
Appendixes

The Frequency of Occurrence of Predatory Pricing

Although economists do not completely agree as to exactly how frequently predatory pricing occurs, for the most part they agree that it is not very common. More important for this study, nearly all economists would agree that it is substantially less common than price discrimination and selling below cost and that, correspondingly, most price discrimination and selling below cost do not constitute predatory pricing. Chapter 2 mentions many of the nonpredatory reasons for price discrimination and selling below cost. This appendix discusses some of the conditions that must hold for predatory pricing to be possible and profitable.¹

be predator firm and its prey better off financially than they would be with a predatory pricing war. Therefore, in any country where the law does not prevent horizontal mergers that create monopolies, predatory pricing is unlikely because it is less profitable for both parties than a negotiated merger. In the United States, such horizontal mergers run contrary to the antitrust laws, but other factors make predatory pricing uncommon in countries that outlaw such mergers.

For predatory pricing to succeed, the predator firm must be larger than the firms it competes with and start off with most of the market. Otherwise, the predator would probably go broke before it could ever finish driving other firms from the market. Even if the predator did not go broke, it would take so long to drive the others out of the market that the predator would be unlikely to earn large enough profits afterward to recoup the initial losses.

The long length of time needed to drive out competitors makes recouping the losses difficult for two reasons. First, it increases the size of the losses. Second, it is not sufficient that the dollar amount of the monopoly's profits be at least equal to the initial losses; the present discounted value of the monopoly profits must also be at least equal to the present discounted value of the initial losses. The further into the future the monopoly's profits are to accrue, the smaller is their present discounted value. Hence, the present discounted value of the profits is unlikely to be larger than the present discounted value of the initial losses from the price war.

For readers unfamiliar with the concept of present discounted value, the problem can be explained as follows. As an alternative to engaging in predatory pricing, the firm could take the money it would lose in the initial price war and invest it in bonds. A year later, the firm would have an amount equal to the investment (which is equal to the initial loss in the predatory pricing

The Predator Initially Loses Money

In any predatory pricing war, both the predator firm and the firms it drives (or attempts to drive) out of the market initially lose money. If the predation is successful, the predator can use its increased market power afterward to regain its losses and then some by raising its price above the previously prevailing level. The same increase in market power and price could be accomplished through merger, however, without the initial losses that a price war entails.² A purchase price could always be negotiated that would make both the would-

1. This appendix is based on discussions in Robert H. Bork, *The Antitrust Paradox: A Policy at War with Itself* (New York: Basic Books, 1978), pp. 149-153; Louis Philips, *Predatory Pricing* (Luxembourg: Commission of the European Communities, 1987), pp. 1-37; and Janusz Ordover and Garth Saloner, "Predation, Monopolization, and Antitrust," in Richard Schmalensee and Robert D. Willig, eds., *Handbook of Industrial Organization*, vol. 1 (New York: Elsevier Science Publishing Company, 1989).

2. Although predatory pricing is unlikely in these cases, there are situations in which the dominant firm may find it profitable to lower prices for the purpose of "softening up" the firm it intends to purchase so that the purchase price will be lower.

ing scheme) plus interest. Thus, for a predatory pricing scheme in which the monopoly profits are one year down the road to make sense, the monopoly profits must be equal to at least the initial losses plus the interest that would be earned on bonds. Otherwise, investing the money in bonds would be better and more profitable than investing it in the initial losses of the predatory pricing scheme. The longer it takes before all other firms are driven out of the market and the monopoly profits start coming in, the more years of interest would have been earned on the bonds and so the higher the monopoly profits must be to make predatory pricing a rational choice over investing in bonds.

New Competitors Can Undercut Price Increases

Another requirement for the success of predatory pricing is the existence of barriers that make it difficult for new firms to enter the market after the predator has driven out all of its competitors. Otherwise, the predator could not raise its prices above the competitive level after the other firms had been driven out because new firms would enter the market and undercut the high prices. The barriers to entry must be substantial enough to enable the predator to earn sufficiently high profits to recoup the losses from the price war.

