

Information Sharing: Economics and Antitrust

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Outline

- Information exchange:
 - Unilateral effects
 - Coordinated effects
- Information technology and market transparency
- Implications for competition policy

The problem

- "The law on trade association price and cost reporting activities is one of the most subtle (and some add the most confused) branches of antitrust doctrine"
(Scherer (1980)).
- Most likely this statement is still true today.
- The origin of the problem can be traced to some contradictory early decisions of US Courts.

Information exchange in the US

- Courts follow rule of reason assessing potential efficiency gains and losses (challenged if it restricts competition or helps collusion, Container Co, 1969)
 - Sharing on individual firm data suspicious: American Column (1921), Linseed Oil (1923)
 - Sharing of aggregate, anonymous data OK: Mapple Floring (1928), First Cement (1925)

Factors in assessment

- Type of information
 - Prices and sales
 - Capacities
 - Costs and demand
 - Plans (pricing, production, capacity, R&D ...)
- Characteristics of information exchange
 - Past, current or future
 - Level of aggregation
 - Frequency

The question

- Do firms share information for efficiency reasons or to restrict competition?
- Ambiguous welfare impact?
- Unilateral effects
- Coordinated effects

Information exchange

- About current and past conduct of the firm:
 - Customers, orders, prices,
 - Typically hard/verifiable information
- Cost and demand
 - May be hard or soft information

Information exchange of cost/demand: static/unilateral effects

- Information exchange improves:
 - Information of firm participating in exchange
 - Information of competitors (good or bad for profits depending on nature of competition and shocks)
- Incentives to share information depend on:
 - Existence of mechanisms to share truthfully
 - Trade association
 - Reputation
 - Possibility of industry-wide agreements
 - Whether information is verifiable or not

Welfare impact (I)

- Output adjustment effect
- Output uniformity effect (preference for variety effect with product differentiation)
- Selection effect (with firm specific shocks, production towards more efficient firms, related to benchmarking/relative incentive schemes)
- Reducing asymmetric information on customers (banking and credit)

Decomposition of impact on welfare of information sharing in monopolistic competition under demand uncertainty

	Common value	Private value
Price setting	↓ Output adjustment (-) ↑ Output uniformity (+) ETS (-)	↓ Output adjustment (-) ↓ Output uniformity (-) ETS (-)
Quantity setting	↑ Output adjustment (+) ↑ Output uniformity (+) ETS (+)	↑ <i>Output</i> adjustment (+) ↓ Output uniformity (-) ETS (+)

Impact of information sharing on welfare

Demand uncertainty

	Common value	Private value
Price setting	ECS: - ETS: $\begin{cases} - \text{ poor substitutes} \\ + \text{ good substitutes} \end{cases}$ (<i>n</i> large: -)	ECS: - ETS: $\begin{cases} - \text{ Monopolistic Competition} \\ + \text{ } n = 2 \end{cases}$
Quantity setting	ECS: + ETS: +	ECS: $\begin{cases} - \text{ } n \text{ small } (n < 9) \\ ? \text{ otherwise} \end{cases}$ ETS: +

Cost uncertainty

Price setting	ECS: ? ETS: +	ECS: $\begin{cases} - \text{ } n \text{ small } (n < 9) \\ ? \text{ } n \text{ large} \end{cases}$ ETS: -
Quantity setting	same as demand	same as demand

Welfare impact (II)

- Welfare impact is complex and depends on
 - mode of competition (quantity or price),
 - structure of uncertainty (cost or demand) and information (private or common value)
- Examples:
 - Giving more information to a firm with market power can be used to
 - Adjust output better to demand/costs
 - Use better price to extract surplus from consumers under demand uncertainty
 - Soften price competition under cost uncertainty

Welfare impact (III)

- Potentially large efficiency benefits of information exchange
- There is a large range of circumstances where pooling does raise profits in one-shot market interaction and therefore it cannot be taken as prima facie evidence of collusion
- Results:
 - Information sharing is good with Cournot but bad with Bertrand
 - Under demand uncertainty and monopolistic competition
 - Under idiosyncratic cost uncertainty and oligopoly
 - Production rationalization effect of cost information exchange can be very large (of a superior order than market power effect)

Cooperative pricing/collusion

- How to sustain prices above competitive level (non-cooperative one-shot game)
- Economic analysis of collusion encompasses both
 - explicit price fixing or cartelization: firms communicate to come to an agreement
 - Adam Smith: “people of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices”
 - tacit collusion or parallel conduct: firms raise prices without an explicit agreement recognizing oligopolistic interdependence (Chamberlin)

