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REPUTATION TAPPING

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Reputation Tapping

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Abstract

Models of collective reputation are extended here to consider the effects from regional marketing efforts that attempt to establish links to famous production regions—a phenomenon we define as “reputation tapping”. We collect data from a laboratory experiment and estimate consumer response to information that ties U.S. wine regions to French wine regions. Results show that reputation tapping is significant for wines from emerging regions and important among subjects that are relatively knowledgeable about wine. Our findings also suggest that full protection of geographical indications would require the regulation of activities beyond those by individual firms.

Keywords: Appellations; Auctions; BDM; Collective reputation; European Union; Geographical indications; Willingness to pay; Wine.

JEL Classification: L14, Q13, Q17

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Reputation Tapping

Introduction

The economic importance of reputation has been widely studied, and much attention has been given to understanding the relationship between quality and reputation (e.g., Shapiro 1983; Landon and Smith 1998). Within the broad arena of economic research that focuses on reputation, there is work that examines factors influencing firm reputation (e.g., Klein and Leffler 1981; Schamel and Anderson 2003; Menapace and Moschini 2012) and work that studies the role of the collective reputation for a group of firms that share similar characteristics (Tirole 1996; Winfree and McCluskey 2005; Gergaud, Livat, and Warzynski 2010). In addition, there is a burgeoning literature that pays careful attention to the interaction between firm and collective reputations, and much of this work focuses on agricultural markets. In particular, certain food and wine products spend considerable effort promoting their brand and promoting a specific production region associated with their brand. Geographical indications and the use of appellation names are good examples of collective reputation efforts used for food and wine products in the European Union, and to a lesser degree in the United States and elsewhere. Research has shown that these collective reputations are often an important determinant in the price of wine, notably for wines from very established appellations (Guenter 2003; Costanigro, McCluskey, Goemans 2010).

In food and wine markets we often observe marketing references to an outside, and a more famous, region. Such references—made by a firm or by a group of firms in a region or appellation—are used to enhance their reputation, and we think this can best be described as “reputation tapping”¹. In U.S. wine markets we have seen firms employ links to outside regions directly on the label; however, the U.S. Department of the Treasury, Alcohol and Tobacco Tax

and Trade Bureau, now prohibits U.S. wine producers from using European appellation names on their labels as a result of an agreement between the United States and Europe (TTB 2006). Given the legal constraints of linking European appellations to specific firms in the United States, we focus on the impact of regional-level reputation tapping. Our research is motivated by the various existing promotion efforts that link U.S. wine regions to appellations in Europe. For example, in California there are important wine festivals that, in the festival's title and promotion efforts, make explicit reference to wine production regions in France yet highlight wines produced in specific regions in the United States (e.g., the Hospice du Rhône event, see <http://www.hospicedurhone.org/>; and the Alsace Festival, see <http://www.avwines.com/>). Moreover, there is anecdotal evidence suggesting that some degree of reputation tapping is done in many new world (non-European) wine production regions (e.g., see Kramer 2011).

This research also sheds new light on the contentious debate about the protection of geographical indications in food and wine markets. There have been disputes and disagreements about the appropriate level of protection for geographical indications in regional trade agreements and as part of the Agreement on Trade-Related Aspects for Intellectual Property Rights under the auspices of the World Trade Organization (Fink and Maskus 2006; Josling 2006). Much of these negotiations have occurred between the United States and the European Union, and wine is one of the products at the center of the debate (Creditt 2009). However, the discussions have focused on the use (and misuse) of geographical indications by individual firms, and have focused largely on appellation information placed on food and wine labels. The discussion has not considered the protection of geographical indications from outside regions. If regional-level reputation tapping is found to be important in wine markets, it greatly extends the scope of protecting geographical indications and likely reduces the effectiveness of such

protection efforts. As the difficulty of limiting the use of regional-level reputation tapping efforts increases, so too does the ability to fully protect geographical indications. Furthermore, additional pressure in trade negotiations to increase protection of geographical indications at the firm-level may encourage wider use of reputation tapping by wine regions outside of Europe.

The existing models of dual reputation (firm reputation and collective reputation) are extended here to include the role of reputation tapping. We consider the role of information that makes reference to a more famous external region with similar production characteristics. We are particularly interested in understanding the impact of reputation tapping in emerging appellations in new world wine production regions. This includes emerging regions in the United States that are trying to develop a larger market presence domestically; such areas include the Finger Lake Region in New York State, the Monticello Region in Virginia, and the newly created Rattlesnake Hills appellation in Washington State. In this paper we describe a laboratory experiment that was used to collect auction data for seven wines from various production regions (some established regions and some emerging regions) in the United States. One of the treatments in our experiment links each wine to an appellation in France to test the impact of reputation tapping. Our central hypothesis is that reputation tapping will have a positive influence on consumers' valuation of wine. Furthermore, we expect that the effect of reputation tapping activity will be greatest for wines from lesser known regions in the United States.

