraisal and attitudinal analysis, are exercised. For the former, 681 scores assigned by Rusty Gaffney and the retail cost of WVPns are analyzed yielding an upper bound of $4.76 per Gaffney point above 85 for the economic value as a cultural good. The attitudinal analysis is based on a survey modeled after Throsby and Zednik and administered to visitors to four tasting rooms. Each respondent tasted 2 WVPns and completed the survey form for each. Regression models established the association between willingness to pay (WTP) and the various responses, demographic information, and attributes of the wines with aesthetic value ("I find this wine beautiful") most strongly associated with WTP with an increase of about $9 for tasters who endorse this statement compared to those who don't. (JEL Classification: A13, C30, C83, L66, Z10)

Keywords: Willamette Valley Pinot noir, cultural good, cultural value, willingness to pay

[1] McMinnville, OR 97128, nhulkower@yahoo.com Disclosure: The first author was a part time employee of White Rose Estate at the time of the survey and is a member of Maysara Winery Tinoosh wine club.

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I.   **Introduction**

On a flight back to Portland, Oregon, in 2016, the first author finished reading the last chapter of Marks' *Wine and Economics* (Marks, 2015) entitled "Wine as a cultural good" at the same time as another passenger was giving wine advice to a flight attendant. The passenger mentioned being in the wine club of Artesa Vineyards and Winery in Napa Valley and pointedly noted that its Pinot noir was less expensive than those from Oregon. It turns out that the range of prices for Artesa Pinot noirs was $28 to $80 for a 750 ml bottle, comparable to the prices of Willamette Valley Pinot noir (WVPn).   Nevertheless, the comment illustrated the widely held perception that WVPn is among the costliest in the New World and begs the question, what might be driving the prices?   Undeniably, higher quality Pinot noir, regardless of its source, falls squarely into the ultra-premium category of wine and, for many examples, is a luxury product. A study by two students at Linfield College (Meyers and Walker, 2018) indicated that percent alcohol of a wine, certification by Low Input Viticulture and Enology (LIVE, Inc.), and the rating given by WineEnthusiast explain about 61% of the price variation of WVPn. We look at another possibility: is the higher price for WVPn, generally well above the cost of production, reflecting its value as a cultural good as opposed to just another commodity or agricultural product?

Cultural economics as a distinct subfield is generally regarded to have emerged in the 1960s. While the original emphasis was on the markets for products of the fine arts and performance (see, for example, Baumol and Bowen (1965)), the scope has recently been broadening to include wine as a cultural good as evidenced in Marks (2015).

In their empirical analysis of the price drivers of German wines, Beckert, Rössel, and Schenk (2017) took an economic sociological approach which recognizes wine as a cultural product. Based on production data on wines from 110 wineries in the Rheingau and Rhinehessen, they constructed four models of wine prices using various attributes of the wine as independent variables.   One in particular, labelled "art," and described as follows: "By relating the wine production to the world of art, the wine is framed as a cultural product high in aesthetic

value" (p. 213, Table 1) is similar to one we used in our study and was found to be a significant price driver. Responses to a mail survey of wine consumption sent to a random sample of residents of four German cities provided "class-related variables like income, education, and wine socialization [whether wine was common in the parents' home]" (p. 217) which turned out to be significant drivers in the model of willingness to pay (WTP).

Our approach is based on Throsby and Zednik (2013) who examined the cultural value of art to the general public and to a subpopulation who might especially identify with the art. Throsby is credited with developing the idea of a cultural good. He makes the case that "economic and cultural value stand as distinct concepts which need to be separated in the valuation of cultural goods and services in the economy and in society" and then argues that "willingness to pay is an inadequate or inappropriate indicator of cultural value" (Throsby, 2001, pp. 31-32). His reasons include that there may be insufficient knowledge about an item to determine a person's WTP, that there are "some characteristics of cultural value [that] cannot be expressed in terms of preferences" (Throsby, 2001, p. 32), that "some characteristics of cultural value may only be measurable…[on] a scale that is incommensurable with a …monetary metric" (Throsby, 2001, p. 32), and there are problems in determining an individual WTP when the cultural experience is as part of a group. Since none of these reasons apply to wine, we can test whether WTP correlates significantly with other measures of cultural value.

Determining cultural value, however, represents a significant challenge. In this paper, we first assess WVPn against Throsby's (2001) six cultural value characteristics. In the same book, he identified five cultural value assessment methods, of which two, expert appraisal and attitudinal analysis, are applicable in the case of wine. We used the former to determine an upper bound for an economic value of WVPn as a cultural good and the latter to assess both the cultural value and WTP. The expert appraisal is based on an analysis of retail prices and ratings of Rusty Gaffney (2016), known as the Prince of Pinot. For the attitudinal analysis, we used a method similar to that of Throsby and Zednik (2013), who collected

survey data from consumers about their cultural and economic evaluation of a group of paintings.

