

Choose the Cheapest? The Case of Restaurant Wine Menus.

AAWE 10th Annual Conference, Bordeaux

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23 June 2016

Overview

Preview

▶ **Aim:**

- ▶ Measure & understand pricing and markups on wine in restaurant menus.
- ▶ Specifically check if the second cheapest wine is 'poor' value for money.

▶ **Method:**

- ▶ Sampled 249 restaurants in London using Tripadvisor.co.uk.
- ▶ Scraped information from the online wine menus.
- ▶ Matched on name and vintage to get price from Winesearcher.com.

▶ **Findings:**

- ▶ Average markup is 300% (3x the retail price).
- ▶ Markup on the cheapest wine is significantly lower.
- ▶ Markup on the second cheapest wine higher than the cheapest but not 'higher' than the rest.
- ▶ % markup decreasing in retail price.
- ▶ Markup is increasing in food price but does not vary with restaurant ranking.

Literature Review

- ▶ Wine pricing in restaurants:
 - ▶ Typical mark-up is 2x the retail and 3x the wholesale price.
 - ▶ The mark-up varies widely - higher in fancier restaurants.
 - ▶ The mark-up is decreasing in cost of the wine.
 - ▶ “The second-least-expensive wine on the list is often marked up the most. Why? ‘People don’t want to look cheap, so they order the second cheapest wine.’” Gretchen Roberts (2010)
 - ▶ Chung (2008), Gretchen Roberts (2010), W. Amspracher (2011), Florine Livat & Herve Remaud (2016)
- ▶ Pricing in vertically differentiated monopolies:
 - ▶ Mussa & Rosen (1978) theory paper.
 - ▶ Absolute mark-ups should increase in price but theory ambiguous on % mark-ups.

Sample, data, & summary statistics

Sampling & data description

- ▶ 249 restaurants sampled from Tripadvisor's (TA) London section:
 - ▶ 199 drawn from the top ranks on TA, and 50 from lower ranked (2000+)
 - ▶ 235 had wine menus "readable" by a program.
 - ▶ 235 each of white & red wine menus; 6335 wines.
 - ▶ Median TA ranking of 235 restaurants is 600.
- ▶ Menu information coded:
 - ▶ Name, description
 - ▶ Position within the red or white wine menu, position within a submenu (e.g. French Reds)
 - ▶ Price (bottle, small glass, large glass etc)

How are the menus organised?

- ▶ 24 white and 24 red wine menus have subgroups within.
- ▶ Ordering of wines in the 422 menus with no subgroups:
 - ▶ 257 (61%) in ascending order of price.
 - ▶ 144 (34%) in no particular order of price.
 - ▶ Only 8 (2%) list in descending order.
 - ▶ (Remaining indeterminate - missing menu price data).
- ▶ Prices listed or not?
 - ▶ 98% wines have a bottle price on the menu.
 - ▶ 100% have some price (bottle, small glass, large glass etc)

Retail prices

- ▶ Wines matched to Wine-searcher.com for lowest retail price.
- ▶ Exact match for 3388 (53%) wines.
- ▶ 147 menu wines listed with multiple vintage years (e.g. Chateau Musar Red Gaston Hochar 2003/05).
- ▶ For multiple vintage wines, retail prices for each vintage year.
- ▶ For no vintage year listed, price for 2013 and 2014 if available.
- ▶ No retail price found for 1850 (29%) wines.
- ▶ Lowest Wine-searcher.com price between wholesale and typical retail price?

Menu price summary statistics

- ▶ For 235 red & 235 white wine menus:

		Mean	Min	Max
Red	Number of wines	14.65	1	98
	Mean price	42.17	12.95	751.6
	Cheapest wine	19.35	8.5	59
	Priciest wine	152.22	12.95	7630
White	Number of wines	12.31	1	70
	Mean price	31.84	13.95	100.47
	Cheapest wine	19.15	8.5	45
	Priciest wine	65.31	13.95	520

