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*925 THE CHICAGO SCHOOL OF ANTITRUST ANALYSIS

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The use of the term "Chicago" to describe a body of antitrust views to which I, among others, am thought to subscribe is very common. I shall argue in this paper that although there was a time when the "Chicago" school stood for a distinctive approach to antitrust policy, especially in regard to economic questions, and when other schools, particularly a "Harvard" school, could be discerned and contrasted with it, the distinctions between these schools have greatly diminished. This has occurred largely as a result of the maturing of economics as a social science, and, as a corollary thereto, the waning of the sort of industrial organization that provided the intellectual foundations of the Harvard school. More generally, this change can be attributed to the fact that the diversity in fundamental premises among economists studying antitrust questions has substantially diminished. No longer is it such a simple thing to identify a Harvard or a Chicago position on issues of antitrust policy. Partly this is a matter of growing consensus; partly of a shift from disagreement over basic premises, methodology, and ideology toward technical disagreements of the sort that would be found even in a totally nonideological field.

Part I of this paper recounts the development of the Chicago school of antitrust analysis, and, more briefly, of the Harvard school. The sharpest differences between them are assignable to the 1950's and early 1960's. Part II discusses a number of areas in which the positions of the two school have since overlapped, converged, or crossed over, with special reference to predatory pricing. Part III considers the issue in which traces of the traditional Chicago-Harvard confrontation are most conspicuous--the issue whether to break up leading firms in highly concentrated industries. The general conclusion of the paper is that it is no longer worth talking about different schools of academic antitrust analysis.

I. THE CHICAGO AND HARVARD SCHOOLS: THE FOUNDATIONS

The basic features of the Chicago school of antitrust analysis are attributable to the work of Aaron Director in the 1950's. Director*926 formulated the key ideas of the school, [\[FN1\]](#) which were then elaborated on by students and colleagues such as Bowman, Bork, McGee, and Telser. [\[FN2\]](#) These ideas did not, I believe, emerge from a full-blown philosophy of antitrust. Rather, they were the product of pondering specific questions raised by antitrust cases, and only in retrospect did it become clear that they constituted the basis of a general theory of the proper scope of antitrust policy. In summary form the key ideas may be stated as follows:

1. A tie-in (i.e., requiring a buyer to buy a second product as the condition of buying the first) is not a rational method of obtaining a second source of monopoly profits, because an increase in the price charged for the tied product will, as a first approximation, reduce the price that the purchaser is willing to pay for the tying product. A tie-in makes sense only as a method of price discrimination, based on the fact that the amount of the tied product bought can be used to separate purchasers into more or less elastic demanders of the tying product. There is no need to worry about price discrimination, however, because it does not aggravate the monopo-

ly problem. On the contrary, price discrimination is a device by which the monopolist in effect seeks to serve additional consumers, i.e., those having the more elastic demands, who might be deterred by the single monopoly price that would be charged in the absence of discrimination. Thus, price discrimination brings the monopolist's output closer to that of a competitive market and reduces the misallocative effects of monopoly.

2. From the standpoint of the manufacturer imposing it, resale price maintenance is not a rational method of distribution if its effect is to give dealers monopoly profits. Yet manufacturers, if permitted, often will impose it. The explanation is that, by preventing price competition among dealers, resale price maintenance encourages dealers to offer consumers presale services (such as point *927 of sale advertising, inventory, showroom display, and knowledgeable sales personnel) up to the point at which the cost of these services at the margin just equals the price fixed by the manufacturer. Such services, which enhance the value of the manufacturer's product to consumers and hence the price he can charge the dealers, might-- because of "free-rider" [\[FN3\]](#) problems--not be provided if price competition among dealers were permitted.

3. Selling below cost in order to drive out a competitor is unprofitable even in the long run, except in the unlikely case in which the intended victim lacks equal access to capital to finance a price war. The predator loses money during the period of predation and, if he tries to recoup it later by raising his price, new entrants will be attracted, the price will be bid down to the competitive level, and the attempt at recoupment will fail. [\[FN4\]](#) Most alleged instances of below-cost pricing must, therefore, be attributable to factors other than a desire to eliminate competition.

These ideas generated others. The tie-in analysis, for instance, was extended to vertical integration in general. To illustrate, it makes no sense for a monopoly producer to take over distribution in order to earn monopoly profits at the distribution as well as the manufacturing level. The product and its distribution are complements, and an increase in the price of distribution will reduce the demand for the product. [\[FN5\]](#) Assuming that the product and its distribution are sold in fixed proportions, and thus that the price discrimination analysis is inapplicable, the conclusion is reached that vertical integration must be motivated by a desire for efficiency rather than for monopoly.

The analysis of resale price maintenance generalized readily to other restrictions on distribution, such as exclusive territories and exclusive outlets. The predatory-pricing analysis generalized to other methods by which firms were thought to hurt others by hurting themselves--for example, by demanding that purchasers sign longer-term contracts than they desire, in order to deny a market to competing sellers: a rational purchaser would demand compensation for accepting such a disadvantageous term.

*928 From these various analyses, a conclusion of great significance for antitrust policy emerges: firms cannot in general obtain or enhance monopoly power by unilateral action [\[FN6\]](#)--unless, of course, they are irrationally willing to trade profits for position. Consequently, the focus of the antitrust laws should not be on unilateral action; it should instead be on: (1) cartels and (2) horizontal mergers large enough either to create monopoly directly, as in the classic trust cases, [\[FN7\]](#) or to facilitate cartelization by drastically reducing the number of significant sellers in the market. Since unilateral action, as I have defined the term, had been the cutting edge of antitrust policy for a great many years, to place it beyond the reach of antitrust law, as Director and his followers seemed to want to do, implied a breathtaking contraction in the scope of antitrust policy.

What was the source of Director's heterodox thinking? Because of Director's close personal and professional associations with Milton Friedman, it is common to think that Director's antitrust analysis was the product of conservative (which is to say, "liberal" in the nineteenth-century sense of the term) antipathy to government intervention in the economy. I question this view. I believe Director's conclusions resulted simply from viewing antitrust policy

through the lens of price theory. Each of his ideas was deducible from the assumption that businessmen are rational profit-maximizers, the deduction proceeding in accordance with the tenets of simple price theory, i.e., that demand curves slope downward, that an increase in the price of a product will reduce the demand for its complement, that resources gravitate to the areas where they will earn the highest return, etc. "Simple" and "easy" are not the same thing, however. Although the analytic tools used by Director were simple, the insights they yielded were extremely subtle. Certainly they were resisted for many years.

Yet it is still fair to ask why the application of price theory to antitrust should have been a novelty. The answer, I believe, is that in the 1950's and early 1960's, industrial organization, the field of economics that studies monopoly questions, tended to be untheoretical, descriptive, "institutional," and even metaphorical. [FN8] *929 Casual observation of business behavior, colorful characterizations (such as the term "barrier to entry"), eclectic forays into sociology and psychology, descriptive statistics, and verification by plausibility took the place of the careful definitions and parsimonious logical structure of economic theory. The result was that industrial organization regularly advanced propositions that contradicted economic theory.

