Still Preying on Strategic Reputation Models of Predation

John R. Lott, Jr.
Are Predatory Commitments Credible? Who Should the Courts Believe?
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Lott not surprisingly answers the questions in the title of his book with no and him. Since I agreed to write this review, two scholars, David Sappington and J. Gregory Sidak, have reviewed Lott's book, concluding that although it is provocative and important, it also has many flaws.[1] They make a number of good criticisms. For example they point out that Lott surprisingly does not precisely define predatory pricing before beginning to discuss it.[2] Only later does Lott cite what he states is "the definition of predation used in industrial organization" (p. 64). This quotation suggests widespread agreement among economists over just one such definition. But in reality there are many possible definitions, including pricing below one's own or one's rivals' values for each of these variables: short-run marginal cost, average variable cost, long-run marginal cost, or average total cost.[3] Furthermore, the particular definition Lott cites favorably is one that two experimental economists use after concluding that no universally accepted definition exists. But this particular definition is restrictive in several respects.[4] First, it ignores the possibility that incumbents and entrants maximize their profits intertemporally rather than myopically. Second, it ignores the possibility that

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1 David E.M. Sappington & J. Gregory Sidak, Are Public Enterprises the Only Credible Predators?, 67 U. Chi. L. Rev. 271 (2000).

2 Id. at 273.

3 Dennis Carlton & Jeffrey M. Perloff, Modern Industrial Organization, 3d ed. 339-42 (2000).

4 Louis Phlips, Competition Policy: A Game-Theoretic Perspective 208 (1995).

predation is consistent with the incumbent's price being above the minimum of an entrant's average costs. Finally, it ignores the possibility that an incumbent's goal might be to delay not prevent entry.[5]

Sappington and Sidak also note that Lott fails to present clearly the assumptions of his theoretical arguments in the form of careful, detailed game-theoretic models.[6] This failure is frustrating and ironic in light of a central insight of asymmetric information game (AIG) models, namely that predicted behavior is sensitive to assumptions about who knows what and when. Finally, Sappington and Sidak observe that Lott's empirical analysis is not definitive because it suffers from conceptual and technical flaws.[7]

Lott tries to empirically test whether AIG models of predatory pricing for the purpose of developing a "reputation for toughness" describe real world practices. Lott states that "[i]t is important that the plausibility of key assumptions underlying these models be examined and validated before the models are used for policy purposes" (p. 18). This position differs from a standard view in economics that a model's empirical validity does not depend on the plausibility of its assumptions. As Milton Friedman has argued, it is the accuracy of a model's predictions, not its assumptions, that provides the ultimate test of a model.[8] But even accepting Lott's research strategy, he construes the assumptions of AIG reputational models of predatory pricing too literally. He restrictively interprets these models to require a "crazy" type of monopolist who does not maximize profits and that only such types engage in predatory pricing. Certainly one can interpret a "strong" type monopolist as a firm with only a single feasible action, namely to fight any entry regardless of whether that maximizes profits. But this is not the only possible interpretation. Another interpretation is that a "strong" type actually has lower production costs than a "weak" type.[9] In other words, both types are rational in the sense of being profit-maximizing. The difference is just in how costly it is to charge a low price.

A fundamental problem with Lott's empirical tests is his belief that firms accused or convicted of predatory pricing must differ from other firms in the sense of the accused or convicted firms being "strong" types. This interpretation of Milgrom and Roberts' AIG model is too strong.[10] It passes over the complexities of the notion of common knowledge central to AIG models. Firms can still profitably and credibly engage in predatory pricing even though all potential entrants know those firms are not "strong." This review presents other empirical and experimental evidence supporting AIG predation reputation models. It also suggests a novel theory of predatory pricing not involving reputation. It discusses Lott's creative idea that potential entrants can supplement entry with financial strategies. It concludes by placing Lott's book in a broader context of the past, present, and future of predatory pricing.

