Oligopoly Reading

Albaek et al., 1997

- In 1993, the Danish antitrust authority, the Competition Council, began gathering and publishing firm-specific transaction prices. Following initial publication, average prices of reported grades increased by 15-20 percent within one year, and (locally) prices converged significantly.
  - The permise of the Danish antitrust policy seems to have been that price transparency enables potential customers to better shop around, thereby putting pressure on oligopolists to lower prices.
- Albaek et al. argue that the publication of prices allowed firms to reduce the intensity of oligopoly price competition.
- Albaek et al. reject the competing hypothesis that the increase in prices is explained by a business upturn.
  - There was no particularly strong local business upturn.
- Albaek et al. reject the competing hypothesis that the increase in prices is explained by an exogenous cut in capacity.
  - It seems unlikely that there should have been capacity constraints in production during 1994 since
    - production in 1994 was lower than in 1991, and significantly (>30%) lower than in 1987 when production peaked.
    - there was no decrease in productive capacity since 1987, and distribution capacity is easily expanded by importing or converting lorries, hence non-binding
    - despite the nationwide recovery from a recession in construction in 1994.
- Albaek et al. reject the competing hypothesis that the increase in prices is explained by an increase in input prices.
  - From 1993 to 1994, cement prices fell, and wages and energy prices stagnated.

Bernheim and Whinston, 1990

- [Skipped]

Green and Porter, 1984

- Green and Porter argue that the infinite repetition Bertrand model (among others) is implausible because it yields equilibria under which deterrent mechanisms (price wars) are never observed. The model yields this result because it assumes certainty.
- Green and Porter argue that collusive conduct may result in a pattern of industry performance marked by recurrent episodes in which price and profit levels sharply decrease.
  - Such episodes therefore do not necessarily indicate that firms are engaging in a sequence of unsuccessful, abortive attempts to form a cartel, hence that collusion is fragile among incumbents.
  - Nor do such episodes necessarily constitute predatory pricing in response to a threatened entry.
- If market demand has a stochastic component, an unexpectedly low price may signal either deviations from the collusive agreement or a negative demand shock.
  - Participating firms can deter collusion by threatening to produce Cournot quantities for a period of fixed duration when they observe market price below some trigger price.
  - A firm which considers a secret expansion of output above the collusive level must trade off immediate profit gains with the increased probability that the market price will fall below the trigger price, thereby increasing the likelihood of lower profits when the industry reverts to Cournot levels.
  - In equilibrium, the marginal gains from cheating in cooperative periods must be exactly offset by the marginal losses implicit in th eincreased probability of an industry reversion to Cournot behaviour.
  - Thus price wars can be the occasional equilibrium outcome of a dynamic non-cooperative market game.

Porter, 1983

- The Joint Executive Committee, a cartel which controlled eastbound freight shipments from Chicago tot he Atlantic seaboard in the 1880s, consisting of railroads, faced unobservable demand fluctuations, cut prices for a period in response to suspected deviation from the collusive agreement.
  - Porter argues that the assumption that the firms produced a homogenous good seems to have been approximately satisfied.
    - Products transported were not easily perishable, hence transportation time is not a significant differentiating

        factor.
    - While different railroads shipped grain to different port cities, most of the wheat handled by the cartel was subsequently exported, and the rates charged by different firms adjust to compensate for difference sin ocean shipping rates.
  - While railroads competed on price rather than quantity, and entry occurred in the period from 1880 to 1886, Porter argues that the econometric model employed can account for these factors.
- Porter employs econometric methods to reject the competing hypothesis that price and quantity movements in this period were solely attributable to exogenous shifts in the demand and cost functions.

Rotemberg and Saloner, 1986

- Rotemberg and Saloner argue on theoretical grounds that implicitly colluding oligopolies are likely to behave more competitively in periods of high demand.
  - This is because, when demand is relatively high, the benefit to a single firm from undercutting the price that maximises joint profits is higher. And, on the other hand, the punishment from deviating is less affected by the state of demand if punishments are meted out in the future, and demand tends to return to its normal level.
    - [This result would not follow, for example, if demand followed a random walk, such that potential future punishment scales in direct proportion to potential immediate payoff]
  - The colluding parties can settle for the highest level of profits under high demand such that collusion is sustainable.
  - If firms are capacity constrained in booms, they are essentially unable to deviate, so that the oligopoly does not have to cut prices in booms. Rotemberg and Saloner find that when marginal costs increase with output, the above result is weaker.
- Rotemberg and Saloner offer empirical evidence for their claim.
  - Empirically, prices rise only modestly in booms and falll only modestly during recessions. This is consistent with price wars during booms and collusive pricing during recessions.
  - Rotemberg and Saloner, and Scherer find that price-cost margins are countercyclical in more concentrated industries.
    - Domowitz et al., 1986a find more pro-cyclical movements of price-cost margins in concentrated industries.
      - This result is not conclusive because there is a large fixed component to labour costs, which are included in the calculation of price-cost margins. Therefore, when output rises, the ratio of labour costs to revenues fall, and price-cost margins rise. If the fixed labour cost tends to be higher in concentrated industries, one expects to find their price-cost margins to be relatively pro-cyclical.
  - Rotemberg and Saloner find that cement prices are strongly countercyclical (negative correlation with GNP growth rate) while cement output is pro-cyclical.
    - Further, the price of cement relative to the index of construction prices rose in the recession year 1954, while it fell in the boom year 1955, similarly during the recession year 1958 and recovery year 1959.
      - These results are not conclusive. It is possible that increases in GNP reduce demand for cement relative to that for other goods.
  - In the Joint Executive Committee railroad cartel studied by Porter, 1983, the three years in which the most severe price wars occurred were 1881, 1884, and 1885 were also the years in which rail shipments were the largest, both in absolute terms, and relative to (competing) lake shipments. The years in which the cartel was unable to collude effectively were also the years in which demand seems to have been high.
    - Lakes remained closed for the longest in 1881, 1883, 1884, and 1885, and total grain production was particularly low in 1883.
- Rotemberg and Saloner examine the macroeconomic implications of their theoretical findings.