If Costs Are Known, Predation Can Be Thwarted

Even if these requirements are met, predatory pricing will not occur if the costs of relevant firms are known to everyone involved and each firm behaves in such a manner as to maximize its own profits. If the average cost of production of the predator firm is lower than that of the prey firm, predatory pricing will not occur. The predator firm can and will take over the market by charging a price high enough to make a profit but low enough that the "prey" firm will lose money. That is ordinary competition, not predatory pricing.

If the average cost of the predator firm is as high as or higher than that of the prey firm and if the prey firm and others know that to be the case, the prey firm will know that the cut in price by the predator must be a predatory pricing attempt and that higher prices will follow. Therefore, the prey will have just as much reason as the predator firm to continue the war to the end and receive the subsequent higher prices. If it does not have the resources to do so, it will borrow them. Thus, both firms will continue the war to the end, with the result that no monopoly is formed and no monopoly profits occur. Before the war started, however, the potential predator would realize that that would be the result, so it would not attempt predatory pricing in the first place.

A key element in this argument is that the prey firm is able to continue the war to the end, even if it needs to borrow the money to do so. That argument breaks down if the firm cannot borrow because the lenders are uncertain as to whether what is going on is a predatory pricing attempt or the "predator" firm actually having lower average costs. If it is the latter, the prey would ultimately lose the war and would be unable to repay the loan. Thus, if uncertainty exists, the lender might not be willing to lend money, in which case the winner of the price war would be determined by which firm had the "deepest pockets" relative to its losses in the war.

Many people believe that large firms have deep pockets that make them better able than small firms to survive a predatory pricing war. In fact, however, in most cases a would-be predator's resources are likely to be more strained than are the prey's resources.

For example, one may assume that a firm's resources are proportional to its size in terms of sales. Thus, if a predator firm starts out with 90 percent of the market and the prey firm has 10 percent, the predator firm will have approximately nine times the resources that the prey firm has to draw on in a price war. However, because a successful predator will grow larger (and its average cost of production be likely to increase) as its prey shrinks, the predator firm will most likely face losses that are more than nine times those of the prey firm during a predatory pricing war. As a result, it will most likely exhaust its resources before the smaller firm does.

The problem just described does not completely eliminate the possibility of predatory pricing. Cases may arise in which the prey firm is financially weak because of previous mismanagement or other reasons. In such cases, the ratio of the prey's resources to the predator's resources would be less than the ratio of the prey's normal sales to the predator's normal sales. Thus, it would be easier for the predator to succeed.

Furthermore, if the predator firm has sales in another market in addition to the one of the prey firm, and the prey firm cannot get access to this other market (say, because of trade barriers), the predator firm could lower its prices only in the market of the prey firm and not in the other one. That technique is called "local price cutting" and is an example of price discrimination (see Chapter 2). In such a case, the resources of the predator firm are likely to be roughly proportional to its total sales in the two markets together. At the same time, its losses in the predatory pricing war are likely to be proportional, or a little more than proportional, to its sales in the one market in which the pricing war takes place.

That strategy cannot work, however, unless barriers prevent the prey firm from entering the other market. If no such barriers exist, the prey firm can cease selling in the market of the price war and switch to the predator firm's other market, where prices are at their normal level. Thus, the predator firm would be forced to lower prices in both markets to succeed, thereby restoring its original disadvantage in terms of cost relative to resources.

Because U.S. antitrust laws prevent the predator firm from purchasing the prey firm, the predatory pricing battle must continue until the prey firm's physical capital is gone. The prey firm's going bankrupt is not sufficient. The airline industry discovered in the 1980s when several airlines went bankrupt that the airplanes, airport gates, landing slots, and sometimes the entire corporate organization below the upper management of the bankrupt airlines did not disappear but were instead purchased by new owners with better financing. As a result, the intense competition and low prices continued. Similarly, a predator firm may see the capital assets and organization of a prey firm that is driven bankrupt sold to a better-financed group in a distress sale,

with the result that the predatory pricing battle and the ensuing losses continue.