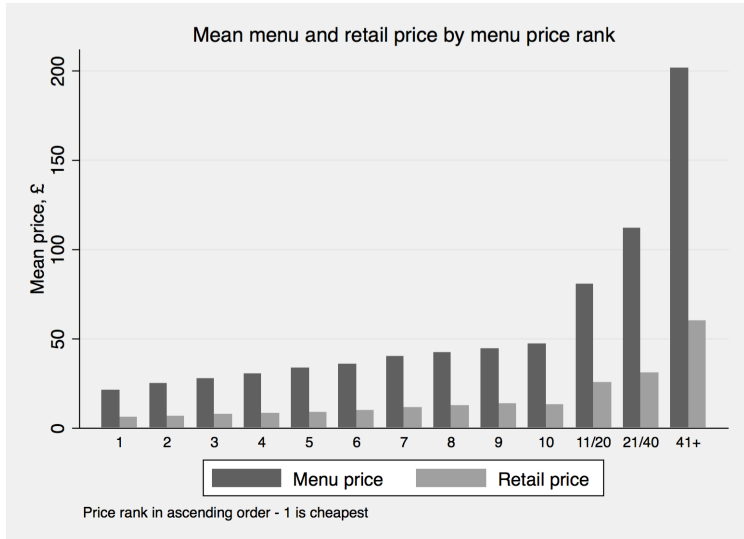
Markup summary statistics

- ▶ % markup computed as $m = 100 * \frac{p_{menu} - p_{ws}}{p_{ws}}$
- ▶ p_{ws} is the minimum retail price on Wine-searcher.com.
- ▶ Sanity check on mark-ups:
 - ▶ Too low? 0.36% wines have $m < 0$, 1.36% have $m < 50\%$
 - ▶ Too high? 0.36% wines have $m > 1000$, 10.76% have $m > 500\%$
- ▶ % markup by type:

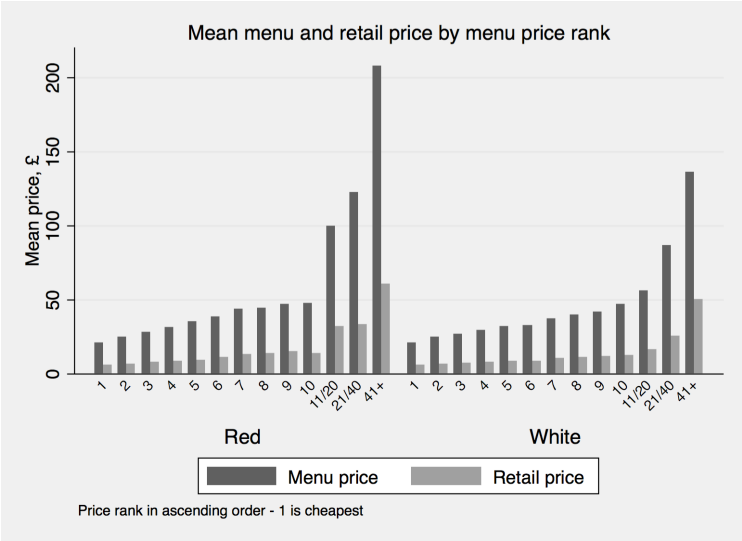
Type	Mean	SD	Min.	Max.	Median	N
Red	303	165	4	1908	268	2407
White	304	163	5	1575	271	1993
All	303	164	4	1908	269	4400