The next section makes the case that WVPn satisfies Throsby's six cultural value characteristics. Section III contains the Expert Appraisal derived from the scores of 681 WVPn's assigned by Rusty Gaffney and their retail prices. The Attitudinal Analysis, based on a survey given to visitors to four tasting rooms in the Willamette Valley comprises Section IV. Section V presents a summary of the results. Limitations of this study are presented in Section VI.

II.   Six Cultural Value Characteristics

The modern Oregon wine industry began in 1961 in the southern part of the state and in 1965, in the Willamette Valley in the north. As of 2018, it included 793 wineries and 1165 vineyards. In 2018, Pinot noir represented over 57% of planted acreage of which over 80% was in the Willamette Valley, and 59% of vineyard production (IPRE, 2019), over 83% of which was in the Willamette Valley. Many consider WVPn to be the best expression of the grape outside of Burgundy. In this section, we offer evidence that WVPn satisfies criteria for a cultural good.

Throsby (2001) listed six cultural value characteristics that we used to assess WVPn. The definition of each given in parenthesis is extracted from Throsby (2001, pp. 28-29) and emphasizes aspects most appropriate for WVPn.
•   Aesthetic value ("…properties of beauty, harmony, form and other aesthetic characteristics of the work as an acknowledged component of the work's cultural value."): While there is some debate as to whether WVPn is a work of art or an artisanal product, it is renowned for aesthetic properties including elegance, balance, complexity and attractive structure.
•   Spiritual value ("…it may be secularly based, referring to inner qualities shared by all human beings. The beneficial effects conveyed by spiritual value include understanding,

enlightenment and insight."): WVPn can inspire an emotional connection to the wines themselves and to the sites from where they come.

• Social value ("The work may convey a sense of connection with others, and it may contribute to a comprehension of the nature of the society in which we live and to a sense of identity and place."): From its earliest days, the Willamette Valley wine industry has been a model of cooperation among growers and producers. That the word "competitor" is rarely if ever used evidences the collaborative culture. Most producers practice some form of sustainability and embody a green perspective.

• Historical value ("…how it reflects the conditions of life at the time it was created, and how it illuminates the present by providing a sense of continuity with the past."):   Many of the pioneers of WVPn have looked to Burgundy for guidance and so exemplify a continuity with the past, albeit transplanted to the New World.   After over 50 years, members of the second generation have taken over a few of the first wineries.

• Symbolic value ("…embraces the nature of the meaning conveyed by the work and its value to the consumer."): Perhaps the best evidence is that memorable WVPn honors both the winemaking traditions of the Old World and the modern methods of the New World. The term "Oregundian" is apposite. For example, Domaine Drouhin Oregon was established in 1987 with tagline "French Soul – Oregon Soil."

• Authenticity value ("…the work is the real, original and unique artwork which it is represented to be."): WVPn comes from a number of American Viticultural Areas (AVAs) within it, including Chehalem Mountains, Ribbon Ridge, Yamhill-Carlton District, Dundee Hill, McMinnville, Eola-Amity Hills, and Van Duzer Corridor, as well as the Willamette Valley AVA, each of which can yield different characteristics of which some are arguably unique. There are significant stylistic differences among the producers, as well, that produce distinctive expressions of the variety. Cross, Plantinga and Stavins (2006) demonstrated that "Buyers and sellers of vineyard parcels in the Willamette Valley…attach a significant premium to sub-AVA designations…"

Following Throsby and Zednik's example, we believe that the spiritual and symbolic characteristics of a cultural good should be evaluated from both the perspective of the

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individual him/herself and on behalf of others, thereby assessing whether people can give separate valuations.   Hence as part of the attitudinal analysis, we solicited separate ratings for each.   We also asked for a separate social rating from Oregonians to identify any differences with the perspective of non-Oregonians.

III.   **Expert Appraisal**

For the expert appraisal, an analysis of 681 scores assigned to WVPn's by Rusty Gaffney (2016) and their retail cost was performed.   From 2001 through 2019 when he "decided to abandon critical tasting and get on with the business of drinking and fully enjoying Pinot Noir" (http://www.princeofpinot.com/article/2209/), Gaffney produced an online newsletter called PinotFile primarily focused on reviews of Oregon and California Pinot noir. During this period, he garnered the respect of the winemaking community, his fellow critics and consumers.

