

# **The Impact of Individual and Collective Reputation on Wine Prices: Empirical Evidence from the Mosel Valley<sup>1</sup>**

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## **Abstract**

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## 1. Introduction

Firms selling regional or specialty products often share a collective reputation based on past aggregate quality. Therefore, collective reputation can be interpreted as a dynamic common property resource problem. Winfree and McCluskey (2005) show that for an experience good without firm traceability individual firms have an incentive to choose quality levels that are sub-optimal for the group. In the context of this paper, such behavior is unlikely to occur: Restricted access in combination with peer monitoring – similar to what we observe, for example, in the US Major Leagues where owners jointly decide on new franchises – reduces the probability of opportunistic behavior considerably.

## 2. Previous Literature

to be completed

## 3. Institutional Framework

Much of the available literature has so far used the term “collective reputation” as a synonym for “regional reputation”. This is problematic for a number of reasons:

In 1908, the mayor of Trier, Albert von Bruchhausen, brought together three different consortia of wine estates into the “Trier Association of Mosel, Saar and Ruwer Wine Estate Owners”, that later on became known as “Grosser Ring”. Its members produced only “natural wines” (i.e. neither chaptalized nor de-acidified) from their own holdings, and sold them exclusively at auction<sup>3</sup>. At the time of its foundation, the “Grosser Ring” had 56 members; today the respective figure is 31 (many of these estates have names that already appeared in the original register and have barely changed since then). The “Grosser Ring”, in turn, is now identical with the regional branch of VDP. Until today, the association has strived to foster the sales and quality of its members’ wines, particularly but not exclusively through annual wine auctions. The Trier auction results have long served as a benchmark for the entire Mosel region. Members are individual or legal entities who have holdings in the Mosel, Saar, and Ruwer valleys. In addition, members must own top vineyard sites, cultivate at least 80% Riesling, be full-time wine growers and harvest an above-average quantity of high quality wines.

The second association, the “Bernkasteler Ring” (henceforth BR), was founded in April 1899 by six estate owners living around Bernkastel-Kues in the geographic center of the Mosel valley. In 1901 the association organized its first auction that soon became a regular annual event. Today, the association has 34 members, most

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<sup>3</sup> Two years later, von Bruchhausen brought together similar associations that had developed in other German wine-growing regions. The new national organization was the forerunner of today’s “Verband Deutscher Prädikatsweingüter” (Association of German Quality Wine Estates, henceforth VDP).

of which are traditional family businesses that are active in grape production, wine making and marketing. The estates of the different members are located in the valleys of Mosel, Saar and Ruwer, ranging from Wiltingen at the Saar to Winningen at the Mosel, a distance of some 150 km. A central condition for membership was – and continues to be – “a high quality of the vineyards, the care of the land development of the vineyards with special attention for the care of the Rieslings in the steep slate locations characteristic for the region”. For decades, the association has been organizing an annual Riesling degustation at the beginning of June and an auction in the middle of September, both in the historical buildings of “Kloster Marchern”, a former monastery with an impressive architecture.

Access to both associations is strictly limited to wine producers that are “invited” by incumbents to join them, i.e. both organizations are “closed shops”. Thus, pre- and post-entry peer monitoring plays an important role: Incumbents will not accept a new estate to join them if they do not expect the new member to foster the reputation of their association and its individual members. Once a member, individual estates are unlikely to free-ride on the association’s reputation due to anticipation of “social pressure” exerted by incumbents, because estate owners tend to meet each other not only at regular events organized by their respective association, but also at social and political events in their local communities.

#### **4. Data and Estimation**

Although both associations are famous particularly for their annual wine auctions, the following analysis does not use auction prices, but list prices as published by a highlyly respected wine guide (“Gault Millau”) that has been published annually since 1994. The reason for using list prices is that otherwise it would not be possible to include “independent” wineries in the analysis, because access to either of the two auctions is restricted to the respective association’s members.