A framework extending the analysis of reputation effects

Previous research in economics has examined the influence of associating an existing reputation with a new product or service across firms and within firms. The term “reputation borrowing” has been used to characterize how firms borrow reputation from other firms in their network (Kotha, Rajgopal, and Rindova 2001). In the finance literature there is work that

examines how the underpricing of initial public offerings is impacted when the process is enforced by investment bankers that have an established reputation. Results from Beatty and Ritter (1986) and Carter, Dark, and Singh (1998) strongly support that that this type of “reputation borrowing” exists in the underpricing of initial public offerings. Another related line of research examines how reputations are used strategically within a firm as a way to extend their reputation across new products or services. Building on work by Erdem (1998) and Cabral (2000), Andersson (2002) refers to this idea of intra-firm reputation extensions as “pooling reputations”, and notes that it may be particularly important for experience goods (such as wine). There is empirical evidence that reputations can be “pooled” within a firm and “borrowed” across firms within the same network. Here we consider the possibility that collective reputations can be strategically “tapped” by other regions or appellations.

Theoretical model

We extend earlier models to explicitly consider the role of exogenous information in the development of a reputation. Others have suggested that such information flows might be important in wine markets, but that it is difficult to disentangle such effects given the nature and availability of data. Expert wines scores and media news releases provide data that begin to understand the impact of information on collective reputations and prices; however, the effects of other types of information, including information from advertising, have not been fully explored in the literature. To circumvent the constraints involved with using available data, we develop a lab experiment to collect primary data from subjects introduced to different types of information concerning the collective reputation for selected wines. Our approach allows us to better understand the role of information—notably advertising efforts that are generated within the region—on the development of a collective reputation.

Economists routinely use hedonic models to show that the price of product i , P_i , is a function of its attributes denoted as \mathbf{z}_i ; Π is the hedonic function relating the product price to the various attributes it holds. Therefore, for a product with a known index of quality denoted as q_i , the base model follows in equation (1) as:

$$(1) \quad P_i = \Pi(q_i, \mathbf{z}_i)$$

Following work by Landon and Smith (1998) and Costanigro, McCluskey, and Goemans (2010), we assume that there exist multiple layers of reputation. Prices of individual products may be influenced by product, firm, and regional reputations and consumers approximate the unknown q_i with expectations associated with these three types of reputations. For purposes of illustration we assume here that each firm produces one product and focus only on product (firm) and regional (collective) reputations. In equation (2) the reputation of the i th product in time t is denoted as r_{it} and the reputation of the k th region in time t is denoted as R_{kt} .

$$(2) \quad P_{ikt} = \Pi(r_{it}, R_{kt}, \mathbf{z}_i)$$

In equation (3) we outline the determinants of the collective reputation. Following Costanigro, McCluskey, and Goemans (2010) we include the mean quality performance in region k in time t , denoted as $\mu(q_{kt})$, the standard deviation of the quality of products from region k in time t , denoted as $\sigma(q_{kt})$, and the longevity of the regional name (measured as the time between when the regional name began, denoted as t_{k0} , and the current time period T). The standard deviation of the quality measure is included to capture any negative reputation effects from regions that produce inconsistent quality; the longevity measure is included to capture any positive effects related to how well recognized and accepted the regional reputation is among consumers.

Earlier models have not included determinants to capture the effects of other information, such as advertising, on the collective reputation, and this is what we are interested in studying here. Specifically, we examine the role that reputation tapping might have on the collective reputation and include an additional determinant in equation (3) to reflect this idea. Information that may affect the collective reputation for region k enters the model as $\rho_{kt}\omega_k$; here ρ_{kt} measures the existence of information that seeks to influence the collective reputation in region k in time t and ω_k measures the strength and reliability of the information. In the specific case that we examine empirically, ρ_{kt} measures the presence of reputation tapping and ω_k measures the level of prestige for the region that is being tapped.

$$(3) \quad R_{k,t=T} = R\left[\left(\mu(q_{kt})\right)_{t \leq T}, \left(\sigma(q_{kt})\right)_{t \leq T}\right]; T - t_{k0}; \rho_{kt}\omega_k$$

Furthermore, we anticipate that the impact of information, including any information related to reputation tapping, will not be equal across all regions. When similarities between U.S. wine regions and regions in France are highlighted, it is expected that they will have a greater impact among the lesser known wine regions in the United States. This idea complements what is embedded in the longevity determinant if lesser known regions are also younger, but it also extends the analysis to explicitly consider the effects of new information. Two types of regions are considered below—established regions and emerging regions. We hypothesize that, holding constant quality and longevity, the effect of reputation tapping will be greater in emerging regions. In equation (4) this is shown formally where the notation s defines an established region with a well-known collective reputation and m defines an emerging region with a less well-known collective reputation.

$$(4) \quad \left. \frac{\partial R_{k,t}}{\rho_{k,t}} \right|_{k=m} > \left. \frac{\partial R_{k,t}}{\rho_{k,t}} \right|_{k=s}$$

In our experiment we employ three treatments to expose different subjects to different types of information that are designed to influence the collective reputations for the wines. One treatment provides information that creates a link between each U.S. wine production region and a French wine production region. We include three wines from established regions (in California) and four wines from emerging wine regions (two in Oregon and two in Virginia).² Given that the prestige level of the French regions used in our experiment are equal (i.e., $\omega_k = \omega_{l \neq k}$), we expect that wines from emerging regions will be valued more highly by subjects that receive information linking U.S. regions to French regions.