Starting in 2009, Gaffney used the following scale to make quality assessments: 94-100 Extraordinary, 90-93 Outstanding, 86-89 Very good, 80-85 Good and 75-79 Decent. The range of scores assigned in the sample we used was 85 to 98 with an average of 90.7. The retail price per bottle ranged from $15 to $175 with an average of $48.   The curve for Gaffney Score (y) vs retail price (x) is $y = 79.938x^{0.0331}$ with $R^2 = 0.2523$ (Figure 1).
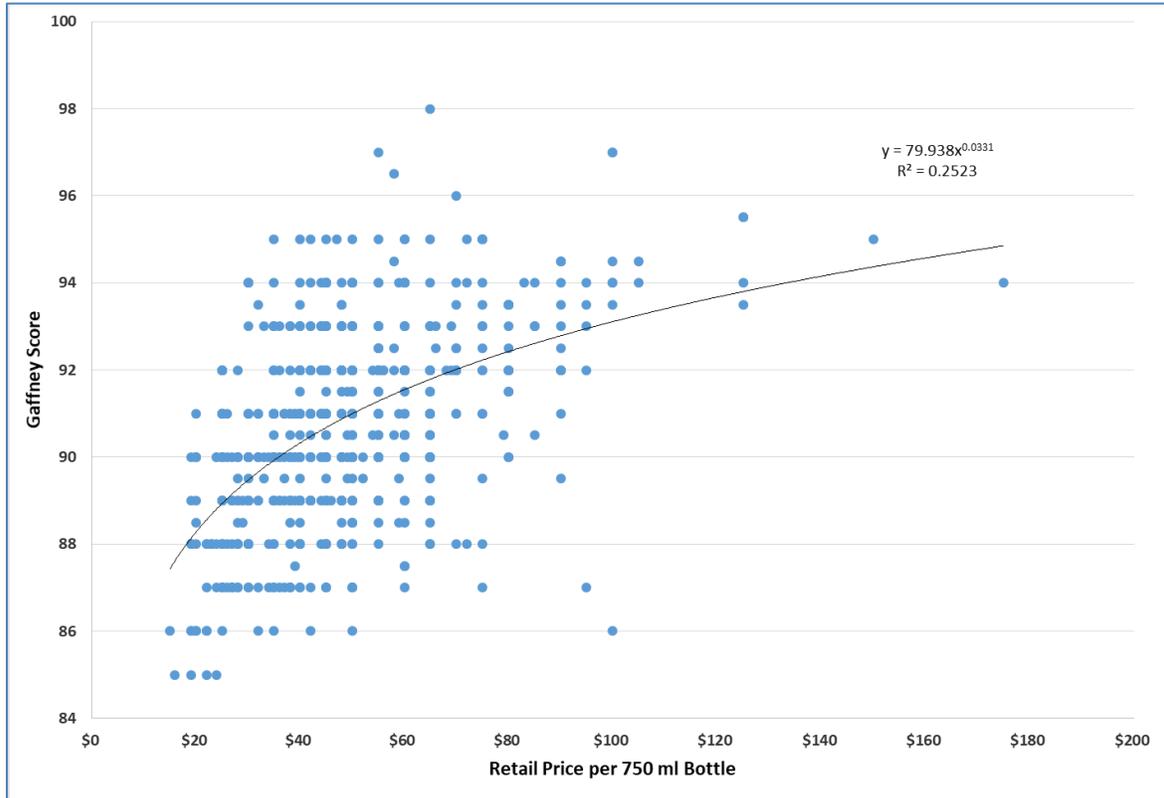
Figure 1. Retail Price per Bottle of 681 Willamette Valley Pinot Noirs vs Gaffney Scores

The residual price of a bottle above the minimum retail price in the sample is $15, and includes profit and a premium for quality. It may also include its economic value as a cultural good. To calculate an upper bound for this value, we deduct the portion of the retail price that includes the premium for at least very good quality (Gaffney Score of at least 86) and calculate the ratio of the price over $15, ($x$-15), and the Gaffney points above 85, (y-85). In other words, we take as a benchmark the wine priced at $15 and awarded a Gaffney Score of 85. We found that the mean of the marginal dollars per marginal point, (x-15)/(y-85) = $6.37 (Figure 2). Since $R^2 = 0.2523$, (1- R^2) = 0.7477, and 0.7477 * $6.37 = $4.76/Gaffney point above 85 is explained by something other than the Gaffney Score and hence represents the upper bound for the economic value as a cultural good.
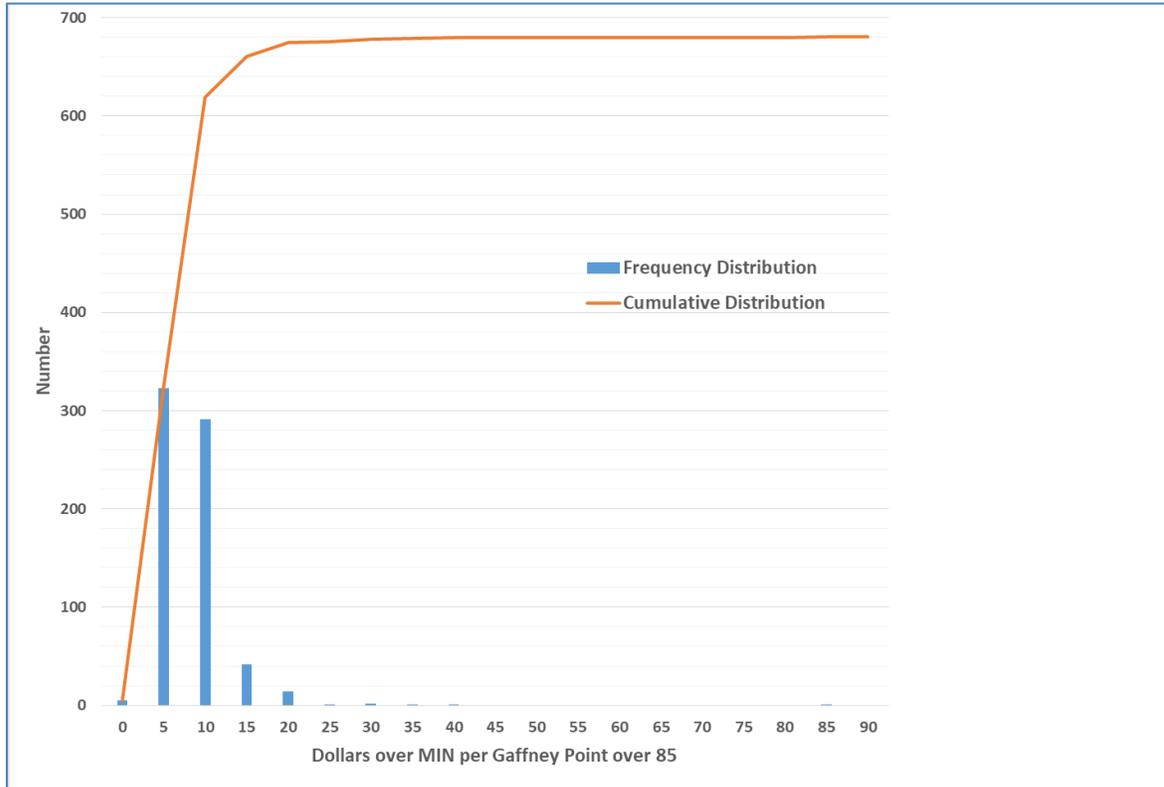
Figure 2. Frequency and Cumulative Distributions of (Retail dollars over 15)/(Gaffney Score over 85)