So far the data set is quite small (n=71 estates), including 26 “independent” wineries, 18 (out of 34) members of “Bernkasteler Ring” and 27 (out of 31) members of “Verband der Prädikatsweingüter”. If, however, a statistically significant (and economically relevant) influence of individual as well as collective reputation is to be found in this small sample, it is even more likely to exist in a larger sample including more wineries and covering a longer period of time. Thus, the results discussed below are likely to represent lower bound estimations.

Irrespective of the limitations of the data my empirical strategy is to distinguish the impact of individual reputation from that of collective reputation on the list prices of quality wines. By focusing on membership in one of the two “auction rings” to separate collective from individual reputation, the membership dummies are obviously time invariant. Thus, the firm fixed effects cannot be distinguished from the collective reputation effects, and the fixed effects or “within” estimator cannot be used. To overcome the obvious econometric problems associated with the fixed effects estimation I use a solution suggested by Hausman and Taylor

(1981). Their model allows for some of the explanatory variables to be related to the firm-specific effects, while others are not. In particular, Hausman and Taylor (1981) consider four different groups of explanatory variables: The variables in the first group are time varying and uncorrelated with the firm-specific effects. The second group consists of time-varying variables that are related to the specific effects. The variables in the third group are time-invariant and uncorrelated with the fixed effects. Finally, there are variables that are time-invariant and correlated with the fixed effects. The Hausman-Taylor model is an instrumental variables approach, where the variables in the second group are instrumented by the deviation from their individual means and the time-invariant variables in group four are instrumented by the individual averages of the exogenous variables.

## 5. Empirical Findings

It appears from Table 1 that individual and collective reputation are highly correlated: Average individual reputation of the estates that are members of BR is quite low (at 2.16) while the respective value for members of VDP is significantly higher (at 4.08). Perhaps surprisingly, estates that are not a member of either of the two organizations score higher than members of BK, but considerably lower than members of VDP (at 2.61). Moreover, the distribution of the individual reputation scores is quite different in the three groups of wineries: Among BR members the distribution is left-skewed while among VDP members a normal distribution is observed. In the case of “independent” wineries, i.e. those that are not a member of either of the two associations, a bimodal distribution seems to exist. It is, therefore, not surprising that the coefficient of variation of reputation is rather high in the latter and rather low in the former two groups of wineries.

Table 1  
Collective vs. Individual Reputation

Reputation	Membership		
	No	BR	VDP
1 (low)	25.2	17.8	5.0
2	33.8	52.5	9.7
3	20.2	26.4	15.2
4	8.8	3.6	35.6
5	5.9	0.0	19.3
6	0.0	0.0	7.2
7 (high)	6.1	0.0	8.1
Mean	2.61	2.16	4.08
Std. Dev.	1.58	0.75	1.48
CV	60.5	34.7	36.3

It appears from Table 2 that the prices charged for their individual wines by independent wineries (average price is 19.34 €), BR members (17.69 €) and VDP members (25.13 €) are significantly different. Moreover, prices seem to increase with the reputation of the individual winery first at a more or less constant rate

(from reputation scores 1 to 5), and finally exponentially (from reputation score 6 to 7).

Table 2  
Reputation, Membership and Bottle Prices

Membership	Price per Bottle	N of Observations
None	19,34	441
BR	17,69	303
VDP	25,13	559
F-Value	4.62***	
Reputation (Grade)		
1 (low)	11,05	193
2	14,87	361
3	16,75	254
4	26,51	249
5	30,99	134
6	30,17	40
7 (high)	58,64	72
F-Value	19.63***	
Average / N of Obs.	21,44	1,303

Table 3 reports the results of my regression estimation controlling for collective as well as individual reputation. Controlling for wine quality, estate size (acreage) and annual production (bottles per hectare) it appears that membership in VDP is associated with an 18% premium per bottle while membership in BR does not come with any statistical significant advantage in terms of revenue potential for the wineries affected.

