

POUNDING SQUARE PEGS INTO ROUND HOLES: ANOTHER LOOK AT THE NEOCLASSICAL THEORY OF PREDATORY PRICING

WILLIAM L. ANDERSON

Austrian economists have consistently criticized modern neoclassical economics for its lack of real-world analysis, depending instead upon Friedman's contention (1953) that the strength of economic theory is its ability to predict events, period. Writes Hülsmann (1999):

For more than forty years, economists have routinely rejected the postulate that economic theory should be realistic. Ever since Milton Friedman sketchily outlined a positive methodology for economics, most students of our science have come to endorse Friedman's view and have claimed that the only quality standard of economic reasoning was its predictive power. Good theories yield fairly correct predictions whereas bad theories yield wrong predictions. . . . Today, the utter failure of this program is patent. (p. 3)

The view that assumptions are not important in formulating economic theory has led to the intellectual disconnect in which economists carefully craft various scenarios using "rigorous" mathematical constructs, yet are reluctant to take their work seriously, since the results mean nothing unless they can be "proved" through statistical analysis. However, this problem does not keep many in the economics profession from engaging in what must be the ultimate absurdity: creating a theory that (a) cannot be ascertained from the assumptions used to create that theory, and (b) does not hold up under empirical analysis. Such is the story of the theory of predatory pricing.

The theory of predatory pricing can be likened to that strange gift from Aunt Maude or a unicorn. In the first case, one looks for an appropriate place

WILLIAM L. ANDERSON is an assistant professor of economics in the Department of Business Management, College of Business, at Frostburg State University.

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to put the eccentric aunt's present, as there appears to be no place in the house where it seems to fit. As for likening predatory pricing theory to a unicorn, Yandle (1989) in his book on environmental regulation writes that a unicorn is a beast that anyone would recognize upon seeing—but the problem is that no one knowingly has laid eyes upon it. As the analogy applies to environmental regulation, Yandle writes:

Federal air quality regulation was beginning to look more like a Unicorn. There were elaborate descriptions of details and behavior, but no one could really admit to having seen the real process in full operation. . . . Instead, those interested in environmental quality constantly pushed for more rules, as if rules alone were the goal, not improvements in the environment. (pp. 86-87)

Similar things can be said regarding predatory pricing theory. Supposedly, all of us know what it is and what is supposed to happen when a firm allegedly engages in such action. Furthermore, the Robinson-Patman Act of 1936 makes predatory pricing illegal on the federal level, and many states have their own predatory pricing laws. However, demonstrating that what one actually sees is “predatory pricing” is another matter. As Kaserman and Mayo (1995) point out:

From an antitrust perspective, predatory pricing is a particularly difficult problem with which to deal. If we are to prevent anticompetitive monopolization, it is a strategy that must not be permitted. The paradox, however, is that such pricing is virtually indistinguishable from the very sort of aggressive competitive pricing we wish to encourage. (p. 128)

Armentano (1999) writes:

Although the word “predation” sounds antisocial, there are important difficulties with any attempt to use antitrust policy to restrain such rivalrous behavior. In the first place, how are the regulators and the courts to distinguish truly predatory practices from the normal price reductions and exclusions that occur during any competitive market process? . . . Although there has been an extensive discussion (some would say too extensive) of some of these questions in the professional journals over the years, no clear answers have emerged. (pp. 64-65)

There is another problem with predatory pricing, however, that is just as pressing as the “unicorn” problem. Economists generally attempt to explain firm behavior by using standard neoclassical instruments. As this article demonstrates, however, the neoclassical theory of the firm, *as expressed by the use of the standard neo-Marshallian tools depicting imperfect competition*, does not grant users the intellectual apparatus by which to conclude that firms, given the assumptions of profit-maximizing behavior, would engage in an activity like predatory pricing. While one is free to theorize that firms might engage in such practices, one cannot come to that conclusion

using the analytical tools provided by Alfred Marshall and his followers, the tools that are dominant in economics textbooks today. As the title suggests, the theory of predatory pricing is a square peg in the neoclassical round hole.

The purpose here is not to criticize predatory pricing theory itself. Numerous writers, some of whom are cited in this piece, have already done so, and even some of the theory's supporters uneasily accede to its unicorn-like characteristics, as I point out later. The purpose of this paper is much more narrow in that it deals with the assumptions of predatory pricing and the neo-classical models used to demonstrate the actions of firms that operate in the state of "imperfect competition." If one uses these models to examine the patterns of firm behavior, one cannot also use these models to "prove" predatory pricing.