An example is the "leverage" theory of tie-ins that Donald Turner, a Harvard economist in the Edward Mason and Joe Bain tradition, espoused shortly after Director had developed his price-discrimination theory of tie-ins. [FN9] The leverage theory held that if a seller had a monopoly of one product, he could and would monopolize its indispensable complements as well, so as to get additional monopoly profits. Thus, if he had a patented mimeograph machine, he would lease the machine at a monopoly price and also require his lessees to buy the ink used in the machine from him and charge them a monopoly price for the ink. This procedure, however, makes no sense as a matter of economic theory. The purchaser is buying a service, mimeographing. The pricing of its components is a mere detail; it is, rather, the total price of the service that he cares about. If the seller raises the price of one component, the ink, the purchaser will treat this as an increase in the price of the service. If the machine is already being priced at the optimal monopoly level, an increase in the price of the ink above the competitive level will raise the total price of the service to the consumer above the optimal monopoly level and will thereby reduce the monopolist's profits.

There was a similar confusion in the concept of a "barrier to entry," a concept that played--and still plays--a large role in thinking about competition. Suppose that it costs \$10,000,000 to build the smallest efficient plant to serve some market; then, it was argued, there is a \$10,000,000 "barrier to entry," a hurdle a new entrant would have to overcome to serve the market at no disadvantage vis-a-vis existing firms. [FN10] But is there really a hurdle? If the \$10,000,000 plant has a useful life of, for example, ten years, the annual cost to the new entrant is only \$1,000,000. Existing firms bear the same annual cost, assuming that they plan to replace their *930 plants. The new entrant, therefore, is not at any cost disadvantage after all.

Advertising presents a similar situation. A new entrant, to get his product accepted in the market, may have to launch it with an expensive advertising campaign. Again, this is a capital expenditure, because the effect of the campaign will not be fully used up in the first year. There is no reason to expect the annual cost of this capital expenditure to be any higher than that of firms in the market. They too must spend money on advertising to keep the consumer interested in their products. Most advertising, in fact, depreciates more rapidly than most plants; [FN11] therefore, it is a lesser "barrier to entry" than having to build a plant (although in the traditional analysis it was considered a greater one). Neither the plant nor the advertising is a barrier in any useful sense.

The Chicago school's view of advertising is especially noteworthy because of the importance that advertising had assumed in the Harvard thinking on antitrust. [FN12] Advertising played a dual role in that thinking. First, it was one of the most important barriers to entry. Second, it

was used as the riposte to the free-rider argument about why manufacturers imposed resale price maintenance. The Harvard position was that overcoming the free-rider problem and thereby increasing the provision of presale services by the retailer was not a social benefit, because those services were forms of advertising, and advertising enables the manufacturer more effectively to differentiate his brand from competitors' brands, thereby creating or enhancing barriers to entry. The underlying assumption is that consumers are irrational and manipulable, and the Chicago theorist rejects this assumption as inconsistent with the premises of price theory. The rational consumer will pay for advertising (in the form of a higher price for the advertised brand) only to the extent that advertising reduces his costs of search. The *931 services provided by advertising are therefore real services. In fact, they are indistinguishable from those yielded by a better product--and it is never suggested that making one's product genuinely better than those of competitors or potential competitors creates a "barrier to entry." A clue to the nature of the Harvard school of industrial organization is that its practitioners were so fond of doing studies of competition in particular industries--airlines, tin cans, aluminum, rayon, Douglas firs, etc. These studies exemplified the particularistic and non-theoretical character of the field. The powerful simplifications of economic theory--rationality, profit maximization, the downward-sloping demand curve--were discarded, or at least downplayed, in favor of microscopic examination of the idiosyncrasies of particular markets.

The "kinked demand curve," "workable competition," "cutthroat competition," "leverage," "administered prices," and the other characteristic concepts of the industrial organization of this period had this in common: they were not derived from and were often inconsistent with economic theory, and in particular with the premises of rational profit maximization. They were derived from observation, unsystematic and often superficial, of business behavior. Director's approach was the opposite. He explained tie-ins, resale price maintenance, and other business behavior described in antitrust cases not by studying the practices but by looking for an explanation for them that squared with basic economic theory. [\[FN13\]](#) When they first began to emerge in the articles written by his colleagues, students, and disciples, Director's ideas made little impact either on scholarly opinion or on policy. In some quarters the Chicago school was regarded as little better than a lunatic fringe. Kaysen and Turner's *Antitrust Policy*, the classic statement of the Harvard school, published in 1959, contains virtually no trace of any influence of the Chicago school. [\[FN14\]](#)

Twenty years later, the position is dramatically changed. Partly as a result of George Stigler's attacks on the intellectual foundations of traditional industrial organization [\[FN15\]](#) and partly as a *932 result of the growing sophistication of economic analysis, the traditional industrial organization is becoming discredited in academic circles. The Chicago school has largely prevailed with respect to its basic point: that the proper lens for viewing antitrust problems is price theory. At the same time, some of the specific ideas first advanced by Aaron Director have been questioned, modified, and refined, resulting in the emergence of a new animal: the "diehard Chicagoan" (such as Bork and Bowman) who has not accepted any of the suggested refinements of or modifications in Director's original ideas.

The work of Director and his followers focused on the question when, if ever, a firm can unilaterally obtain or maintain monopoly power. The question when a firm can obtain such power by collaboration with its competitors received less attention. Partly, perhaps, for tactical reasons (not to seem to reject antitrust policy in its entirety), the members of the Chicago school would sometimes denounce price fixing. But it is unlikely that they regarded even price fixing, let alone oligopoly, as a serious problem. In the classical economic tradition running from Smith to Marshall, the tradition in which the Chicago school operates, a clear recognition of the propensity of sellers to attempt collusion was conjoined with a general indifference to, and sometimes an explicit rejection of, the desirability of imposing legal sanctions on collusion. This complacency (if one can call it that) rested on the belief that cartels were, first, highly unstable because of the propensity of members to cheat (so long as the cartel was not

legally enforceable), and, second, in the long run futile in the absence of substantial barriers to entry. Collusion might still be attempted frequently if attempting it was cheap, but it would rarely succeed and its overall misallocative effects would be too slight to warrant inevitably costly public proceedings.

Given this tradition, given the Chicago school's rejection of the expansive notion of "barriers to entry," given the lack of any clear theoretical basis for oligopoly theory (and its accouterments such as the kinked demand curve), given Harberger's tiny estimate of the welfare costs of monopoly, [FN16] given the atheoretical, ad hoc, and unsupported character of the efforts to avoid the implications of Harberger's analysis by ascribing to oligopolists failures of innovation or cost control, it was not to be expected that the Chicago *933 school would attach great importance to vigorous prosecution of colluders. But such enforcement activity, in contrast to that directed against unilateral monopolizing acts, was not deplored.

George Stigler's work in the late 1950's and early 1960's, however, did focus on collusion and thus served to complete the edifice of Chicago antitrust thought. A series of articles [FN17] chipped away at the apparatus that the traditional industrial organization had constructed to analyze collusion. In its place Stigler proposed a general theory of collusion that embraced oligopoly, i.e., collusion not involving explicit communication, as a special case. [FN18] He approached the question of collusion by asking, in the manner of a price theorist rather than an industrial-organization man, when the benefits of collusion, in higher profits, exceed the costs (of preventing cheating) to the individual seller. The rate of entry, the elasticity of demand, the concentration of buyers, and other factors were identified. Many of these factors had been noted by the oligopoly theorists; Stigler's contribution was to show that every facet of the collusion question, including tacit collusion or oligopoly behavior, could be analyzed using the tools of price theory.

