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Raising Rivals' Costs

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Conduct that unreasonably excludes competitors from the marketplace is a concern of antitrust law. Predatory pricing doctrine focuses on conduct that lowers revenues. Alternatively, a firm can induce its rivals to exit the industry by raising their costs. Some non-price predatory conduct can best be understood as action that raises competitors' costs.

To a predator, raising rivals' costs has obvious advantages over predatory pricing. It is better to compete against high cost firms than low cost ones. Thus, raising rivals' costs can be profitable even if the rival does not exit from the market. Nor is it necessary to sacrifice profits in the short-run for "speculative and indeterminate" profits in the long-run. A higher cost rival quickly reduces output, allowing the predator to immediately raise price or marketshare. Third, unlike classical predatory pricing, cost-increasing strategies do

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not require a "deeper pocket" or superior access to financial resources. In contrast to pricing conduct, where the large predator loses money in the short-run faster than its smaller "victim," it may be relatively inexpensive for a dominant firm to raise rivals' costs substantially. For example, a mandatory product standard may exclude rivals while being virtually costless to the predator.

These elements combine to make cost-increasing strategies more credible than predatory pricing. Because these strategies do not require a sacrifice of profits in the short-run, but allow profits to be increased immediately, the would-be predator has every incentive to carry out its threats. Moreover, unlike predatory pricing, cost-increasing strategies can often be made irreversible and, thus, more credible.

Legal rules governing cost-increasing conduct should differ from predatory pricing standards. Price-cost comparisons alone are insufficient because such comparisons cannot distinguish price decreases from cost increases. Moreover, in some cases concerning conduct that raises rivals' costs, courts do not need to strike the difficult balance between short-run welfare gains and long-run losses. There is often no tradeoff. Cost increases generally raise prices, not lower them.

A variety of exclusionary practices can be characterized as conduct that raises rivals' costs. In the famous Klor's group boycott case, for example, the alleged predator Broadway-Hale may have induced a significant number of suppliers to refuse to provide needed inputs to Klors. If these firms were the most

efficient suppliers, a boycott could have raised Klor's costs and thus placed it at a competitive disadvantage. Had Klor's been a significant competitor in the market, retail prices could have been increased. Inducing suppliers to discriminate against rivals is a less extreme variant of the same conduct. Similarly, according to Oliver Williamson's analysis of the Pennington case, an industry-wide wage contract raised the costs of the labor-intensive competitive fringe more than it raised the costs of the more capital-intensive dominant firms.

If there are scale economies or other entry barriers in retailing, exclusive dealing arrangements can raise small rivals' costs of distribution. As emphasized in the rent-seeking literature, product standards and other government regulations can raise rivals' relative compliance costs. Advertising expenditures and R & D races can also be used to raise rivals' costs. For example, suppose that increased advertising expenditures initiated by the most efficient advertiser must be matched in effective intensity by less efficient rivals. An advertising strategy might be profitable even absent the demand increasing effect of the advertising. Disadvantaging competitors can provide a benefit that exceeds its costs, if the strategy allows the dominant firm to increase price or marketshare.

Though currently out of fashion with antitrust enforcers, vertical price squeezes can be viewed as conduct to raise rivals' costs. Under appropriate conditions, a dominant firm finds backward integration to be a cost-effective way to raise downstream prices. If the upstream merger partner has some

market power, input price increases to downstream rivals (perhaps to a level above the monopoly price) will raise their costs, allowing the dominant firm to increase price or output. Upstream profits are sacrificed but downstream profits rise disproportionately.

The rest of this brief paper provides brief diagrammatic and formal analyses of these strategies. Our results are discussed intuitively; the technical analysis is taken up elsewhere. Three conditions are discussed: (1) Profitability to the dominant firm; (2) Injury to rivals; and (3) Consumer welfare losses. These conditions are then related to analogous concepts in the antitrust law of exclusionary practices.