THE THEORY

The theory of predatory pricing, which falls into a subset of the category of price discrimination, is relatively simple. It is a practice that allegedly causes "primary-line injury" by attempting to put competitors out of business, according to Shughart (1990). Its essence is explained by Kaserman and Mayo (1995):

Predatory pricing is said to occur when a firm with some significant monopoly power reduces its price below the short-run profit maximizing (or loss minimizing) level in order to drive its competitors from the market so that, following their exit, price can be raised above the level that could otherwise be sustained. In essence, the strategy represents an investment in current losses that is expected to pay dividends in future monopoly profits. By charging prices that are sufficiently low to inflict losses on rival firms, the predator effectively purchases a market structure that is more conducive to monopoly pricing. It is, then, a strategy specifically designed to monopolize a market. (p. 128)

In other words, as Shughart explains, "A firm charges different prices to different customers in the attempt to destroy a rival seller" (p. 295). This differs from the standard neo-classical view of price discrimination in which a firm is able to segment its markets based upon the elasticity of demand of the consumers in each market. In that case, the firm sets output in each market where marginal cost equals marginal revenue, thus enabling it to maximize profits in a way that could not occur if the firm sold all its goods at one single price. In the case of predatory pricing, the offending firm allegedly sets price and output at levels where price is less than marginal cost.

While I have quoted skeptics, I also note that some economists have openly supported predatory pricing laws on theoretical grounds. Areeda and Turner (1975) argue that while actual predatory pricing might be difficult to

detect, it should be deemed illegal. Furthermore, they say that a firm that sets its price below average variable costs for the *purpose of driving rivals out of the market*, should be regarded as acting unlawfully. Williamson (1977) argues that if a dominant firm increases its output as a response to entry by another firm, then the government should view its actions as predatory, since the effect of increasing output will be to drive down prices. He proposed that if a firm lowers prices, then gains monopoly power through that action, then it should be prohibited from expanding its own output in the aftermath.

Baumol (1979) writes that predatory pricing can be a successful strategy *only* if the firm engaging in that practice is able to *raise* prices after its actions have helped it gain monopoly power. Thus, he writes, a firm will be free to lower prices, but it would be illegal to raise them again—unless the government permitted it under certain circumstances.

Even these policy recommendations, however, come because the traditional way of “detecting” predatory pricing—setting prices below marginal cost—can be difficult. In fact, Areeda and Turner (1975) argue that their below average variable cost-pricing model permits easier detection of illegal predatory pricing.

Scherer (1976) criticizes Areeda and Turner, writing, “it is unrealistic and even analytically wrong to apply a simple short-run price-cost rule for determining whether exclusionary pricing by a monopolist is socially undesirable and therefore predatory” (p. 890). He concludes that one cannot “substitute simple cost rules” for the kind of thorough analysis that is needed to see whether or not the episode of alleged predatory pricing actually has created social harm. Areeda and Turner (1976) reply that the kind of analysis that Scherer recommends is so complicated that a simple cost test proves to be an adequate proxy.

(From an Austrian point of view, all of these cost-based analyses are deficient for the simple reason that costs are subjective, not objective. Therefore, any attempt to determine whether a firm is pricing below “explicit” costs—if such a thing can be proved—is an exercise in nonsense, since the costs to firm owners that are relevant are the subjective or implicit costs, which can never be determined by accountants and certainly not in the courts.)

Taking an empirical view, Koller (1971) writes that predation can be used as a tool to discourage entry or force collusion (or a merger) between the predator and the “victim.” Burns (1986) examined price-cutting tactics of the American Tobacco Company near the turn of the twentieth century, finding that the firm’s actions substantially lowered its costs of acquiring other firms by forcing down the value of their assets.

According to the Sherman Antitrust Act of 1890, it is illegal for firms to engage in practices that would enable them to monopolize a market. Thus, the theory of predatory pricing creates interest not only for its theoretical content, but also because alleged behavior of this type can be construed to be illegal. Because of this, lawyers, business firms and governmental entities that successfully sue competitors, as well as politicians, stand to benefit from

legal application of predatory pricing theory, argues DiLorenzo (1992). He writes that while he believes predatory pricing theory is a “myth,” it survives because of four reasons:

First, huge sums of money are involved in predatory pricing litigation, which guarantees that the antitrust bar will always be fond of the theory of predatory pricing.

Second . . . the idea of predatory pricing lends itself to political demagoguery. . . . Protectionist members of Congress frequently invoke that myth in attempts to protect businesses in their districts from foreign competition.

Third, ideological anti-business pressure groups . . . also employ the predatory pricing tale in their efforts to discredit capitalism and promote greater governmental control of industry.

