

Expert Opinion & the Demand for Experience Goods: An Experimental Approach

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Introduction

- Experience goods are pervasive in today's marketplace
- Quality information for experience goods is often provided by so-called experts
- Two obstacles to studying the effect of expert opinion on experience good demand:
 - Spurious relationship between good reviews & high demand
 - Extent to which expert opinion provides quality information vs. publicity
- To overcome both obstacles we utilize an experimental approach

Related Empirical Literature

- Product quality info & consumer behavior
 - Branding (e.g. Montgomery Wernerfelt, 94)
 - Labeling, Grade Cards (Jin and Leslie, 2003)
 - Advertising (Akerberg, 2003)
 - More related to this paper - Expert reviews
 - Movie reviews (Reinstein and Snyder 2005)
 - No overall effect of Siskel and Ebert reviews on movie revenues, but positive reviews increase revenues for small scale released movies
 - Book reviews (Sorensen and Rasmussen 2004)
 - Find that both positive and negative book reviews increase book sales

Experimental Design

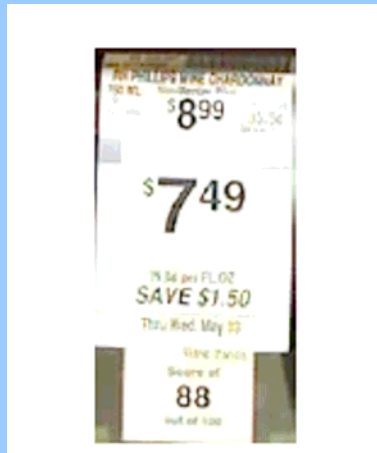
- Wine scores displayed in treatment store during April 2006 for 150 randomly selected wines.

	Treated Wines	Untreated Wines (With Scores)	Untreated Wines (Without Scores)
Score	84.1 [3.5]	83.7 [3.0]	
Quantity (March)	12.2 [20.3]	14.3 [19.9]	9.2 [18.2]
Quantity (April)	14.5 [21.9]	18.4 [20.0]	9.1 [18.0]
Price (March)	11.8 [7.8]	10.9 [6.3]	11.8 [9.0]
Price (April)	12.5 [10.3]	11.6 [7.2]	11.9 [8.9]
Percent Discounted (March)	57.1	64.0	54.2
Percent Discounted (April)	57.1	65.7	54.4
Percent Red	63.4	61.9	60.6
Number Observations	112	253	629

Experimental Design

- Using a control store with similar wine sales and trends for previous years, we perform a difference in difference analysis to test whether consumers respond to Expert Opinion
- To select a suitable control store we:
 - Restrict the search to stores with similar characteristics
 - Use a methodology that aims to ensure that
 - (1) the effect of price, promotions, & wine type on sales are similar across stores
 - (2) pre-treatment time trends for number of bottles sold are similar in both stores

A Label and The Labeling Team



3 am... and all labels added

Data

- Weekly store level scanner data for each wine product (UPC) sold for different stores
 - Price
 - Discount amount
 - Wine varietal (e.g. red, ...)
 - Number bottles sold
 - Detailed UPC name description
- Score data for each UPC

Empirical Strategy and Results

- Utilize differences-in-differences approach

To examine ATE on # bottles sold of treated wines (Model 1):

	OLS (1)	OLS(2)	OLS (3)	OLS(4)	OLS (5)
Treated Store	-1.62 [1.18]	-1.79 [1.20]	0.71 [1.35]	0.58 [1.37]	-0.07 [1.87]
Treated Month	-0.25 [0.77]	-0.25 [0.77]	0.77 [0.95]	0.80 [0.97]	0.65 [1.11]
Store*Month	1.48 [1.07]	1.48 [1.07]	0.46 [1.36]	0.43 [1.39]	0.65 [1.43]
Red Dummy		-7.01* [4.22]		-7.93** [3.91]	-5.76 [3.62]
Promo Dummy			14.96*** [2.52]	15.43*** [2.62]	12.69*** [2.42]
Red & Promo Interactions	No	No	No	No	Yes
R^2	0.01	0.03	0.15	0.19	0.20
Number Observations	400	400	400	400	400