Empirical model

Our hypotheses developed above would be difficult to assess using currently available data, but are eminently testable using data from our experiment that involves commercial wines from various U.S. appellations under different information treatments. The latent value for a bid for wine i by individual j given information a is denoted as bid_{ija}^* ; it is expressed as a function of the appellation information presented in the treatment, T_a , wine-production region, K_i , an interaction term between wine-production regions and information treatments, the respondents' personal characteristics, X_j , and the wine varietal, denoted as V_i . In equation (5) we assume a linear functional form for the bid equation. However, we observe the variable bid_{ija} which is related to bid_{ija}^* , and the relationship between the two is shown in equation (6).

$$(5) \quad bid_{ija}^* = \alpha + \xi T_a + \phi K_i + \gamma T_a K_i + \delta X_j + \lambda V_i + \varepsilon_{ija} + \nu_j$$

$$(6) \quad bid_{ija} = \max\{0, bid_{ija}^*\}$$

In the model specified above, ξ is a vector of parameters describing the effects for the appellation information treatments (relative to the treatment with no appellation information), ϕ

is a vector of parameters describing the effects from wine-production regions (relative to California), and γ is a vector of coefficients characterizing the interaction effects between information treatments and wine regions. We use δ to represent a vector of parameters for consumer characteristics and λ is a vector of parameters for the different wine varieties (relative to Chardonnay). Because individuals submitted bids for seven different wines in the experiment, we adjusted the model to account for the panel nature of the data by clustering the standard errors by subject; the overall error term, denoted as ε_{ija} , is assumed to follow a Normal distribution with mean zero, and v_j is an individual specific disturbance for subject j .

Experimental design

To estimate consumer demand for the wines of interest, we could use a contingent valuation technique, a choice-based conjoint analysis, or an experimental auction. There are advantages and disadvantages to each approach (see Lusk and Hudson 2004); we decided to use an experimental auction with real products and real money as it allowed us to test our hypotheses about reputation tapping most directly. We recruited 263 non-student subjects to participate in our framed field experiment (Harrison and List 2004) using advertisements posted on *craigslist* and in the primary news publication distributed at our university. The subjects were comprised of staff (not faculty) members and residents in the local community, and our recruitment advertisement specifically called for subjects that had purchased wine within 90 days of the experiment.

Subjects were paid \$25 to participate and randomly signed up for a session in one of three treatments differentiated by the information presented. Subjects were seated randomly at individual computer terminals with privacy shields, and were informed that all decisions they made would be kept strictly confidential. A maximum of 24 computer terminals were available,

and the sessions ranged in size from 18 to 24 subjects. After signing a consent form, participants were given a brief introduction of the experiment, which included the amount of money they would earn and the bidding process for the wines, and were told that they would complete a short computerized survey after all bids were submitted. The survey included questions that allowed participants to describe their preferences for wine, their knowledge about wine, and several demographic variables including gender, age, race, income, and education. The complete list of survey questions is presented in the Appendix.

Seven white wines were introduced to all subjects as they entered the laboratory. All seven wines were produced from grapes harvested in 2009 and all used relatively simple front and back labels³. In addition, all seven wines received expert scores that ranged between 80 and 89 (out of 100) and we communicated this information to all subjects before we began the auctions.⁴ Furthermore, we provided a brief description of the scoring mechanism used by the three major U.S. rating agencies when we introduced the expert scores. Because wine is clearly an experience good, and because consumers have been found to be responsive to wine expert scores (Hilger, Rafert, and Villas-Boas 2011), we included such scores as a way to highlight that all the wines in our experiment were considered to be in a range of similar quality. In addition, we did not provide subjects with tasting samples of the wines during the experiment. For these reasons, we expect that any differences in bids across the wines would be largely driven by wine regions, wine varietals, and the appellation information presented in the various treatments.

Subjects in the first treatment received no information about appellations, subjects in the second treatment received information about the American Viticultural Area (AVA) for each wine, and subjects in the third treatment received information about the AVA and about a similar wine production region in France. The first treatment is designed to capture any firm reputation

effects, the second treatment is designed to capture firm and collective reputation effects, and the third treatment is designed to capture firm and collective reputation effects plus reputation spillover effects. Each treatment was replicated four times and the order of the wine auctions was randomized in each session.

In the experiment we included Chardonnay wines from California, Oregon, and Virginia, Pinot Gris wines from California and Oregon, and Viognier wines from California and Virginia. More specifically, we chose wines from seven different AVAs that could reasonably be compared to seven appellations in France in the third treatment; comparisons were made based on various production factors such as climate, elevation, soil type, proximity to oceans, inland rivers, and forests, and latitude. Because Chardonnay predominantly comes from the Burgundy region in France, the AVAs for the U.S. Chardonnays included in the experiment were compared to three sub-regions in Burgundy. For similar reasons, the AVAs for the U.S. Pinot Gris wines were compared to two sub-regions within Alsace and the AVAs for the U.S. Viognier wines were compared to two sub-regions with the Rhône Valley. Table 1 summarizes the information provided for each wine in each treatment.