Fourth, predatory pricing is a convenient weapon for businesses that do not want to match their competitors’ price cutting. (p. 2)

In other words, predatory pricing theory persists because well-placed individuals and organizations that benefit from accusing others of engaging in predatory pricing will use their resources to keep the theory alive.¹ Some economists (including those who make tidy sums of money by testifying in antitrust cases or who are employed by law firms that promote such litigation) hold to predatory pricing theory, but, argues DiLorenzo, “Their support for the notion is based entirely on highly stylized ‘models’, not on actual experience” (p. 3).

As noted earlier, Kaserman and Mayo are not altogether comfortable with predatory pricing theory, and they are hardly alone. Shughart writes that if one examines the actions and risks firms must undertake in order to engage in illegal predation, it “does not pay” (1990, p. 296). McGee (1958) writes that predatory pricing cannot be thought of as a rational business strategy because the “predatory” firm in the end is likely to suffer greater losses than its rivals. Other economists, including Stigler (1967) and Telser (1966) have attacked such a strategy because it conflicts with the assumption of rational behavior by firm owners. Isaac and Smith (1985) examined a number of predatory pricing cases and concluded that they were unable to ascertain whether or not the firms accused actually had engaged in such practices.

The strongest Austrian criticism of the theory of predatory pricing comes from Armentano (1999). Rothbard (1993, 1970) denounces antitrust laws in general, as well as predatory pricing theory.

¹Perhaps it is instructive to note that most of the literature on predatory pricing outside textbooks can be found either in law journals or journals that concentrate upon economics and the law.

It is not my purpose to rehash these criticisms of predatory pricing theory. Economists have been successful both in *a priori* and *a posteriori* analysis in demonstrating that this is a dubious theory of economics and should be regarded with much suspicion. Instead, I would like to go a step further and demonstrate why I believe that the standard neoclassical theory of the firm as commonly depicted in economics textbooks and the theory of predatory pricing are mutually exclusive.

NEOCLASSICAL ANALYSIS AND THEORY OF THE FIRM—ANOTHER LOOK

The standard tools of neoclassical analysis are basically static in character. That is hardly news, and most economists employing these tools are comfortable with accepting their static nature—and their limitations. Yet, these models not only are limited because of being static, but also because of their assumptions, which ultimately are the key to the downfall of predatory pricing theory within a neoclassical framework.²

Although much of the economics profession stands by the Friedman (1953) hypothesis that assumptions are not important in the formation of economic theory, it certainly is not the case when it comes to presenting the neoclassical theory of the firm, including perfect and imperfect competition.

The first and most important assumption is that firms maximize profits, with each firm setting output where marginal cost equals marginal revenue. A firm operating within a regime of perfect competition faces a market price over which it has no control, as the market independently sets the price.³ Thus, a firm in perfect competition loses *all* sales if it chooses to charge customers above the market price, while setting one's price *below* the market price is an act of foolishness, given that such an action will have no effect upon its own sales and those of its competitors. Predatory pricing, therefore, cannot exist within a regime of perfect competition, nor does anyone claim that it does.

Theories of imperfect competition still depend upon the profit-maximizing assumption even though a firm operating in the arena of imperfect competition faces a downward sloping demand curve and, thus, has an element of monopoly power. However, as in the case of the firm in perfect competition, the primary issue that the firm faces is where it should set output

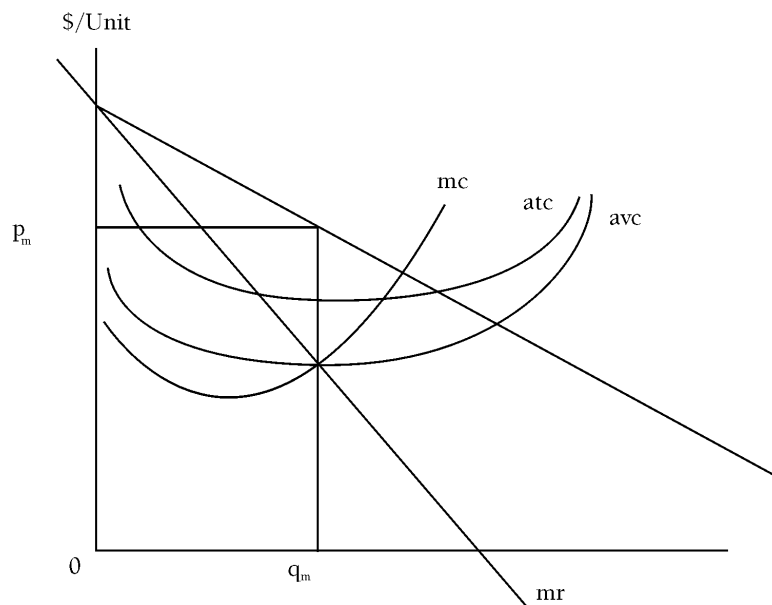
²This is not to say that one cannot construct a model in which a firm looks at the present value of monopoly profits that could be gained through successful predatory pricing. However, such a model is dynamic, while here we deal with static neoclassical models. Furthermore, even if one were to create such a dynamic model, there is still the sticky situation of assumptions that accompany the neoclassical theory of the firm.

