Italian Wine Market Structure & Consumer Demand

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Outline

- Introduction: wine market and wineries diversity

- Aim of the work

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- Data: Italian home-scan panel

- The model

- Estimation and results

- Demand Elasticities & Market power Indexes

- Final discussion

Introduction to Italian wine market and wineries diversity

- Extraordinary variety of firms for dimension and degree of vertical integration

  - ➢ Artisan wineries
  - ➢ Medium big scale wineries

  - ➢ Farm-wineries
  - ➢ Industrial wineries
  - ➢ Cooperative winery

- Total # of wineries in Italy is 73,000!!!

- Total production 55 million of hl

Agea, 2006

Introduction to Italian wine market and wineries diversity

Artisan wineries = 92% of firms

Medium-big scale wineries = 8%

Artisan wineries = 5% of National production

Medium-big scale wineries = 95% of National Production

1% of these wineries represent 50% of National production

Aim of the work

- Measuring market power relative to the wineries selling to retail in order to test for the presence of unilateral market power and predict possible merger cases in wine market or monopolistic competition

- Have brand level wine demand estimates

Theoretical discussion

- Market competition could be analyzed by looking at market shares and concentration indexes, and by analyzing demand own- and cross-price elasticities

- For a highly populated sector, concentration indexes and shares provide information of uneasy interpretation

- Demand elasticities, on the other hand, could allow testing whether a price increase elicits a demand decrease, and test the presence of substitution effects between competing products

- Information about substitution elasticities allow predicting eventual merger cases

- Information about own-price elasticities when there is no direct substitution effect allow indentifying and measuring the effect of monopolistic competition on prices

- In general, demand and elasticity measures could be applied to strategic behavior tests

Data: Italian home scan panel

➢ ~ 6000 Households

➢ Balanced panel representative of at home consumption

➢ Wine product and socio-demographic information

➢ Time spam: December 2002 – December 2004

➢ 695 brands represented

Estimates of market power and methodological implications

➢ Retail market shares could be easily obtained

➢ In order to calculate mark-ups, Lerner index, or test firms' strategies we need elasticity values

➢ Reliable elasticities need sophisticated demand parameters estimation

   ✓ Assumption 1: Wine of different brands are weakly separable goods in a demand system

   ✓ Assumption 2: Consumers allocate their budget dedicated to wine among 695 wine brands

   ✓ Assumption 3: Consumers choose one, or few more, brands per time when purchasing wine; therefore, brand level demand shows zero expenditure points, thus, demand is censored
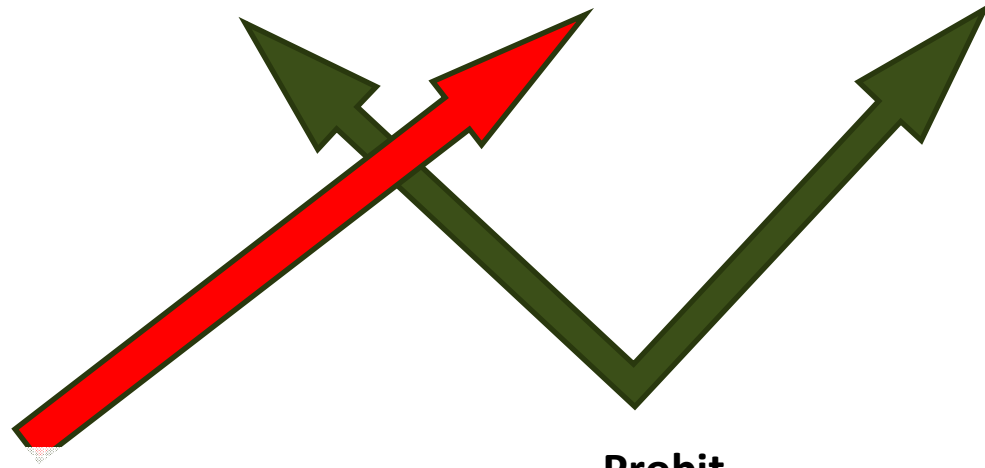
The model

Not all consumers face and purchase all 695 brands
Therefore, demand is censored

$$E(y_{it}|x_{it}, z_{it}) = \Phi(Z_{it}'\alpha_i)f(x_{it}, \beta_i) + \delta_i\phi(Z_{it}'\alpha_i)$$