Dissipation of assets and dispersal of the organization are most difficult and least likely in industries such as the airline industry in which the major capital assets are specific to the industry and cannot be used in others. In some industries, such as retailing, the major capital assets (buildings, for example) are not specific to the industry and can be sold, making it easier for a predator firm to drive the prey firm and its capital out of the industry. Such industries often have low barriers to entry, however, since a firm wishing to enter the industry can easily buy existing capital from firms in other industries. With low entry barriers, predatory pricing is unlikely to be profitable, even if it is easily accomplished, and thus it is unlikely to occur.

Uncertainty Can Lead to Successful Predation

Since the late 1970s, a number of journal articles have been published that use game theory to explore further the implications for predatory pricing of various kinds of information asymmetries—that is, where each actor possesses different information.³ Those articles have demonstrated that predatory pricing can be a rational, profitable behavior in several situations. One is the situation discussed above in which the prey firm (or its sources of financing) lack knowledge about the predator firm's cost of production.

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3. See, for example, J.P. Benoit, "Financially Constrained Entry into a Game with Incomplete Information," *Rand Journal of Economics*, vol. 15 (1984), pp. 490-499 (this article demonstrates that having "deep pockets" can deter entry by providing a credible threat of post-entry predatory pricing); D. Fudenberg and J. Tirole, "A 'Signal-Jamming' Theory of Predation," *Rand Journal of Economics*, vol. 17 (1986), pp. 366-376; D. Kreps and R. Wilson, "Reputation and Imperfect Information," *Journal of Economic Theory*, vol. 27 (1982), pp. 253-279; P. Milgrom and J. Roberts, "Predation, Reputation, and Entry Deterrence," *Journal of Economic Theory*, vol. 27 (1982), pp. 280-312; D. Kreps and others, "Rational Cooperation in the Finitely Repeated Prisoners' Dilemma," *Journal of Economic Theory*, vol. 27 (1982), pp. 245-252; D. Easley, R.T. Masson, and R.J. Reynolds, "Preying for Time," *Journal of Industrial Organization*, vol. 33 (1985), pp. 445-460; and G. Saloner, "Predation, Merger, and Incomplete Information," *Rand Journal of Economics*, vol. 18 (1987), pp. 165-186.

Table A-1.
Percentage of Private Antitrust Cases Alleging Various Illegal Practices

Practice	Primary Allegations	Combined Primary and Secondary Allegations
Refusal to Deal	12.0	25.4
Horizontal Price Fixing	15.7	21.3
Tying or Exclusive Dealing	9.6	21.1
Price Discrimination	5.0	16.4
Predatory Pricing	3.1	10.4
Vertical Price Fixing	3.5	10.3
Restraint of Trade	4.3	10.0
Dealer Termination	4.4	8.9
Monopoly or Monopolization	3.7	8.8
Conspiracy	3.0	5.9
Vertical Price Discrimination	1.7	5.8
Merger or Joint Venture	2.6	5.8
Asset or Patent Accumulation	2.5	5.6
Inducing Government Action	0.5	0.8
Other	8.6	8.9
No Information	25.2	13.4

SOURCE: S.C. Salop and L.J. White, "Private Antitrust Litigation: An Introduction and Framework" (paper presented at the Georgetown Conference on Private Antitrust and Litigation, Airlie House, Virginia, November 8-9, 1985; revised draft, January 1986).

NOTE: Percentages add to more than 100 percent because a complaint may have more than one allegation.

Another is a situation in which the prey firm does not know the dominant firm's motives. In particular, predatory pricing by a dominant firm can sometimes be rational (profitable) in cases in which the prey firm believes that the dominant firm may be irrationally predatory--that is, the prey firm believes that the dominant firm will engage in predatory pricing even if doing so is unprofitable. In some models, the probability that the prey firm assigns to the possibility of the dominant firm's being irrationally predatory does not have to be large in order for predatory pricing to be a rational strategy for the dominant firm.

The theoretical developments in the late 1970s and 1980s have shifted the views of economists somewhat in the direction of believing that predatory pricing is less rare than was thought in the mid- to late 1970s. Most economists would still argue, however, that it is not very common, and it is clearly much less common than price discrimination and selling below cost.