5 David Easley et al., Preying for Time, 33 J. Industrial Org. 445, 447 (1985).

6 Sappington & Sidak, 276 (cited in note 1).

7 Id. at 277-81, 286-89.

8 Milton Friedman, The Methodology of Positive Economics, in Essays in Positive Economics 3, 16-23 (1953).

9 Paul Milgrom & John Roberts, Predation, Reputation and Entry Deterrence, 27 J. Econ. Theory 280, 284 fn.4 (1982); David Kreps & Robert Wilson, Reputation and Imperfect Information, 27 J. Econ. Theory 253, 256 (1982).

10 Patrick Bolton et al., Predatory Pricing: Strategic Theory & Legal Policy, Appendix, Geo. L.J. (forthcoming 2000), make the same point.

Lack of Common Knowledge about Common Knowledge

Lott states: "[m]aking predation strategies credible (in recent terminology, 'renegotiation-proof') requires that firms ensure that managers who proceed with costly predatory acts are not penalized or ousted from office for doing so" (p. 18). But AIG models of predatory pricing do not require that a monopolist be "strong" in the sense of entrenching managers who do not maximize short-term profits.[11] AIG models of predatory pricing only assume lack of common knowledge of an incumbent firm's payoffs, and that firms maximize their expected profits.

The concept of common knowledge is subtle. Something is common knowledge between A and B if A knows it, B knows it, A knows that B knows it, B knows that A knows it, and so forth *ad infinitum*.[12] A legendary example illustrating the complexities of common knowledge involves two married couples living on an island with both wives being perfect logicians.[13] Suppose that each wife is having a secret affair with the other's husband. Each wife thus knows the other husband is unfaithful, but does not know if her husband is also unfaithful. Suppose the island norm is that upon learning that her husband is unfaithful, a wife must shoot him at dawn the next day. One day, a priestess visits the island. Just before she leaves the priestess announces in front of both wives that she has taken a vow of honesty and that one of their husbands is unfaithful. On the surface, this statement provides no new information to either wife because each knows the other's husband is unfaithful. But, neither wife knows that both wives know that. Thus, neither wife can conclude that she has an unfaithful husband and so does not shoot her spouse the next morning (assuming that both wives follow the island norm). But on the next morning after both wives do not shoot their husbands, both wives know that both wives know the other's husband is unfaithful.

The story generalizes to any finite number of married couples, but is a bit more complicated. PG-rated versions of this example involve children unsure of whether they have mud on their foreheads or wise men uncertain of the color of hats placed on them.[14] Another example of the power of assuming common knowledge is the "Groucho Marx" non-speculation theorem, which concludes that individuals will not trade with each other given common knowledge of rationality of players and proposed trades.[15] Common knowledge of something is thus a very strong assumption. Any lack of common knowledge about a player's payoffs can alter that player's behavior for the purpose of generating a reputation.

AIGs are the source of comedy and tragedy in Shakespearean plays and of intrigue in Sherlock Holmes adventures. In the movie Casablanca, the character Ferrari remarks that "He's a difficult customer that Rick, one never knows what he'll do or why." This remark aptly captures a central feature of AIG models, namely uncertainty over the preferences of others. A standard assumption of complete information game theory is that each player's

11 Carlton & Perloff, 338 (cited in note 3).

12 Robert J. Aumann, Agreeing to Disagree, 4 Ann. Stat. 1236 (1976).

13 Yoram Moses et al., Cheating Husbands and Other Stories: A Case Study of Knowledge, Action, and Communication, 1 Distributed Computing 167, 168-69 (1986).

14 Ronald Fagin et al., Reasoning About Knowledge 3-7 (1995).

15 Paul Milgrom & Nancy Stokey, Information, Trade, and Common Knowledge, 26 J. Econ. Theory 17 (1982) (Groucho Marx reputedly said that he would neither join a club nor date a woman willing to accept him).

payoff and the rationality of each player are common knowledge among all of the players. The distinguishing aspect of AIG models from complete information game models is that AIG models do not assume common knowledge of payoffs among players.

