

Experimental Analysis of Willingness to Pay for Wine Attributes: A Research Plan

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Goals

- Investigate experimentally consumer WTP for wine attributes
- Use experiments to obviate identification problems in hedonic estimation
- Evaluate effect of experience & other consumer characteristics on wine attribute valuation
- Combine sensory science approaches to valuation with experimental economics

Hedonic Pricing

- Empirical application: $p = f(z_1, \dots, z_n) + \varepsilon$ where the z 's represent product attributes.
- Problems:
 - Identification problems from demand & supply interaction.
 - Inability to separate effects by consumer characteristics
 - Potential data problem on LHS; many studies do not use actual transaction price.

Hedonic Wine Pricing

- Extant literature has examined:
 - Different regions, varieties, age, vintage, etc.
 - Different functional forms
 - Recognition that *Expert Rating* related to other variables.
 - Effect of segmenting data by price and evaluating segments separately.

Hedonic Wine Pricing

- Few, if any, of these studies address:
 - Effect of sensory characteristics derived from tasting/smelling the wine
 - Effect of consumer experience, knowledge, or sensory abilities on valuation
 - Effect of experience, knowledge, or sensory abilities on value of information used in purchase decisions
 - Identification of WTP for wine attributes

Experimental Approach:

- Laboratory experiment
 - In UCD Sensory Science laboratory.
 - Bid on wine coupons; treatments: information
- Field Experiment
 - In “field”: grocery stores, wine shops.
 - Choice experiment: Consumers presented with price/product pairs; decide to purchase or not.

Laboratory Experiment

- Use Becker-DeGroot-Marschak (BDM) Mechanism to elicit WTP w/ different information treatments.
- BDM Mechanism: Demand-revealing
 - Participants submit a bid for item.
 - “Market price” drawn randomly
 - If the market price is below the bid, the participant pays the market price for the item; if not, no trade
 - Since amount paid by participant does not depend on their bid, “truth-telling” is a (weakly) dominant strategy

Laboratory Experiment

- Three groups of subjects/consumers:
 1. Panel trained in sensory wine attributes
 2. Winemakers
 3. Consumers recruited to have a range of experience with and knowledge of wine
 - “Experience” gathered during recruitment process
 - Given wine knowledge quiz, sensory quiz during experiment.

Laboratory Experiment

- Each participant will evaluate 4 wines
- Elicit WTP for each bottle w/ a method commonly used in experimental economics
- We release pieces of information in subsequent rounds of experiment—e.g. appellation, variety, expert score, taste and smell
- Participants evaluate all bottles each round: Binding round drawn randomly, bottle drawn randomly

Wine 1

Wine 2

Info	Bid	Info	Bid
Variety	?	Variety	?

Wine 1

Wine 2

Info	Bid	Info	Bid
Cab. Sauv.	WTP_{11}	Merlot	WTP_{21}

Wine 1

Wine 2

Info	Bid	Info	Bid
Cab. Sauv.	WTP_{11}	Merlot	WTP_{21}
Appellation	?	Appellation	?

Wine 1

Wine 2

Info	Bid	Info	Bid
Cab. Sauv.	WTP_{11}	Merlot	WTP_{21}
Napa Val.	WTP_{12}	Rutherford	WTP_{22}

Wine 1

Wine 2

Info	Bid	Info	Bid
Cab. Sauv.	WTP_{11}	Merlot	WTP_{21}
Napa Val.	WTP_{12}	Rutherford	WTP_{22}
Vintage	?	Vintage	?

Wine 1

Wine 2

Info	Bid	Info	Bid
Cab. Sauv.	WTP_{11}	Merlot	WTP_{21}
Napa Val.	WTP_{12}	Rutherford	WTP_{22}
2001	WTP_{13}	2004	WTP_{23}

Wine 1

Wine 2

Info	Bid	Info	Bid
Cab. Sauv.	WTP_{11}	Merlot	WTP_{21}
Napa Val.	WTP_{12}	Rutherford	WTP_{22}
2001	WTP_{13}	2004	WTP_{23}
Score	?	Score	?

Wine 1

Wine 2

Info	Bid	Info	Bid
Cab. Sauv.	WTP_{11}	Merlot	WTP_{21}
Napa Val.	WTP_{12}	Rutherford	WTP_{22}
2001	WTP_{13}	2004	WTP_{23}
91	WTP_{14}	86	WTP_{24}
Sensory	?	Sensory	?

Wine 1

Wine 2

Info	Bid	Info	Bid
Cab. Sauv.	WTP_{11}	Merlot	WTP_{21}
Napa Val.	WTP_{12}	Rutherford	WTP_{22}
2001	WTP_{13}	2004	WTP_{23}
91	WTP_{14}	86	WTP_{24}
Taste/smell	WTP_{15}	Taste/smell	WTP_{25}

Lab: Data & Analysis

- i =individual, j =wine, k =information “stage”
- $WTP_{ijk} = f(a_i, z_j, b_{jk}, x_i)$, fixed effects model, where b_{jk} is the info on wine j at stage k
- $\Delta WTP_{ijk} = (WTP_{ijk} - WTP_{ijk-1}) = f(z_j, b_{jk}, x_i)$,