Stigler's analysis did not deny the possibility of collusion, even of the tacit variety. But it did suggest that tacit collusion would be a problem only at very high levels of concentration, [FN19] and in so doing cast grave doubt on the necessity for draconian measures, whether under section 7 of the Clayton Act or section 2 of the Sherman Act, for preventing tacit collusion by arresting or destroying concentration. [FN20]

By 1969, then, an orthodox Chicago position (well represented in the writings of Robert Bork) had crystallized: only explicit price fixing and very large horizontal mergers (mergers to monopoly) were worthy of serious concern.

II. THE GROWING CONVERGENCE OF THE TWO SCHOOLS

The basic tenet of the Chicago school, that problems of competition and monopoly should be analyzed using the tools of general *934 economic theory rather than those of traditional industrial organization, has triumphed. The concepts and methods of traditional industrial organization are increasingly discredited in economics as practiced in the leading universities and this change is beginning to be reflected in the application of economics to antitrust law. The new Areeda and Turner treatise [FN21] is a notable example of this point, although the treatise, perhaps because it is addressed primarily to practitioners rather than scholars, does not explicitly acknowledge the modification or abandonment of many of Professor Turner's earlier views. At the same time, the application of price theory to antitrust law has not left the pioneering work of Director and his followers untouched.

Let us consider now how the passage of years has affected some of the specific controversies between the Chicago and Harvard schools.

1. Tie-ins. The leverage theory of tie-ins early gave way in Harvard thinking to a barriers-to-entry theory. [FN22] A tie-in was said to complicate entry because the new entrant would have to produce the tied as well as the tying product. When the motive for tying is price discrimination, however, the producer of the tying product need not assume control over any part of the production of the tied product, let alone produce it all. Instead, all that is required is that

he act as an intermediary between the producer and the ultimate consumer so that he can re-price it in accordance with his discriminatory scheme. [FN23] A new entrant will be able to obtain the tied product from the same source that the existing firm obtains it from.

One element (and an important one) of the Chicago analysis is, however, subject to criticism: the assumption that price discrimination is on the whole socially beneficial because it moves the monopolist's output closer to the competitive level and hence reduces the misallocative effects of monopoly. As Joan Robinson pointed out long ago, if price discrimination is not perfect (and it *935 never is), it may lead to a smaller, rather than a larger, output than single-price monopoly. [FN24] For example, many of the heavy users of mimeograph machines might be deterred by an ink tie-in that had the effect of raising the price of the machine and the loss of output might not be offset by greater business from small users, even though on balance the monopolist's profits were higher (higher profits, rather than greater output, being the purpose of price discrimination). Even a larger output may not result in a smaller misallocation. The price-discriminating monopolist breaks up his demand curve into a series of separate demand curves for different groups of customers. Within each of these submarkets he sells the output that equates his marginal revenue to his marginal cost. The total misallocation brought about by the price-discriminating monopolist is the sum of the misallocations in each submarket, and may easily exceed the misallocation caused by a monopolist charging a single price and producing a smaller output. [FN25]

Other criticisms of the Chicago position have also been made. Professor Williamson, for instance, has noted that price discrimination involves extra transaction costs--specifically, the costs of preventing the low-price purchasers from reselling to the high-price purchasers (arbitrage)--which reduce the welfare gains from a higher output--if output is in fact higher. [FN26] It has also been argued that, by increasing the expected gains from monopolizing, price discrimination increases the investment in monopolizing-- which may not be socially desirable. Indeed, the costs of creating and maintaining monopolies may exceed the misallocative costs resulting from the smaller output of monopolized compared to competitive markets. [FN27] In the light of such criticism, the original Chicago analysis of the effects of tie-ins now seems a little oversimple. Nevertheless, *936 the conclusion that tie-ins should not be forbidden seems both correct [FN28] and increasingly influential on academic opinion.

2. Vertical integration. Here too the leverage theory was eventually replaced by a barriers-to-entry theory (the economic analysis of vertical integration being, as I have indicated, symmetrical with that of tie-ins). [FN29] The thinking was that if, for example, supplier A acquires all of his retail outlets, B, in order to compete, will have to open his own chain of outlets. This, in turn, will make B's entry more costly. The steps in this analysis are illogical, however, and evidence of monopolization by such means scant or nonexistent. [FN30] A will find it very costly to buy more outlets than he needs. B, on the other hand, will not have to open his own outlets to enter; if his entry is anticipated, the outlets will be there to greet him. Moreover, even if B did have to open his own retail outlets, the higher capital cost of his entry would still be no greater than the (also higher) capital cost to A of being a retailer as well as a manufacturer. The analysis does not depend on whether retail outlets are cheap or expensive to build or acquire or on whether the integration in question is forward into distribution or backward into raw-material, or other, supply. The essential point is that the cost to the monopolist of integrating is prima facie the same as the cost to the new entrant of having to integrate. [FN31] The validity of this analysis is not affected even if the result of integration is completely to deny the new entrant access to some essential input except by dealing with the existing firms in the market. The cost to the existing firms is still the same as to the new entrant, although now it is in the form of an opportunity cost. Suppose, for example, that kryptonite is an indispensable input in the manufacture of widgets. A owns all the kryptonite in the universe and also manufactures widgets. He could, of course, refuse to sell kryptonite to B, a prospective entrant into widget production. The cost to A of this refusal is the price B

would have been willing to pay. Stated differently, by his control of kryptonite A can extract any monopoly *937 rents available in the widget industry without denying a place in widget manufacture to others firms. If there is a proper antitrust objection, it is to the kryptonite monopoly rather than to vertical integration.

Yet, despite the force of these arguments, it is incorrect to dismiss entirely the possibility of monopolistic consequences from vertical arrangements. The above arguments assume that, as in the case of the manufacturer-retailer, the relevant inputs, e.g., the manufactured product and its distribution, are combined in fixed proportions to produce the final output (the sale at retail). Suppose, however, that some input is used in variable proportions with other inputs to produce the final output, e.g., uranium and enrichment services in the production of nuclear fuel. If one of the inputs is monopolized, causing its price to rise in relation to those of other inputs, the output manufacturer will seek to reduce the proportion in which he uses this input and, instead, use more of the other inputs. The possibility of such substitution acts as a partial check on the monopoly power of the input monopolist. Assume, however, that the input producer buys the input user. This will eliminate the threat of substitution and so reduce the elasticity of demand for the input in question. [FN32] Even so, it does not follow that the merger should be prohibited, for one of its effects is that the inputs will now be used in the proportions that minimize the true social costs of manufacturing the output. But it cannot be said that such a merger, merely because it is vertical, cannot possibly increase monopoly. So saying, I do not mean to suggest that such an equivocal and perhaps remote [FN33] danger warrants reversing the growing support, at least in academic circles, for a permissive policy toward vertical mergers and vertical integration generally.