³This is not to discount that other theories of the firm exist. Baumol (1967) presents a theory in which a firm is a revenue maximizer instead of a profit maximizer. However, Baumol's model is not widely accepted by mainstream economists who continue to rely on the profit-maximizing model of the firm.

(where marginal cost equals marginal revenue), which then determines what price consumers will be charged. This is shown in the following diagrams.

Figures 1-3 tell the story using standard neoclassical theory of the firm graphs. The firm in Figure 1 is a standard firm operating within imperfect competition that maximizes profits, setting output at q_m and price at p_m .

Figure 1



Since one firm faces a downward sloping demand curve, it is safe to assume here that the other firms in the industry also face downward demand curves. However, it also could be a *dominant firm* with the rest of the industry being what is called the “competitive fringe,” a model that Kaserman and Mayo (1995) write “has a long history in the economics literature.” (The dominant firm-competitive fringe model requires a different graph, one that is not reproduced, since it does not change the outcome of this discussion.)

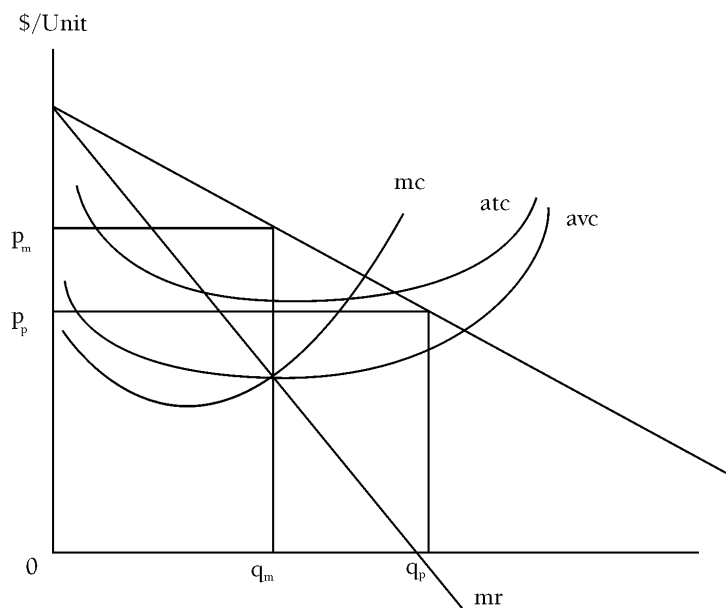
In a dominant firm-competitive fringe setting, one producer, while not being the only supplier, dominates production relative to other firms in the industry. Alchian and Allen (1983), for example, write that a better description of the Organization of Petroleum Exporting Countries (OPEC) is not as a cartel, which is the common view of OPEC, but rather as a dominant firm-competitive fringe industry, with Saudi Arabia being the “dominant firm.”⁴

⁴Alchian and Allen (1983) point out that when the OPEC ministers agree to cut oil supplies, the only entity that actually cuts production is Saudi Arabia. Thus, they write, it

Alchian and Allen write that such a firm generally finds it advantageous to sell its product for less than what might be profit maximizing for the competitive fringe. This practice, however, cannot be labeled predatory pricing since the lower price and output that is set by the dominant firm is *profit maximizing* to that firm. While the lower price might hurt the profitability of the fringe firms, it does not hurt the dominant company, which places such a practice outside the assumptions needed for predatory pricing theory to be applied.

In Figure 2, the firm that seeks to engage in predatory pricing lowers its prices to below marginal cost and average total costs.⁵ Here, we see output set at q_p and price at p_p . The placing of price and output is arbitrary here. While output is set approximately at revenue maximizing levels [$mr = 0$] this is not done as part of a deliberate strategy. I have chosen to set price below average total costs and marginal costs, but not average variable costs, the Areeda and Turner standard.

