

1981

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Recommended Citation

Laraine L. Laudati, *Note: Economies of Scale: Weighing Operating Efficiency when Enforcing Antitrust Law*, 49 Fordham L. Rev. 771 (1981).

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ECONOMIES OF SCALE: WEIGHING OPERATING EFFICIENCY WHEN ENFORCING ANTITRUST LAW

"[I]t has been the law for centuries that a [person] may set up a business in a country town too small to support more than one, although thereby . . . [intending] to ruin some one already there and [succeeding in that] intent. In such a case [the competitor] is not held to act 'unlawfully and without justifiable cause' The reason, of course, is that the doctrine generally has been accepted that free competition is worth more to society than it costs, and that on this ground the infliction of the damage is privileged."*

INTRODUCTION

Economists have long recognized the antitrust dilemma that it is impossible to promote perfect competition¹ when large economies of scale are present.² Because economists generally believe that antitrust policy should reinforce the achievement of scale economies,³ they encourage only workable competition when large scale economies exist.⁴ Courts, although traditionally emphasizing populist goals in antitrust enforcement, such as protecting small business,⁵ recently

* *Vegeahn v. Guntner*, 167 Mass. 92, 106, 44 N.E. 1077, 1080 (1896) (Holmes, J., dissenting) (citation omitted).

1. Perfect competition is achieved when four conditions exist: the product of each seller is fungible; no buyer or seller has a sufficiently large part of the total market to influence price; all resources can readily enter, leave, or switch uses in the market; and perfect knowledge of relevant economic and technological data exists among all consumers and producers. 2 P. Areeda & D. Turner, *Antitrust Law* ¶ 402a (1978); E. Mansfield, *Microeconomics* 234-35 (2d ed. 1975); P. Samuelson, *Economics* 43 (9th ed. 1973).

2. 1 P. Areeda & D. Turner, *supra* note 1, ¶ 103; R. Bork, *The Antitrust Paradox* 7-8 (1978); P. Samuelson, *supra* note 1, at 48; Asch, *Industrial Concentration, Efficiency, and Antitrust Reform*, 22 *Antitrust-Bull.* 129, 130-31 (1977); see J. McGee, *In Defense of Industrial Concentration* 18 (1971) (public policy choice in some industries may lie between fewer firms with lower costs and more firms with higher costs).

3. See 2 P. Areeda & D. Turner, *supra* note 1, ¶ 401; R. Bork, *supra* note 2, at 192; C. Kaysen & D. Turner, *Antitrust Policy* (1965); Williamson, *Symposium on Antitrust Law and Economics*, 127 U. Pa. L. Rev. 918 (1979).

4. P. Samuelson, *supra* note 1, at 48. Workable competition is reasonably effective competition that has some imperfect elements. Specifically, some buyers or sellers in the market may be large enough to influence price. *Id.* at 47-48. A market is workably competitive if, among others, there are at least as many buyers and sellers as scale economies permit; entry is reasonably free; predatory tactics are not used; inefficient buyers and sellers are not protected; production and distribution operations are efficient; demand controls quantity and quality of production; and profits are at a level sufficient to provide a reasonable return on investment. F. Scherer, *Industrial Market Structure and Economic Performance* 42 (2d ed. 1980) [hereinafter cited as F. Scherer I].

5. *United States v. Von's Grocery Co.*, 384 U.S. 270, 274-77 (1966); *United States v. Aluminum Co. of Am.*, 377 U.S. 271, 278-79 & n.6 (1964); *United States v. Philadelphia Nat'l Bank*, 374 U.S. 321, 362-63 & n.42 (1963); *Brown Shoe Co. v.*

also have emphasized economic values when interpreting antitrust law, including increased tolerance of aggressive business competition.⁶ As a result, courts faced with a choice between limiting the size of a firm to achieve a competitive market structure and preserving and protecting operating efficiency are increasingly likely to protect efficiency.⁷ Even the National Commission for the Review of Antitrust Laws and Procedures, which rejects standard rule of reason analysis, expressly suggests efficiency as the sole defense to a proposed no-fault actual monopolization charge.⁸ To be meaningful,