We asked subjects to place bids that characterized the most they would be willing to pay for each bottle of wine. There are four elicitation methods commonly used in a laboratory setting by researchers interested in consumer response to new products: the English auction, the Becker-DeGroot-Marschak (BDM) auction, the random N th price auction, and the second-price Vickrey auction. All four elicitation methods are theoretically incentive compatible, and have been used in a variety of research applications; Lusk, Feldkamp, and Schroeder (2004) apply all four methods to understand the impact of the auction type on consumers' valuation. The English auction and the BDM auction have been found to generate similar results, and there is some

evidence that subjects overbid in a second-price Vickrey auction (Lusk, Feldkamp, and Schroeder 2004). Furthermore, in multiple round auctions subjects in a second-price auction may become disinterested as they know they are not likely to “win” the auctioned items (Lusk 2003).

The BDM auction was employed to elicit bids for the seven wines from all subjects. In our experiment we expected that subjects will have a range of valuations for the various wines, and the BDM is an ideal elicitation method because subjects do not bid against each other, but rather submit a sealed bid for each wine and then have the chance to “win” a bottle of wine if their bid exceeds a randomly drawn price. Once all bids were submitted in a session, we randomly chose a market price for each wine and randomly selected a subject. The distribution of potential market prices ranged from 50% below the average retail price of the wines included in our experiment to 50% above the average retail price of the wines included in our experiment. In cases where the bid of the randomly chosen subject was equal to or exceeded the market price, we sold that wine to the subject for the market price.

This is a slight modification to the standard BDM auction that sells one selected item to all subjects with bids above the market price, yet it allowed us to minimize the amount of wine sold per session and allowed the experimental design to remain incentive compatible. Full details about the bidding process were provided to subjects before we began the auctions, and we held a practice round before the beginning of the first wine auction.

Results

Table 2 summarizes the data collected in our experiment. Table 2 shows that the average bid for all wines across all treatments was \$9.06; subsequent regression results show that there was a statistically significant premium for Pinot Gris wines (relative to Chardonnay) and that

wines from Oregon and Virginia received bids that were lower than wines from California. The average age of our subjects was 42; in addition, 74% were female, 32% had children living at home, and 78% were the primary wine shopper in the household.

We also asked subjects questions to understand their level of knowledge and enthusiasm for wine. Subjects indicated that they were most familiar with Chardonnay (average score of 3.49 out of 5) and least familiar with Voignier (average score of 1.84 out of 5); they were most familiar with California wines (average score of 3.21 out of 5) and least familiar with Virginia wines (average score of 1.71 out of 5). Table 2 also shows that approximately 29% of the subjects in our experiment typically spend less than \$10 for a bottle of wine at a retail location, 60% spend between \$10 and \$15 per bottle, and 11% spend between \$15 and \$20 per bottle.

We used these data to estimate consumers' willingness to pay (WTP) for the wines. We first provide results from an unrestricted model that was estimated using all data and results from a restricted model that was estimated using data from subjects with an average bid that exceeded \$3.00. The restricted model was included to identify the effects of information for subjects that submitted reasonable bids that reflected actual retail prices. Subjects with an average bid less than \$3.00 were thought to have submitted low bids as a way to ensure that they received the full compensation amount for participating in the experiment⁵. Bids from 263 subjects were included in the unrestricted model and bids from 241 subjects were included in the restricted model.

Our baseline empirical results are shown in Table 3. Here we list the estimated coefficients for the information treatments, wine regions, interaction terms between regions and treatments, various demographic variables, and wine varietals on consumers' WTP for the seven wines included in the experiment. Although not shown in the results tables, the regressions also include explanatory variables for ethnicity, the primary wine shopper in the household, the

number of restaurant meals per week, dummy variables for the practice item used, and a quadratic term on age; none of these explanatory variables were significant in any of the models. The results in the first column of Table 3 show that, overall, the information treatment effects (relative to no information) were not statistically significant. The wines from Oregon and Virginia did receive bids that were lower by \$0.879 relative to the California wines, and this result was statistically significant. The information treatment that presented information about the U.S. appellations did not lead to a statistically significant effect for wines from Oregon and Virginia, but the treatment with information that linked the U.S. appellations to regions in France did lead to a positive and statistically significant effect for these wines (equal to a premium of \$0.394). We also find a positive and statistically significant effect on the wine expenditure variable⁶, the knowledge of wine varietals variable, and for the Pinot Gris wines (relative to Chardonnay wines). In the restricted model we find similar results, but the coefficient of interest (on the treatment that uses information to link Oregon and Virginia appellations to regions in France) is larger and statistically significant at the 5% level.