The change in thinking that has been brought about by the Chicago school is nowhere more evident than in the area of vertical integration. Kaysen and Turner, writing in 1959, advocated forbidding any vertical merger in which the acquiring firm had twenty *938 percent or more of its market. [FN34] Areeda and Turner, writing in 1978, express very little concern with anticompetitive effects from vertical integration. In fact, as between a rule of per se illegality for vertical integration by monopolists and a rule of per se legality, their preference is for the latter. [FN35]

3. Restricted distribution. As noted above, the Harvard reply to the Chicago analysis of resale price maintenance was that the benefit that the manufacturer sought to obtain by restricting competition among his distributors, i.e., presale services, was actually a social evil, because these services resulted in "product differentiation," a barrier to entry. [FN36] Facing no close substitutes for his brand because it was differentiated in the consumer's eyes from competing brands, [FN37] the producer could charge a monopoly price. If the case of fraudulent advertising is put to one side, the conclusion that advertising and related promotional methods create monopoly power, at least in any sense relevant to antitrust policy, cannot be derived from the premises of economic theory. Consumers will not pay more for one brand than for another unless the first is cheaper or better. [FN38] Advertising can make an advertised brand cheaper by reducing the consumer's search costs by an amount greater than the difference in nominal price between that brand and nonadvertised brands of the same product. The same point can be made with respect to the other presale services, e.g., display, that are encouraged by restricted distribution.

The new industrial organization, which relates advertising to the costs of search, has transformed advertising from a social evil into a social benefit, [FN39] and in so doing has fatally undermined the Comanor riposte to the Director-Telser theory of resale price maintenance. Although inter-school differences relating to the welfare effects of advertising remain, [FN40] the position of the Chicago school *939 on restricted distribution has become the orthodox academic position. [FN41] The decision in *Continental T.V., Inc. v. GTE Sylvania Inc.* [FN42] suggests that it is well on its way to becoming the legal position as well.

4. Predatory pricing. McGee's famous article on the Standard Oil Trust [FN43] combined the

startling empirical finding that the trust, contrary to popular and academic belief, had not engaged in predatory pricing, with theoretical arguments for doubting the rationality of the practice. One of McGee's major arguments--that the trust would not have used predatory pricing because it is cheaper to buy a competitor than to sell below cost--was vulnerable to the criticism of being irrelevant to present-day circumstances, since acquiring a major competitor is clearly and unconcealably unlawful whereas predatory pricing may be difficult to detect. There is, however, a deeper problem with the McGee argument: it neglects strategic considerations. Assume that it is lawful to buy a rival. It does not follow that a firm will never resort to predatory pricing. After all, it wants to minimize the price at which it buys its rivals, and that price will be lower if it can convince them of its willingness to drive them out of business unless they sell out on its terms. One way to convince them of this is to engage in predatory pricing from time to time.

Since classical (or, one might add, modern) economics contains no generally accepted theory of strategic behavior, it is not surprising that the Chicago school should not have been particularly concerned with predatory pricing. Eliminate strategic considerations, and it becomes impossible to construct a rational motivation for predatory pricing without assuming (very uncongenially to a Chicagoan) asymmetric access to the capital markets for financing a period of below-cost selling. But to ignore strategic considerations is not satisfactory. Even without having a well-developed theory of strategic behavior, one can easily imagine circumstances in which predatory pricing, at least in the absence of legal prohibition, would be a plausible policy for a profit-maximizing seller to *940 follow. Suppose that he sells in many markets, and his rivals sell in only one or a few markets each. If he sells below cost in one market, his losses there are an investment that will be recouped with interest in his other markets in the form of more timid competition from the rivals in those markets. Knowing that the multi-market seller can obtain substantial gains from a demonstrated willingness to sell below cost for an extended period of time in one market, the local victim may not think it worthwhile to try to outlast him.

To be sure, the administrative and error costs of trying to prevent this sort of thing may outweigh its dangers to the competitive process. That, however, is a different point. My point is that predatory pricing is not irrational. It is not in the same category with, for example, attempting to get a second monopoly through tying. Bork is able to place predatory pricing in the irrational category only by failing to mention the possibility of strategic behavior. [\[FN44\]](#) Additional evidence for the decline of "schools" of antitrust economics is the position that Areeda and Turner (both of the Harvard Law School) have taken on predatory pricing. Their influential article on the subject (and the amplification of the article in their new treatise) is an essay in price theory. [\[FN45\]](#) Strategic considerations, the sort of thing the traditional industrial organization embraced eagerly, e.g., in oligopoly theory, are not mentioned, and skepticism of the likelihood of predatory pricing is registered. [\[FN46\]](#) Using the basic premises of classical price theory, Areeda and Turner argue that the only price that should be condemned as predatory is one below short-run marginal cost. Any higher price implies an opportunity to utilize scarce resources more fully by lowering price and expanding output. This is pure textbook price theory unadorned by any of the concepts of traditional industrial organization. It is not surprising that Professor Scherer, a leading adherent of traditional industrial organization thinking, launched a sweeping attack on the Areeda-Turner article, [\[FN47\]](#) or that Professor Williamson *941 criticized Areeda and Turner for ignoring strategic considerations in designing a rule against predatory pricing. [\[FN48\]](#) What is, perhaps, surprising is that I attacked Areeda and Turner as unduly permissive. [\[FN49\]](#) Unfortunately, my attack bogged down in a terminological dispute. I said that the proper criterion of predatory pricing was selling below long-run rather than short-run marginal cost with intent to destroy an equally or more efficient rival and that short-run marginal cost is lower than long-run marginal cost even when the firm is operating at its full (optimal) capacity, because some of elements of long-run mar-

ginal cost are fixed in the short run. Areeda and Turner pounced on the assertion that short-run marginal cost is below long-run marginal cost at full capacity. They pointed out that it would be costlier for a firm already operating at full capacity to expand in the short run than in the long run, for only in the long run could the firm make the adjustments in plant scale, etc., necessary to optimize production at a higher level. [FN50] I accept this criticism. Although I continue to be troubled by cases, potentially significant in the predatory-pricing context, in which long-run marginal cost might be thought to exceed short-run marginal cost even without excess capacity, [FN51] these cases can be dealt with by careful definition of the relevant terms.

*942 But this is a side issue that only obscures the serious problems of the short-run marginal cost standard. The lesser problem is that the standard gives the would-be predator an incentive to maintain excess capacity and thereby reduce his short-run marginal costs, an incentive the predator might have anyway in order to make his threat to sell below cost more credible.

[FN52] The greater problem is that the administrative difficulties of basing the legal rule on the concept of short-run marginal cost are so acute as to have led Areeda and Turner themselves to reject short-run marginal cost as the operational standard and instead substitute average variable cost. Yet they continue to defend that standard by reference to the arguments, such as they are, for allowing firms to cut price to short-run marginal cost. Average variable cost could be much below short-run marginal cost. [FN53] A standard of average variable cost should be defended on its own merits, rather than by reference to a different standard for which it is the crudest possible proxy. But Areeda and Turner do not attempt to defend an average variable cost standard, save as a proxy for short-run marginal cost.