United States, 370 U.S. 294, 315-17 (1962); *United States v. Trans-Missouri Freight Ass'n*, 166 U.S. 290, 322-23 (1897); *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 428-29 (2d Cir. 1945); R. Bork, *supra* note 2, at 4. This emphasis is consistent with congressional intent expressed prior to enactment of the Sherman Act, 15 U.S.C. § 2 (1976), H. Thorelli, *The Federal Antitrust Policy* (1955); Bork, *Legislative Intent and the Policy of the Sherman Act*, 9 J.L. & Econ. 7 (1966); Sullivan, *Economics and More Humanistic Disciplines: What Are the Sources of Wisdom for Antitrust?*, 125 U. Pa. L. Rev. 1214, 1219-20 (1977) [hereinafter cited as Sullivan I], the Clayton Act, 15 U.S.C. § 18 (1976), Bok, *Section 7 of the Clayton Act and the Merging of Law and Economics*, 74 Harv. L. Rev. 226, 306-08 (1960); Turner, *Conglomerate Mergers and Section 7 of the Clayton Act*, 78 Harv. L. Rev. 1313, 1326 (1965), and the Celler-Kefauver Act, 15 U.S.C. §§ 18, 21 (1976). 96 Cong. Rec. 16444, 16448, 16450, 16452, 16503 (1950); 95 Cong. Rec. 11486, 11489, 11494-95, 11498 (1949). *But see* *Brown Shoe Co. v. United States*, 370 U.S. 294, 319 (1962) (supporters of § 7 in congressional debates stated that it would not impede a merger between two small companies to enable the combination to compete more effectively); I P. Areeda & D. Turner, *supra* note 1, ¶ 104 (courts have given efficiency priority over populist goals). *See generally* R. Bork, *supra* note 2, at 5.

6. *E.g.*, *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263, 273-75 (2d Cir. 1979), *cert. denied*, 444 U.S. 1093 (1980); *California Computer Prods., Inc. v. IBM Corp.*, 613 F.2d 727, 732 (9th Cir. 1979); *GTE Sylvania, Inc. v. Continental T.V., Inc.* 537 F.2d 980, 997 (9th Cir. 1976), *aff'd*, 433 U.S. 36 (1977); *Telex Corp. v. IBM Corp.*, 510 F.2d 894, 927-28 (10th Cir.), *cert. dismissed*, 423 U.S. 802 (1975); *Transamerica Computer Co. v. IBM Corp.*, 481 F. Supp. 965, 1008-10 (N.D. Cal. 1979); *ILC Peripherals Leasing Corp. v. IBM Corp.*, 458 F. Supp. 423, 433-34 (N.D. Cal. 1978), *aff'd sub nom. Memorex v. IBM Corp.*, Nos. 78-350, 78-3236, slip op. at 992 (9th Cir., Nov. 10, 1980); E.I. DuPont de Nemours & Co., [1980] *Antitrust & Trade Reg. Rep. (BNA)*, No. 987, F-1, F-10 (F.T.C. Oct. 30, 1980); Sullivan, *Antitrust, Microeconomics, and Politics: Reflections on Some Recent Relationships*, 68 Cal. L. Rev. 1 (1980) [hereinafter cited as Sullivan II]; Comment, *Draining the Alcoa "Wishing Well": The Section 2 Conduct Requirement After Kodak and Calcomp*, 48 Fordham L. Rev. 291 (1979). Traditional antitrust enforcement downplayed the significance of abusive practices and emphasized the mere existence of monopoly power. *United States v. Aluminum Co. of Am.*, 91 F. Supp. 333, 340-41 (S.D.N.Y. 1950). The change in emphasis by the courts in recent cases results in part from their greater emphasis on overt abusive acts and a toleration of monopoly power in the absence of such acts.

7. I P. Areeda & D. Turner, *supra* note 1, ¶ 104.

8. National Commission for the Review of Antitrust Laws and Procedures, Report to the President and the Attorney General 152 (1979) [hereinafter cited as National Commission Report]. The Commission was created to consider "revision . . . of substantive [antitrust] law needed to expedite the resolution of

however, legal standards based on efficiency concepts must more carefully consider the work of economists.⁹