Consider an industry consisting of a dominant firm and a competive fringe. In such an industry, a lower cost dominant firm acts as price leader. Competitive fringe firms follow by collectively setting some output y on the fringe supply curve S. Because each fringe firm is small, it produces until price equals marginal cost. Indeed, for analytic simplicity, the supply curve is sometimes treated as if arising from a representative firm's marginal cost curve. At the equilibrium for such an industry, the dominant firm produces at the profit-maximizing point x* on its residual demand curve R, as illustrated in Figure 1 below. The industry demand (D) and the fringe supply (marginal cost) curves are shown in the left panel. The dominant firm's residual demand (R) and average cost (AC_D) curves are pictured in the right panel. Its profits are equal to $(p-AC_D)x^*$.

Insert Figure 1

Suppose the dominant firm can also select a second strategy variable to which the fringe firms must react. A general way to view this strategy is to treat the firm as selecting a "technology" for producing output or revenue. Technologies differ in cost; each fringe firm reacts by choosing a technology itself. Particular strategy variables might include product quality or advertising expenditures. Another potential instrument is the demand for necessary inputs or, alternatively, the price offered for those inputs by the dominant firm. Labor, scarce natural resources and patentable innovations are three inputs that have concerned antitrust commentators. (Williamson, Maloney et al, Gilbert and Ordover-Willig.) Non-price vertical restraints like exclusive dealing and territorial restraints can also be captured in this way, because they can affect the costs of distribution. The rent-seeking literature treats cases where firms enter the political arena in order to inflict costly regulations on its rivals, and possibility even itself. (Maloney-McCormick)

The dominant firm's strategy may affect its own costs and market demand as well as the costs of its fringe competitors. As illustrated in Figure 2, a sufficient condition for a strategy to be profitable is for it to shift up the dominant firm's residual demand curve by more than it shifts up its average cost curve at the original output x^* (see equation (3) below). In this way,