This analysis represents a first attempt to use an expert's quality assessments as the basis for isolating its impact on price from which we derive the upper bound. We have selected a univariate no-constant regression to illustrate the approach. A more thorough analysis would compare Gaffney's ratings with those of other well-regarded reviewers, use transaction prices instead of asking prices, and exercise a model that includes possible price determinants other than quality in order to narrow the upper bound. Until such an analysis is performed, the possibility remains that the contribution to the economic value resulting from wine being a cultural good is negligible.

IV.   **Attitudinal Analysis**

The attitudinal analysis of WVPn's cultural value is based on a survey modeled after that of Throsby and Zednik (2013). Its purpose is to determine whether there is a significant

relationship between measures of the cultural value and WTP for WVPn's from a convenience sample of willing visitors to tasting rooms at Oregon wineries. Our objective is similar to that of Throsby and Zednik; i.e., to gain insight into whether the measures fully incorporate the WTP as economic theory would suggest, or whether there is support for Throsby's theory that the value of an artistic product to individuals is not properly or completely expressed by its economic value. Because our sample of respondents contains members of two groups who may have differing assessments of the cultural value of WVPn's (Oregonians and non-Oregonians), we also examined whether the relationship between the two value systems differ by group. More specifically, our hypotheses are:

H1: The economic value of a WVPn is only weakly predicted by its cultural value.

and

H2: The relationship between economic value and cultural value is weaker for those for whom cultural value is more personal than for those for whom it is less personal.

Methods:

The first author invited five wineries to participate in the survey based on reputation, number of visitors on a typical Saturday, and diversity of styles, price points and AVAs. Four accepted the invitation. Respondents were recruited from visitors to the four wineries on Saturdays, 18 March (White Rose Estate), 25 March (Maysara), 8 April (Brooks) and 15 April 2017 (Ponzi). In general, the first author approached visitors and invited them to participate in a brief survey. At one winery (White Rose Estate), participation was encouraged by giving visitors samples of two wines that were not on the day's flight. At another (Maysara), the wines were part of a wine club allocation and were served at the release party. At the other two wineries, the wines were part of the flights offered that day. The goal was to collect data from 50 visitors at each winery to ensure a sufficiently large sample size of at least 30 in one day. Data collection continued until 50 visitors were surveyed or the tasting room closed, whichever happened first.

A total of 184 respondents participated in the survey at the four wineries. The survey collected demographic data (gender, age, educational and income level, and whether or not

respondent was from Oregon), a self-assessment of wine expertise, and responses to nine statements that registered the degree of agreement on a 1 to 5 Likert scale for each of two wines. These statements were designed to elicit respondent assessments of each wine on the six cultural value characteristics for the WVPns that they tasted. Respondents were also asked to provide their assessment of a fair retail price for each wine, which we took as their WTP. Table 1 provides the wording for the cultural and economic assessment items. Note the similarity of "Aesthetic" to the "Art" descriptor in Beckert, Rössel, and Schenk (2017).

All but one of the respondents provided assessments of two wines yielding a total of 367 records. Among those providing demographic data, the median age was 42, with a range of 22 to 77 years. 79% of the respondents were Oregonians, 63% were female, 83% had at least a college degree, and 47% reported an annual income that exceeded $100K. Only 23% assessed themselves as having minimal or less knowledge of wine.