What is the point of having such a low price floor? It would be unusual for a firm that wanted to engage in predatory pricing to set a price equal to or only slightly above zero. It would set a price designed to make its competitors' business unprofitable at minimum cost to itself. Any firm that sells at a price equal to its average variable costs, a price that doesn't cover any of its fixed costs (let alone generate any return on investment), will be unprofitable. Therefore, even if the competitor is somewhat more efficient than the predator, a price equal to the predator's variable costs, and hence close to the competitor's variable costs, should be an effective predatory price. Areeda and Turner allude to this possibility in a cryptic footnote. They write:

One can posit a case in which (1) one rival has lower variable costs but higher total costs than the other, (2) their *943 joint capacity exceeds the demand at a price that would be profitable to both, and hence (3) marginal-cost pricing by the first rival would drive out the second, which is the more efficient producer in the long run when capital facilities have to be replaced. But even in such a case, the appropriate short-run solution is production by the rival with the lowest variable costs. Obviously, one would not want that firm to replace its facilities, but a rational firm would not do so if the cheaper technique were available to it, or if others could freely enter using that technique. [FN54]

The last sentence in effect denies the possibility of predatory pricing by asserting that a rational firm would not replace its facilities if the cheaper technique were available to it or if others could "freely enter" with that technique. The first alternative, the availability of the cheaper technique, simply retracts the premise of the discussion--that there is a competitor who is "the more efficient producer in the long run when capital facilities have to be replaced." If a predator is always as efficient in the long run as his competitors, there is little reason to forbid predatory pricing. A more efficient competitor can exclude a less efficient one without pricing below cost and thereby losing money in the short run. To have a rational basis, a rule against predation must assume that firms sometimes want to cling to their markets although they are less efficient than their rivals, i.e., the "cheaper technique" is not available to them.

The second alternative suggested is free entry by firms as efficient as the excluded competitor. There are two ways in which to interpret the meaning of free entry here. One is that there is no need to worry about predatory pricing if there are many potential entrants waiting in the

wings: the predator cannot possibly deter them all. If so, there is little reason to have any rule against predatory pricing. Alternatively, Areeda and Turner may be suggesting that predatory pricing is possible only where there are barriers to entry. This, however, neglects strategic considerations, which do not depend on the existence of barriers to entry. [\[FN55\]](#)

The quoted passage fails to take the problem of predatory pricing seriously. It implies that no rational firm would engage in predatory pricing if its long-run marginal costs were higher than those of its victims. If this is so (which I question on the basis of *944 the strategic considerations suggested earlier), why is it necessary to forbid predatory pricing? Predatory pricing against less efficient firms is not a serious danger since they can be excluded by pricing at or above cost. Areeda and Turner may think that business irrationality is sufficiently common to warrant a rule against predatory pricing. [\[FN56\]](#) In any event, if there is sufficient danger of predatory pricing to warrant having a legal rule, as Areeda and Turner for whatever reason believe, that danger is triggered when a firm that is less efficient than its rivals cuts its price to its variable costs in order to make it unprofitable for those rivals to enter or remain in the market. Indeed, to repeat an earlier point, it is hard to see why a predator would ever have to price below that level in order to discourage rivals.

Whoever is correct in the debate over predatory pricing, one thing is clear: the debate is no longer one between schools that employ consistently different and ideologically tinged premises to reach predictably opposite results.

III. REMAINING DIFFERENCES

There is one very important area in which traces of the traditional differences between Chicago price theorists and Harvard industrial organizationists persist: the two schools continue to disagree over the significance of concentration and the wisdom of a policy of deconcentration. Williamson and many other lawyers and economists continue to believe that persistently high concentration in an industry warrants breaking up the leading firms. Brozen, Demsetz, Stigler, Baxter, and others disagree (the last two named, it should be noted, are defectors from the ranks of the deconcentrators). [\[FN57\]](#) Areeda and Turner, as will be seen, appear to take an intermediate position.

The heart of the difference is not over the strength of the positive correlation, found in many studies, between concentration and profitability but over the explanation for it. The Harvard school, still identifiable as such on this issue, contends that the correlation is explained by the fact that the leading firms in highly concentrated industries employ "conscious parallelism" to avoid price competition and thereby earn abnormal profits. The Chicago school does *945 not deny that concentration is a factor that facilitates collusion of a sort difficult to detect, although it attaches less significance to concentration per se than do the oligopoly theorists. It asks, rather, how it is that excessive profitability can persist without attracting new entry that will cause prices to fall to the competitive level. The Harvard school, after all, wants to restructure only the persistently concentrated industries. If the leading firms in such industries are able, by virtue of concentration, to obtain supracompetitive profits, these profits should act as a magnet to other firms in the economy and their entry will deconcentrate the industry.

That is what happened to the steel industry in the years following the formation of U.S. Steel Corporation in 1901. [\[FN58\]](#) Persistent concentration implies either that the market in question simply does not have room for many firms (economies of scale) or that some firms are able persistently to obtain abnormal profits by cost reductions or product improvements that competitors and new entrants are unable to duplicate. [\[FN59\]](#) Neither case is an attractive one for public intervention designed to change the market structure.

The Harvard reply is that there is an alternative explanation for persistent concentration in particular industries: barriers to entry. Because Stigler's definition of a barrier to entry, as a cost that differentially affects new entrants compared to firms already in the market, [\[FN60\]](#) is now generally accepted, the search is for costs having this characteristic. The most sophistica-

ted quester, Oliver Williamson, has found one: the uncertainty of the new entrant's prospects may force him to pay a higher risk premium to obtain capital than existing firms must pay. [\[FN61\]](#) This is a legitimate point. But it is difficult to believe that such a difference in the cost of capital would be enough to prevent entry if the firms in a market were charging prices substantially above their costs. The risk premium is unlikely to be a large fraction of the new entrant's costs. Interest and profit are rarely more than ten percent of a manufacturing firm's sales price and often they are a much smaller percentage. Thus, even if a new entrant had to pay a ten percent higher interest rate and (expected) return to shareholders to attract the necessary capital, its total costs would be only about one percent higher than those of the firms already in the market. There is no doubt that the differential risk premium is smaller if the new entrant *946 is a well-established firm in other markets, as will typically be the case, and, to the extent that the risk is diversifiable, the risk premium will be still smaller or even disappear entirely. Another important source of new entry, viewing the term functionally rather than lexicographically, is the expansion of the existing small firms in the market. In response to supracompetitive pricing, a fringe of small firms in a market may be able to expand output moderately without incurring significantly higher capital costs than those borne by the larger firms in the market. All in all, it seems far-fetched to base a policy of deconcentration on the allegedly higher borrowing costs of new entrants in concentrated markets.

Williamson has also argued that if a firm once grows big, for whatever reason, there is no reason to expect it to decline as a result of the random shocks to which it and other market participants will be subjected over time. [\[FN62\]](#) But he neglects a crucial factor. The firm is by hypothesis charging a supracompetitive price as a result of the interdependence or collusion fostered by the concentrated market structure in which it finds itself. That price will attract new firms (or, what amounts to the same thing, expansion by the smaller firms in the market) and the oligopolist will either have to cut price or surrender market share. In the former case, profits will fall and in the latter, concentration will decrease. The persistence of high concentration together with excess profitability remains to be accounted for.