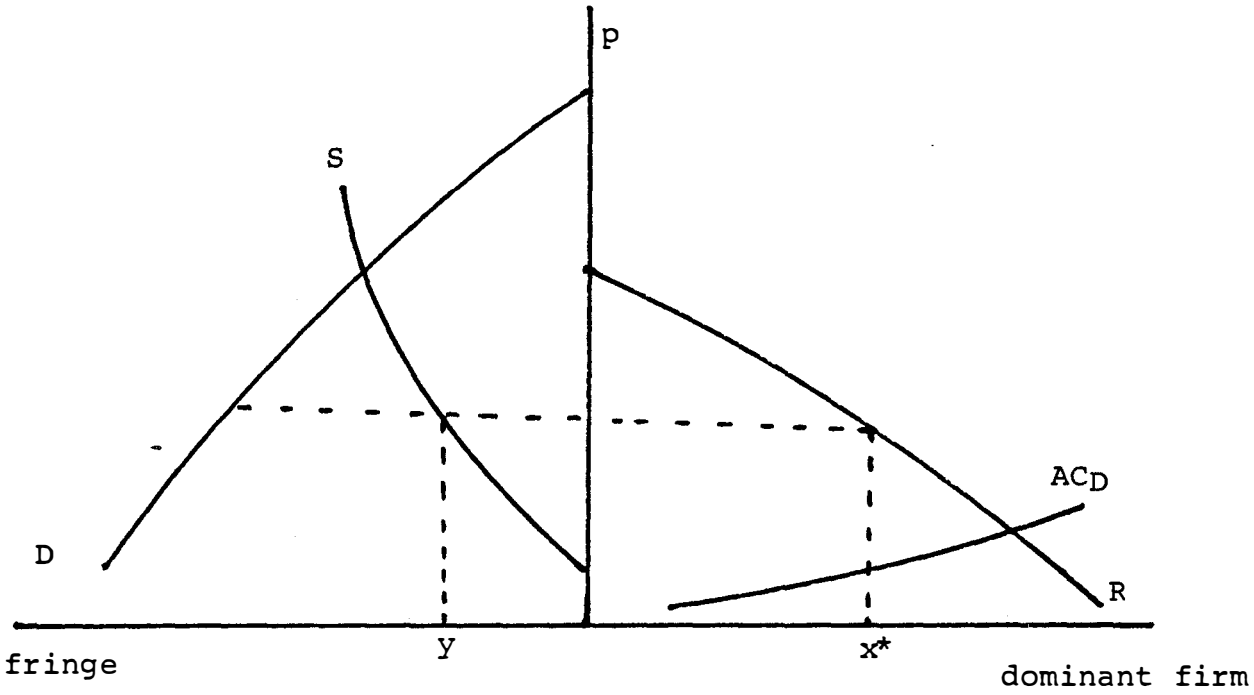

FIGURE 1

even if the dominant firm were to keep its output constant, the increased price-cost margin would raise its profits. Of course, the predator can generally increase its profits still further by adjusting its output.

Insert Figure 2

Even if market demand is unaffected by the strategy, increases in marginal costs can reduce fringe firms' outputs and/or raise price, as illustrated in Figure 3. Sufficient increases in average costs can cause some fringe firms to exit the industry and others to forego entry. Thus, the concept of strategically erected entry barriers can be captured in this framework.

Insert Figure 3

The shift in the residual demand curve depends on the elasticity of demand as well as the elasticity and shift of the fringe supply curve. The less elastic is consumer demand the greater will be the increase in residual demand. This is because as demand elasticity falls, a given reduction in fringe supply causes a larger price rise (see equation (2) below). At the other extreme, if demand is perfectly elastic, residual demand does not increase at all.

Suppose the fringe supply curve is treated as the marginal cost curve of a representative fringe firm. Under this interpretation, the dominant firm's residual demand curve shifts

