Common Ownership

Chris Conlon

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Grad IO

Possible Exclusion Restrictions

We are looking for variables which affect demand but not supply:

$$\sigma_j^{-1}(\mathcal{S}_t, \mathbf{p_t}, \mathrm{y_t}, \mathrm{x}_t, \mathrm{v}_t, \widetilde{\theta}_2) = h_d(\mathrm{x}_{jt}, \mathrm{v}_{jt}; \theta_1) - \alpha\, p_{jt} + \lambda\, \log(\mathrm{ad}_{jt}) + \xi_{jt}$$

$$p_{jt} - \eta_{jt}(\mathcal{S}_t, \mathbf{p_t}; \theta_2, \mathcal{H}_t(\kappa)) = h_s(\mathrm{x}_{jt}, \mathrm{w}_{jt}; \theta_3) + \omega_{jt}$$

Things we use:

- Obvious choice: v_{jt} (things like product recalls are relatively weak)
- Demographics (enter nonlinearly): y_t (chain-level income works well)
- Characteristics of other goods: $f(\mathrm{x}_{-j,t})$ (BLP instruments).
- Characteristics of other goods: $\mathrm{w}_{-j,t}$ (commodity price of oats for Rice Krispies)

Things we don't use:

- Unobserved demand shocks ξ_{jt} (see MacKay Miller 2020 for $Cov(\xi_j, \omega_j) = 0$).
- Observable κ conduct shifters (financial mergers/events, see Miller Weinberg (2018))

Main Results: These are $N(0,1)$

	Others' Cost	Demographics	BLP Inst.	Dmd. Opt. Inst.
Own Profit Max vs.	Panel 1: $A(\mathbf{z}_t) = \mathbf{z}_t$, linear $h_s(\cdot)$			
Common Ownership	-4.3410	-1.1966	0.5047	-1.2552
Double Marginalization	2.1922	1.0055	-0.0412	7.0897
Double Marginalization + CO	-0.8262	0.6892	0.1428	6.9320
Perfect Competition	3.2995	0.5194	0.7355	3.7223
Monopolist	-2.2264	-1.0528	-0.4525	-0.9202
Own Profit Max vs.	Panel 2: $A(\mathbf{z}_t) = \mathbb{E}[\Delta\eta^{12}\|\mathbf{z_t}]$, linear $h_s(\cdot)$ and $g(\cdot)$			
Common Ownership	-2.3044	-0.5105	-0.0384	-1.6133
Double Marginalization	0.8644	0.4421	-0.5311	3.3367
Double Marginalization + CO	-0.9382	-0.2389	-0.3684	-0.0045
Perfect Competition	0.7164	0.6135	-0.1080	-0.3151
Monopolist	-0.8577	-0.4002	-0.3868	-1.2339
Own Profit Max vs.	Panel 3: $A(\mathbf{z}_t) = \mathbb{E}[\Delta\eta^{12}\|\mathbf{z_t}]$, random forest $h_s(\cdot)$ and $g(\cdot)$			
Common Ownership	-3.3777	-3.2509	-3.7130	-4.0256
Double Marginalization	-5.9699	-9.9547	-6.5789	-7.8269
Double Marginalization + CO	-5.9264	-6.1550	-6.5231	-7.4760
Perfect Competition	-4.0468	-6.1901	-5.1494	-6.3484
Monopolist	-3.4972	-4.0070	-3.4358	-3.7495

An Internalization Parameter

Let κ represent the weight a firm places on competitors and τ the internalization of those weights.

$$arg \max_{p_j \,:\, j \in \mathcal{J}_f} \sum_{j \in \mathcal{J}_f} (p_j - mc_j) \cdot s_j(\mathbf{p}) + \sum_{g \neq f} \tau \kappa_{fg} \sum_{j \in \mathcal{J}_g} (p_k - mc_k) \cdot s_k(\mathbf{p})$$

Now,

- $\tau = 0$ implies own-profit maximization
- $\tau = 1$ implies common ownership pricing
- τ in between is..? Agency?

We test $\tau \in (0.1, \ldots, 0.9)$ against own-profit maximization.

Internalization Parameter Results