Deconcentration policy, then, is critically dependent upon belief in the existence of substantial barriers to entry in many industries. Once "barrier to entry" was redefined as a differentially higher cost borne by the new entrant, the plausibility of supposing that barriers to entry are common, or commonly substantial, diminished sharply. The deconcentrators are thus arguing from an abandoned premise. This can be seen most clearly by comparing the discussion of barriers to entry in Kaysen and Turner's *Antitrust Policy* and in Areeda and Turner's *Antitrust Law*. Both books are concerned over the anti-competitive consequences of deconcentration, although the latter much more qualifiedly so, and only at much higher levels of concentration. [\[FN63\]](#) The view of barriers to entry, however, is very different in the two books. [\[FN64\]](#) To Kaysen and *947 Turner they are numerous and include economies of scale, capital requirements, scarce know-how and inputs, and product differentiation. No rigorous definition of barrier to entry is offered; nor do the authors deduce the concept of barriers to entry from the assumption that business firms act as rational profit maximizers. The important point, however, is that, believing barriers to entry to be numerous and prevalent, the authors have a rational basis for wanting to deconcentrate concentrated markets. Areeda and Turner greatly pare down the list of barriers to entry. Because they utilize Stigler's definition of a barrier to entry, they are led to exclude economies of scale entirely. The related size-of-capital barrier is discarded also and product differentiation is discounted on the basis of a view of advertising that is close to the Chicago view. The only barriers that remain are: (1) the Williamson risk-premium version of the capital barrier and (2) control of scarce input. [\[FN65\]](#) Thus, Areeda and Turner largely discard the concept of barrier to entry, finding some of the barriers theoretically invalid and others empirically unimportant; such "pure" barriers as remain surely cannot explain much concentration. And although Areeda and Turner do not expressly discuss the dependence of deconcentration theory on the belief in the existence of high and pervasive

barriers to entry, they do draw quite different policy implications concerning persistent high concentration from Kaysen and Turner. Whereas the earlier book recommended a policy of deconcentration, the later book recommends remedial action, whether under existing antitrust provisions or new legislation, only where there is proof of non-competitive performance.

[FN66] There is more than a nuance of difference between these two views. Here, then, is further evidence that even in the most important area where distinctive "Harvard" *948 and "Chicago" approaches remain discernible, the process of convergence is well under way.

[FN67]

CONCLUSION

Although this paper has not attempted an exhaustive canvass of rival theories of antitrust analysis, [FN68] it has, I hope, said enough to persuade the reader that the oldest and most persistent stereotype in antitrust economics, that of the Chicago school, bears little relationship to the current state of academic thinking. Changes of mind within both the Chicago school and its principal rival, which I have called the Harvard school, have produced a steady trend toward convergence. Differences remain, but increasingly they are technical rather than ideological. [FN69]

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[FN1]. Director formulated his ideas mainly orally. But see Director & Levi, *Law and the Future: Trade Regulation*, 51 NW. U.L. REV. 281 (1956).

[FN2]. See, e.g., Bork, *Vertical Integration and the Sherman Act: The Legal History of an Economic Misconception*, 22 U. CHI. L. REV. 157 (1954); Bowman, *Tying Arrangements and the Leverage Problem*, 67 YALE L.J. 19 (1957); McGee, *Predatory Price Cutting: The Standard Oil (N.J.) Case*, 1 J.L. & ECON. 137 (1958); Telser, *Why Should Manufacturers Want Fair Trade?*, 3 J.L. & ECON. 86 (1960). For the most complete and most orthodox statement of the Chicago position see R. BORK, *THE ANTITRUST PARADOX* (1978); for an anthology in which Chicago writings are heavily represented see *THE COMPETITIVE ECONOMY: SELECTED READINGS* (Y. Brozen ed. 1974). My own views, which closely resemble but are not identical to the more orthodox Chicago position espoused by Bork, are expressed in R. POSNER, *ANTITRUST LAW* (1976).

[FN3]. A "free rider" in this context would be a dealer who undersold competing dealers by selling the product itself at a lower price while relying on them to provide the necessary pre-sale services to the customer.

[FN4]. Rather than suffer financial loss as a result of a price war, the rational would-be monopolist would buy out the competing company.

[FN5]. This is the same reason why manufacturers would not want their dealers to cartelize distribution and why, therefore, Director sought an alternative explanation for resale price maintenance.

[FN6]. By this I mean action that does not involve agreement with a competitor. It may, of course, involve agreement with a customer or supplier, and generally does: even a sale below cost involves at least an implicit contract between seller and purchaser.

[FN7]. See, e.g., [United States v. American Tobacco Co.](#), 221 U.S. 106 (1911); [Standard Oil Co. v. United States](#), 221 U.S. 1 (1911).

[FN8]. Its flavor is well conveyed in the writings of Edward S. Mason. See, e.g., E. MASON, *ECONOMIC CONCENTRATION AND THE MONOPOLY PROBLEM* (1957). For a representative application of 1950's-style industrial organization to antitrust problems see C. KAYSEN, *United States v. United Shoe Machinery Corporation: AN ECONOMIC ANALYSIS OF AN ANTI-TRUST CASE* (1956).

[FN9]. See Turner, [The Validity of Tying Arrangements Under the Antitrust Laws](#), 72 *HARV. L. REV.* 50, 60-62, 63 n.42 (1958).

[FN10]. See C. KAYSEN & D. TURNER, *ANTITRUST POLICY* 73 & n.33 (1959).

[FN11]. The depreciation rate of advertising has been found to be very high in industries that advertise heavily--such as the cosmetics (13% a year) and cereals (37%) industries. See Ayanian, *Advertising and Rate of Return*, 18 *J.L. & ECON.* 479, 499 (1975).

[FN12]. Unlike other tenets of the old industrial organization, the hostility to advertising, though largely abandoned in the new Areeda and Turner treatise, P. AREEDA & D. TURNER, *ANTITRUST LAW* (1978); see note 41 *infra*, continues to command considerable, though diminished, academic support. See, e.g., W. COMANOR & T. WILSON, *ADVERTISING AND MARKET POWER* (1974). For the Chicago position, see Brozen, *Entry Barriers: Advertising and Product Differentiation*, in *INDUSTRIAL CONCENTRATION: THE NEW LEARNING* 115 (1974); Telser, *Advertising and Competition*, 72 *J. POLITICAL ECON.* 537 (1964). For recent discussions see D. WORCESTER, *WELFARE GAINS FROM ADVERTISING: THE PROBLEM OF REGULATION* (1978); Butters, *A Survey of Advertising and Market Structure*, 66 *AM. ECON. REV. PAPERS & PROC.* 392 (1976).

[FN13]. It is a curiosity, and a source of regret, that to this day very few of Director's ideas have been subjected to systematic empirical examination.

[FN14]. They do offer a brief discussion of the price discrimination theory of tie-ins. See C. KAYSEN & D. TURNER, *supra* note 10, at 157. Elsewhere, however, the authors seem to be espousing the leverage theory. *Id.* 154, 157. But the discussion is unclear, as is Turner's brief reference to the price discrimination theory in his early article on tie-ins. See Turner, *supra* note 9, at 63 n.42.

[FN15]. See G. STIGLER, *THE ORGANIZATION OF INDUSTRY* (1968) [hereinafter cited as *ORGANIZATION OF INDUSTRY*], collecting his major articles on industrial organization. See also G. STIGLER & J. KINDAHL, *THE BEHAVIOR OF INDUSTRIAL PRICES* (1970).

[FN16]. See Harberger, *Monopoly and Resource Allocation*, 44 *AM. ECON. REV. PAPERS & PROC.* 77 (1954).

[FN17]. See articles collected in *ORGANIZATION OF INDUSTRY*, *supra* note 15.

[FN18]. G. STIGLER, *A Theory of Oligopoly*, in *ORGANIZATION OF INDUSTRY*, *supra* note 15, at 39.

[FN19]. *Id.* 57, 59. See also Kessel, A Study of the Effect of Competition in the Tax-Exempt Bond Market, 79 J. POLITICAL ECON. 706, 727 (1971).