Cultural Value Dimension	Statement
Aesthetic	I find this wine beautiful
Social for all	This wine helps us understand ourselves better as human beings
Social for Oregonians	This wine helps us understand ourselves better as Oregonians
Historic	This wine reflects the conditions of the Oregon wine industry at the time it was created and provides a sense of continuity to the past
Symbolic for self	This wine has cultural significance to me
Symbolic for others	This wine could have cultural significance to others
Spiritual for self	I made an emotional connection to this wine
Spiritual for others	Others could make an emotional connection to this wine
Authenticity	This wine is a genuine representative of Oregon Pinot noir
Economic Value	**Question**
	Your assessment of the retail value of a bottle of this wine

Table 1. Questionnaire Items for Assessing Value of WVPn

The Ordinary Least Squares (OLS) model we adopted was similar to that of Throsby and Zednik (2013) in their examination of the relationship between economic and cultural value of artwork. Let E_{jk} denote the amount the kth taster reports he or she is willing to pay for

wine j, C_{jki} the ith cultural value score assigned to the wine, Z_{1j} a vector of characteristics of the wine, and Z_{2k} a vector of characteristics of the taster. The model proposed is

$$E_{jk} = f(C_{jki}, Z_{1j}, Z_{2k}), \qquad (1)$$

where $j = 1, ...,8; k = 1, ..., 184, i = 1, ...,8.$ The nine cultural value 5-point Likert scores given were each summarized by defining a dichotomous variable with values high (defined as the median for that score or higher) and not high. The wine characteristics include a blocking variable for winery and the retail price of the wine. The taster characteristics include gender, age, income (levels 1, 2, and 3 representing < $50K, $50-$100K, and > $100K), education level (levels 1, 2, and 3 representing no degree, undergraduate, and graduate degrees), and an indicator for expert wine knowledge (defined as "very knowledgeable" or "expert," the top two points on a five-point Likert scale). The taster and wine characteristics are included in the model to control for their effect on WTP, since tasters were not randomized to wineries. We fit model (1) using OLS, first to all the data, and then separately for Oregonians and non-Oregonians, to produce an analysis similar to that of Throsby and Zednick (2013). Thus we assume that the tasters make their cultural assessments of the wine first, and these, if relevant, inform their economic assessment.

Though the tasters were not told the price of each wine as part of the protocol of the experiment, they could have known the prices from price lists or familiarity with the wines. The retail prices of the wines, therefore, would be likely to affect WTP. But our interest is in whether or not the cultural variables affect WTP over and above the actual price of the wine. Thus the results we report are all based on Type III Sums of Squares; i.e., we test whether the variables affect mean WTP conditional on all other variables in the model.

A non-trivial fraction of the 367 records in the wine assessment data contained some item-level missingness. The items most likely to be missing were demographic characteristics of the evaluators; e.g., gender was missing for about 15% of the records. The wine assessments themselves were missing at a lower rate; e.g., WTP was missing for about 5% of the records. Still, taken together, about a third of the 367 records had at least one missing item. As a result, a considerable loss of data for fitting model (1) would result if complete case analysis

were used. Therefore, five imputed datasets were produced, the models fit to each one, and the results combined to produce estimates of model parameters. This process is known as multiple imputation (Rubin 1987) and is the standard method for preserving as much information as possible in data with item missingness. The missing items are predicted from the items that are present multiple times (in our case five), and then the additional uncertainty from the prediction process is calculated during the combining stage by a between-imputation variability component. Multiple imputation is available in most major statistical software, including SAS, which was used for our model-fitting (Berglund and Heeringa 2014).

Imputation was carried out in two stages. First, a Markov chain Monte Carlo (MCMC) method sufficient to achieve monotonic missingness was implemented, followed by a fully conditional specification with regression for the remaining missingness. Imputation was carried out 5 times, and multiple imputation analysis was subsequently conducted. The idea of multiple imputation is that the missing data can be filled in with plausible values several times, and each complete data set can be used for carrying out statistical inference, which in this case is done by fitting a regression model. The variability among the results provides a method of assessing the uncertainty introduced in the statistical analysis by imputation. The regression results presented below reflect both within and between imputation variability. This ensures that the findings of the statistical hypothesis tests have properly accounted for the additional uncertainty in the analysis introduced by imputation for missing data.

Results

Summary of Cultural Value Assessments

Table 2 lists the wines sampled at each winery.

