Application of the Duplication of Purchase Law to Wine Attributes in the French Retail Wine Market

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Enometrics XVIII - Angers
Most standard markets follow many law-like empirical generalizations that have been tested in over 50 categories.

Wine, a potentially fragmented category, still follows these laws.

Consumers of ‘New World’ wines have to consider extrinsic attributes such as brand, region, variety and price point.

Consumers of ‘Old World’ wines, particularly French wines, have to appreciate the concept of ‘terroir’ to decipher the category.

Little is known about the structure of the French retail wine market and buyers switching propensities over a period of time.
Wine Attributes

Australia

France
## Extension of Prior Studies

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Product</strong></td>
<td>Fabric Conditioners (USA) 7 FMCGs (UK)</td>
<td>Wine</td>
<td>Wine</td>
<td>Wine</td>
<td>Wine</td>
<td>Wine</td>
</tr>
<tr>
<td><strong>Country</strong></td>
<td>USA &amp; UK</td>
<td>Australia</td>
<td>Australia</td>
<td>Australia</td>
<td>Italy</td>
<td>Australia</td>
</tr>
<tr>
<td><strong>Methods</strong></td>
<td>Market Share, Penetration, Purchase Frequency, SCR, DoP, DJ and Dirichlet fit</td>
<td>DoP, DJ</td>
<td>DoP</td>
<td>Polarisation (DMD/BBD)</td>
<td>Polarisation (DMD/BBD)</td>
<td>MS, b, w, Sole Loyal &amp; Scr O vs. T DJ Polarisation (DMD/BBD) DoP</td>
</tr>
<tr>
<td><strong>Source of Data</strong></td>
<td>IRI scanner-panel data</td>
<td>Consumer survey (n=300)</td>
<td>Retrospective consumer survey (n=420)</td>
<td>Loyalty panel data</td>
<td>AC Nielsen Database</td>
<td>Loyalty panel data</td>
</tr>
<tr>
<td><strong>Limitations &amp; Exclusions</strong></td>
<td>NA</td>
<td>Bought at least 1 bottle over $10 in last 12 months</td>
<td>None-Includes entire market</td>
<td>2 separate categories for red and white wine</td>
<td>Excluded light buyers (bought wine more than once in 3 years, bought more than 10 units in 3 years)</td>
<td>Aggregation of Brands</td>
</tr>
<tr>
<td><strong>Variants or Attributes</strong></td>
<td>30 Product Variants</td>
<td>Arbitrary price tiers</td>
<td>Price Tiers</td>
<td>Country, Region, Variety, Price, Brand</td>
<td>Price, Format, Denomination of Origin, Production Area, Brand Position (2 segments)</td>
<td>Brand, Variety, Region, Australian State &amp; $2 Price Tiers</td>
</tr>
<tr>
<td><strong>Findings</strong></td>
<td>1. Vary with market share 2. Fits Dirichlet 3. Match 8 criteria for multi-brand buying</td>
<td>1. DoP holds 2. DJ holds 3. Partitioning more than expected by DoP</td>
<td>DoP holds</td>
<td>Price&gt;Variety(white greater than red)&gt;Region(white greater than red)&gt;Brand</td>
<td>Format&gt;Brand MS&gt;Denomination=Geographic Area&gt;Price&gt;0.75 Brand MS</td>
<td>1. Attributes are more insightful than brands alone 2. Fits Dirichlet 3. DJ and DoP hold 4. Variety=State=Country&gt;$2 Price Tiers&gt;Region&gt;Brand</td>
</tr>
</tbody>
</table>
RQ 1: Does the Duplication of Purchase Law hold for brand (marque), region of origin (AOC), variety (cepage) and price (pris) in the French retail wine market?