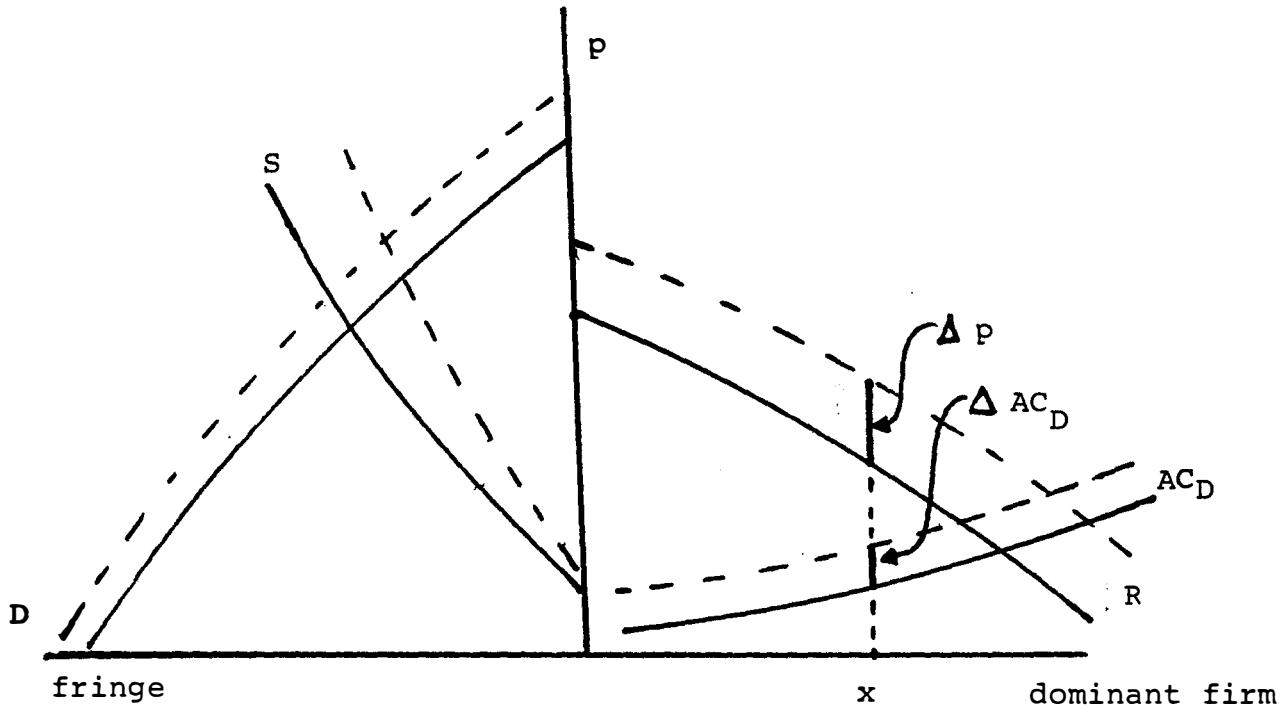

FIGURE 2

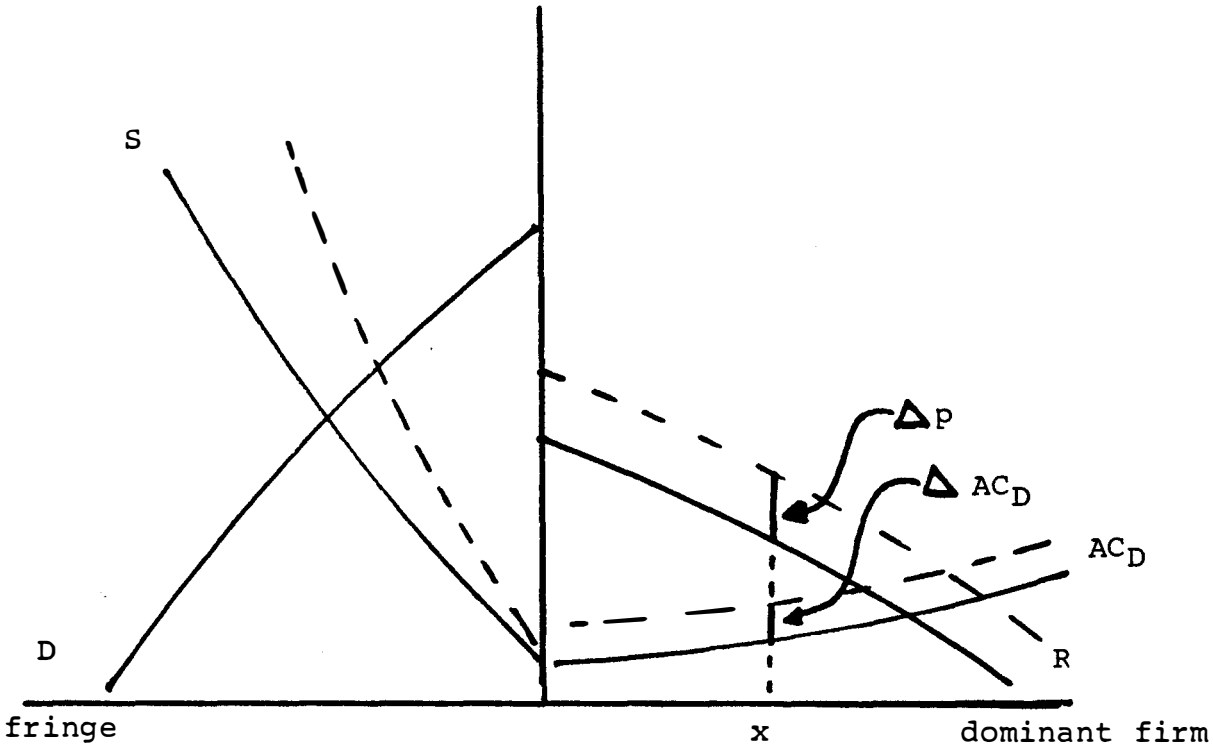

FIGURE 3

up according to the increase in the fringe's marginal costs, weighted by the elasticity of the market demand curve. As illustrated in Figure 3, evaluating the profitability of the strategy requires a comparison of this price rise to the increase in the average cost of the dominant firm. Thus, in effect one must compare the effect on the <u>average cost</u> of the dominant firm relative to the <u>marginal cost</u> of the fringe, weighted by the demand elasticity.