Results

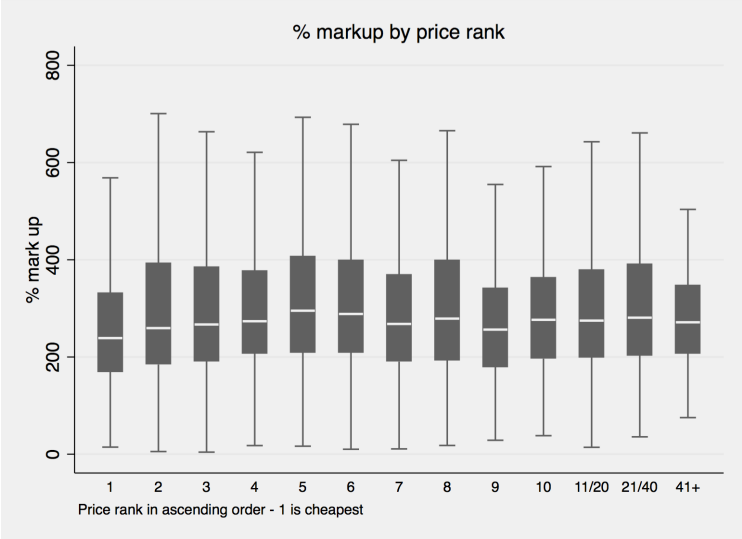
Menu & retail price by menu price rank



Menu & retail price by wine type & menu price rank



Box chart: % markup by price rank



Markup by price rank - regression results

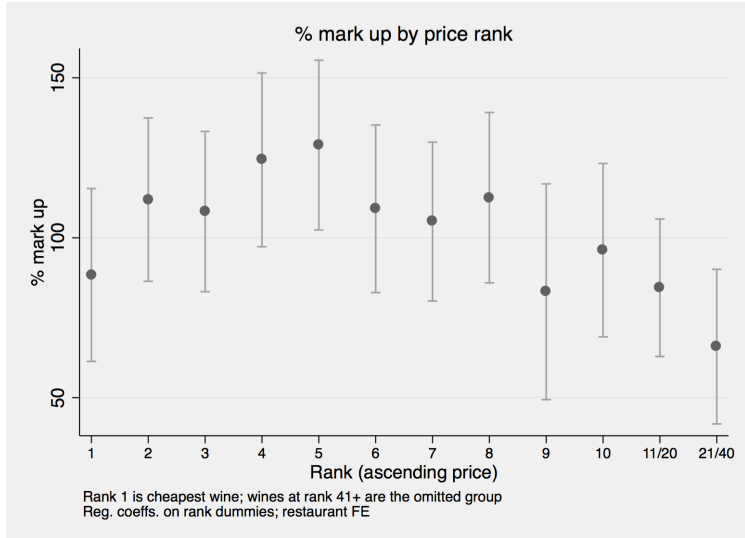
	(1)	(2)	(3)	(4)	(5)	(6)
Retail price		-1.0767*** [0.3946]	-1.0893*** [0.4018]	-1.2636** [0.5203]	-3.1592*** [0.5565]	-2.0629*** [0.3509]
(Retail price) ²		0.0003** [0.0001]	0.0003** [0.0001]	0.0003** [0.0002]	0.0032*** [0.0007]	0.0020*** [0.0004]
(Retail price) ³					-0.0000*** [0.0000]	-0.0000*** [0.0000]
White wine		-3.8674 [4.8674]	-3.6930 [4.8560]	-2.4973 [4.9073]	-8.1617* [4.4550]	-4.8903 [3.4884]
Cheapest	-28.4282*** [9.4166]	-37.9968*** [9.8101]	-39.3672*** [10.2755]	-27.3071*** [10.4527]	-41.3917*** [10.8058]	-37.5669*** [6.2699]
2nd cheapest			-11.3147 [10.4376]	2.0480 [9.7529]	-10.6651 [9.7875]	-12.1158* [6.2773]
3rd cheapest					-11.3404 [8.6475]	-9.0472 [6.7688]
Constant	306.4341*** [5.4602]	328.6353*** [11.9835]	329.8203*** [12.3985]	224.4801*** [10.4391]	255.2276*** [9.9795]	222.9027*** [6.9252]
Restaurant FE				x	x	x
Excl. outliers ^a						x
Cheapest 1 = 2 ^b			0.013	0.013	0.007	0.001
Observations	4,400	4,400	4,400	4,400	4,400	3,925
R-squared	0.0029	0.0344	0.0348	0.2153	0.2627	0.2716

OLS regressions with robust standard errors in brackets; clustered on restaurant.

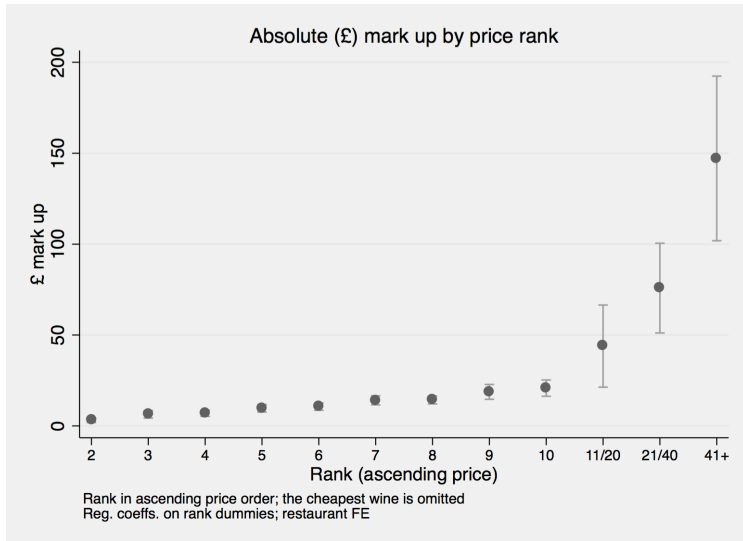
^a Outliers are wines with markup > 500%.

^b Test of equality of coefficients on the first and second cheapest wines (p-value).

% markup by wine price rank (regression coefficients.)



Absolute (£) markup by wine price rank (regression coefficients.)



Other determinants of wine markup

Retail price	-2.1921***
	[0.3791]
(Retail price) ²	0.0021***
	[0.0005]
(Retail price) ³	-0.0000***
	[0.0000]
White wine	-11.5797**
	[5.4594]
TA rank < 100	-9.1613
	[22.7850]
TA rank (100 – 1000)	17.7696
	[11.5723]
Mean meal price ^a	1.5510***
	[0.4355]
Wine menu by country/grape ^b	17.9798
	[13.1615]
Constant	291.9066***
	[17.4174]
Observations	2,696
R-squared	0.0716

OLS regressions with robust standard errors in brackets; clustered on restaurant.

^a The midpoint of the restaurant meal price range (in £) listed on Tripadvisor.co.uk.

^b If the wine menu is organised by country and/or grape variety e.g. Cabernet, Merlot etc.