Sustainability of collusion

- Legal cartels: collusion enforced by lawful contracts
 - Export or agricultural cartels
- Non-legal cartels and tacit collusion: cooperative pricing must be self-enforcing
 - OPEC
- Problem: cartel instability
 - Incentive to deviate
 - Secret price cutting/output expansion

Sustainability of collusion

- Firms must coordinate:
 - Agree on what cooperative outcome to sustain and what mechanism to use
- Need mechanism to avoid defections
- Benefit/cost ratio to cooperate:
Discounted benefit of cooperation >
short term gain of deviation
+
discounted continuation profits (including punishment phase)
- Punishment must be credible
- Actions of rivals need to be monitored

Reaction speed and monitoring

- Fast reaction or short detection lag improve cooperation possibilities
- Obstacles:
 - Lumpiness of orders
 - Lack of information on sales transaction
 - Secret price cutting (firm observes only own price and sales)
 - Volatile demand
 - Small number of buyers

How can information exchange and transparency help collusion?

- Facilitating practices for solving monitoring and coordination problems:
 - Communication on future conduct
 - Information exchange
 - Current and past conduct
 - Cost and demand

Challenge for the Competition Authority

- To infer collusion from market data is difficult
- Courts very reluctant to convict firms for tacit collusion/
Conscious parallelism
- Competition authorities/Courts attack
 - facilitating practices and
 - have to ascertain whether they are anticompetitive or normal business practice (Ethyl (1984), ATP (1994))
- Standard: Parallel pricing +
 - Market evidence supplemented by hard evidence on facilitating practices
 - American Tobacco (1946) collusion inferred from pattern of parallel pricing because firms had advance notice of each other's actions, and this could have occurred only because of communication.

Communication about future conduct

- Planned prices, production, new products, capacity expansion
 - Typically soft information
 - Can be explicit or implicit with signals
- Cheap talk may help solve coordination problem
 - Experiments: in repeated games communication moves prices towards collusion

ATP (1994)

- Joint venture of all US airlines to collect and store data prices quoted on computer reservation systems
- Price pre-announcements with electronic databases
- Communication about future plans with no commitment value for customers is dangerous
 - FTD (price posting with no commitment value for customers) discontinued by consent decree (up to 2004)
 - and “footnote designators” simplified so that they can not be used to signal coordinated pricing in linked routes

Case ATP (1994)

- Sets no legal precedent because it never went to trial
- Provides little guidance in gray area of FP:
 - Remedy addresses only institutional aspects of airline industry
- Clarifies DOJ's willingness to pursue coordinated pricing with rapid communication
- DOJ revision at expiration in 2004:
 - Did the consent decree lowered prices in routes in which ATP communication was most beneficial to raise prices (i.e., non-stop vs. change-of plane flights)?
 - Borenstein: no

Wood Pulp

- Commission (1985) charges wood pulp producers of violation of Article 81(1)
 - By colluding on (quarterly) price announcements and transaction prices
 - In exchange of price information
- European Court of Justice (1993)
 - Rejects claim that price announcements and parallel pricing are proof of collusion
 - Upholds collusion charges when evidence of meetings exists

Wood Pulp

- Price announcements
 - Private to downstream (paper) customers
 - Public to the trade press
 - Introduced by downstream pressure
 - Buyers considered them commitment to maximal prices (insurance and price protection)
(like price announcements in ATP without FTD)
- Private discussion of prices prior to announcements
(like price announcements in ATP with FTD)

Information exchange of cost/demand: dynamic effects

- Helps in dividing market/allocating cartel quotas (but may help also productive efficiency -sharing cost information)
 - E.g. with demand uncertainty communication may help avoiding undercutting by poorly informed firms and avoiding costly price wars.
- Reduces noise in market statistics (demand, output levels) and helps making inferences and detecting deviations
- Creates public record on which to base collusive scheme
- More disaggregation (by submarkets, product groups, ..) helps detecting deviations and tailoring punishments to single out deviators

Information exchange about current and past conduct

- Customers, orders, prices,
 - Typically hard/verifiable information
- Helps in
 - detecting deviations,
 - reducing uncertainty,
 - creating public record on which to base collusive scheme
- Producer price transparency:
 - Good for collusion because easier to detect price cuts
- Case: Danish competition authority forcing publication of discounts

