Shortlisting Before Ranking

Perception of Wine Region Quality by Ontario Consumers

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Introduction

Ranking data can provide useful information about consumer preferences. But the consumer might not have strong opinions about items that are not among their top choices.

A choose-all-that-apply (CATA) question allows respondents to select multiple answers from a list. A technique called answer piping can display the respondent's CATA responses as items to be ranked in a subsequent ranking question.

In this study, consumers shortlisted wine-producing regions before ranking these regions according to perceived quality. This *shortlist before ranking* procedure allowed each consumer to rank exactly the number of wine regions of interest.

Materials & Methods

The Liquor Control Board of Ontario (LCBO) is the largest beverage alcohol retailer in Ontario. It sells liquor, wine, and beer at retail locations across the province. Generally wine is organized within stores according to wine region. Consumers were recruited based on shopping activity that revealed specific purchase intentions. Recruitment was performed on 11 occasions in the aisles of five LCBO stores in Toronto and nearby cities. 614 consumers (289 women, 325 men) were invited into tasting rooms to evaluate 3 red wines.

Compusense *at-hand* (Compusense Inc., Guelph, Ontario, Canada) was used to present a web-based questionnaire on tablet computers. Delays were enforced between the 3 samples. During these delays consumers answered demographic, attitude and usage questions, including questions related to age, income, gender, attitudes towards recycling, purchase frequency, and wine region where most of their purchased wine originated.

In one CATA question consumers selected wine-producing regions that they associated with high quality wines. Wine regions in the CATA question were presented by name and are reported here by code: Argentina (AR), Australia (AU), Canada (CA), Chile (CL), France (FR), Germany (DE), Italy (IT), New Zealand (NZ), Portugal (PT), Spain (ES), South Africa (ZA), California (US(CA)), Other US States (US(exCA)), and Other (which enabled the consumer to indicate a wine region not on the list). Consumers could choose between 2 and 14 regions. These CATA responses formed the consumer's *shortlist*.

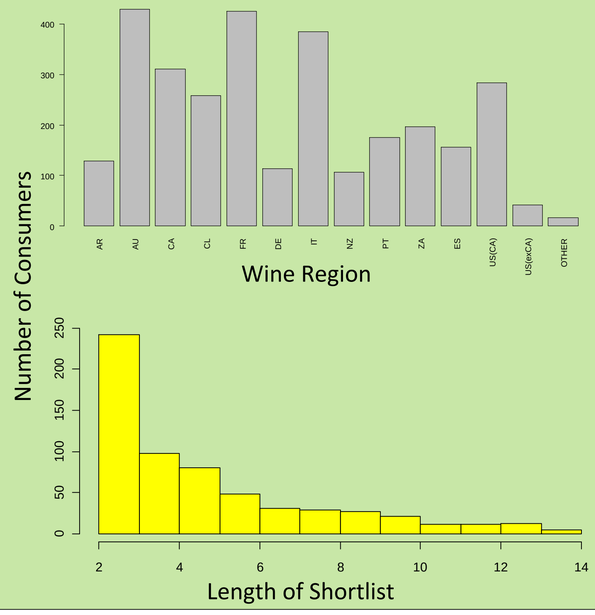
Wine regions selected by the consumer (including the name of the "Other" region, as applicable) appeared in the next question where the consumer ranked all the selected regions according to perceived quality. Ties were permitted. Responses to the ranking question formed the consumer's *rankings*.

This procedure is a sophisticated variant of *answer piping*. Note that it differs from the rank *k* of *n* procedure. In *shortlisting before ranking*, the number of items to be ranked are not determined by the researcher but by the consumer according to their CATA selections. Although consumers varied in purchase frequency, analyses conducted for this poster were not weighted.

LCBO sales data (*LCBO Annual Report 2007–08*) indicates that top wine regions by net sales and volume for 2007-2008 were Canada, Italy, Australia, France, U.S. and Chile. Canadian wines were sold at the lowest price per volume at the LCBO.