This Note argues that scale economies should be considered when determining liability and relief under section 2 of the Sherman Act¹⁰

complex cases and . . . proposals for making the remedies available in such cases more effective." *Id.* at 143 (footnote omitted) (quoting Exec. Order No. 12,022, § 2(a)(1), 3 C.F.R. 155-56 (1977 Compilation), as amended by Exec. Order No. 12,052, 43 Fed. Reg. 15,133 (daily ed. Apr. 11, 1978)). The National Commission felt "that doctrinal changes in antitrust should be made primarily on the basis of their relationship to the fundamental goals of antitrust—including *economic efficiency*, consumer welfare, and dispersion of social, economic, and political power—rather than solely, or even mainly, for purposes of expediting litigation or making relief more effective." *Id.* at 143 (emphasis added). The Commission's no-fault proposal would require divestiture once persistent monopoly power was shown unless divestiture was shown to destroy substantial scale economies or benefits accruing from a patent. *Id.* at 152.

9. Enforcement of the antitrust laws should be aimed at controlling imperfections in the free market system. R. Bork, *supra* note 2, at 7 ("[T]he only legitimate goal of antitrust is the maximization of consumer welfare."); C. Kaysen & D. Turner, *supra* note 3, at 3-5 (only in the context of a free market system is it worthwhile to emphasize antitrust policy). Rational trade regulation policy mandates the application of sound economic analysis to antitrust cases. *See* R. Bork, *supra* note 2, at 4, 7. "[R]ules [of law] that significantly impair both competition and the ability of the economy to produce goods and services efficiently [have been made by the courts based] on demonstrably erroneous notions of the economics that guide the law. . . . Unless the theory of antitrust is understood and the law brought into line with it, the law will [become] even more unnecessarily restrictive of business freedom. . . . A consumer-oriented law must employ basic economic theory to judge which market structures and practices are harmful and which beneficial." *Id.* at 4-7. Indeed, economic analysis has taken an increasingly prominent role in antitrust law. L. Sullivan, *Handbook of the Law of Antitrust* § 1, at 1-2, 8-9 (1977) ("Habits of thought, techniques of analysis, and value preferences derived from economics have come increasingly to play a substantial part in the development and application of the law. Today, one interested in antitrust cannot ignore economics . . . Increasingly . . . courts have turned toward theoretical economics for insight and aid in the development of antitrust doctrine."). *But see* R. Bork, *supra* note 2, at 4-5 (an irrational argument has been advanced that antitrust law should ignore economics and antitrust lawsuits should be brought sporadically and indiscriminately to keep business in line); Note, *Potential Production: A Supply Side Approach for Relevant Product Market Definitions*, 48 *Fordham L. Rev.* 1199, 1204 n.22 (1980) [hereinafter cited as *Potential Production*] ("Judges, not economists, decide antitrust law. Case analysis, therefore, is the proper starting point."); L. Sullivan, *supra*, § 1, at 7-8 ("[C]ourts can only function effectively in areas where the applicable values are clearly and authoritatively identified and where critical factual questions are sufficiently determinate so that use of the ordinary devices for judicial inquiry, characterization, rule making and rule application will yield results which are predictable and which demonstrably turn on principles of general application.").

10. Section 2 of the Sherman Act provides that "[e]very person who *shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a felony.*" 15 U.S.C. § 2 (1976) (emphasis added).

and section 7 of the Clayton Act.¹¹ The Note begins with a discussion of economic theory relating to scale economy concepts—the relationship of these concepts to economic goals, the various types of scale economies, and the measurement of these economies. This economic theory is next applied in an antitrust context. Scale economy concepts already are controlling in cases in which their economic effect is clear. When their effect is less clear, scale economy concepts are still useful for determining whether a firm has market power, whether aggressive business acts are justified by market structure, and whether an action has a net procompetitive effect.

I. ECONOMIC TREATMENT OF ECONOMIES OF SCALE

A. *Underlying Economic Theory*

Scale economies are decreases in per unit cost resulting from increases in quantity produced or distributed.¹² They are one aspect of