Number	The Pinot noir (Gaffney Score or rating)	Winery	AVA	Retail Price ($ US)	Single Vineyard or Blend
1	2013 The Neo-Classical Objective (90, 91-92)	White Rose Estate	Dundee Hills	80.00	Blend
2	2014 Anderson Family Vineyard	White Rose Estate	Dundee Hills	95.00	Single Vineyard
3	2009 Jamsheed (Very good -)	Maysara Winery	McMinnville	28.00	Single Vineyard
4	2007 Delara	Maysara Winery	McMinnville	75.00	Single Vineyard
5	2013 Rastaban (92-93)	Brooks Wines	Eola-Amity Hills	55.00	Single Vineyard
6	2014 Big Cheese (89)	Brooks Wines	Eola-Amity Hills	48.00	Single Vineyard
7	2014 Classico	Ponzi Winery	Willamette Valley	43.00	Blend
8	2013 Reserve (91)	Ponzi Winery	Willamette Valley	60.00	Blend

Table 2. The Pinot Noirs Sampled for the Attitudinal Analysis

A summary of the taster's cultural value evaluations, along with the actual retail prices of the wines, is shown in Table 3. The average WTP was positively related to actual retail price but was less in all but one case.[3] Among the Oregonians, the social value was also ranked higher than the social for all. Throsby and Zednick (2013) found higher valuation of symbolic and spiritual value for others than for self consistently across all paintings in their study. We found the same for all but one of the wines in our study.

Value Dimension	Wine							
	1	2	3	4	5	6	7	8
Number of responses*	47	47	44	44	43	42	50	50
Economic Value								
Willingness to Pay ($)	63	64	38	45	35	37	34	45
Retail ($)	80	95	28	75	55	48	43	60
Difference (% of Retail)	-21.5	-32.4	36.5	-39.9	-36.7	-23.4	-20.3	-25.6
Cultural Value								
Aesthetic	4.11	3.96	4.17	4.09	3.70	3.98	3.98	3.90
Social for all	2.98	3.02	3.28	3.30	3.05	3.32	2.86	2.98
Social for Oregonians	3.63	3.43	3.41	3.62	3.62	3.67	3.45	3.42
Historic	3.93	3.96	3.95	4.02	3.64	3.95	3.63	3.78
Symbolic for self	3.70	3.67	3.76	3.63	3.57	3.64	3.46	3.44
Symbolic for others	3.91	3.98	3.72	3.81	4.05	4.00	3.92	3.82
Spiritual for self	3.53	3.35	3.23	3.55	3.14	3.31	3.14	3.14
Spiritual for others	3.98	3.85	3.60	3.70	3.95	3.90	3.70	3.66
Authenticity	4.18	4.00	4.33	4.23	3.74	3.98	4.10	4.12

Wines: 1 White Rose Neo-Classical Objective 2013, 2 White Rose Anderson Family Vineyard 2014,

3 Maysara Jamsheed 2009, 4 Maysara Delara 2007, 5 Brooks Rastaban 2013, 6 Brooks Big Cheese 2014,

7 Ponzi Classico 2014, 8 Ponzi Reserve 2013

Cultural Value: 1 Disagree Strongly, 2 Disagree, 3 Neither Agree nor Disagree, 4 Agree, 5 Strongly Agree

*Total number of complete and partial responses; imputation used to fill in missing data. Results shown here are for the fully imputed dataset.

Table 3. Cultural and Economic Evaluations for the Wines Tasted

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[3] Schnabel and Storchmann (2010) found evidence that "Price signals respond positively to wine quality and negatively to increasing information." In that study, the price signal is the ratio of retail price to wholesale price of a wine. The assumption is that most wholesalers are fully informed having tasted the wine whereas consumers, especially those who have not, are uninformed. In our study, all respondents tasted the wines in tasting rooms where collateral information was available and hence can be regarded as fully informed. The fact that in all but one case, the average WTP was less than the retail price seems to comport with the other study's findings.

We also summarized the cultural value scores separately for Oregonians and non-Oregonians, aggregating across wines. Table 4 shows those results. We see that Oregonians' cultural value scores are consistently higher than those of non-Oregonians, except for those measures "for others," where they are lower. Similarly, the largest discrepancy between scores is for the symbolic value to self. Presumably, this is because Oregonians recognize that the cultural values will be greatest for those like themselves who identify with the culture of their region. The WTP, however, does not differ markedly between the groups.

Variable	Non Oregonians			Oregonians			All Respondents		
	Mean	SD	n	Mean	SD	n	Mean	SD	n
Aesthetic	3.93	0.75	76	4.00	0.77	286	3.98	0.76	362
Social: for all	3.01	0.72	73	3.11	0.89	288	3.09	0.86	361
Social: for Oregonians	N/A			3.53	0.90	287	N/A		
Historic	3.79	0.74	73	3.87	0.73	288	3.86	0.73	361
Symbolic: for self	3.38	0.73	74	3.66	0.87	286	3.60	0.85	360
Symbolic: for others	3.96	0.48	73	3.89	0.73	287	3.90	0.68	360
Spiritual: for self	3.18	0.98	76	3.33	0.94	285	3.30	0.94	361
Spiritual: for others	3.80	0.57	74	3.79	0.70	288	3.79	0.68	362
Authenticity	3.95	0.81	74	4.12	0.82	288	4.09	0.82	362
WTP ($)	44.49	18.62	76	45.83	20.52	271	45.54	20.10	347

Table 4. Summary Statistics of Cultural Values as Assessed by Respondents

Summary of Regression Analysis

To test the first hypothesis, we fit a regression model for the WTP as a function of the various dichotomized cultural factors, controlling for wine and taster characteristics. We also included the taster as a predictor nested within winery in the regression model. This was needed so that the model could properly account for the tendency of tasters to have higher or lower than average WTP values that are consistent across all wines; i.e., that are correlated. We fit three such models, one for the entire sample, and then one each for the two subsets of the data based on residence of respondent (Oregon or not). The resulting regression coefficients for all three models are shown in Table 5, along with the t-ratio for a test that regression coefficient is non-zero, and the p-value for each test. Those regression coefficients that are significantly different from 0 (at $\alpha = .05$) are shown bolded.