Figure 2



In Figure 2, I assume that the price set by the “predatory” firm is low enough to drive other firms out of business. Of course, since the “predatory” company is not setting price below its average variable costs, one must then

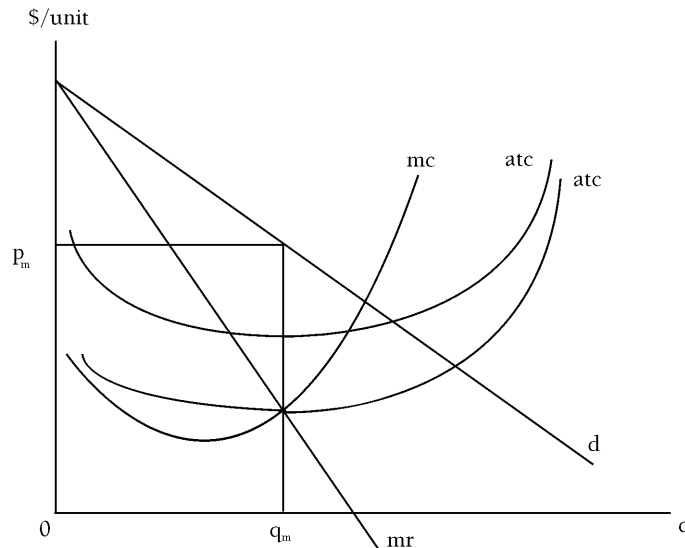
is in the interest of the fringe members of OPEC to have Saudi Arabia producing at a lower output than what is an amount that maximizes Saudi Arabia’s profits (p. 267).

⁵Defining predatory pricing as charging below average costs is in line with Areeda and Turner (1975), who attempt to lay out groundwork for defining what would constitute “illegal” predatory pricing and what would not.

also assume that this firm has a lower cost structure than the other firms in the industry.

Figure 3, assuming the firm has driven out all of its weaker competitors, demonstrates a firm that now faces a steeper demand curve and once again is setting monopoly output and price, P_m and Q_m .⁶ Since the successful firm has become a *bona fide* monopoly (I admit this is an unlikely occurrence, but I do it for the sake of argument), I list demand and output in capital letters, signifying that the firm has now captured the entire market. Even if the “predatory” firm has not driven out all of its competitors, one would assume that successful predatory pricing would mean that the firm in question has been able to take a leading role within the industry, perhaps even becoming a “dominant firm” in the manner of what was discussed earlier in the dominant firm-competitive fringe model.

Figure 3



Whatever the new configuration of the industry following a firm’s successful attempt to engage in predatory pricing, there are some things that logically follow. First, other firms that might have survived the ordeal of having been put through a period of strong cost cutting will not be in a position to successfully challenge the dominant firm in the industry. Surviving firms are likely to be part of a competitive fringe in which the smaller companies have

⁶There are many assumptions in these figures, as will be discussed throughout this paper. While I have found no text or paper that actually assumes the firm will face a steeper demand curve, during a personal exchange in 1999 with Kenneth Elzinga of the University of Virginia, who is recognized as one of the nation’s leading antitrust economists, he said that is the assumption. Another possibility is that the new demand curve faced by the predatory firm will both shift to the right and also be steeper. How much it would shift and how much steeper it would become are simply guesses.

higher cost structures than the dominant one. Furthermore, within a dominant firm-competitive fringe structure, the profit-maximizing price for the dominant firm is less than that of the competitive fringe. Third, the surviving firm indeed could be a monopoly with no competitors, the one I have chosen to depict in Figure 3.

(I have also taken the liberty to assume that input prices would be lower, since the dominant firm's competitors have been driven from the market. Thus, all cost curves have shifted to the right as opposed to the firm in Figures 1 and 2. More analysis of these figures will be given later in this paper.)

Although it is impossible to determine from the figures themselves (one of the difficulties of "proving" predatory pricing using neoclassical tools—which is the central subject here), ostensibly the firm in Figure 3 is enjoying greater monopoly profits than it would have had it simply gone with monopoly price and output as is depicted in Figure 1.

Figure 1 demonstrates how the theory works. The firm sets output at q_m and price at p_m , which is the point of profit maximization for the firm ($mc = mr$). In this model, one can argue—as do many economists—that the firm is gaining a "monopoly price" over a "competitive price" in which the firm sets output where marginal cost equals demand.⁷

However, the firm in this example wishes to drive out competitors, so it elects to set output and price below average total costs (as shown in Figure 2). This, I admit, is an arbitrary placement, but since Kaserman and Mayo (1995) note that economists are not united in determining what actually constitutes a "predatory" price, I have chosen a price that would impose losses on the firm, as opposed to a "shutdown" price of something less than average variable costs, which Areeda and Turner argue should also be deemed an illegal price. Assuming this strategy is successful, the firm that engages in predation will then drive out competitors and become a monopoly.

Figure 3 shows the firm that has successfully pursued the strategy and now enjoys monopoly status. (I assume that other firms either were not able to match the price and stay in business, or simply chose not to do so and stopped production altogether.) Because other competitors are gone, we can assume (as I noted earlier) that the monopoly faces a less elastic (steeper) demand curve than it faced when other firms were in the industry. At the same time, assuming an increasing cost industry, a lack of competitors would also mean that factor prices most likely would be driven down, which is why the cost curves have shifted to the right from their original positions in Figures 1 and 2.