In Table 4 we consider the bids from two subsets of subjects that are more knowledgeable and more enthusiastic about wine; we expect that these subjects might be more influenced by the information presented in the treatments. We separate subjects with more knowledge about wine varietals⁷ and those that have participated in a greater number of wine tasting events using responses from our survey.⁸

In the first column of Table 4 we report the results for subjects with a relatively high level of wine varietal knowledge; this includes 127 subjects. Similar to the results from Table 3, we again see insignificant effects in the two information treatments, a negative and statistically significant effect for wines from Oregon and Virginia, and a positive effect for Pinot Gris wines.

Here the estimated coefficient on the interaction term between the emerging regions (Oregon and Virginia) and the treatment that introduced information linking AVAs with French appellations was positive and statistically significant. The estimated coefficient in this specification indicates that this information adds \$0.654 for wines from Oregon and Virginia among such subjects. In the second column in Table 4 we outline the estimated results in the model that focused on the 104 subjects that had more experience tasting wine. These subjects showed an even greater response to the information linking AVAs to French regions for the wines from Oregon and Virginia. In addition, in this specification we see a negative and statistically significant effect on the treatment that introduced information about the AVA only, but then a positive and statistically significant effect for the same treatment applied to the wines from Oregon and Virginia. This result suggests that this group of subjects discounted the information about AVAs overall, but that the information had a small countervailing effect on the wines from AVAs in the emerging regions.

Our results in Tables 3 and 4 show that information about the AVAs alone did not systematically influence consumer valuation of the wines. This seems to conflict with results from many earlier studies that use secondary data and find that consumers place value on regional identifications; our results suggest that the impact of AVA information for wines from emerging regions may be less than what has been reported. However, our results do show that information that describes the AVA coupled with information that links the AVA to famous regions in France can impact consumers' valuation of wine. This result becomes stronger as we focus on a narrower set of consumers that are more knowledgeable about wine or have more experience tasting wine. Overall, this finding indicates that U.S. wineries should reevaluate the

effectiveness of only emphasizing AVA information, and that emerging wine regions should consider the role of reputation tapping as part of their promotional efforts.

Summary and industry implications

There has been much work examining the role of reputation in the economics literature. Research has considered the effects of “pooling reputations” across products manufactured by a firm, and “reputation borrowing” across firms in a network. This earlier work is essentially looking at reputation spillover effects within a firm and across firms, respectively. We present a framework to consider the role of exogenous information including advertising—something that has been neglected in this literature—as a determinant of collective reputation. Specifically, we build on the traditional framework used to examine collective reputation effects by considering reputation tapping between regions. Our model and empirical results allow for a better understanding of reputation tapping effects in wine markets, and the framework we developed can be used to understand the role of collective reputations in food markets more generally. For example, our framework could be applied to examine reputation tapping effects for food products produced in different regions, where the regions each have a collective reputation.

Like many others that have examined the economic effects of reputation, we employ our framework in an empirical model that focuses on the wine market. We developed an economic experiment to understand how consumers might respond to information about AVAs and about information that ties information about AVAs to specific regions in France. We recruited 263 subjects, randomly assigned them to one of three different information treatments, and asked them to place bids on seven white wines. The wines are from seven different AVAs in the United States; three from California, two from Oregon, and two from Virginia. Expert wine ratings for each wine are presented in an effort to communicate that the wines are of similar

quality. We include three information treatments. Wines in the first treatment are introduced without any additional information, the collective reputations (AVAs) are described in the second treatment, and the collective reputations are described and augmented with information about similar regions in France in the third treatment. We use the data from our auctions to disentangle the effects from information about the collective reputation and information about reputation tapping.

Our results also have two important implications for wineries in emerging regions in the United States, and elsewhere. First, drawing attention to AVAs for wines from emerging regions does not seem to impact consumers' valuation, even among consumers that are relatively familiar with wine. However, efforts to highlight AVAs in emerging regions as part of a larger package of information may be a critical component of developing a long term strategy for building reputations of new wine appellations. Second, our results suggest that information that uses references to well-established regions in France did resonate with subjects in our experiment, and indicates that making such links to famous regions may prove to be an effective marketing strategy for emerging wine regions, notably among consumers with greater familiarity (and perhaps greater appreciation) for wine.

The empirical findings presented here support the claim that geographical indications have the capacity to influence consumer decisions for domestically-produced goods. Here we find that information linking famous French wine appellations to emerging U.S. wine appellations is important even when it is used to describe a region of production (rather than a specific product). There is a U.S.-EU agreement in place that restricts the explicit use of appellation information on labels for specific wine products and there continues to be discussions at the World Trade Organization on the appropriate protection of geographical indications.

However, the debate on geographical indications has focused on the use (and misuse) of appellation information by firms and on labels rather than by other regions. Because we observe the reputation tapping phenomenon occurring in food and wine markets, and because we find evidence from our laboratory experiment that it matters for wine, we argue that this is an important determinant to consider in models of collective reputation. Our results also indicate that the scope of geographical indications may be wider than what is being considered as part of trade negotiations, and this complicates protection efforts and makes protection more difficult to enforce. It is possible to monitor language used on food and wine labels, yet it is more difficult to imagine limitations on reputation tapping and the (formal and informal) use of geographical indications at the regional level. Our findings also suggest that as protection of geographical indications increases at the firm-level, we may observe wider use of regional reputation tapping in food and wine markets, notably in regions outside of Europe.