QUAIDS

Probit

The model

$$w_i = \alpha_i + \sum_{j=1}^{n} \gamma_{ij} \ln p_j + \beta_i [f(Z'\varrho)] \ln \left[\frac{x}{P^*}\right]$$

$$+ \frac{\lambda_i [f(Z'\omega)]}{b(p)} \left\{\ln \left[\frac{x}{P^*}\right]\right\}^2 + Z'\gamma$$

$$b(p) = \prod_{i=1}^{n} p_i^{\beta_i [f(Z'\varrho)]}$$

$$\log P^* = \alpha_0 + \sum \alpha_k \log p_k + \frac{1}{2} \sum_k \sum_l \gamma_{kl} \log p_k \log p_l$$

Results: elasticities estimates

Quantity	Price									
	1	2	3	4	5	6	7	8	9	10
1	-1.675									
2		-2.812								
3			-0.061							
4				-4.316						
5					-1.002					
6						-7.683				
7							-1.781			
8								-8.679		
9									-3.568	
10										-0.585

Results: elasticities estimates

Quantity	Price									
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
1	**-1.675**	*-0.049*	*0.319*	*0.044*	*0.121*	*0.051*	*0.107*	*0.367*	**-0.113**	**0.622**
2	*0.063*	**-2.812**	**0.341**	**-0.125**	**0.400**	0.602	**0.395**	**0.655**	**0.534**	**0.055**
3	0.070	**0.459**	**-0.061**	**-0.786**	-0.307	0.381	**-0.501**	**1.246**	*-0.110*	-0.152
4	-0.183	-0.272	**-0.505**	**-4.316**	-0.288	-0.251	*-0.322*	**-1.302**	**-1.857**	**-0.098**
5	0.014	**0.312**	-0.226	-0.242	**-1.002**	-0.256	0.233	**1.777**	**-0.609**	**0.004**
6	-0.010	**0.279**	0.212	-0.084	-0.189	**-7.683**	0.169	**2.253**	**2.236**	**0.000**
7	-0.019	0.371	*-0.436*	-0.403	0.174	0.227	**-1.781**	-0.040	0.717	0.075
8	0.074	**0.598**	**0.474**	**-1.045**	**1.309**	**2.497**	-0.126	**-8.679**	1.604	0.151
9	0.589	0.828	-0.716	-1.739	-0.707	4.289	0.254	1.314	-3.568	0.239
10	2.198	**0.698**	**-0.291**	**0.611**	**0.574**	0.970	**0.285**	**0.102**	**0.401**	**-0.585**

Results: Market Power Indexes

Brand	Market Share	Lerner-Index	Cn	HHI	Cowling & Waterson	Gini Index	Mark-up
1	11.9%	0.071	11.9%		194.263		1.077
2	4.2%	0.015	16.1%		115.714		1.015
3	4.2%	0.691	20.3%		5327.412		3.233
4	3.0%	0.007	23.3%		75.376		1.007
5	1.9%	0.019	25.2%	324.894 (>500 for conc. Sector)	324.780	0.390	1.019
6	1.6%	0.002	26.7%		42.347		1.002
7	1.5%	0.009	28.3%		182.675		1.009
8	1.8%	0.002	30.1%		37.490		1.002
9	1.1%	0.003	31.2%		91.180		1.003
695	68.8%	-	100%		556.006		-

Concluding remarks

Firms information cannot be released but:

➤ Wine market shows a certain concentration, C_9=30%.

➤ Despite this result, only one firm exercises market power by pushing its wine prices 3 times above marginal costs

➤ This market power could have been acquired by firm 3 by investing heavily in product differentiation (packaging, GI wines, varieties Etc.)

➤ Given its large market share, firm 3 does not seem to face other firms' competition

➤ These characteristics could have large effects on consumers' welfare

➤ Firms 6 and 8 show sensitive demand to price variations, moreover, there exists a certain degree of cross-substitution. It is likely that they will find convenient to cooperate or merge in order to avoid price wars

Concluding remarks

➢ **Policy implications** concern the need to promote formal activities aiming at guaranteeing competition

- Estimates detected elements for hypothesizing future collusions or tacit agreements

➢ **Managerial implications** concern the effectiveness of differentiation strategies in isolating firms from competition

- Elasticity estimates relative to firm 6 and 8 show the eventual convenience in merging

Thank you for your attention
Questions?

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