11. Section 7 of the Clayton Act provides that "[n]o corporation shall acquire, directly or indirectly, the whole or any part of the stock . . . other share capital [or] . . . the whole or any part of the assets of one or more corporations engaged in commerce, where in any line of commerce in any section of the country, the effect of such acquisition . . . may be substantially to lessen competition, or tend to create a monopoly." 15 U.S.C. § 18 (1976) (emphasis added). This Note only considers scale economies in the context of § 2 and § 7. Scale economies may also be relevant in cases involving § 1 of the Sherman Act, 15 U.S.C. § 1 (1976) ("Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is . . . declared to be illegal" (emphasis added)), § 1(f) of the Robinson-Patman Act, 15 U.S.C. § 13(f) (1976) ("It shall be unlawful for any person engaged in commerce, in the course of such commerce, knowingly to induce or receive a discrimination in price which is prohibited by this section." (emphasis added)), § 5 of the Federal Trade Commission Act, 15 U.S.C. § 45 (1976) ("*unfair methods of competition* in . . . commerce, and *unfair or deceptive* acts or practices in . . . commerce, are declared unlawful" (emphasis added)), § 3 of the Clayton Act, 15 U.S.C. § 14 (1976) ("It shall be unlawful for any person engaged in commerce, in the course of such commerce, to lease or make a sale or contract for sale of goods, wares, merchandise, machinery, supplies or other commodities, whether patented or unpatented, for use, consumption or resale within the United States . . . where the effect of such lease, sale, or contract for sale or such condition, agreement, or understanding may be to substantially lessen competition or tend to create a monopoly in any line of commerce." (emphasis added)).

12. Scherer, *Economies of Scale and Industrial Concentration* [hereinafter cited as Scherer I], in *Industrial Concentration: The New Learning* 16, 16 (H. Goldschmid, H. Mann, & J. Weston eds. 1974) [hereinafter cited as *Industrial Concentration*]; see F. Scherer I, *supra* note 4, at 81; cf. P. Samuelson, *supra* note 1, at 28 ("[e]conomies or savings come into full play only when a large enough number of units is being produced to make it worth while to set up a fairly elaborate productive organization" (emphasis omitted)); Stigler, *The Economies of Scale*, 1 J.L. & Econ. 54, 54 (1958) ("The theory of economies of scale is the theory of the relationship between the scale of use of a properly chosen combination of all productive services and the rate of output of the enterprise.").

what economists term operating efficiencies.¹³ Optimal scale is achieved when size permits long run average total cost¹⁴ to be at a minimum; minimum optimal scale is achieved at the smallest size that permits these average total costs.¹⁵ There are two general types of efficiencies resulting from scale economies.¹⁶ "Real" economies

13. 2 P. Areeda & D. Turner, *supra* note 1, ¶ 402b2 (1978); *cf.* R. Bork, *supra* note 2, at 104-05 (defining productive efficiency as an activity by business that creates wealth). Economists generally recognize two types of efficiency—operating efficiency and allocative efficiency—which, in conjunction, are thought to create an overall efficiency that determines the level of society's wealth. This Note does not address allocative efficiency, which is achieved when no reallocation of inputs and outputs would increase aggregate consumer welfare. 2 P. Areeda & D. Turner, *supra* note 1, ¶ 402b1. This generally occurs when a large enough number of sellers and buyers exists in each market so that no individual seller's output decisions have a perceptible influence on price, and resources are mobile. Under these conditions, a firm will maximize profits when marginal cost, which is the added cost of the last unit of output, equals price. Because resources are mobile, a market in which profits exceed total costs will attract entrants. When the economy is in equilibrium, price is equal to marginal cost for all goods and services, and consumer welfare is maximized because price reflects the value of each product to the marginal buyer. *Id.* Economists have recognized the goal of antitrust enforcement as improving allocative efficiency without impairing operating efficiency so greatly as to negate the gain in consumer welfare. Thus, punishing concentration, and reinforcing atomistic competition, implies that potential gains in allocative efficiency should not be overwhelmed by losses in operating efficiency. R. Bork, *supra* note 2, at 91. *See generally* McKie, *Organization and Efficiency*, 38 S. Econ. J. 449, 452 (1972); Weiss, *Optimal Plant Size and the Extent of Suboptimal Capacity*, in *Essays on Industrial Organization in Honor of Joe S. Bain* 123, 141 (R. Masson & P. Qualls eds. 1976) [hereinafter cited as Weiss I] (high concentration often present when large proportion of output from plants equals or exceeds minimum efficient scale); Report of the White House Task Force on Antitrust Policy, *reprinted in* 2 *Antitrust L. & Econ. Rev.* 1, 29 (1968-1969). *But see* Leibenstein, *Allocative Efficiency vs. "X-Efficiency,"* 56 *Am. Econ. Rev.* 392 (1966) (microeconomic theory inappropriately focuses on allocative efficiency when other types of efficiency are often more significant).