Footnotes

¹ We considered using the term “reputation spillovers” here; however, the term “spillovers” is often used to characterize a phenomenon that moves across a network in several directions at once. The term “spillovers” has been used by economists to describe information flows between regions in different contexts. For example, Alston (2002) examined spillovers as they apply to research and technological innovations that flow between countries. Goddard and Conboy (1993) studied spillover issues as they apply to the export promotion efforts across countries. The term “tapping” seems to better characterize an effort that is more strategic and one that traces a unidirectional phenomenon.

² For consumers in western states, Oregon wines are arguably more established in the marketplace than are wines from Virginia. However, because our experiment occurred in the Northeast, we aggregate wines from Oregon and Virginia and describe them as wines from emerging regions. The wines from California are described as being produced in established regions.

³ Images of the front and back labels are available from the authors. Labels for the seven wines (listed in Table 1) use common text styles and include simple illustrations that comprise one or two colors.

⁴ If available, we collected expert wine scores from Wine Advocate, Wine Enthusiast, and Wine Spectator. All wines selected to be included in the experiment had at least one wine expert score between 80 and 89; for five of the seven wines two wine expert scores were available in this range.

⁵ Given that there are very few commercial wines available for less than \$3 per bottle, we assume that subjects with an average bid less than \$3 per bottle were not revealing their true willingness to pay, or were not interested in using any of their participation compensation on wines. That is, these subjects bid low to ensure that they did not receive a bottle of wine as part of the BDM auction process. Results indicate that there were only 22 subjects with this type of bidding behavior, or 8.4% of the sample.

⁶ The subsample with higher expenditures on wine is measured by combining information about the frequency of wine consumption (question #16 from the survey) and typical spending patterns on wine (question #20 from the survey); we simply multiply subjects’ responses to these two questions to create an index (between 1 and 48) of average wine expenditures.

⁷ Knowledge of wine varietals is measured using responses to the wine varietal familiarity question (question #24) in the survey. Here we calculate the sum of their familiarity with the three wine varietals to determine the subjects with relatively high knowledge of wine varietals.

⁸ The degree to which subjects participate in wine tastings is measured using their response to question #18 in the survey.

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Table 1: Information Provided for Each Wine in the Three Treatments

Winery	Treatment 1 (no appellation information)	Treatment 2 (AVA information)	Treatment 3 (AVA information plus information linking the AVA to a region in France)
Picket Fence	California, Chardonnay	California, Chardonnay, Russian River Valley AVA, Ideal cool and foggy climate, Sandstone-alluvial based soils	California, Chardonnay, Russian River Valley AVA, Ideal cool and foggy climate, Sandstone-alluvial based soils <u>Similar Region in France:</u> Mâconnais, Burgundy
Morgan	California, Pinot Gris	California, Pinot Gris, Santa Lucia Highlands AVA, Well-drained soil, Warm during day, cool at night,	California, Pinot Gris, Santa Lucia Highlands AVA, Well-drained soil, Warm during day, cool at night, <u>Similar Region in France:</u> Haut Rhin, Alsace
Zaca Mesa	California, Viognier	California, Viognier, Santa Ynez AVA, Warm weather, Limited rainfall	California, Viognier, Santa Ynez AVA, Warm weather, Limited rainfall <u>Similar Region in France:</u> Lower Rhône Valley
Del Rio	Oregon, Chardonnay	Oregon, Chardonnay, Rogue Valley AVA, Surrounded by rivers and forests, Rocky well-drained soils	Oregon, Chardonnay, Rogue Valley AVA, Surrounded by rivers and forests, Rocky well-drained soils <u>Similar Region in France:</u> Côte d’Or, Burgundy
Airlie	Oregon, Pinot Gris	Oregon, Pinot Gris, Willamette Valley AVA, Mild year-round temperatures, Limited rainfall during summer	Oregon, Pinot Gris, Willamette Valley AVA, Mild year-round temperatures, Limited rainfall during summer <u>Similar Region in France:</u> Bas Rhin, Alsace
Veramar	Virginia, Chardonnay	Virginia, Chardonnay, Shenandoah Valley AVA, Mountains on both sides, Warm and dry growing season	Virginia, Chardonnay, Shenandoah Valley AVA, Mountains on both sides, Warm and dry growing season <u>Similar Region in France:</u> Chalonnaise, Burgundy
Barboursville	Virginia, Viognier	Virginia, Viognier, Monticello AVA, Granite-based clay soils, Long growing season	Virginia, Viognier, Monticello AVA, Granite-based clay soils, Long growing season, <u>Similar Region in France:</u> Upper Rhône Valley

