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THE EFFECTS OF ADVANCE NOTICE AND BEST-PRICE POLICIES: THEORY, WITH APPLICATIONS TO ETHYL

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contracts to sell more than its Cournot output when the prevailing contract price $\overline{p}$ is equal to p^* and $\overline{Q} = Q^*$. It follows that one of the $\overline{n}$ firms not on the fringe, say firm i, has an output that is less than its Cournot output q_i^*. Let this firm's output be denoted by $\overline{q}_i$, so $\overline{q}_i < q_i^*$. This firm has an incentive to offer a unilateral discount at the Cournot price p^* because its marginal revenue, which would be equal to marginal cost at the Cournot output q_i^*, is now greater than marginal cost at the lower contracted output output $\overline{q}_i$, so that:

$$0 = f'(Q^*)q_i^* + f(Q^*) - c_i'(q_i^*) < f'(Q^*)\overline{q}_i + f(Q^*) - c_i'(\overline{q}_i). \quad \text{(A1)}$$

If the marginal effect of an increase in q_i (following a discount) on price were $f'(Q^*)$, then (A1) would imply directly that the firm has an incentive to discount from p^*. When there are fringe firms, however, the reduction in price needed for an extra unit of sales q_i is less than $f'(Q^*)$ because fringe firms will release some marginal sales in response to a price cut, and this observation reinforces the conclusion that firm i can profit from a unilateral discount when $\overline{p} = p^*$.

FOOTNOTES

[1] Donald Clark (1983) has written a recent survey of the economic and legal aspects of facilitating-practices cases.

[2] United States v. General Electric Co., "Plaintiff's Memorandum in Support of a Proposed Modification of the Final Judgment Entered on October 1, 1962, Against Each Defendant", December 1976, p. 8.

[3] The most-favored-customer clauses in Ethyl were not retroactive and were not used by all respondents.

[4] The FTC's economic expert witness, George Hay, outlined an economic theory applicable to the case in Hay (1979). Pautler (1981) summarizes the economic evidence developed in the case.

[5] In addition, he provides an interesting discussion of the entry-deterrence effects of these clauses. Salop also discusses the possible effects of a number of other practices that may facilitate tacit collusion.

[6] For a discussion of the empirical importance of the difference between list and transactions prices, see Stigler and Kindahl (1970).

[7] These experiments were funded by the FTC for potential use in the FTC's case against *Ethyl*. The experiments were not used in the litigation.

[8] Of course, a Cournot equilibrium may not exist. Novshek (1984) contains an excellent discussion of existence issues. Novshek's Theorem 3 implies that a Cournot equilibrium will exist for the model presented in this section if $f''(Q)Q + f'(Q) < 0$. Note that this is a stronger condition than the concavity condition in (1).

[9] Notice that if list price sales contracts have best price provisions and that discounts can only be nonselective, buyers are assured that they are obtaining the lowest price available in the market at any time. Therefore, buyers have no incentive not to sign list price sales contract--if a better price becomes available after list price contracts are signed, buyers will be able to obtain it.

10 Let $\bar{c}$ denote the constant level of average cost, and let λ denote the proportion of the other firm's buyers that receive the discounting firm's offer: $\lambda \equiv q_d / \bar{q}$. Also, let $x \equiv D(p_d) - D(\bar{p})$. It follows from the discussion in the text that $\gamma_m(p_d) = x/2$ and $\gamma_d(p_d) = (1 + \lambda)x/2$. Using these relationships, one can express the no-matching condition in (14): $(\bar{p} - \bar{c})\bar{q}(1 - \lambda) = (p_d - \bar{c})\ (\bar{q} + x/2)$. Similarly, the discounting firm's profit in (13) can be expressed as $(p_d - \bar{c})(\bar{q} + x/2)(1 + \lambda)$. Then the expression for the no-matching condition can be used to write the discountinf girm's profit: $(\bar{p} - \bar{c})\bar{q}(1 - \lambda)(1 + \lambda)$. Recall that $q_d < \bar{q}$ if the discount is selective, so $\lambda < 1$, and consequently, the discounting firm's profit is less than $(\bar{p} - \bar{c})\bar{q}$, which is the profit that is obtained without discounting. For any unmatched discount p_d, the most profitable level of q_d is the highest possible level, i.e., the level that satisfies the no-matching condition. But such a discount will not be profitable in this example. Therefore, with $\bar{q}_1 = \bar{q}_2$, any price below the Cournot level is impervious to selective discounting. Given the cost symmetry, the Cournot outputs for the two firms will be equal, and it follows from proposition 2 that non-selective discounting also is unprofitable at prices below the Cournot level).

11 Let $f(p) = 10 - p$, $c_1(q_1) = 0$ up to a capacity of 6, and $c_2(q_2) = 3$ up to a capacity of 5, and suppose that sales are equal at any common price above 3. For firm 1, the best common price above 3 is the price 5 that maximizes $p(10-p)/2$, which yields an output of 2.5 and a profit of 12.5. But if this firm's list price is slightly below 3, it will sell its capacity output of 6 because firm 2 will not match a list price this low. This yields a profit of approximately 18 for firm 1, so its preferred list price is slightly below 3. Firm 2, left with the residual demand, will maximize its profit with a price of 3.5. This arrangement, although not a Nash equilibrium in a one-period duopoly game with prices as strategies, would be stable in the sense that if firm 1 increased it price to 3.4 at time $T - k - \varepsilon$, firm 2 could respond with a lower price at a later time, say $T - k - \varepsilon/2$. One interesting feature of this example is that the price charged by firm 1 is slightly below the competitive price.

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