Moreover, a one unit increase in individual reputation is associated with an 8% premium<sup>4</sup>. Thus, for owners of independent estates the question arises whether it pays more to invest in increasing the individual reputation or to lobby for membership in VDP. The latter strategy is realistic insofar as some of the VDP members were admitted very recently: Clemens Busch joined VDP in 2008, von Kesselstadt in 2005 and Grans-Fassian in 2002. The latter estates have a particularly high reputation each, indicating that incumbents carefully screen new entrants. This, in turn, suggests that investing in individual reputation is not a substitute for collective reputation but a precondition for access to VDP.

Table 3  
Hausman-Taylor Estimation Results

Variable	Model (1) Linear Reputation Measure	Model (2) Reputation Dummies
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4 Estimating the model with dummies for the different reputation categories results in a similar picture (see columns 5-7 of Table 3). As pointed out in Table 2 already, the coefficients exhibit a non-linear pattern, suggesting that there are considerable (additional) returns to „superstar winemakers“.

	Coef.	Std. Err.	z	Coef.	Std. Err.	z
qba	-0.529	.075	-7.02***	-0.526	.070	-7.54***
k_angabe	-0.421	.065	-6.44***	-0.419	.064	-6.51***
kabinett	-0.357	.019	-18.28***	-0.356	.021	-17.24***
spaelse	reference category			reference category		
auslese	0.751	.031	24.31***	0.747	.030	24.78***
b_auslese	2.158	.080	26.97***	2.154	.076	28.18***
eiswein	2.204	.067	33.15***	2.201	.062	35.33***
tb_auslese	2.923	.108	27.08***	2.926	.099	29.64***
ed_1994	-0.111	.040	-2.76***	-0.111	.048	-2.33**
ed_1995	-0.009	.028	-0.32+	-0.008	.036	-0.21+
ed_1996	-0.037	.025	-1.47+	-0.037	.023	-1.59+
acreage	0.001	.002	0.28+	0.000	.002	0.05+
bottles_ha	-0.003	.002	-1.49+	-0.003	.003	-1.02+
reputation	0.080	.025	3.23***	---	---	---
rep_1 (low)	---	---	---	reference category		
rep_2	---	---	---	0.063	.074	0.86+
rep_3	---	---	---	0.064	.091	0.70+
rep_4	---	---	---	0.196	.097	2.03**
rep_5	---	---	---	0.301	.136	2.22**
rep_6	---	---	---	0.346	.459	0.75+
rep_7 (high)	---	---	---	0.839	.411	2.04**
br	-0.052	.071	-0.73+	-0.033	.066	-0.50+
vdp	0.183	.077	2.39**	0.182	.087	2.10**
constant	2.028	.160	12.65***	2.121	.202	10.51***
N of Obs.	1,303			1,303		
N of Groups	71			71		
Obs. per Group	18.4			18.4		
Min.	5			5		
Max.	27			27		
Wald Chi2	3,134.2***			5,197.7***		

Standard errors bootstrapped with 200 replications  
+ not significant; \*\* p < .05; \*\*\* p < .01

Table 4  
Simulation Results

Membership	Annual Production (Number of Bottles)	Average Price per Bottle (€)	Annual Revenues (€)	Additional Revenues due to ...	
				One Unit Increase in Reputation	Membership in VDP
None	116,900	19.34	2,261,000	181,000	407,000
BR	61,200	17.69	1,083,000	87,000	195,000
VDP	95,000	25.13	2,387,000	191,000	---

The simulation results displayed in Table 4 reveal that for both, independent wineries as well as BR members joining VDP would be highly beneficial: Given the average size of wineries in the two groups membership in VDP would be associated

with additional annual revenues of nearly 200,000 € (BR) and more than 400,000 € (independent wineries).

## 6. Summary and Implications

The econometric analysis presented above finds statistically significant non-linear returns to individual reputation as well as statistically significant returns to collective reputation.

First, sample used here will be expanded to include the remaining years for which “Gault Millau” is available (1998-2010). Second, auction data covering the years 1994-2009 will be used to distinguish the returns to individual reputation from the returns to collective reputation.

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