Studies of Predatory Pricing Show Its Infrequency

The frequency of predatory pricing is difficult to measure empirically. There have been some empirical studies, however. One study by Roland Koller examined 23 historical cases in which firms had been found to have engaged in predatory pricing.⁴ He concluded that predatory pricing probably was attempted in only seven of the cases, that it succeeded somewhat in four of the cases, and that only three of the cases resulted in harmful effects on resource allocation.

4. Roland H. Koller III, "The Myth of Predatory Pricing: An Empirical Study," *Antitrust Law and Economics Review*, vol. 4 (1971), pp. 105-123.

S.C. Salop and L.J. White examined data on all of the private antitrust cases filed from 1973 through 1983 in the United States, of which there were 1,959.⁵ They found that plaintiffs in only 10.4 percent of the cases listed predatory pricing as either a primary or secondary allegation, which ranked predatory pricing as the fifth most commonly complained about practice out of 14 (see Table A-1). Plaintiffs in only 3.1 percent of the cases listed it as the primary allegation, which made it the ninth most commonly complained about practice out of the 14.

Salop and White also found that predatory-pricing allegations as a percentage of all antitrust allegations declined substantially from 1979 through 1983. Their decline probably reflects the spread of the Areeda-Turner rule in the courts, by which a large firm must set prices below the average variable cost before there is a presumption of predatory pricing. Salop and White further found that plaintiffs in predatory-pricing cases less frequently received favorable judgments than the average for all plaintiffs in antitrust cases.

Many discussions of predatory pricing point to various famous cases in which substantial evidence of predatory intent exists. It is not possible to draw reliable conclusions about the frequency of predatory pricing from a few individual cases. To a large degree, the various discussions tend to point to the same famous cases. One would think that if predatory pricing was common, there would be many individual cases to discuss.

5. S.C. Salop and L.J. White, "Private Antitrust Litigation: An Introduction and Framework" (paper presented at the Georgetown Conference on Private Antitrust and Litigation, Airlie House, Virginia, November 8-9, 1985; revised draft, January 1986).

An Overview of Current U.S. Antidumping and Countervailing-Duty Procedures

To understand some of the disputed procedures discussed in Chapter 4, one needs an understanding of the overall process of investigation and assessment of duties in antidumping and countervailing-duty (AD/CVD) cases. This appendix provides an overview of the process.¹

Antidumping Procedures

Antidumping duties are assessed retrospectively.² At any given time, firms importing goods under an antidumping order must pay a deposit equal to the dumping margin determined for previous imports of the good. Later, an administrative review will determine the actual amount by which the imports in question were dumped. If the deposit was larger than that amount, the excess is returned; if it was smaller, the importer must make up the difference. The Department of Commerce (DOC) determines dumping margins, and the International Trade Commission (ITC) makes determinations of injury. The overall procedure for investigating, settling, and reviewing antidumping cases and determinations involves a number of steps.

Initiation of Investigation

DOC may initiate investigations on its own (usually referred to as "self-initiated" investigations) or in response to a petition by the domestic industry.

Preliminary Determination of Injury by the ITC

Within 45 days of the petition or self-initiation date, the ITC must determine whether there is a reasonable indication of material injury to the domestic industry. If there is not, the investigation is closed.

Preliminary Determination of Dumping by DOC

Within 160 days of the petition or self-initiation date, DOC must determine whether there is a reasonable basis to believe or suspect that the goods in question are being dumped or are likely to be dumped. If so:

- o It must order the Customs Service to suspend liquidating the imports in question (that is, completing the final paperwork regarding duties owed) from the date of publication of that determination--in other words, the final determination of the total duty owed on the import is suspended;
- o It must order the posting of a cash deposit, bond, or other security equal to the estimated dumping margin for each subsequent import of the good in question; and

1. This appendix is abstracted in large part from House Committee on Ways and Means, *Overview and Compilation of U.S. Trade Statutes*, WMCP: 103-1 (1993), pp. 53-71.

2. Since the Antidumping Act of 1916 is almost never used, this subsection concentrates on the procedures relating to Subtitle B of Title VII of the Tariff Act of 1930, as amended.