While this may seem to be a valid approach to analyzing predatory pricing, there are a number of problems that must be discussed. First, if this is a

⁷Rothbard (1993) challenges the dichotomy between monopoly prices and competitive prices in *Man, Economy, and State*, writing that if the firm is operating in a free market, no matter the number of firms in a particular industry, then there is only a free-market price (pp. 565-73).

correct scenario, one cannot claim harm to consumers at any point of the process, since the entire operation has resulted in lower prices. The only way that it would be possible for consumer prices to rise above where they were in Figure 1 would be for the predatory firm's costs to remain the same while the demand curve it faces has become steeper, or if the fall in factor prices had less effect than the change in demand that the new monopoly would face.

This assumption is based upon the premise that factor prices in this particular industry are impervious to demand, which can only be true in a constant cost industry. In the case of an increasing cost industry, however, if other competitors are eliminated and the predatory firm is not able to expand its operations to bring its production to previous industry levels, then it stands to reason that factor prices will fall.

As one can see in comparing Figures 1 and 3, prices for the product made by this mystery company are less after the firm has gained monopoly status. Furthermore, consumers were able to enjoy lower prices during the period when the predatory firm was engaging in its bout of "cutthroat" competition, but will still demand the product even after the monopoly firm drastically raises prices.

Another point to make is that one cannot determine whether or not the profits enjoyed by the firm in Figure 3 are higher than the profits the firm was earning in Figure 1. In other words, we cannot determine *a priori*, given the assumptions of the model, if the firm's profits earned after it has eliminated its competition are more than its profits when it was in an industry in which there was at least some competition between the member firms.

Furthermore, as Figure 2 demonstrates, in order to successfully lower its price, the "predatory" firm must increase output, because to simply lower its prices would cause a run on its products. Since the firm does not (at this time) have the entire market, one cannot call it a "market shortage," yet the same effects would occur when a firm sets its price below the market price but does not increase its output. If the predatory firm sells out of its inventory, customers might well be willing to shop elsewhere even if prices are higher, since products there would be more available. Since the theory holds that the firm that faces a downward sloping demand is "holding back" on its production in order to enjoy "monopoly" profits, one can assume that the predatory company has increased its output in order to force down prices.

It might be possible to construct graphical models in a way that demonstrates that the firm that successfully drives out its competitors through predatory pricing will also be earning more profits afterward. For example, Areeda and Turner do so in their 1975 piece. However, it is important to note that such a construction would be *no less arbitrary* than the figures that I have presented in Figures 1-3. Moreover, whoever constructs such models also must contend with the changes in the cost structures that occur if some firms within an industry are driven out of business. When these changes are taken into consideration, it becomes impossible to construct a logically consistent

predatory pricing model that squares with the assumptions of the neoclassical model of the firm in imperfect competition.

Another problem with using the neoclassical viewpoint here to predict predatory pricing is that the firm in Figure 1 is already at an equilibrium point *from which there is no incentive to move*. Although economists are fond of saying that the price the firm receives and its output levels at $mc = mr$ are not “efficient,” as far as the owners of the firm are concerned, there are no more gains from trade, which is the true measure of “efficiency.” Once one party in an exchange sees no more gains from trade, the trading stops. This last point is something that seems to have eluded those economists who insist that “market efficiency” exists only where price equals marginal cost.

The exception, of course, is found in third-degree price discrimination in which a firm is able to successfully segment its markets so that it can set price and output where marginal costs meet marginal revenue *in each market*. In order for price discrimination to be successful, however, the firm must devise methods to keep buyers from exploiting gains from trade by purchasing the particular good in its less expensive market and reselling in the higher priced one. Not all situations fulfill the conditions for price discrimination, and even if the “predatory” firm, after successfully engaging in predatory pricing, does practice price discrimination, it does not change the outcome of my analysis. Furthermore, while some markets feature more elastic demand than others, trading stops where marginal cost equals marginal revenue, which is still labeled a “monopoly” price.

To say that a firm will jump from a profit maximizing position as seen in Figure 1 and engage in predatory pricing, an action that is potentially ruinous to that firm, is to be making a rather heroic assumption. As pointed out earlier, given the assumptions of the model, the profit-maximizing firm is not free necessarily to charge higher prices, since its actions are limited to looking for the profit maximizing output and price. Even if the firm did manage to drive out all other competition through predatory pricing, that does not mean the firm will be raising prices, Figure 3 demonstrating that, indeed, prices theoretically could be *lower* after the successful predation has taken place. This solution—and it is plausible, given the assumptions of the model—clearly does not demonstrate that predatory pricing need be a menace to consumers.⁸

While economists have not expressed these difficulties with explaining predatory pricing through neoclassical theory of the firm tools, it is clear that they are not comfortable using them, at least if one examines the texts. In examining both general economics textbooks and texts on industrial organization, I have found that the authors generally go outside the typical models

⁸The common objection to alleged predatory pricing is that it is believed that once a firm has driven out the competition, it is free to set prices wherever it wishes.

when they explain the theory of predatory pricing, either using verbal explanations or using game theory models.⁹ This is no oversight on their part.