Salop, 1986 (Stiglitz and Mathewson, 1986, pp. 265-290)

- "The likelihood of successful co-ordination may be increased by the adoption of industry practices that increase oligopolists' incentives to co-operate and reduce their incentives to compete, despite their divergent interests. Contractual provisions can add credibility to such tacit agreements, because they will be enforced by courts. Anti-trust commentators refer to such practices as 'facilitating devices'. [...] Economic theorists can model these practices as profit penalties and pricing constraints that have the effect of altering the oligopoly equilibrium point."
- "There are two distinct effects of facilitating practices, namely information exchange and incentive management."
- "Information exchange facilitates both explicit and tacit coordination by eliminating uncertainty about rivals' actions. Classic examples of information exchanges are inter-seller verification of price quotations and advance notice of price changes. In each case, the exchange of information shortens or eliminates detection lags".

- "By restructuring pay-offs, the incentives for a firm to offer price discounts or to raise prices may be directly affected."
- "Embedding an incentive management device into a sales contract has a number of advantages. First, the use of a contract (with a purchaser or a third party) allows the oligopolist to make a binding commitment to transform his pay-off matrix. If necessary, a public court will enforce the contract. Thus, the credibility of the promised behaviour is increased. Moreover, the ability to collect damages gives the buyer an incentive to ensure performance of the contract and to bear the costs of enforcing it. If the buyer is better situated than rivals or third parties to detect price discounts, this can increase the efficiency of enforcement."
- Retroactive Most-Favoured-Nation Clauses
  - "These clauses may prevent price discrimination when the seller offers a discounted price to another buyer, either in the future (a 'retroactive' MFN) or in the present (a 'contemporaneous' MFN)."
  - "The MFN requires the seller to pay a monetary penalty if he reduces his price."
- Contemporaneous Most-Favoured-Nation Clauses
  - "If [seller] should, during the term of this contract, offer or sell goods of equal quality and quantity to any other buyer at a price lower than that provided for herein, [buyer] shall receive the benefit of such lower price on all shipments made hereunder for which such lower price is effective."
  - "Whereas the retroactive MFN penalises all price reductions made at some date, this contemporaneous MFN penalises and deters only selective discounts, that is, price cuts that are restricted to a limited number of customers. General price cuts are not penalised or deterred."
  - Salop models selective discounts as a third option, "intermediate" between choosing monopoly price and price equal to marginal cost. The lag in detecting a selective discount is generally greater than the lag in detecting a general discount. Given this second deviation option, the fully collusive equilibrium may be unstable, such that only the partially collusive equilibrium is stable.
  - Contemporaneous MFN eliminates the possibility of selective discounts.
- Price Posting, Relative Value Scales, Product Standards
  - "One way a firm might effect a binding commitment without a contract is rapidly to make all of its transactions prices public. Then, those buyers who discover they have paid more than some other buyers may have a powerful tool for negotiating a matching discount."
    - The mechanics of price posting can be analysed analogously to the mechanics of a contemporaneous MFN.
  - "A relative value scale is a pricing system in which there is a fixed relationship among the prices of a number of products, which thereby restrict price movements to proportional changes in all prices. For example, a car repair shop might set an hourly rate and apply a standard job completion time table from a private or trade association publication"
  - "Product standardisation can also be analogised to an MFN. By setting the product attributes that define the standard, product standardisation eliminates some non-price competition: no seller can offer more or less of the standardised product attributes in an individual product. As a result, all competition must be in the price dimension."
- No-Release Meeting-Competition Clauses
  - "The meet or release clause serves mainly as an information exchangedevice. If the buyer discovers a lower price elsewhere, he cannot escape from his obligation to purchase from his original supplier without informing that supplier of the lower price. By requiring this flow of information, the clause eliminates any detection lag. Thus, the seller is protected against the possibility of losing sales to a rival offering an undetected discount to a current customer."
  - "If both rivals provide no-release MCCs the off-diagonal price pairs (pu PH) and (pH, pL} are made unattainable. Given the remaining choice between the two diagonal price pairs (pH, pH} and (pu PL}, neither oligopolist wishes to deviate from the joint profit outcome."
  - "An MCC also facilitates the successful achievement of the cooperative outcome. For example, a seller who provides a no-release MCC to current customers can raise price to PH without losing any sales to a lower priced rival. Buyers are automatically given the rival's lower price until all firms raise their prices. This eliminates the transitional losses that might otherwise deter price rises. It also eliminates the rival's transitional gains and with it the incentive to delay a matching price increase."
  - MCCs have the effect of promoting information exchange and imposing pricing constraints. Under MCCs, retaliation is immediate and automatic. An MCC might be modelled as eliminating the possibility of one firm capturing an entire market by undercutting rivals' prices since rivals automatically and immediately match the price decrease.
    - Why not suppose that MCCs shorten the detection lag? Price-cutting firm captures the entire market, even only momentarily, only if consumers are not aware that the price cut is automatically matched. Assuming that consumers are aware of the MCCs, this is not the case.