Field Experiment

Participants

- Will have already indicated their intention to participate in the market by selecting a bottle of wine.
- Will be presented with a familiar decision process—a proposed price/product pair; task is to choose to buy or not.









questionnaire

QUESTIONS	
1. How often do you use the product?	<input checked="" type="checkbox"/>
2. How often do you use the product?	<input checked="" type="checkbox"/>
3. How often do you use the product?	<input checked="" type="checkbox"/>
4. How often do you use the product?	<input checked="" type="checkbox"/>
5. How often do you use the product?	<input checked="" type="checkbox"/>

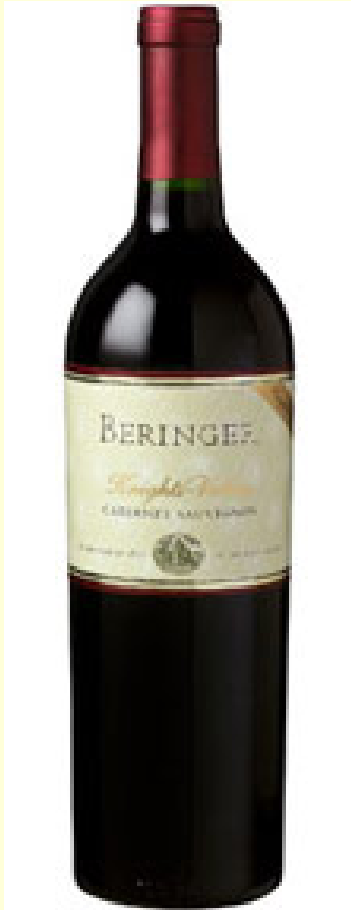
A: \$12



B: \$12 - \$Y₁



A: \$12
Score: 88

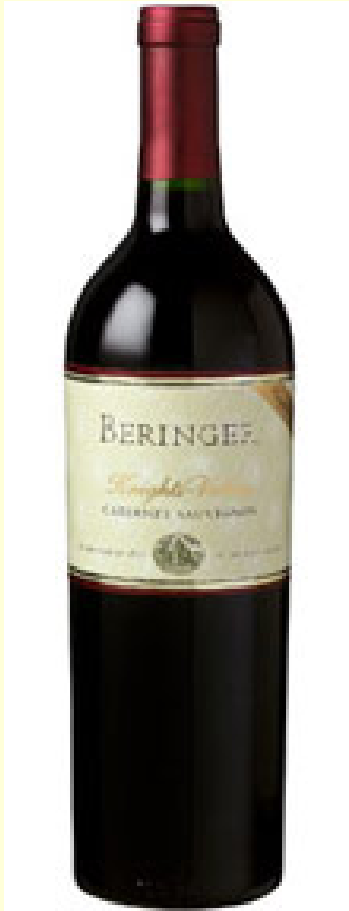


B: \$12 - \$Y₁
Score: 91



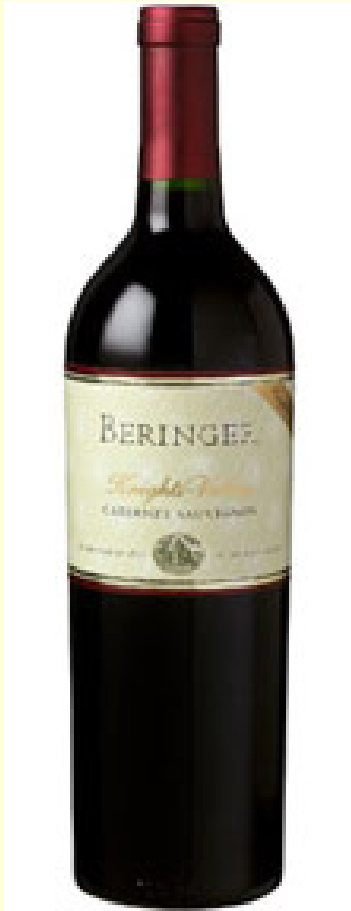
A: \$12

C: \$12 - \$Y₂



A: \$12

Score: 88



C: \$12 - \$Y₂

Score: 86



Field Experiment

- Administer short questionnaire/quiz to get information on consumer experience and wine knowledge.
- Qualifying consumers offered a coupon worth \$4 or \$5 to participate.
- Propose equal-priced wine with slightly different attributes and coupon for \$y (with y small) off of grocery bill.
- Reveal expert rating (*need to think about this point...*)
- Repeat this proposal 6 times, w/ binding repetition chosen randomly.

Field Experiment

- Collect information on:
 - Actual transaction prices (instead of release prices), number of transactions, and wine & consumer attributes,
 - Information on label, expert ratings.
- Use to re-examine hedonic pricing with transaction prices, consumer attributes, etc.

Field Experiment: Data & Analysis

- Data:
 - Prices & characteristics of wines purchased, expert rating
 - Demographic information, quiz & experience
- $P_{ijk} = f(a_i, z_j, b_{jk}, x_i)$, fixed effects model

Contributions & Challenges

Contributions

- Examine
 - Cons. valuation using 2 strategies
 - Effect of experience & info on valuation
 - Value of information by experience

Challenges

- Informational categories included
- Order of information revelation