Google Trends and Product Market: Evidence from the Wine Market

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Selected Poster prepared for presentation at the 2017 Agricultural & Applied Economics Association Annual Meeting, Chicago, Illinois, July 30-August 1

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INTRODUCTION

- Wines are experience goods, so consumers usually rely on their previous experience or consumer reviews in choosing wines.
- *Google Trends* provides industry and researchers a better understanding of consumer preferences based on search popularity.
- Factors that may influence wine selection
  - Sensory characteristics
  - Quality information, such as consumer reviews
  - Reputation of wine maker
  - Region of production
- We investigate whether consumer preferences have an influence on the price of wine using frequency search words from *Google Trends*.

OBJECTIVES

- Develop a model to estimate the impact of search popularity on wine prices by using the numbers of frequency search words from *Google Trends*.
- Identify the factors that affect wine prices for better pricing strategy
- Discern consumers' underlying taste and flavor perceptions that would enable better blend and fine-tuning of wine products.

DATA

- Nine years of observations (2004-2012)
- 2,658 observations Washington red wines from *Wine Spectator* Magazine (online)
- 3 indicator variables for frequency search words from *Google Trends*:
  Cabernet Sauvignon, Merlot, and Syrah
- Control variables include:
  - *Wine Spectator* score
  - Aging before commercialization
  - Number of cases produced
  - Five regions of production
  - Label indicating "reserve"
  - Vintage

GOOGLE TRENDS

Interest Over Time
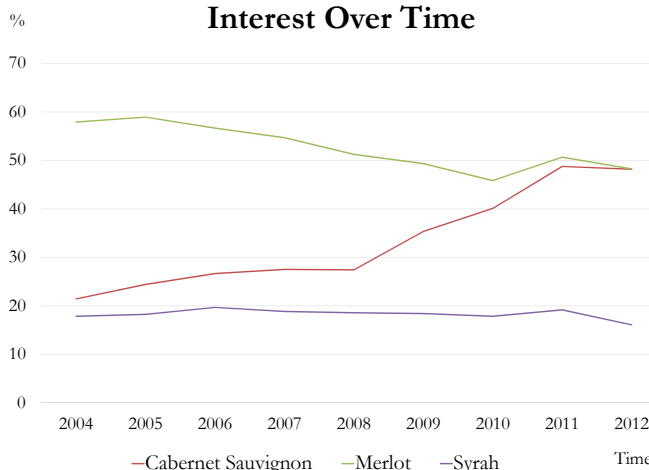
The following Washington red wine varieties are the most common:

- **Cabernet Sauvignon** is the king of red grapes that is grown magnificently in Washington. The heady, fruity character of this grape develops slowly. Its character emerges as black currants, cherry, berry, chocolate, leather, mint, herbs, bell pepper or any combination of these.
- **Merlot** tends to be more full-bodied, moderately tannic and slightly higher in alcohol than its Bordeaux cousins, and higher in acidity than those from California. It is known for its sweet cherry and berry flavors and complex aromas that include mint, cigar box, and sweet spices like nutmeg and cardamom.
- **Syrah** is a relative newcomer to the State of Washington, and the Syrah grape has seen a substantial increase in acreage in the past few years. A spicy, rich, complex varietal, Syrah grapes turn into big, dark, intensely concentrated wines with aromas and flavors of blackberries, black currants, roasted coffee, tobacco and leather.

EMPIRICAL MODEL

$$Ln\left(\Pr ice_i\right) = \alpha_o + \alpha_1 Cabernet\ Sauvignon_i$$
$$+\alpha_2 Merlot_i + \alpha_3 Syrah_i + \alpha_4 Rating_i + \alpha_5 Aging_i$$
$$+\alpha_6\left(Aging\right)^2_i + \alpha_7\operatorname{Re}serve_i + \alpha_8\ln(produced)_i$$
$$+\alpha_9 AVAs_i + \alpha_{10} Year_i + \varepsilon_i$$

RESULTS

Variable	Coefficients	Std. Error
Constant	-2.419 ***	0.212
Rating	0.064 ***	0.002
Aging	0.392 ***	0.036
Aging2	-0.044 ***	0.005
Reserve	0.087 ***	0.023
Log(produced)	-0.136 ***	0.004
Columbia Valley	0.064 ***	0.019
Horse Heaven Hills	0.126 ***	0.028
Red Mountain	0.283 ***	0.025
Walla Walla Valley	0.288 ***	0.021
Yakima Valley	0.149 ***	0.025
Cabernet Sauvignon	**0.170 *****	**0.061**
Merlot	**-0.347 *****	**0.054**
Syrah	**-0.747 *****	**0.125**
Year Dummies	Yes	

*Note: * p-value < 0.1, ** p-value < 0.05, *** p-value < 0.01*

CONCLUSIONS

- *Google trends* are statistically significant in hedonic estimation.
- **Cabernet Sauvignon** has a significantly positive effect on wine prices, but **Merlot and Syrah** have a significantly negative effect on wine prices.
- Researchers, policymakers, and industry participants can benefit from interpreting search popularity as consumer preferences using *Google Trends* that affects wine prices upon introduction to the market.

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