An appendix in the original Milgrom-Roberts AIG model of predatory pricing considers an example where an incumbent and two potential entrants know that incumbent is "weak" in the sense that its profit-maximizing choice is to accommodate any entry. But if even one potential entrant is uncertain whether the incumbent knows that both potential entrants know the incumbent is "weak," then predatory pricing can be a rational strategy for the incumbent.[16] Even though a "weak" monopolist suffers costs from preying, it can recoup those losses in the form of higher profits resulting from deterring entry. In other words, even if an incumbent firm's short-run profit-maximizing choice is to accommodate entry, that incumbent may prey in early periods to develop a reputation for toughness because of the longer-term benefits from such demonstrations. Such an incumbent mimics how "strong" types behave to avoid revealing its "weakness." Upon realizing this incentive to prey on the part of even "weak" types, early potential entrants do not enter from a fear of being preyed upon to scare away other later potential entrants.

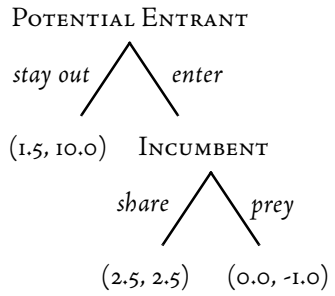
Imitation by "weak" types of "strong" behavior is memorably captured by the beer-quiche breakfast game in which a bully observes whether a person has beer or quiche for breakfast before deciding whether to challenge that person to a fight.[17] The bully prefers to challenge a coward, but not a brave person, to fight. Cowards prefer quiche for breakfast, while brave hearts prefer beer. Both cowards and brave hearts prefer not to fight and this preference outweighs their breakfast preferences. An equilibrium involves the bully not challenging if he observes beer, the bully challenging if he observes quiche, and both cowards and brave hearts choosing beer for breakfast.

It is worth explaining the details of the Milgrom and Roberts example that lack of common knowledge can generate preying. An established monopolist M faces potential entrant E_1 followed sequentially by potential entrant E_2. Three possible states of the world – A, B, and C – are equally likely, and in all three states, entrants get a payoff of zero if they enter and M preys.

In state A, for each market, any entry is met by predation because M is "strong" in the sense that predation dominates accommodating entry.

In states B and C, M is "weak" and may either prey or share the market. In state B, M's weakness is caused by production costs that differ from those in state A. In state C, M's weakness is caused by market demand that differs from that in state A. As depicted in Figure 1, if a potential entrant stays out, it receives 1.5 and M receives 10.0; if it enters and M preys, the entrant receives 0.0 and M

Figure 1: (E's payoff, M's payoff).



16 Milgrom & Roberts, appendix B, 306-07 (cited in note 9); Kreps & Wilson, 256 (cited in note 9); Phlips, 192-93 (cited in note 4).

17 Ken Binmore, Fun and Games: A Text on Game Theory 504-09 (1992); David Kreps, A Course in Microeconomic Theory 463-67, 498-99 (1990).

receives -1.0; and if it enters and M shares, both firms receive 2.5.

M, E_1, and E_2 do not, however, share common knowledge about states A, B, and C:

> E_1 knows exactly which of the three states obtains.
>
> But E_2 cannot distinguish between A and B.
>
> Finally, M cannot distinguish between B and C, meaning that M knows whether it is "strong" (A) or not (B and C), but if M is not "strong," it does not know why (changed costs or changed demand).

Symbolically, the information partition structure can be represented thus, M: [{A}, {B, C}], E_1: [{A}, {B}, {C}], and E_2: [{A, B}, {C}].

Because M cannot distinguish between B and C, M must choose the same action for both states. If M shares with E_1, M's payoff is 2.5 in the first market. If state C exists, E_2 knows this and enters (recall that E_2 can distinguish between B and C), M shares again and M's payoff is also 2.5 in the second market. If M shares with E_1 and state B occurs, M's failure to prey against E_1 allows E_2 to infer the existence of state B (recall that E_2 cannot distinguish A from B, but once E_1 knows that M did not prey, it knows that A cannot exist). This means that E_2 should enter because M will share. Thus, M's payoff is 2.5 in the second market as well. Thus, by not preying against E_1, M's total payoff is 2.5 + 2.5 = 5.0.