14. Economists define the long run as that period in which plant and equipment are not fixed so that all inputs are variable. E. Mansfield, *supra* note 1, at 180. The long run average total cost curve shows the minimum cost per unit of producing at each output level. Connecting the minima for each short run average cost curve for each size plant approximates the shape of the long run average total cost curve. *Id.* at 180-82; P. Samuelson, *supra* note 1, at 469. Decreases in long run average total cost are due to increasing returns to scale (for example, when a doubling of all inputs leads to more than a doubling of output); increases are due to decreasing returns to scale (for example, when a doubling of inputs leads to less than a doubling of output); constant long run average total costs are due to constant returns to scale. Increasing returns to scale result from the ability to use techniques not possible at smaller scale, benefits of scale that accrue geometrically, and greater specialization. Decreasing returns to scale are generally believed to result from the difficulties of coordinating a large enterprise. E. Mansfield, *supra* note 1, at 142-43, 184-85; F. Scherer I, *supra* note 4, at 82.

15. J. Bain, *Barriers to New Competition* 53 (1956); Scherer I, *supra* note 12, in *Industrial Concentration*, *supra* note 12, at 17.

16. J. Bain, *supra* note 15, at 57; F. Scherer I, *supra* note 4, at 104.

confer real resource savings, resulting in an actual welfare benefit to society.¹⁷ "Strictly pecuniary" economies result in monetary savings to a firm with market power but no overall welfare benefits to society because they reflect no physical resource saving.¹⁸

The achievement of real economies is a policy reason for incorporating scale economy concepts into antitrust law.¹⁹ Specifically, because firms will remain viable in a competitive market only if they minimize costs and operate at efficient scale,²⁰ antitrust law should reinforce competitive market structures to the extent that scale economies permit.²¹ Without this reinforcement, resources may be wasted and cost saving techniques may not be vigorously pursued.²²

Scale economy concepts can be used to determine how antitrust enforcement can promote both competition and operating efficiency in markets in which the two goals conflict. Rational trade regulation policy should encourage firms to achieve the efficiencies inherent in operating at minimum optimal scale and avoid creating markets so atomized that scale economies are lost. Economists generally agree that scale economies determine what level of production is efficient, as illustrated by the long run average total cost curve.²³ Some economists argue that average total cost will eventually increase with size (U-shaped curve), while others argue that once minimum optimal scale is achieved, long run average cost is constant over a wide range of output (L-shaped curve).²⁴ Although greater flexibility in antitrust

17. J. Bain, *supra* note 15, at 57.

18. *Id.* A large firm may receive quantity discounts in advertising or on other goods purchased, or may have reduced costs of capital. Although real economies, like the ability to bypass intermediaries, may occur, the more pronounced result is strictly pecuniary economies accruing to the firm because of its market power. Such economies do not benefit society.

19. *Id.*

20. 2 P. Areeda & D. Turner, *supra* note 1, ¶ 402b2 ("Firms that fail to operate at lowest cost may temporarily break even or even make modest profits when demand is high, but will incur losses and eventually disappear as resources commanded by more efficient firms move into the market."); E. Mansfield, *supra* note 1, at 265-66 (monopoly markets are scrutinized because they lack natural market forces).

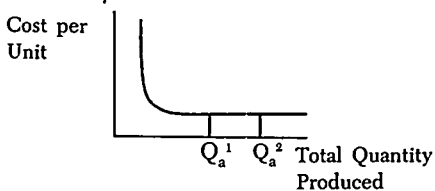
21. 2 P. Areeda & D. Turner, *supra* note 1, ¶ 408a.

22. 2 P. Areeda & D. Turner, *supra* note 1, ¶¶ 403b, 403c.

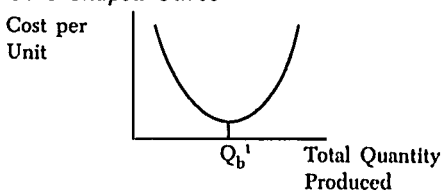
23. See note 14 *supra* and accompanying text.