Several variables included in the models were categorical, and the table displays estimates of the differences between levels of the included category and the reference category. For example, education was recorded as either No degree (reference category), Undergraduate degree, or Graduate degree. The table shows the estimated differences in mean WTP for each of the latter two categories and the first. The labels for all such differences in category means are shown as a difference in the table. It was not possible to include any of the categorical taster characteristics in the non-Oregonian model, as there was insufficient diversity among this (smaller) sample to produce estimates of difference main effects.

	Independent variable	For Non-Oregonians			For Oregonians			All Respondents		
		Estimate	t-ratio	Pr > |t|	Estimate	t-ratio	Pr > |t|	Estimate	t-ratio	Pr > |t|
Cultural Value	Aesthetic (high – low)	**14.71**	2.37	0.026	**7.52**	2.21	0.038	**9.44**	3.34	0.002
	Social: for all (high – low)	-3.14	-0.47	0.640	0.42	0.09	0.930	-0.97	-0.27	0.791
	Social: for Oregonians (high – low)				-4.65	-1.47	0.144	-4.83	-1.57	0.119
	Historic (high – low)	2.64	0.39	0.703	2.63	0.89	0.380	3.10	1.18	0.242
	Symbolic: for self (high – low)	6.39	1.35	0.190	1.42	0.51	0.614	3.22	1.41	0.161
	Symbolic: for others (high – low)	11.27	1.79	0.087	6.97	1.53	0.146	6.57	1.80	0.089
	Spiritual: for self (high – low)	3.29	0.42	0.679	-1.71	-0.48	0.630	-0.53	-0.17	0.862
	Spiritual: for others (high – low)	-2.63	-0.34	0.737	3.72	1.15	0.257	3.16	1.13	0.261
	Authenticity (high – low)	-2.34	-0.34	0.742	4.79	1.28	0.214	2.72	0.92	0.362
Wine	Retail price	**0.33**	2.60	0.015	0.20	3.94	0.000	0.21	4.49	0.000
	Winery BRK - WineryWRE	-28.53	-1.95	0.068	-42.83	-2.2	0.037	-41.56	-2.13	0.043
	Winery MAY - Winery WRE	-29.37	-1.61	0.124	-40.18	-2.41	0.018	-41.98	-2.80	0.006
	Winery PNZ - Winery WRE	-33.12	-1.51	0.150	-29.42	-1.26	0.227	-27.84	-1.25	0.230
Respondent	Male	N/A			-1.36	-0.18	0.859	-1.33	-0.19	0.857
	Age	0.10	0.15	0.883	0.05	0.18	0.854	0.08	0.31	0.760
	Difference: Grad Degree - No Degree	N/A			-1.12	-0.08	0.934	-2.30	-0.18	0.860
	Difference: College Degree - No Degree	N/A			3.63	0.19	0.855	3.61	0.18	0.859
	Difference: >$100K Inc - < $50K Inc	N/A			-6.52	-0.42	0.681	-6.95	-0.43	0.675
	Difference: $50-100K Inc - < $50K Inc	N/A			-4.49	-0.26	0.796	-5.01	-0.28	0.784
	Wine Experience (expert – not expert)	N/A			2.78	0.22	0.825	3.87	0.34	0.736
	R^2 with cultural values	88.7%			89.0%			88.5%		
	R^2 without cultural values	80.3%			85.5%			84.5%		

Table 5. Results of Regression Model: Fit to All Respondents, Oregonians, and non-Oregonians

First, we observe from Table 5 that none of the demographic characteristics was found to be predictive of WTP in the models. Note that education level and income were significant drivers of WTP in the economic sociological analysis by Beckert, Rössel, and Schenk (2017) based on a survey of residents in four German cities. The reasons for this difference are open to speculation and invite further investigation.

Now turning to the relationship between economic and cultural values, we see results that are similar to that found by Throsby and Zednik. Even after taking wine retail price and winery into account, the tasters appear to value the wines differently based on their perception of its aesthetic value. For non-Oregonians, the estimate shows an increase of about $15 in average WTP for those who rate its Aesthetic value at the median or higher compared to those who don't. This is about twice the size of the premium in WTP for Oregonians, where the increase was about $7.5. Throsby and Zednik's analysis identified this same effect for one of their two WTP measures and noted that it is "not surprising." None of the other aesthetic variables show a significant effect on WTP in any of the three groups.