On the other hand, if M preys in both B and C, it receives -1 in the first market. If C occurs, E_2 knows this and so enters because it does not fear M. Thus, M receives 2.5 in the second market for a total payoff of 1.5. But if B occurs, E_2 cannot distinguish between A ("strong" M) and B ("weak" M). By preying on E_1 in the first market M does not reveal to E_2 that B obtains. Thus, E_2 has to determine its payoffs in both A and B to calculate its expected payoff. If E_2 enters in A, M preys and E_2 receives 0.0, while if E_2 enters in B, M shares and E_2 receives 2.5. Because E_2 views A and B as equally likely, E_2's expected payoff to entering is ½(0.0) + ½(2.5) = 1.25. By assumption, if E_2 stays out, its payoff is 1.5. Thus, E_2 stays out if B occurs and M receives a payoff of 10.0 in the second market for a total payoff of -1.0 + 10.0 = 9.0.

Because M views states B and C as equally likely, M believes that preying is equally likely to result in E_2 entering or staying out. Therefore, M's expected total payoff from preying despite its weakness in B and C is ½(1.5) + ½(9.0) = 5.25. Remember, if M does not prey, its payoff is 5.0. Thus, M preys irrespective of whether B or C obtains. By assumption, M also preys if A obtains. So regardless of the actual state, M preys upon E_1. Thus, E_1 will never enter because M always preys. So predatory pricing occurs even if C obtains when it is common knowledge between M and E_1 that M is not "strong."

In fact when C occurs, it is also common knowledge between both potential entrants that M is not "strong." Nevertheless, M's threat of predation against E_1 credibly deters E_1 from entering because it is not common knowledge between M and E_2 that M is not "strong." To see this, remember that M's optimal strategy is to prey if E_1 enters, regardless of the state. Because E_1 can deduce the above optimal strategy for M, E_1 stays out. Because E_2 cannot distinguish between A and B, E_2 only enters if C realizes or if E_1 entered and M failed to prey. If E_2 enters, M preys by assumption if A realizes and shares if B or C realizes because that is the last stage.

This example implies that "weak" types may prey to pretend to be "strong" because such masquerading does pay. This behavior does not require that "weak" types entrench managers that have a preference for goals other than profit maximization. Thus, Lott's findings that firms accused or convicted of predatory pricing did not entrench managers more than other firms and his observations about managerial compensation patterns are

consistent with AIG reputation models.

Chapter 2 of Lott's book tests only a particular type of AIG model involving managerial preference for preying. Preying to build a reputation for "toughness" when there is lack of common knowledge that an incumbent is "weak" is only one of many possible AIG rationales for preying. An example of preying that does not involve developing a reputation is preying to confuse a competitor or for "signal jamming."[18] The purpose of such preying is to interfere with a potential entrant's efforts to calculate its future profits, that is, to obscure rather than generate information.

Other Empirical & Experimental Evidence

Lott provides a critical survey of some of the existing evidence that private firms engage in predatory pricing (p. 4-10). But he does not address other empirical studies that support reputational models of predatory behavior other than pricing decisions. For example, a study of location decisions by supermarket chains in Calgary and Edmonton in Alberta, Canada concluded that the data is consistent with the dominant chain spatially preying on new entrants by opening up new stores near them.[19] This empirical study found evidence of a reputation period followed by a predatory period, with market shares of those that had been preyed upon continuing to fall, and not much new entry occurring despite rapid growth in the industry overall.[20] Finally, evidence suggests that the dominant chain preferred to wait for new entry before it opened a new store to emphasize the predatory nature of its actions.[21]

Lott also does not address studies providing evidence of predatory pricing to create reputations that deter entry in experimental tests of an eight period chain-store game.[22] An experimental version of the Kreps-Wilson AIG model with both "strong" and "weak" monopolists and experienced subjects accurately predicted early periods of play in which predatory pricing occurs 100% of the time and rates of entry approach 0%. The respective numbers are 85% and 30% when there are no experimenter-induced "strong" types. In addition, predatory pricing occurs much sooner in the latter games than former ones, suggesting that "weak" monopolists are imitating the behavior of "strong" monopolists. These findings prove that predatory pricing occurs and pays off in certain laboratory contexts. Thus, this experimental data contradicts – or at least undermines – the viewpoint that predatory pricing allegations must involve economically irrational behavior.