[FN20]. See PRESIDENT'S TASK FORCE REPORT ON PRODUCTIVITY AND COMPETITION (1969), reprinted in 1 Small Business and the Robinson-Patman Act: Hearings on H. Res. 66 Before the Special Subcomm. on Small Business and the Robinson-Patman Act of the House Select Comm. on Small Business, 91st Cong., 1st Sess. 271 (1969).

[FN21]. P. AREEDA & D. TURNER, *supra* note 12. Another important example, less dramatic only because the author is too young to have had earlier published views to recant, is Ernest Gellhorn's Antitrust Law and Economics. E. GELLHORN, ANTITRUST LAW AND ECONOMICS 257-60, 283-85 (1976).

[FN22]. The barrier-to-entry theory of tie-ins appears in Kaysen and Turner's treatise. C. KAYSEN & D. TURNER, *supra* note 10, at 157. As pointed out above, it is not clear whether Kaysen and Turner also espoused the leverage theory. See note 14 *supra*.

[FN23]. It is hardly credible, for example, that the A.B. Dick Company was trying to take over the production of ink in the United States. See [Henry v. A.B. Dick Co., 224 U.S. 1, 11 \(1911\)](#).

[FN24]. J. ROBINSON, THE ECONOMICS OF IMPERFECT COMPETITION 190-94 (1933). See also P. SAMUELSON, FOUNDATIONS OF ECONOMIC ANALYSIS 42-45 (1947). Bork thinks it likely that price discrimination, even if imperfect, will generally result in a larger output than a single-price monopoly. R. BORK, *supra* note 2, at 397. He relies for this conclusion primarily on Joan Robinson's analysis, but I cannot find anything in her analysis that supports any general conclusion regarding the output effects of discriminatory versus nondiscriminatory monopoly.

[FN25]. I am indebted to Dennis Carlton for having pointed this out to me.

[FN26]. O. WILLIAMSON, MARKETS AND HIERARCHIES: ANALYSIS AND ANTI-TRUST IMPLICATIONS 11-13 (1975).

[FN27]. See Posner, Exclusionary Practices and the Antitrust Laws, 41 U. CHI. L. REV. 506, 510-13 (1974). Bork criticizes the argument on the ground that some monopolies are a byproduct of socially desirable activity, e.g., innovation, and in those cases the effect of price discrimination in making monopoly more profitable, and hence inducing greater resources to be expended on obtaining it, need not occasion concern. R. BORK, *supra* note 2, at 396. The point is correct. See Posner, *supra*, at 513-14. But it is different from the point that price discrimination is socially desirable because it leads to a larger output of the monopolized product.

[FN28]. See R. POSNER, *supra* note 2, at 178-83.

[FN29]. See C. KAYSEN & D. TURNER, *supra* note 10, at 120-21. Kaysen and Turner also espoused a leverage theory of vertical integration. *Id.* 121-22.

[FN30]. See Peltzman, Issues in Vertical Integration Policy, in PUBLIC POLICY TOWARD MERGERS 167 (1969).

[FN31]. This assumes equal access to capital markets and equal cost of obtaining capital.

These assumptions have been criticized by Professor Williamson, Williamson, Book Review, 83 YALE L.J. 647, 656-57 (1974), among others. In only one respect, however, and that a minor one, can this position be sustained, at least in the absence of evidence that has so far not been forthcoming. See text accompanying note 61 *infra*.

[FN32]. See Vernon & Graham, Profitability of Monopolization by Vertical Integration, 79 J. POLITICAL ECON. 924 (1971), discussed in McGee & Bassett, Vertical Integration Revisited, 19 J.L. & ECON. 17 (1976). See also Blair & Kaserman, Vertical Integration, Tying, and Antitrust Policy, 68 AM. ECON. REV. 397 (1978), and references cited therein. Blair and Kaserman note that the same result can be obtained by the input monopolist's tying potentially substitutable inputs to the sale of the input he controls. They offer no example showing that this has ever been done.

[FN33]. A very recent paper suggests, on theoretical grounds, that monopoly power is unlikely to be increased substantially. See Mallela & Nahata, Theory of Vertical Control With Variable Proportions (forthcoming in Journal of Political Economy). A similar conclusion is reached by Bork. See R. BORK, *supra* note 2, at 229-31.

[FN34]. C. KAYSEN & D. TURNER, *supra* note 10, at 133.

[FN35]. 3 P. AREEDA & D. TURNER, *supra* note 12, ¶ 726b. Areeda and Turner are discussing vertical integration by internal expansion rather than by merger, but their analysis implies a tolerant attitude toward either form.

[FN36]. See text accompanying note 12 *supra*.

[FN37]. See Comanor, [Vertical Territorial and Customer Restrictions: White Motor and Its Aftermath](#), 81 HARV. L. REV. 1419, 1425-33 (1968).

[FN38]. This assumes, of course, that the consumer is rational. That is one of the standard assumptions of economic theory. It is not equivalent to assuming that the consumer is omniscient. Indeed, the existence of consumer search costs is an important reason why there is advertising. See Nelson, Advertising as Information, 82 J. POLITICAL ECON. 729 (1974).

[FN39]. See references in D. WORCESTER, *supra* note 12, at 209.

[FN40]. This is indicated by Professor Richard Nelson's comments on this paper which follow.

[FN41]. The new Areeda and Turner treatise essentially adopts the Chicago position on advertising, in the course of discounting the significance of advertising as a barrier to entry. See 2 P. AREEDA & D. TURNER, *supra* note 12, ¶ 409d. For Turner's earlier contrary views see Turner, Advertising and Competition, 26 FED. B.J. 93 (1966).

[FN42]. 433 U.S. 36 (1977), discussed in Posner, The Rule of Reason and the Economic Approach: Reflections on the Sylvania Decision, 45 U. CHI. L. REV. 1 (1977).

[FN43]. McGee, *supra* note 2.

[FN44]. R. BORK, *supra* note 2, at 144-55.

[FN45]. Areeda & Turner, [Predatory Pricing and Related Practices Under Section 2 of the Sherman Act](#), 88 HARV. L. REV. 697 (1975); 3 P. AREEDA & D. TURNER, *supra* note 12, ¶ 711.

[FN46]. A curiosity of the Areeda and Turner treatment is that no theory of why predatory pricing would ever occur is suggested.

[FN47]. Scherer, [Predatory Pricing and the Sherman Act: A Comment](#), 89 HARV. L. REV. 869 (1976); see Areeda & Turner, [Scherer on Predatory Pricing: A Reply](#), 89 HARV. L. REV. 891 (1976); Scherer, [Some Last Words on Predatory Pricing](#), 89 HARV. L. REV. 901 (1976).

[FN48]. See Williamson, [Predatory Pricing: A Strategic and Welfare Analysis](#), 87 YALE L.J. 284 (1977).

[FN49]. See R. POSNER, *supra* note 2, at 191-93.

[FN50]. 3 P. AREEDA & D. TURNER, *supra* note 12, ¶ 715a, at 168 n.7.