- o The ITC must begin its final determination of injury.

If there is no reasonable basis to believe or suspect that the goods in question are being dumped or are likely to be dumped, then liquidation proceeds but the investigation also continues.

Final Determination of Dumping by DOC

Within 75 days of its preliminary determination of dumping, DOC must make a final determination of whether dumping has occurred. If a timely request for extension is made and granted, the limit is 135 days. If DOC determines that dumping has not occurred, then the investigation is ended, liquidation of imports is resumed (if it was suspended), and any cash deposit, bond, or other security that may have been posted as a result of the preliminary determination is refunded or released.

If dumping has in fact occurred, DOC suspends liquidation and orders posting of a cash deposit, bond, or other security equal to the dumping margin on future imports of the good if that action was not already taken after the preliminary determination.

Final Determination of Injury by the ITC

Within deadlines specified in law, the ITC must make a final determination of whether the dumped imports are materially injuring the U.S. industry.³ If they are not, then the case ends, liquidation of imports is resumed, and any cash deposit, bond, or other security posted on imports during the investigation is refunded or released.

If the imports are injuring the U.S. industry, DOC must issue an antidumping duty order within seven

days. The order must require the deposit of estimated antidumping duties on future imports, pending their liquidation. That deposit must be equal to the most recently estimated dumping margin. Finally, the order must direct the Customs Service to assess antidumping duties equal to the dumping margin.

Administrative Review and Final Assessment of Duties

Once a year, if requested, DOC must conduct a review to determine the actual dumping margin of the goods that entered during the year. If no review is requested, the actual dumping margin is assumed to be the same as the rate on which the estimated-duty deposit was based. Based on the actual dumping margin, the final antidumping duties for the imports are assessed and the imports are liquidated.

For imports that entered between the preliminary and final determinations, any excess amount of the cash deposit, bond, or security posted on those imports over and above the final estimated dumping margin is refunded. If the cash deposit, bond, or security is less than required to cover the final estimated dumping margin, the deficit is disregarded. For imports entering after the final determination, if the estimated duties deposited are larger than the final assessed duties, the excess is returned to the importer with interest. If they are smaller, the importer must make up the deficit with interest. For future imports, the deposit of estimated antidumping duties must equal the new dumping margin determined in the review.

Termination of Antidumping Orders

Antidumping orders can be terminated in three ways. The first is a cessation of the dumping as indicated by findings of no dumping in three consecutive administrative reviews. The second is lack of interest as indicated by failure to request an administrative review for five consecutive years. The third is changed circumstances, which means either that the domestic industry that petitioned for the relief no longer wants the order or that the ITC has determined that the dumping is no longer likely to lead to injury of the domestic industry. The ITC will grant a review to make such a determination only when the foreign exporter has shown good cause.

3. A final determination of injury must be made within 120 days of an affirmative DOC preliminary determination of dumping or 45 days of an affirmative DOC final determination of dumping, whichever is later. If the preliminary DOC determination of dumping was negative but the final one was positive, then the ITC has 75 days rather than 45 from the date of the final DOC determination to make its final determination of injury.

In general, a foreign exporter will find it difficult to get an antidumping order terminated without ceasing the dumping.

Termination and Suspension of Investigations

If the petitioning industry withdraws its petition, DOC or the ITC may terminate an investigation before it reaches the point of the final determination of dumping or injury. DOC may also stop an investigation on its own authority if the case was self-initiated. DOC may suspend an investigation, subject to certain restrictions in law, if an agreement--referred to as a "suspension agreement"--is reached with the exporters to cease exporting the goods in question or to revise their prices to eliminate the dumping or eliminate the injury.

Countervailing-Duty Law and Procedures

The procedure for investigating, settling, and reviewing CVD cases and orders is essentially identical to that for antidumping cases and orders. DOC makes the preliminary and final determination of subsidies, as it does for determinations of dumping. The only significant differences are different time constraints and that no ITC injury determinations occur for cases in which the imports are from nations that have not signed the Anti-dumping Code.



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