A Real Options View of Predatory Pricing

A definition of predatory pricing as pricing that is not profit-maximizing for a single period makes it clear that there are many similarities between engaging in predatory pricing and filing a negative expected value (NEV)

18 Drew Fudenberg & Jean Tirole, A Signal-Jamming Theory of Predation, 17 Rand J. Econ. 366 (1986).

19 Balder Von Hohenbalken & Douglas S. West, Predation Among Supermarkets: An Algorithmic Locational Analysis, 15 J. Urban Econ. 244 (1984); Douglas S. West & Balder Van Hohenbalken, Spatial Predation in a Canadian Retail Oligopoly, 24 J. Regional Sci. 415 (1984).

20 Balder Von Hohenbalken & Douglas S. West, Empirical Tests for Predatory Reputation, 19 Canadian J. Econ. 160 (1986).

21 Douglas S. West, Testing for Market Preemption Using Sequential Location Data, 12 Bell J. Econ. & Mgmt. Sci. 129 (1981).

22 Yun Joo Jung et al., On the Existence of Predatory Pricing: An Experimental Study of Reputation and Entry in the Chain-Store Game, 25 Rand J. Econ. 72 (1994).

lawsuit. Both phenomena are often deemed individually economically irrational and therefore not of concern to lawmakers and public policy analysts. Yet both phenomena seem nonetheless to occur. A recent model of NEV lawsuits explains how divisibility of litigation costs over time can make such lawsuits credible.[23] Additionally, NEV lawsuits may have positive options value because of the opportunity to learn information over time.[24] This options approach to litigation generates insights that are often different from those implied by traditional expected value models of litigation. For example, an options approach to civil rights litigation suggests that risk multipliers for attorney's fees should be smaller than those calculated when litigation is evaluated by its expected value.[25]

Similarly, predatory pricing can be thought of as involving a sequence of continuation options (or alternatively as options to stop the practice unilaterally or to bilaterally suppress competition by peaceful coexistence or merger). There are two possible types of relevant uncertainty in the case of predatory pricing, namely: endogenously chosen prices and outputs, and exogenously distributed own and rival (marginal) cost parameters and individual firm or market demand conditions. Another approach is to develop a real options model of predatory pricing.

This options perspective implies qualitative comparative static results on the incentives to engage in predatory pricing. Predatory pricing may in a given situation have sufficiently positive option value (just as NEV lawsuits do) because of the opportunity to learn about cost or demand conditions and the option to continue predation in light of such learning. Thus, predation can be like an R&D investment.

Financial & Investment Strategies Complementary to Attempted Entry

Chapter 5 of Lott's book creatively applies to entry decisions a famous observation made by Hirshleifer about how inventors can profit from their inventions by trading in securities markets.[26] The idea is that potential entrants can profit from predatory pricing by shorting an incumbent's stock or buying puts on the incumbent's stock (p. 99). Lott offers colorful and fascinating descriptions of this idea in action in the business decisions of the "robber baron" Jay Gould (p. 101-05).[27] Lott also speculates that this trading strategy might have been employed in cases involving competition between Eastman Kodak and Polaroid, competition between Dole Food and Chiquita, CBS news reporting about G.D. Searle & Co., and interest rate forecasting at Salomon Brothers (p. 96-98, 105-06, 151-52). As Lott admits, implementing such financial investment strategies may entail residual risk from not being sufficiently hedged if there are factors other than entry that affect the value of the incumbent's stock. Moreover, shorting the incumbent's stock is usually feasible only when

23 Lucian Bebchuk, A New Theory Concerning the Credibility of and Success of Threats to Sue, 25 J. Legal Stud. 1 (1996).

24 Joseph A. Grundfest & Peter H. Huang, Real Options and the Economic Analysis of Litigation: A Preliminary Inquiry, Working Paper No. 131, John M. Olin Program in Law and Economics, Stanford Law School (1996).