RQ 2: Is the survey method of retrospective recall effective when applied on French wine consumers?
Data

• 300 French wine consumers
• Collected by Junior ESSEC
• 10 minute survey
• Representative Sample
• Questions about wine buying behaviour
• Retrospective recall questions by attribute
• Terroir knowledge
• Ultimately between 240-260 persons were usable for each attribute
Methodology: Survey

**Introduction**

*Suitability questions*
- Older than 18 years
- Purchased 2 times in last 6 months

**SECTION 1** General questions regarding the last wine purchase occasion
(when, where, reason)
(how many different bottles)

<table>
<thead>
<tr>
<th>SECTION 1.1 Questions relating to the first bottle of last wine purchase occasion (price, region of origin, variety)</th>
<th>SECTION 1.2 Questions relating to the second bottle of last wine purchase occasion (price, region of origin, variety)</th>
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</thead>
<tbody>
<tr>
<td>If more than 1 bottle</td>
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</table>

**SECTION 2** General questions regarding the second to last wine purchase occasion
(when, where, reason)
(how many different bottles)

<table>
<thead>
<tr>
<th>SECTION 2.1 Questions relating to the first bottle of the second to last wine purchase occasion (price, region of origin, variety)</th>
<th>SECTION 2.2 Questions relating to the second bottle of the second to last wine purchase occasion (price, region of origin, variety)</th>
</tr>
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<tbody>
<tr>
<td>If more than 1 bottle</td>
<td></td>
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</tbody>
</table>

**SECTION 3** Open question about terroir

**SECTION 4** General demographic questions

**END**
Methodology: Duplication of Purchase

• A method of visually representing the proportional sharing of purchases between brands in a category based on b
• Useful for identifying deviations which in turn can signify market partitions
A duplication of purchase (deviations) table is constructed by calculating the percent deviations of the observed from the expected duplications in the duplication table using the ‘D coefficient’, which represents the relationship between a brand’s duplication amongst another brand’s buyers, and its penetration amongst the broader population (Ehrenberg and Goodhardt 1970; Murphy 2006).
Results: Duplication of Purchase for Brand

- The Duplication of Purchase law does not hold for brand
- This could be a data collection issue as respondents were not able to recall the brand name in the phone survey
- Or this could suggest that brand is rather unimportant to French consumers as it clearly has a low salience
- Many respondents also stated AOC’s and grape varieties instead of brand suggesting confusion regarding what is a brand
• DoP generally appears to hold
• Reciprocal partitions suggest a possible ‘terroir’ effect:
  - Cabernet Sauvignon and Merlot (Bordeaux)
  - Grenache and Syrah (Cote du Rhone)
Results: Duplication of Purchase (Deviations) AOC

- DoP generally holds
- There is more than expected sharing between certain regions requiring further investigation
Results: Duplication of Purchase (Deviations) Price

<table>
<thead>
<tr>
<th></th>
<th>less than €4</th>
<th>€4 - €8</th>
<th>€8 - €12</th>
<th>€12 - €16</th>
<th>€16 - €20</th>
<th>€20 upward</th>
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</thead>
<tbody>
<tr>
<td>less than €4</td>
<td>17</td>
<td>57</td>
<td>46</td>
<td>20</td>
<td>16</td>
<td>26</td>
</tr>
<tr>
<td>€4 - €8</td>
<td>b</td>
<td>17</td>
<td>-16</td>
<td>-7</td>
<td>-3</td>
<td>-1</td>
</tr>
<tr>
<td>€8 - €12</td>
<td>57</td>
<td>3</td>
<td>6</td>
<td>-1</td>
<td>-3</td>
<td>-1</td>
</tr>
<tr>
<td>€12 - €16</td>
<td>46</td>
<td>-6</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>€16 - €20</td>
<td>20</td>
<td>1</td>
<td>-2</td>
<td>17</td>
<td>-4</td>
<td>-4</td>
</tr>
<tr>
<td>€20 upward</td>
<td>16</td>
<td>-8</td>
<td>-11</td>
<td>3</td>
<td>-5</td>
<td>15</td>
</tr>
</tbody>
</table>

• DoP generally appears to hold

• Suggestion of more than expected sharing between adjacent price tiers, however not reciprocal
Future Research

• Trial the data for the following methods:
  - Marketing metrics
  - ‘Theoretical’ Dirichlet Estimates
  - Double Jeopady
  - Polarisation (Both DMD and BBD)

• Obtain panel data from a retailer or market research house

• Integrate sensory research with marketing research
Conclusion

• DoP holds for variety, AOC and price

• There are a few notable exceptions that do provide interesting insights into market structure

• Brand does not follow the DoP law but this could be explained by sample size and recall issues

• Retrospective recall is possible, but not for brand. This is an interesting finding in itself
• Questions?????????

• I can be contacted for further inquiries at:

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