Information exchange: UK Tractor (1992, 1994)

- UK tractor market: concentrated and in decline, with a trade association
- Detailed and frequent information exchange allowing identification of most tractor sales
- Sales take place by individual negotiation:
 - Sequence of auctions for contract purchases
 - Bidding ring needs to know whether an auction has taken place and who has won it
- Potential efficiency reasons:
 - warranty claims
 - monitoring performance of retailers/salesmen

UK Tractor (1992, 1994)

- Commission concludes (1992) that
 - “own company data and aggregate industry data are sufficient to operate in the agricultural tractor market” (individual data of other firms not needed)
 - Agreement in violation of Article 81(1) because
 - Market is concentrated
 - Allows each firm to monitor sales of rivals
 - Constitutes a barrier to entry in the market
- Court of First Instance upholds decision (1994)

Disaggregated information exchange in Fatty Acids (1986)

- 1970s: Excess capacity. Market leader Unilever
 - unilaterally reduces capacity,
 - proposes individual data exchange on sales with two other major producers (Henkel and Oleofina)
 - Customer switch between majors are “stolen sales”
 - New customers are “legitimate gains”
- Implied objective:
 - collusion among the majors and exclude small firms
- Strategy is successful:
 - market share of Unilever constant and of other two increases
- Commission fines firms for anti-competitive information exchange (Art. 81. (1))

Summary of collusive potential

Communication/info. exchange

- High:
 - Private communication of future plans (but public commitment to customers may have benefits)
 - Exchange of individual data on prices and quantities
- Medium:
 - Exchange of individual data on demand and costs
- Low:
 - Exchange of aggregate data
- In general:
 - Producer transparency tends to be good for collusion
 - Consumer transparency has ambiguous effects

Open issues

- Impact of consumer price transparency
- Impact of information technology
- Market design

Price transparency: static effects

- Price transparency lowers search costs for consumers
- Competitive static (unilateral) effect:
 - Increases effective demand elasticity of firm because customer reacts to price cut
 - Classic study: Advertising the price of eyeglasses is competitive
- However: search costs are the product of impact of technology and firm's response

Internet and transparency

- Internet as search-facilitating technology
 - Ex. search engine facilitating price comparisons
 - Differentiation attempts facilitating quality information (Amazon) or “clicks and mortar” (Barnes&Noble)
- Effect on equilibrium search costs: tension between
 - (-) search engines/intermediaries effort
 - (+) retailers/firms obfuscation attempts

Consumer price transparency

- Static (unilateral) effects:
 - Lowering search costs is competitive (increases effective demand elasticity of firm because customer reacts to price cut)
- Dynamic (coordinated/collusion) effects:
 - More tempting to undercut (higher elasticity) but more severe punishment for deviants possible
 - Result is ambiguous:
 - Net effect in Hotelling model of product differentiation: collusion harder to sustain
 - With endogenous search decisions in a homogeneous product market increasing transparency may increase collusion (by increasing search in the punishment phase but not in the collusive phase when all firms charge the same price)

Auctions and transparency

- What is more competitive:
 - a transparent second price (ascending) auction or
 - a non-transparent (sealed bid) first price auction?
- Static (firms with idiosyncratic costs and elastic demand):
 - In 1st price auction firms are more aggressive
- Dynamic:
 - 2nd price auction is collusive-prone
 - Firms can signal intentions and threats (with multiple objects in particular; ex: 1999 spectrum auction in Germany)

E-commerce

- B2B(joint market place websites):
 - what information should competitors be able to exchange?
- Internet car sales:
 - collusive-prone second price auctions,
 - while dealer sales are like non-transparent first price auctions (not allowing dealers to infer secret price cuts of rivals) ?

Impact of information technology

- Allows tracing information exchange or record can be erased easily in chat rooms?
- Allows quick responses and contingent implementation of complex retaliation strategies

Implications for antitrust

- Tough line on exchange of individual price and quantity data
 - Debate: Consider a restriction of competition and infringement of Article 81(1) in itself?
 - Then exemption could be generated by Article 81(3) if efficiencies cannot be obtained otherwise and collusive potential low
- Exchange of demand and cost data
 - At the individual level is a gray area:
 - A safe haven policy could be instituted to allow the exchange in unconcentrated Cournot markets
 - At the aggregate level should not be forbidden
- Communication of future prices or outputs:
 - A tough line should be followed but
 - OK if public and with price commitment to customers?