Table 2: Summary Statistics

Variable	Mean response (n=264)
<i>Wines (\$ per bottle)</i>	
California Chardonnay	9.40
California Pinot Gris	9.63
California Viognier	9.38
Oregon Chardonnay	8.97
Oregon Pinot Gris	9.19
Virginia Chardonnay	8.43
Virginia Viognier	8.46
All wines	9.06
<i>Demographics</i>	
Age (years)	41.44
Female (%)	0.74
Married (%)	0.67
Children in home (%)	0.32
Primary shopper (%)	0.82
Primary wine shopper (%)	0.78
Vegetarian or vegan (%)	0.05
Restaurant per week (number times)	4.02
<i>Wine knowledge (1=low, 5=high)</i>	
Familiar with Chardonnay (1-5)	3.49
Familiar with Pinot Gris (1-5)	3.08
Familiar with Viognier (1-5)	1.84
Familiar with California Wines (1-5)	3.21
Familiar with Oregon Wines (1-5)	2.20
Familiar with Virginia Wines (1-5)	1.71
Familiar with French Wines (1-5)	2.63
<i>Typical retail wine expenditure (%)</i>	
Less than \$10 per bottle	29.43
\$10-\$15 per bottle	59.62
\$15-\$20 per bottle	10.57
Greater than \$20 per bottle	0.38

Table 3: Regression Results Using Auction Data

Variables	Full sample			Restricted sample (subjects with average bid > \$3)		
	Estimated Coefficient	Standard error	p-value	Estimated Coefficient	Standard error	p-value
AVA Treatment	-0.386	0.555	0.487	-0.455	0.517	0.378
AVA + EU Links Treatment	-0.365	0.616	0.554	0.017	0.567	0.976
Oregon/Virginia	-0.879***	0.146	0.000	-0.868***	0.153	0.000
OR/VA* AVA	0.330	0.214	0.123	0.227	0.215	0.291
OR/VA* AVA+EU Links	0.394*	0.219	0.073	0.487**	0.212	0.022
Age	-0.120	0.181	0.506	-0.217	0.163	0.183
Female	-0.353	0.568	0.534	-0.203	0.542	0.708
Income	-0.252	0.216	0.243	-0.162	0.204	0.428
Education	-0.001	0.196	0.995	-0.244	0.177	0.166
Married	0.591	0.578	0.306	0.423	0.540	0.434
Children in Home	0.860	0.580	0.138	1.244**	0.533	0.020
Primary Shopper	0.282	0.650	0.665	0.479	0.610	0.432
Index of Wine Expenditures	0.269***	0.069	0.000	0.246***	0.059	0.000
Knowledge of wine varieties	0.290**	0.096	0.003	0.155*	0.081	0.057
Pinot Gris	0.360**	0.156	0.021	0.426***	0.161	0.008
Viognier	-0.188	0.152	0.216	-0.137	0.163	0.400
Observations	1821			1667		
# subjects	263			241		

Note: Robust standard errors are clustered by individual, and * denotes $p < 0.10$, ** denotes $p < 0.05$, and *** denotes $p < 0.01$.

Table 4: Regression Results Using Auction Data for Subjects more Familiar with Wine

Variables	Subjects with greater knowledge of wine varietals			Subjects with more experience tasting wine		
	Estimated Coefficient	Standard error	p-value	Estimated Coefficient	Standard error	p-value
AVA Treatment	-1.619	0.813	0.047	-2.468***	0.776	0.001
AVA + EU Links Treatment	-0.815	0.771	0.290	-1.422	1.027	0.166
Oregon/Virginia	-0.898***	0.238	0.000	-1.129***	0.261	0.000
OR/VA* AVA	0.275	0.363	0.449	0.623*	0.373	0.095
OR/VA* AVA+EU Links	0.654**	0.310	0.035	0.847**	0.338	0.012
Age	-0.098	0.186	0.597	-0.225	0.228	0.324
Female	-0.164	0.861	0.849	-0.993	0.864	0.250
Income	-0.217	0.302	0.473	-0.372	0.358	0.299
Education	-0.030	0.263	0.910	-0.272	0.283	0.337
Married	-0.544	0.734	0.459	-1.715	1.035	0.098
Children in Home	0.895	0.723	0.216	1.236	0.966	0.201
Primary Shopper	-0.384	1.009	0.703	0.713	1.086	0.511
Index of Wine Expenditures	0.365***	0.087	0.000	0.230*	0.138	0.095
Knowledge of wine varietals	-0.014	0.176	0.936	0.347**	0.164	0.034
Pinot Gris	0.726***	0.235	0.002	0.741***	0.242	0.002
Viognier	0.038	0.217	0.859	0.026	0.262	0.922
Observations	879			719		
# subjects	127			104		

Note: Robust standard errors are clustered by individual, and * denotes $p < 0.10$, ** denotes $p < 0.05$, and *** denotes $p < 0.01$.