For example, Shy uses both graphs and mathematics extensively when working through his text on industrial organization *except* when he articulates the theory of predatory pricing. At that point, he is satisfied to explain the theory in a few paragraphs—and nothing else (Shy 1995, pp. 89, 212). Kaserman and Mayo almost do likewise. They use the theory provided by Areeda and Turner, and even that one uses only cost curves and is very limited and selective in its instruction, and they construct a model like my Figure 2, except the firm in their model does not increase its output, which also creates logistical problems of its own.

Although Nicholson's text makes extensive use of mathematics and graphs, nothing like that appears in his section on predatory pricing, which consists only of two written paragraphs and no diagrams or mathematical equations. In fact, my own search to see how economists fit predatory pricing into the standard neoclassical models turned up nothing. That should not be surprising, given the difficulties of matching the models to the theory as I have already pointed out.

PREDATORY PRICING AND CONTESTABLE MARKETS

Although mainstream neoclassical economists have alluded to predatory pricing as a viable business strategy, as noted earlier, they are also uneasy about whether or not it is legitimate in practice. I have already mentioned the criticisms from Shughart and Kaserman and Mayo. Baumol, Panzar, and Willig (1982) lay out in their theory of "contestable markets" that certain entry conditions within an industry would make predatory pricing a self-defeating strategy, but only if those particular assumptions are met.

The contestable markets theory, while interesting, depends upon relatively costless entry into a market, which is one of the assumptions for perfect competition. The theory states that if entry into an industry is relatively *costless*, no matter what might be the configuration of that industry, firms will quickly enter the market as soon as the possibility for economic profits within that industry arises. When applied to predatory pricing theory, one can see that in an industry characterized by contestable markets, such a strategy would be self-defeating, since the "predatory" firm would not be free to try to earn monopoly profits once it had driven its competitors out of business.

The prime example has been the airline industry, because it is believed that the geographical movement of capital—mainly airliners—is seen as being relatively easy. In fact, as noted by Baumol and Bailey (1984), the perceived

⁹Books include Nicholson (1995), Shughart (1990), Shy (1995), Kaserman and Mayo (1995), Hay and Morris (1991), and Hirshleifer (1980).

mobility of airline capital was one of the justifications for airline deregulation in 1978.

But while it has sparked much discussion, the theory of contestable markets also has its critics. Shepherd (1984) writes that the theory does not adequately explain real-world events. Kaserman and Mayo point out that the rigid and highly stylized zero-cost assumption precludes most industries. Thus, while the theory does provide one antidote to predatory pricing theory, it does not provide a standard by which the profession looks at the efficacy of predatory pricing. Furthermore, there is little that sets contestable markets theory apart from the theory of perfect competition, and this article has already pointed out that predatory pricing is a theory of *imperfect competition*, not perfect competition.

DOES IT MATTER?

Neoclassical economists, at least since Friedman articulated his views on methodology in 1953, have held that assumptions do not matter for economic theory as long as the theory that is constructed is relatively accurate in predicting events. All one needs to do is to articulate a theory, collect appropriate data, and then test it through statistical means. If the statistics are significant, it means that one, albeit on somewhat shaky ground, can accept the theory to be true, at least in this particular case.

Austrian economists have countered that such an approach is inappropriate in its applications to economics. Rothbard (1993) writes that the constant statistical testing of hypotheses, while necessary for disciplines like the natural sciences, does not make sense when it comes to economics. If a law of economics cannot be universal, then it cannot be a law.¹⁰

For example, either the law of demand holds in all cases, or it does not hold, period. One does not “test” it in order to see if it is valid. Furthermore, as Rothbard points out, we derive the law of demand, as well as other laws of economics, from the simple yet profoundly empirical premise that individuals act purposefully (p. 1).