Our choice to dichotomize the 10 five-point Likert scores ignored some of the information provided by the tasters in their assessments of the cultural values of the wines and their own wine expertise. We conducted an alternative analysis to try to recover some of the information, and as a robustness check. In this model, we used the Likert score itself (assigned as 1 through 5) as predictors, which would be appropriate only if the five scale-points could be considered equi-distant. The results were largely the same as that of Table 5, with none of the taster characteristics predictive of WTP, and retail price a strong predictor for all groups. In this alternative analysis, the Aesthetic value also showed a significant effect for all groups, with about double the impact per scale point for non-Oregonians than Oregonians. The only notable difference in the results was that the Authenticity value was also predictive of WTP for Oregonians only (p = 0.036), with an increase in average WTP of about $4 per scale point.

Turning to our hypotheses, H1 has some, but not complete support from these results. Certainly a statement that cultural values are unrelated to economic value is refuted, since these consumers do provide an economic premium for at least one of the cultural values, even after accounting for more objective predictors of value. One way to quantify how much difference the cultural values make is by looking at the additional variability in WTP explained by the cultural value assessments. The last two rows of Table 5 show the R^2 with and without the cultural value effects included. We see that the change in R^2 is a relatively small fraction of the total variability explained, ranging from about 4% to 8%. The larger reduction in R^2 is for non-Oregonians, suggesting that the cultural value they perceive is conflated with economic value more than for Oregonians. Indeed, the large coefficient for the Aesthetic effect for non-Oregonians may just mean that if they enjoy the wine, they report a larger WTP, while the response to the Aesthetic item is not related to the cultural value for them as it is for Oregonians, for whom the wine as art is more relevant. However, none of the other cultural items show much difference between Oregonians and non-Oregonians, so the support for Hypothesis 2 is weak at best.

V.   **Summary**

We provided evidence that WVPn satisfies Throsby's Six Cultural Value Characteristics and applied two of his cultural value assessment methods, expert appraisal and attitudinal analysis, to gain insight into its possible economic value as a cultural good. The expert appraisal, based on data from Rusty Gaffney, suggests that the economic value of WVPn as a cultural good might be bounded above by $4.76 per Gaffney point above 85. The study by Meyers and Walker (2018) provides evidence that characteristics of the wine, alcohol level and WineEnthusiast score, and the winery that produced it, LIVE certification, are price drivers. These were not considered in our study but should be considered for any future investigation.

The attitudinal analysis relied on data gathered from a survey conducted in four tasting rooms in the Willamette Valley. The survey was modeled after a similar one used by Throsby and

Zednik (2013) in assessing the economic and cultural value of paintings. We constructed three models, one for all responses and one each for Oregonians and non-Oregonians, using as independent variables measures of cultural value, retail price, winery, and demographic data on the respondents, and WTP as the dependent variable. "Aesthetic" ("I find this wine beautiful") was the only significant cultural value driver of WTP in all three models suggesting that at least part of WTP is influenced by the perceived cultural value of WVPn.

The models were used to test two hypotheses: H1: The economic value of a WVPn is only weakly predicted by its cultural value and H2: The relationship between economic value and cultural value is weaker for those for whom cultural value is most personal than for those for whom it is less personal. We found some but not complete support for H1 but little support for H2.

Additional studies should focus on collecting more data across a wider range of wineries to construct models to estimate WTP that consider other characteristics of wine and the producing winery, and additional class-related variables including those used by Beckert, Rössel, and Schenk (2017) whose study, unlike ours, revealed a strong influence of these variables on WTP.

VI.   Limitations

A limitation of our study is that there was no random selection of tasters, wines, or wineries. We took a convenience sample of visitors at each of the four wineries. As noted by Lockshin and Corsi (2012, p. 18) "[Convenience samples] are not wrong, but mainly very blunt measuring instruments, whose reliability must be questioned until there are enough similar results to accept them as given." Thus generalization to all Oregon wineries or consumers is unwarranted. It is also obviously impossible to randomize our treatment of interest, their Oregonian/non-Oregonian status, to our participants, so it is possible this characteristic could be confounded with their other traits, such as wine expertise. Research has shown that the WTP for tasters with less wine expertise is more strongly influenced by extrinsic signals about the wine than those with more expertise (Lee, et al 2018). We did find that Oregonians

in our study were about half as likely to describe themselves as experts or very knowledgeable about wine than non-Oregonians (17% vs 34%). Though our tasters were not provided information about retail price directly, they may have obtained it from some other source. We did attempt to remove this potential confounder statistically, by including self-reported wine expertise as a covariate. In none of our models did it prove to be a significant predictor of WTP, at least in the presence of other covariates. Still if there is measurement error in the self-reported expertise, or if the access to extrinsic signals differed between Oregonians and non-Oregonians, it is possible that differences in their WTP could be attributable to other sources than their home state.

There is a possibility that treating fair retail price as WTP incorrectly assumes that respondents may be willing to pay what they believe is a fair price. Explicitly requesting the WTP would remedy this.

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