25 Peter H. Huang, A New Options Theory for Risk Multipliers of Attorney's Fees in Federal Civil Rights Litigation, 73 N.Y.U. L. Rev. 1943 (1998).

26 Jack Hirshleifer, The Private and Social Value of Information and the Reward to Inventive Activity, 61 Am. Econ. Rev. 561 (1971).

27 See also Edward B. Rock, Encountering the Scarlet Woman of Wall Street: Speculative Comments at the End of the Century, 3 Theoretical Inquiries in Law (forthcoming, 2000).

the incumbent is a publicly traded corporation. Finally, the marketing and trading departments of potential entrants may have different incentives, information, objectives, and subcultures that would make such coordinated behavior in product and securities markets difficult. But Lott is certainly right about the generality of Hirshleifer's insight about pecuniary externalities (p. 100).

Why All the Fuss over Predatory Pricing?

It is helpful to place Lott's book in the larger context of past and possible future debates about predatory pricing. The subject of predation has a long and contested history in the fields of antitrust law and industrial organization economics. Predation in high-technology industries is likely to become more controversial in the future because there is reason to fear that allegations of predatory innovation might chill R&D in these industries.[28] In the current case against Microsoft, the Justice Department alleged (among other things) that Microsoft had engaged in predatory bundling to leverage its monopoly power in the desktop applications market to the browser market. It is certainly possible that government attempts to prevent predatory pricing may also prevent behavior that can benefit consumers, such as pro-competitive price-cutting and product quality improvements.

There is a vast legal and economics literature about whether predatory pricing should concern regulators and other policy makers.[29] On the one hand, the so-called Chicago School believes that predatory pricing defined as below own marginal cost pricing is not rational because losses are certain and in the present, while profits are uncertain and in the future. On the other hand, a modern school believes that predatory pricing can be a rational strategy for a monopolist with private information facing multiple potential entrants.

The Chicago School view was a reaction to popular business folklore that "robber barons" rose to prominence by engaging in predatory pricing. John D. Rockefeller's Standard Oil allegedly cut its prices to below cost with the intent of driving out smaller competitors and then subsequently raised its prices, thereby harming consumers.[30] But McGee found only weak evidence of such behavior in court records of the *Standard Oil* case, suggesting that predatory pricing is an empirically unimportant phenomenon.[31] He also made several theoretical arguments why predatory pricing should be an unprofitable strategy and therefore rarely taken and, hence, rarely observed. Crucial among these is that predatory pricing hurts the predator and so is not a credible threat. The implications of this view are that making predatory pricing illegal addresses a problem that does not exist, discourages lowering prices or improving quality in the face of cost savings or increased efficiency, reduces incentives for achieving such savings or efficiencies, and may even facilitate collusion.

The modern view originated in a pair of models developed by Stanford's famous "gang of four" economists.[32] Both models resolved the chain-store paradox, in which an incumbent facing a finite number of potential entrants over a finite time horizon has no

28 Stan J. Liebowitz & Stephen E. Margolis, Winners, Losers, & Microsoft: Competition and Antitrust in High Technology (1999).

29 Steven C. Salop (ed.), Introduction to Strategy, Predation, and Antitrust Analysis 1, 9-22 (1981).

30 Standard Oil Co. of New Jersey v. United States, 221 U.S. 1 (1911).

31 John McGee, Predatory Price Cutting: The Standard Oil Case, 1 J.L. & Econ. 137 (1958).

32 The four economists are David Kreps, Paul Milgrom, John Roberts, and Robert Wilson. Milgrom is in Stanford's economics department, while the other three are in its graduate school of business.

incentive to prey in the last period of the game and thus in the penultimate period and so forth.[33] A large literature now exists building on the gang-of-four's pathbreaking models.[34] The antitrust policy implications of this AIG school are that predatory pricing is a real possibility for monopolists in markets where potential entrants are not perfectly certain about market costs, market demand, or information that others have about such cost and demand conditions.