Economists have interpreted the neoclassical theory of the firm both from *a priori* and *a posteriori* positions. First, by dividing competition into categories of perfect (the firm faces a horizontal demand curve) and imperfect (the firm faces a downward sloping demand curve), the economist makes implicit assumptions about the firm’s behavior depending upon what category into which the firm falls. Second, mainstream economists generally

¹⁰Austrian economists, as well as many mainstream economists, objected to Card and Krueger’s (1994) paper that, in effect, said that the law of demand does not hold for the fast-food industry in New Jersey and Pennsylvania. The objection was based upon an *a priori* assumption that when the price of something increases, *ceteris paribus*, the amount demanded decreases.

agree that perfect competition is preferable to imperfect competition, since the firm in perfect competition operates at its most “efficient” level—even if they hold that conditions of perfect competition are almost impossible to create.

Furthermore, the very definition of “market failure” is that a firm faces a downward-sloping demand curve. Another way to put it is that were a firm to raise the price of its product even by one-millionth of a cent, and if it did not lose all sales immediately, then “market failure” has occurred.¹¹ This is an *a priori* determination, which means that economists can declare a “market failure” based upon the assumptions of the model.

It is also assumed, based upon the premise of firms being “profit maximizers,” that the firm will always set output where marginal cost equals marginal revenue. In imperfect competition, this means that the firm will be able to receive a monopoly price for its product. Again, this determination is made *a priori*.

On the other hand, economists note that the assumptions that preclude a definition of a firm being in perfect competition are unrealistic. However, while Austrians like Rothbard (1993) and Kirzner (1979) have written that the unreality of the assumptions render the condition of perfect competition useless in examining economic behavior, mainstream economists, including Friedman (1953) and Sowell (1981), write that while the assumptions of perfect competition may be unreal, the theory nevertheless is valid because it gives an accurate portrayal of the behavior of firms.

The point here is not to rehash the Austrian versus neoclassical debate on *a priori* and *a posteriori*, but rather to demonstrate that mainstream economic theory of the firm does, in fact, depend upon the assumptions. Furthermore, as I have already pointed out, in the case of predatory pricing, one cannot use the neoclassical assumptions and the models created from those assumptions to make a case for that particular theory.

IS CRITICISM OF PREDATORY PRICING THEORY ATTACKING A STRAW MAN?

As noted previously, there are many critics of predatory pricing theory within the neo-classical camp. Furthermore, even the advocates of legal action against firms found guilty of “predatory pricing” admit that it is very difficult to distinguish that practice from the kind of aggressive pricing that is part of the competitive world of business.

However, none of the neoclassical critics have come out and noted that the assumptions of their models do not permit predatory pricing in the first place. While they express skepticism in their textbooks and papers on the

¹¹How one deals with “market failure” is a matter of opinion. Some economists, notably McCormick and Tollison (1981) write that there may not be any viable “solution,” while other economists, including Samuelson, write that “market failure” can only be corrected by government action.

subject, that does not stop them from presenting the models not only as viable economic theory, but also as a theory with public-policy implications.

The problem is that when they present the theory, they must go outside the boundaries they have drawn for laying out the theoretical framework for the firm. If they could use their graphical and analytical models of imperfect competition to describe predatory pricing, they would do so. That they do not is telling evidence that the theory is logically inconsistent when one applies the assumptions of the model. Moreover, even when they do give a verbal explanation of predatory pricing theory, they still do not point out why such a plan of action should be made illegal.

As noted earlier, Friedman gives economists an “out” in a case like this: when one’s theory is in difficulty, the assumptions suddenly do not matter. However, antitrust advocates already have committed themselves to a regime in which the assumptions do matter, and they matter greatly. Therefore, if they are to make a legal case against predatory pricing, they must be able to present a credible theory that squares with the assumptions of their models. So far, they have not done so.

Economists have every right to be skeptical about the theory of predatory pricing. Advocates of contestable market theory even point out that if the assumptions of costless entry are met within certain industries, then predatory pricing is unlikely to occur, but only under those highly stylized conditions. The issue I have presented here, however, is not one of professional skepticism, but rather, whether or not the theory is viable at all, given the assumptions contained in the models for theory of the firm.

CONCLUSION

I have demonstrated the difficulties of explaining the theory of predatory pricing using the neoclassical theory of the firm. In fact, to paraphrase Bork (1978) in his criticisms of antitrust law, predatory pricing is a theory “at war with itself.” Economists who insist on giving credence to such a theory find that they must go “outside the box” in order to adequately explain their points.

However, the law of noncontradiction demands that one either stay “inside” or “outside” the neoclassical theory of the firm. One is not intellectually free to use the theory at one time to explain economic action, and to discard it at another. If the theory of the firm does not apply in all explanations of firm behavior, then it cannot apply at all. If economists cannot explain the theory of predatory pricing consistently with their models *a priori*, and if they are unable to conclusively observe *a posteriori* that successful predatory pricing has, indeed, occurred, then perhaps it is time to cast this particular theory onto the ash heap of intellectual history.

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