Appendix. Survey Questions Presented to Subjects Following the Auctions

1. What is your age? _____
2. Are you male _____ female _____?
3. What race are you? _____ Caucasian _____ African American _____ Asian _____ Hispanic
_____ Native American _____ Other _____ Prefer not to answer
4. What is your household income level? _____ less than \$40,000 _____ \$40,000-\$80,000
_____ \$80,000 - \$120,000 _____ \$120,000-\$160,000 _____ over \$160,000
5. What is the highest education level that you have achieved? _____ High School _____ some
college but no degree _____ Associates Degree _____ College Degree _____ Masters Degree
_____ Doctoral Degree
6. Have you ever lived (Check all that apply): _____ Outside of New York State;
_____ Outside of the USA; _____ France; _____ California; _____ Oregon; _____ Virginia
7. Are you married or living with someone in a long term relationship? _____ yes _____ no
8. Do you have children under 18 years old living at home? Yes _____ No _____
9. Are you the primary FOOD shopper in your family? Yes _____ No _____
10. Are you the primary WINE shopper in your household? Yes _____ No _____
11. Are you a Vegetarian or Vegan? Yes _____ No _____
12. How many meals per week do you purchase from a restaurant or a cafeteria? _____
13. How likely are you to purchase a bottle of wine that you have not tried before? _____ Not
at all likely _____ Not very likely _____ Somewhat likely _____ Likely _____ Very likely
14. Where do you most often drink wine? (mark one)
_____ Home, _____ Restaurant, _____ Bar/Club, _____ Party/Gathering with friends, other
15. What types of wine do you typically consume? (mark all that apply)
_____ Red wines, _____ White wines, _____ Rosé wines, _____ Sweet wines,
_____ Sparkling wines, _____ Fruit-based wines
16. On average, how frequently do you drink wine? (mark one)
_____ a couple times a year/never, _____ < 1X/month, _____ 1-3X/month,
_____ 1X/week, _____ > 1X/week, _____ Daily
17. On average, how frequently do you drink wine produced in New York State? (mark one)
_____ a couple times a year/never, _____ < 1X/month, _____ 1-3X/month,
_____ 1X/week, _____ > 1X/week, _____ Daily

18. On average, how often do you go wine tasting (wineries, liquor stores, wine clubs)?
 _____ Never, _____ once a year, _____ 2-3 times a year, _____ once a month,
 _____ 2-3 times a month, _____ once a week or more
19. What is your favorite WHITE WINE varietal? (mark one)
 _____ Chardonnay, _____ Gewürztraminer, _____ Pinot Gris, _____ Riesling,
 _____ Sauvignon Blanc, _____ Viognier, _____ Other/Don't know
20. What do you typically spend for a regular (750 ml) bottle of wine? (mark one)?
 _____ < \$10, _____ \$10 - \$15, _____ \$15 - \$20, _____ \$20 - \$25, _____ \$25 - \$30, _____ >\$30
21. How do you learn about wine products that you may end up purchasing (check all that apply)?
- A. Recommendation by family or friends _____
 - B. Sales person's introduction _____
 - C. Advertisements on TV, newspapers and magazines _____
 - D. In Store promotion _____
 - E. Internet _____
 - F. Wine magazines _____
 - G. Others (please specify) _____
22. For this question please rank how much you weight you place on the following attributes when purchasing wine using a scale of 1 (not important) to 10 (very important):
- A. Price _____
 - B. Varietal _____
 - C. Label _____
 - D. Production Region _____
 - E. Specific Appellation or AVA _____
 - F. Winery Name _____
 - G. Year _____
 - H. Expert Opinion/Score _____
 - I. Recommendation from family/friend _____
23. Prior to today's session, how familiar were you with American Viticulture Areas (please mark one only)?
 _____ Not at all familiar _____ Not very familiar _____ Somewhat familiar _____ Familiar
 _____ Very familiar

24. Prior to today's session, how familiar were you with the following wine varieties?

Varietal	Not at all Familiar			Somewhat Familiar			Very Familiar		
	1	2	3	4	5	6	7	8	9
Chardonnay									
Pinot Gris									
Voignier									

25. Prior to today's session, what kind of quality reputation did you associate with the following wine varieties?

Varietal	Low Reputation			Medium Reputation			High Reputation		
	1	2	3	4	5	6	7	8	9
Chardonnay									
Pinot Gris									
Voignier									

26. Prior to today's session, how familiar were you with wines from the following Countries and States?

Country/State	Not at all Familiar			Somewhat Familiar			Very Familiar		
	1	2	3	4	5	6	7	8	9
France									
California									
Oregon									
Virginia									

27. Prior to today's session, what kind of quality reputation did you associate with wines from the following Countries and States?

Country/State	Low Reputation			Medium Reputation			High Reputation		
	1	2	3	4	5	6	7	8	9
France									
California									
Oregon									
Virginia									

28. Prior to today's session, how familiar were you with wines from the following AVAs?

Region	Not at all Familiar			Somewhat Familiar			Very Familiar		
	1	2	3	4	5	6	7	8	9
Russian River Valley (CA)									
Santa Lucia Highlands (CA)									
Santa Ynez (CA)									
Rogue Valley (OR)									
Willamette Valley (OR)									
Shenandoah Valley (VA)									
Monticello (VA)									

29. Prior to today's session, what kind of quality reputation did you associate with wines from the following AVAs?

Region	Low Reputation			Medium Reputation			High Reputation		
	1	2	3	4	5	6	7	8	9
Russian River Valley (CA)									
Santa Lucia Highlands (CA)									
Santa Ynez (CA)									
Rogue Valley (OR)									
Willamette Valley (OR)									
Shenandoah Valley (VA)									
Monticello (VA)									