24. E. Mansfield, *supra* note 1, at 185; F. Scherer I, *supra* note 4, at 84-85; Dewey, *The New Learning: One Man's View*, in *Industrial Concentration*, *supra* note 12, at 1, 5-6. This disagreement as to the shape of the long run average total cost curve can be graphically illustrated.

a. L-Shaped Curve



b. U-Shaped Curve



enforcement may result if a market has an L-shaped cost curve, in either case, scale economies would be destroyed by legal constraints that force a firm to operate at less than minimum optimal scale.²⁵ Thus, scale economies constitute structural limitations on antitrust enforcement because efficiencies are sacrificed when a firm operates at less than minimum optimal scale.

Scale economy concepts also are useful to determine whether a firm has market power. When minimum optimal scale constitutes a large percentage of the market and unit costs rise significantly at less than minimum optimal scale,²⁶ scale economies constitute a barrier to entry.²⁷ Because a potential entrant will anticipate either higher

Figure (a) illustrates an L-shaped long run average total cost curve. If this is indeed the shape of the curve, optimal scale would exist over a broad range of output levels. For example, both output Q_a^1 and Q_a^2 would be optimal. Figure (b) illustrates a U-shaped curve. Only output level Q_b is optimal if the curve is U-shaped. For a discussion of how the shape of the curve determines whether a natural monopoly exists, see note 72 *infra* and accompanying text.

25. See note 14 *supra* and accompanying text.

26. J. Bain, *supra* note 15, at 53. Bain states that "[t]his fraction should be considered significant if its addition to going industry output (or the addition of a fraction at which costs are not significantly higher) will result in a reduction of industry selling prices which is notable to established sellers in the sense of being distinguishable from the effects of small random variations in market conditions, which is identifiable as the result of the output increment in question, and which is large enough to be felt." *Id.*

27. Record at 2332-36, *United States v. IBM Corp.*, No. 69 Civ. 200 (S.D.N.Y. Jan. 17, 1969) (direct testimony of Frederick Scherer); Defendant's Exhibit 7643, at 33-34, *id.* (deposition of William Baumol); Defendant's Exhibit 7645, at 108, *id.* (deposition of Sam Peltzman); Defendant's Exhibit 7648, at 47-48, *id.* (deposition of George Stigler); Mancke Deposition Exhibit 8100-017, Nov. 20, 1980, at 767, *id.* (analytical narrative of Richard Mancke, defendant's witness); J. Bain, *supra* note 15, at 53-113. Conditions of entry are defined by Bain as "advantages of established sellers in an industry over potential entrant sellers, [evidenced by the ability of] established sellers [to] persistently raise their prices above a competitive level without attracting new firms to enter the industry." *Id.* at 3 (emphasis omitted); see G. Stigler, *The Organization of Industry* 67 (1968) (a barrier to entry exists when insiders have a long-run cost advantage over new entrants). Although barriers to entry should be relevant in antitrust litigation as indicia of market power, courts primarily rely on market share figures to gauge market power. See, e.g., *United States v. Grinnell Corp.*, 384 U.S. 563, 571 (1966); *United States v. Von's Grocery Co.*, 384 U.S. 270, 272 (1966); *United States v. Continental Can Co.*, 378 U.S. 441, 453-62 (1964); *United States v. Philadelphia Nat'l Bank*, 374 U.S. 321, 363 (1963). See generally *Potential Production*, *supra* note 9, at 1199 n.2. Courts considering entry barriers have utilized a practical approach that evaluates whether a "real threat" of entry exists. *United States v. Pabst Brewing Co.*, 384 U.S. 546, 560-61 (1966) (Harlan, J., concurring). A "real threat" of entry exists only if experienced people in the business conclude that the difficulties of entry are not insurmountable. Moreover, a potential entrant must be able to enter easily and become a competitor in the market within a reasonable time. See *id.* Barriers to entry have also been used to define the relevant market. *United States v. Pabst Brewing Co.*, 384 U.S. 546, 553-61 (1966)

costs or lower prices when these high barriers to entry are present, those already in the market possess significant market power.²⁸

