Autochton vs. Blend Wines
Do objective and Sensory Characteristics Matter?

Piermassimo Pavese
Roberto Zanola
C.e.r.c.a. (Center for Applied Economic Researches)
University of Eastern Piedmont, Italy

Framework

- Wines can differ about is variety;
- The wine-making practices in many DOC and DOCG use only native grape varieties;
- The international style of wine uses international grapevines Merlot, Cabernet Sauvignon, Shiraz, Pinot Noir and techniques in the vineyards and in the winery can lead to more consistent wines that impress both the critics and the buying;
- Finally European Union is working on new sistem of appelation

Aim

- Although the existence of an extensive literature on hedonic price function for wine the specific analysis of authocthon wines has been partially disregarded so far.
- Wine price is related when focusing on variety but how wine prices are related when focusing on grapevariety?
- Objective and sensory characteristics impact differently on price according to the grapevine?

So we use hedonic pricing model in order to answer this question

Outline of Presentation

1. Functional form
2. Data
3. Results
   1. Full sample
   2. Autochton vs. Blended wine sample
4. Conclusions
**Hedonic Method**: it controls for the varying characteristics of properties using regression.

**Pros:**
- large number of observations

**Cons:**
- temporal instability in estimated coefficients of hedonic price equations (Berndt and Rappaport, 2001; Aizcorbe, 2003; and Silver and Heerim, 2003; Pakes, 2003; Triplett, 2002; among the others)
- choice of the functional form (Berndt and Rappaport, 2002; Diewert, 2003; Feenstra, 1995; Parks, 2003; Triplett, 2003; among the others)
- sample selection bias (Munneke and Slade, 2000; Aizcorbe, 2001; among the others).

**Functional form**

Formally, our specification is given:

\[ p_i = a_0 + a_1 \text{Alcohol} + a_2 \text{Sulfite} + a_3 \text{Huglin index} + a_4 \text{Number of bottle} + \text{Ageing habitat steel, wooden, barrique} + \text{Green} + \text{Organic} + t_i (\text{Time dummy}) \]

**Dataset**

- Data: Original Data Set
- Data Source: wine sold and awarded in the Veronelli and Espresso wine guide
- 1999-2006
- 3660 observations
- Price are expressed in local euro currency

**List of variables**

**Objective variables:**
- Price
- Alcohol
- Sulfite
- Huglin index
- Number of bottle
- Ageing habitat steel, wooden, barrique
- Green
- Organic
- Time dummy

**Sensory variables:**
- Red
- Rose
- White
- Sweet
- Fruity
- Veronelli
- Espresso
Results: the overall sample

| Variable | Coef. | Robust Std. Err. | P>|t| |
|----------|-------|------------------|-----|
| red      | -0.1271453 | 0.0162379 | 0.000 |
| rose     | 0.0651347 | 0.0173355 | 0.000 |
| igt      | 0.2652399 | 0.0368071 | 0.000 |
| doc      | 0.1224619 | 0.0164683 | 0.000 |
| steel    | -0.1621816 | 0.0179255 | 0.000 |
| barrique | 0.1185997 | 0.0161938 | 0.000 |
| alcohol  | 0.0360872 | 0.002905 | 0.000 |
| sulfite  | 0.0024179 | 0.000305 | 0.000 |
| hi       | 0.0001554 | 0.0000242 | 0.000 |
| bottle   | -6.77e-07 | 1.83e-07 | 0.000 |
| d00      | 0.3363252 | 0.0699782 | 0.000 |
| d01      | 0.1518976 | 0.0342644 | 0.000 |
| d02      | -0.0119067 | 0.035552 | 0.000 |
| d03      | 0.0289592 | 0.0355687 | 0.416 |
| d04      | -0.303604 | 0.0348383 | 0.000 |
| d05      | -0.2236983 | 0.0389438 | 0.000 |
| d06      | -0.5734366 | 0.0487502 | 0.000 |
| veronelli| 0.0076652 | 0.0016573 | 0.000 |
| espresso | 0.0101509 | 0.0058832 | 0.085 |

Comments: the overall sample

Most of the parameter estimates are highly significant,

- Alcohol impacts positively on price;
- Sunshine hours, as expected, have a positive effect on price;
- Tasting score is positive in both Veronelli and Espresso;
- Differently from what expected the premium for both IGT and DOC is positive to relate to DOCG;
- The production year is different according to year.

Autochthon vs. Blend Wines

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>red</td>
<td>-0.0047</td>
<td>.05634</td>
<td>-.598424</td>
<td>.048696</td>
</tr>
<tr>
<td>rose</td>
<td>-0.1226</td>
<td>.01532</td>
<td>-.244039</td>
<td>.068308</td>
</tr>
<tr>
<td>doc</td>
<td>.230241</td>
<td>.01945</td>
<td>.187183</td>
<td>.040400</td>
</tr>
<tr>
<td>Organic</td>
<td>.002381</td>
<td>.015456</td>
<td>-.137149</td>
<td>.48750</td>
</tr>
<tr>
<td>Alcohol</td>
<td>.0382229</td>
<td>.003367</td>
<td>.082984</td>
<td>.013466</td>
</tr>
<tr>
<td>Sulphate</td>
<td>0.001229</td>
<td>0.000229</td>
<td>-0.000394</td>
<td>0.000045</td>
</tr>
<tr>
<td>Stress</td>
<td>0.357908</td>
<td>.026059</td>
<td>0.636492</td>
<td>.112807</td>
</tr>
</tbody>
</table>

A comparative analysis: Autochthon vs. Blended Wines

The sign of statistically significant coefficients are substantially the same of overall sample. For the autochthon subsample

- Categories are not statistically significant,
- The Espresso tasting score is positive and significant and negative in the case of Veronelli
- All time variables are statistically significant
A comparative analysis: Autochthon vs. Blend Wines II

- The sign of statistically significant coefficients are substantially the same of overall sample
- Rosé wine display a negative sign
- Premium on price for organic production is unexpectedly negative
- The Veronelli tasting score is positive and significant. The opposite occurs in the case of the Veronelli wine guide.

Conclusion

Hedonic coefficients are insensitive to the sample with some relevant difference in the subsample.
- The analysis shows the limited capacity of wine guides to control quality.
- In fact the Espresso tasting score implies a percentage price premium only for the autochthonous wines, while Veronelli impacts positively for the blend wines.
- Further development: (i) extension of the sample of autochthon wine (ii) investigation on role of the tasting scores will be the aim of future research.