[FN51]. To illustrate very simply the kind of problem that led me to my original formulation, imagine a firm that at its current level of production makes 100 units at a total cost of \$1,000.00, this cost consisting of (1) a rental of \$500.00 for the factory premises and (2) labor and materials (short-run variable) costs of \$5.00 per unit. The firm decides to cut price and expand output for the sole purpose of driving a more efficient rival out of the market. The firm's new production level is 101 units. At this level of production, which is greater than optimal, the labor and materials cost of the last unit is, say, \$5.50; but rent, a fixed debit, is unchanged. The firm's short-run marginal cost is then \$5.50. What is its long-run marginal cost? We must ask what the landlord would charge when the lease comes up for renewal if the output of the firm has risen. Presumably, the rental will be higher-- suppose it is \$5.00 higher. (The figure is not particularly important, so long as it is large enough to make the long-run marginal cost curve of the firm higher than at the current level; if it is lower, the present output of the firm cannot be optimal.) Assume further that in the long run the labor and materials cost of expanding output by one unit would be \$5.10. Then the long-run marginal cost, that is, the cost in the long run of expanding output from 100 to 101 units, is \$10.10. But the short-run marginal cost is only \$5.50 despite the fact that the expansion is from the level of production that is optimal given the firm's existing plant, work force, etc.

As another example, suppose there are some workers who divide their time between production and maintenance. To expand output, the firm shifts these workers entirely into production. In the short run, the increased labor cost of production may be completely offset by the reduction in maintenance expense; in the long run, the maintenance expense is, if anything, higher. The second example suggests the way to reconcile my analysis with the conventional textbook formulation. We can say that the added future maintenance cost resulting from the shift of workers from maintenance to production is actually one of the short-run marginal costs of stepping up production and that the higher rental that will be negotiated for the future period is actually a short-run marginal cost of the present increase in production.

[FN52]. See Spence, [Entry, Capacity, and Oligopolistic Pricing](#), 8 BELL J. ECON. 534 (1977).

[FN53]. In my example, see note 51 *supra*, Areeda and Turner would, I take it, regard short-run marginal cost as somewhere above \$10.10 (since that is the long-run marginal cost at the higher level of output). But the average variable cost is only a shade over \$5.00.

[FN54]. 3 P. AREEDA & D. TURNER, *supra* note 12, ¶ 715a, at 168 n.7.

[FN55]. See O. WILLIAMSON, *MARKETS AND HIERARCHIES: ANALYSIS AND AN-TITRUST IMPLICATIONS* 145-48 (1975).

[FN56]. It is difficult to determine their precise position because they do not explain under what circumstances they would expect predatory pricing to occur.

[FN57]. *Industrial Concentration: The New Learning* contains a very full version of this debate. *INDUSTRIAL CONCENTRATION: THE NEW LEARNING* (H. Goldschmid, H. Mann & J. Weston eds. 1974).

[FN58]. See *ORGANIZATION OF INDUSTRY*, *supra* note 15, at 108.

[FN59]. See, e.g., Peltzman, *The Gains and Losses from Industrial Concentration*, 20 *J.L. & ECON.* 229 (1977).

[FN60]. See *ORGANIZATION OF INDUSTRY*, *supra* note 15, at 67-70.

[FN61]. See Williamson, *supra* note 31, at 656-59.

[FN62]. See Williamson, [Dominant Firms and the Monopoly Problem: Market Failure Considerations](#), 85 *HARV. L. REV.* 1512, 1518-19 (1972).

[FN63]. Compare C. KAYSEN & D. TURNER, *supra* note 10, at 27, 72, 104 n.6 with 2 P. AREEDA & D. TURNER, *supra* note 12, ¶¶ 406b, 407d & 408c.

[FN64]. Compare C. KAYSEN & D. TURNER, *supra* note 10, at 73-74 with 2 P. AREEDA & D. TURNER, *supra* note 12, ¶ 409.

[FN65]. Legal barriers to entry such as patents are quite properly ignored as beyond the reach of antitrust policy. As a detail, I think Areeda and Turner are wrong to treat control of a scarce input as a barrier to entry into the output market. See 2 P. AREEDA & D. TURNER, *supra* note 12, ¶ 409b. To treat it so is a version of the leverage fallacy. If a seller of widgets controls an indispensable input into widget production, call it manganium, he will have little incentive to restrict entry into the widget market. His control of manganium will enable him to extract all of the economic rents obtainable in the widget market without selling any widgets, let alone trying to control the widget market. (To be sure, I am ignoring considerations of input substitution in the variable-proportions case and of price discrimination, but these are second-order considerations and are in any event not the basis on which Areeda and Turner deem control of a key input a barrier to entry.) Alternatively, if the scarce input is not a good but, say, the services of an extraordinarily skilled manager, he will presumably extract all (or more realistically most) of the benefits that his services confer on the firm, in the form of a rent; consequently, the firm's costs may be little lower than those of other firms in the market, or of prospective entrants.

[FN66]. See, e.g., 3 P. AREEDA & D. TURNER, *supra* note 12, ¶ 840.

[FN67]. A further aspect of the Chicago-Harvard difference on deconcentration arises from the difference between the deep distrust of government intervention that is associated with the

Chicago School of Economics (in the broader, Milton Friedman sense) and the (rapidly diminishing) complacency toward such intervention associated with traditional Harvard-M.I.T. economic thinking. Deconcentration is a more ambitious form of public control than is usually involved in antitrust enforcement, so one's attitudes toward the capabilities of regulatory-type governmental interventions naturally come into play. That is why adherents of the Chicago school believe it unsound to base a policy of deconcentration on the assumption that a deconcentration proceeding is a swifter method than entry itself of deconcentrating markets in which there are no barriers to entry in the technical sense but in which entry at minimum cost requires substantial time.

[\[FN68\]](#). I have not, for instance, discussed the "transactional cost" analysis associated with Oliver Williamson. That analysis combines elements of Harvard thinking with elements of the thought of Ronald Coase and elements of the Carnegie-Mellon school. I have also not mentioned Richard Markovits, who has revived Chamberlain's brand of old-fashioned industrial organization, the populist school associated with Willard Mueller and others, or the diehard industrial organizationists such as Michael Mann.

[\[FN69\]](#). Professor Richard Nelson, whose comments on this paper follow, evidently disagrees. But he is a careful reader neither of my work nor of the recent journal literature that he purports to summarize. He suggests, for example, that the recent Chicago writing denies the possibility of adjustment lags or costs in new entry into a concentrated industry. But a recognition of that possibility is in fact an important aspect of the work of Stigler, see ORGANIZATION OF INDUSTRY, supra note 15, at 108, and of me, see, e.g., Posner, supra note 2, at 29; note 66 supra. He implies that the Chicago school has ignored uncertainty, information, and search costs: on the contrary, the current interest in these subjects stems from George Stigler's pioneering article on the economics of information. See G. Stigler, The Economics of Information, in ORGANIZATION OF INDUSTRY, supra note 15, at 171. And the Chicago school's analysis of advertising differs from the traditional Harvard view precisely in bringing consumer search costs into the analysis. See, e.g., Nelson, supra note 38. The role of transaction costs in explaining vertical integration, although latterly associated with Oliver Williamson, stems from the early article by Coase. Coase, The Nature of the Firm, 4 ECONOMICA 506 (1937).

More important, while Professor Nelson argues that some of the very recent literature modifies or refines the economic theory underlying the Chicago school's analysis, nowhere does he state that the literature supports a more active antitrust policy than the Chicago analysis recommends, or for that matter a different antitrust policy. His analysis appears to have no policy implications.

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