Formally, when demand is unaffected by the strategy, the dominant firm's optimization problem is given as follows:

$$\begin{aligned} &\max\ px - C(x,\alpha) \\ (1)\qquad &\text{s.t. } x = D(p) - S(p,\alpha) \\ &\alpha \geq 0 \end{aligned}$$

where positive adoption of a strategy is formulated as choosing $\alpha > 0$, the dominant firm's costs $C(x,\alpha)$ are assumed to depend on its output x and the strategy α, and its residual demand consists of industry demand $D(p)$ less fringe supply $S(p,\alpha)$.

In solving this problem, a <u>sufficient</u> condition for a strategy $\alpha > 0$ to be chosen is given as follows:

$$(2)\qquad \frac{1}{1 + \frac{\sigma}{1-\sigma} \cdot \frac{\varepsilon}{\varepsilon_S}} > \frac{\Delta AC_D}{\Delta MC_F}$$

where ε and ε_S represent the elasticity of industry demand and fringe supply respectively, σ is the marketshare of the dominant firm and ΔAC_D and ΔMC_F respectively represent the strategy-

induced changes in the dominant firm's average cost (C_α/x) and the representative fringe firm's marginal cost (which equals $-S_\alpha/S_p$). Differentiating the constraint in equation (1), substituting and rewriting in an intuitively clearer form, we have

$$\left.\frac{\partial p}{\partial \alpha}\right|_x > \Delta AC_D \tag{3}$$

We have so far only discussed the effect of the strategy on the profitability of the dominant firm. The profitability of the fringe and consumer welfare will also be affected.

In principle, fringe output and profits may rise or fall. There are two separable effects on the fringe. First, its costs rise, lowering fringe profits. Second, because the dominant firm chooses a new output price, the profits of the fringe are further affected. These two effects generally work in opposite directions, of course, because increases in marginal cost cause price increases. For example, consider the limiting case of perfectly inelastic demand. If the fringe output is held constant, its profits fall if the strategy raises its average cost by more than the increase in fringe marginal cost. This is because, holding outputs constant, price rises by the increase in fringe marginal cost. A reduction in the fringe's output reinforces this effect whereas production increases offset the effect of the reduced profit margin.

If competitors' profits are not reduced, the strategy will

obviously fail to achieve an exclusionary goal. However, if the industry is protected by entry barriers, strategies that increase the costs of fringe firms and dominant firm equally can still raise industry profits. In particular, if marginal costs rise by more than average costs and if demand is sufficiently inelastic, the cost increases will have a supra-passing-on effect, raising price by more than the increase in average cost.

Consumer surplus is also affected by these cost-increasing strategies. Again, cost increases tend to cause price increases, which are welfare-reducing. However, there may be cases in which demand and supply elasticities are increased sufficiently to cause price to fall enough to offset the welfare losses from the higher costs. In addition, in that demand (i.e. marginal consumer surplus) is increased, consumer surplus may rise even at a higher price. Similar results obtain for measures of aggregate economic welfare (consumer surplus plus profits). For example, a strategy that does not raise demand, yet raises cost and price, surely lowers aggregate welfare. If demand rises, however, price, cost and demand increases must be balanced.

For antitrust analysis, exclusionary strategies may be characterized by three conditions--(1) profitability to the dominant firm, (2) competitor injury, (3) consumer welfare reduction--and their sum (4) the allocational efficiency (or aggregate welfare) effect. One formulation of the attempt to monopolize offense--unreasonable conduct undertaken with specific intent to monopolize that has a dangerous probability of success--can be interpreted in terms of these conditions. Long

run profitability to the dominant firm is an obvious element of intent to monopolize. Competitor injury is necessary for the conduct to have a dangerous probability of success. A strategy that reduces consumer welfare or allocational efficiency might well satisfy the unreasonableness prong of the offense.

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FOOTNOTES

1 In the limiting case of an upstream monopolist and downstream fixed proportions (and constant returns to scale) technology, it is well-known that a vertical price squeeze is unnecessary. However, few industries satisfy this structure. In other cases, vertical price squeezes can be profitable under appropriate conditions.