Empirical Strategy

- Previous Specification
 - Useful to examine ATE on the treated
- But does not:
 - Address extent to which expert opinion provides quality information vs. publicity
 - Control for time- and store-varying covariates (e.g., promotions and prices)
- As a result, we estimate the following (Model 2):

$$Q_{ist} = \beta_0 + \beta_1 T_{is} + \beta_2 t_{it} + \beta_3 T_{is} * t_{it} + \delta X_{its} + \gamma(X_{its} * T_{is}) + \lambda(X_{its} * t_{it}) + \theta(X_{its} * T_{is} * t_{it}) + \pi(price_{its} * score_{its} * T_{is} * t_{it}) + \epsilon_{its}$$

Results: OLS for Model 2

Dependent Variable = Number Bottles Sold

	OLS (1)	OLS(2)	OLS (3)	OLS(4)	OLS (5)
Store*Month	3.10 [2.47]	4.29 [2.74]	0.34 [2.46]	1.84 [2.74]	2.54 [2.68]
Store*Month*Low Price	-2.52 [3.29]	-4.00 [3.46]	-1.11 [3.28]	-3.11 [3.53]	-3.55 [3.43]
Store*Month*High Score	-2.30 [2.64]	-3.86 [2.99]	1.66 [3.37]	-0.26 [3.65]	-1.06 [3.55]
Store*Month*Low Price*High Score	12.28 ^{**} [6.03]	14.51 ^{**} [6.90]	8.10 [*] [4.55]	10.96 [*] [5.83]	11.60 [*] [6.88]
Red Dummy		-4.17 [3.34]		-5.85 [*] [3.24]	-4.05 [3.20]
Promo Dummy			12.07 ^{***} [1.89]	12.85 ^{***} [2.14]	10.40 ^{***} [2.19]
Red & Promo Interactions	No	No	No	No	Yes
R^2	0.13	0.14	0.22	0.24	0.24
Number Observations	400	400	400	400	400

Results

- These results are robust to:
 - alternate control stores
 - Point estimates for (Store*Month*Price*Score) range from 9.6 to 13.1 and are all significant
 - the use of an alternate treatment store
 - Point estimates for (Store*Month*Price*Score) range from 4.0 to 9.7 and are all significant
 - the time period analyzed
 - Point estimates for (Store*Month) & (Store*Month*Price*Score) are never significant when false treatment months are assigned

Take Away

- Two obstacles to studying the effect of expert opinion on experience good demand:
 - Spurious relationship between good reviews & high demand
 - Extent to which expert opinion provides quality information vs. publicity
- To overcome both obstacles we utilize an experimental approach
- We find that:
 - On average, treated wine sales did not change
 - For a low-priced high-scoring treated wines, sales increased
 - For a low-priced high-scoring treated wines, sales increased on average 30-58 percent due to treatment
 - Sales of untreated wines remained constant

Implications

- Expert Opinion may provide quality information to some consumers
 - If cons who purchase expensive wines are informed about wine quality, our results imply that high scores matter less to among expensive wines.
 - while if uninformed consumers purchase less expensive wines, higher scores shall matter more to them in terms of providing them more knowledge of wine quality, and our results are consistent with this explanation.
 - Also consistent with consumers trying out new info by purchasing high scores at low cost first (treatment period of one month maybe too short to observe full effect)...
- Our results imply that not all publicity is good publicity
- We also find that untreated wine sales remained constant
 - Either demand grew to offset substitution to treated wines, or not full substitution occurred

Take away



Jose Maria
Villas-Boas
at the retailer

Hmmm...

I don't know ...

If only there was
an expert (and
NOT my mom)
here...