Results – Shortlist Data

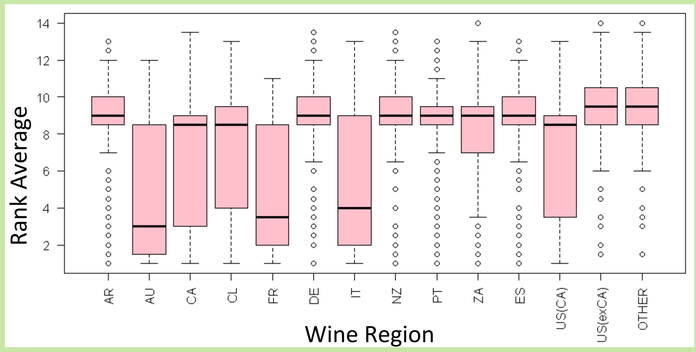
The top 6 wine regions shortlisted by consumers were Australia (429), France (425), Italy (385), Canada (311), California (284) and Chile (258).
On average, consumers shortlisted 4.93 regions, but the response pattern was positively skewed as shown below. The most common shortlist length was 2 and the median number selected was 4. Only 4 consumers chose 14 regions. Younger consumers and men tended to shortlist fewer regions. On average women shortlisted more wine regions than men (5.419 vs. 4.502).



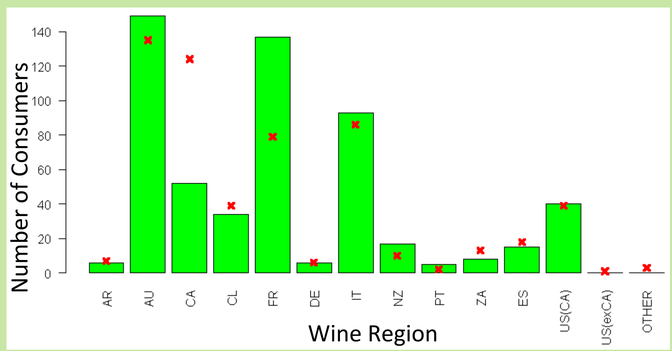


Results – Ranking Data

From the CATA question in which *R* regions were presented, consumer *j* in {1, J} made a shortlist of size k_j ($2 \le k_j \le R$). Ties were allowed in ranking. The average rank was assigned for ties. Implicitly the $R-k_j$ regions that consumer *j* did not shortlist would have received rank values in $[k_j+1, R]$. The exact rank value is unknown and might well be arbitrarily assigned if the consumer were given the opportunity. These regions were *tied for last* and assigned values $k_j^{(last)}=(R^2+R-k_j^2-k_j)/2$; thus all consumers added equal weight to calculation of rank totals. Comparison of rank averages is plotted.



Rankings were similar to CATA results but provided more information (e.g. California was ranked higher for quality by consumers who had shortlisted more wine regions). Counts of unambiguous first ranks (green bars below) are a measure of perceived quality (n=562), and can be compared with regions purchased most often (red marks below). Regions with the largest quality-purchase discrepancy are Canada (52 first ranks, but purchased most often by 124 consumers, a difference of +72) and France (ranked first by 137, but purchased most often by only 79 consumers, a difference of -58). Notably the next largest discrepancy (in absolute value) was Australia (-14).



Conclusions

The shortlist before ranking procedure obtained informative results without forcing consumers to rank items that might not be relevant. Consumers ranked Australia highest for quality, followed by France, Italy, Canada, California, and Chile. CATA response frequencies also obtain this ordering, but might lack structure among selections that might permit other relationships to be discovered. Ranks based on quality have similarities and differences to purchase frequency data, and LCBO sales data. Canadian wines sell well within Ontario, surpassing what would be expected based solely on perceived quality. France stands out among wine regions for purchase frequencies that are lower than might be expected given its high regard among consumers for quality. More investigation is required to explore these and other relationships further. Additional studies could look at familiarity, perceived quality of wine regions at different price points, and other sales drivers.