Nonetheless, despite the real possibility of predation, the difficulty of detecting such behavior and crafting appropriate liability standards and remedies might exceed the capabilities of informationally challenged regulators.[35] Traditional legal standards of predatory pricing can be under-inclusive because rivals can be dissuaded from entry without an incumbent pricing below its current marginal cost.[36] Such standards can also be over-inclusive because a monopolist not worrying about competitors but in an industry with strong learning effects or network externalities may pro-competitively price below its current marginal cost.[37] A new AIG-based proposed approach is a structured rule of reason that includes a fully specified efficiencies defense.[38]

Lamentably, Supreme Court and other appellate court skepticism towards predatory pricing has not as yet incorporated the lessons of AIG models.[39] One reason that the appellate courts have not been receptive to predatory pricing cases might be that many current federal appellate judges are Reagan appointees who believe in a brand of laissez-fare economics that is hostile to the implications of AIG models. Also, AIG models might not apply to recently brought cases of predatory pricing. Nevertheless, some commentators believe that AIG models of predatory pricing can and will eventually be accepted by the courts.[40]

AIG models are increasingly employed in law and economics.[41] But AIG theory's entry into areas traditionally dominated by neoclassical price theory has met with resistance. While Lott's book responds to specific AIG reputational models of predatory pricing, it is written as an aggressive response to AIG models in general.[42] Lott views the ascendancy of

33 Reinhard Selten, The Chain-Store Paradox, 9 Theory & Decision 127 (1978).

34 E.g., Jean-Pierre Benoit, Financially Constrained Entry in a Game with Incomplete Information, 15 Rand J. Econ. 490 (1984); Garth Saloner, Predation, Mergers, and Incomplete Information, 18 Rand J. Econ. 165 (1987). For surveys of this literature see Paul Milgrom, Predatory Pricing, in 3 The New Palgrave Dictionary of Economics, 937 (1987); Robert Wilson, Strategic Models of Entry Deterrence, in 1 Handbook of Game Theory 305, 320 (Robert J. Aumann & Sergiu Hart, eds., 1992).

35 Paul Milgrom & John Roberts, New Theories of Predatory Pricing, in Industrial Structure in the New Industrial Economics 112, 134 (Giacomo Bonnanno & Dario Brandolini, eds., 1990).

36 Id. at 133.

37 Id.

38 Bolton et al. (cited in note 10).

39 Matsushita Elec. Ind. Co. v. Zenith Radio, 475 U.S. 574, 588-90 (1986); Brooke Group Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 226 (1993).

40 Jonathan B. Baker, Predatory Pricing After Brooke Group: An Economic Perspective, 62 Antitrust L.J. 585 (1994); Richard O. Zerbe, Jr, & Michael T. Mumford, Does Predatory Pricing Exist? Economic Theory and the Courts After Brooke Group, 41 Antitrust Bull. 949 (1996).

41 Douglas G. Baird et al., Game Theory and the Law 159-87 (1994); Peter H. Huang, Strategic Behavior and the Law: A Guide for Legal Scholars to Game Theory and the Law by Douglas G. Baird et al. and Other Game Theory Texts, 36 Jurimetrics J.L. Sci. & Tech. 99, 104-06 (1995).

42 For a discussion of non-AIG models of reputation with applications to human resource management, see generally James N. Baron & David M. Kreps, Strategic Human Resources: Frameworks for General Managers 555-59 (1999).

AIG models into the subject of predatory pricing as an unfortunate development (p. 119-20). Unfortunately, he empirically tested just one very specific and restrictive AIG model from a large family of possible AIG models. His conclusions are therefore too strong and too hasty.

In summary, more sensible and cautious answers to the two questions in the title of Lott's book are sometimes and modern economic theory. Modern economic theory does not conclude that predatory pricing is always credible, but rather highlights structural environments where it might be. Instead of adopting the position that predatory pricing is never credible and should not be regulated, a more balanced and useful position is that it sometimes can happen and sometimes might justifiably be regulated.