(Harlan, J., concurring); see *Potential Production*, *supra* note 9, at 1211 n.70. Finally, raising entry barriers has been used as proof of anticompetitive conduct. *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295, 343-45 (D. Mass. 1953), *aff'd per curiam*, 347 U.S. 521 (1954); see *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 579 (1967); *American Tobacco Co. v. United States*, 328 U.S. 781, 810-11 (1946); *A.G. Spalding & Bros. v. FTC*, 301 F.2d 585, 620 (3d Cir. 1962); *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 425-26 (2d Cir. 1945); *SmithKline Corp. v. Eli Lilly & Co.*, 427 F. Supp. 1089, 1120 (E.D. Pa. 1976), *aff'd*, 575 F.2d 1056 (3d Cir. 1978), *cert. denied*, 439 U.S. 838 (1978); *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295, 344 (D. Mass. 1953), *aff'd per curiam*, 347 U.S. 521 (1954); *United States v. Hartford-Empire Co.*, 46 F. Supp. 541, 615 (N.D. Ohio 1942), *modified*, 323 U.S. 386 (1945); 2 P. Areeda & D. Turner, *supra* note 1, ¶ 409b, 409c; L. Sullivan, *supra* note 9, § 23; Disner, *Barrier Analysis in Antitrust Law*, 58 *Cornell L. Rev.* 862 (1973); Williamson, *Dominant Firms and the Monopoly Problem: Market Failure Considerations*, 85 *Harv. L. Rev.* 1512, 1520 (1972). No distinction will be made between the proof requirements for establishing scale economies as a barrier to entry, or as a defense, under § 2 and § 7. Courts seem more likely, however, to resolve ambiguities in favor of the defendant in § 2 cases and in favor of the government in § 7 cases. *United States v. Aluminum Co. of Am.*, 91 F. Supp. 333, 345 (S.D.N.Y. 1950) (courts more likely to invalidate an unconsummated merger (§ 7) than to order divestiture of a company (§ 2)); J. Bain, *supra* note 15, at 54-55; see Justice Department's Antitrust Guide Concerning Research Joint Ventures, [1980] Antitrust & Trade Reg. Rep. (BNA), No. 992, 4 (Spec. Supp. Dec. 4) (explicitly recognizing "high optimal scale of production" as a barrier to entry). *But see* Fisher Deposition Exhibit 8101-001, Dec. 4, 1980, at 363, *United States v. IBM Corp.*, No. 69 Civ. 200 (S.D.N.Y., filed Jan. 17, 1969) (Although static economies of scale, as may occur in manufacturing, can provide barriers to entry, scale economies in research and development generally cannot.); 2 P. Areeda & D. Turner, *supra* note 2, ¶ 409b (because conforming with scale economies evidences competitive behavior, scale economies should not be used to show a barrier to entry); G. Stigler, *supra*, at 67-70 (no barrier to entry is present if the established firm has the same costs as the entering firm will have once it attains efficient scale). This Note expressly adopts the views of Bain because Stigler and Areeda and Turner intermesh two distinct uses of scale economy concepts that are best kept analytically separate. Scale economies can prove barriers to entry, a structural element, and evidence competitive practices, a conduct element. See notes 65-67 *infra* and accompanying text. Moreover, if Stigler's view were accepted, established firms could charge prices above the competitive level over long periods before new entry could exert a competitive force. Weiss Deposition Exhibit 8103-001, Feb. 1, 1981, at 29, *United States v. IBM Corp.*, No. 69 Civ. 200 (S.D.N.Y., filed Jan. 17, 1969) (analytical narrative of Leonard Weiss, plaintiff's witness). Fisher argues that scale economies in research and development cannot constitute entry barriers because technological innovations by larger firms can be imitated by smaller firms. Thus, even if a firm would need a significant share of the market to support large research and development facilities efficiently, additional effective competitors could rely on innovation. This view is faulty in suggesting that a firm that relies on its competitors for innovation could ever be an effective competitor. Further, patent and trademark laws are designed to protect the fruits of innovation from competitors.

28. J. Bain, *supra* note 15, at 53-113; see note 27 *supra*.

B. *Measurement of Scale Economies*

Although measurement of scale economies by empirical techniques is difficult and imprecise,²⁹ economists have developed various measurement techniques. Because the validity of the measure depends on the type of scale economy being considered, an understanding of the various types of scale economies must precede discussion of measurement techniques. For purposes of antitrust enforcement, it is important to determine which measurement techniques best measure real economies as opposed to strictly pecuniary economies.

Real economies usually relate directly to a production or distribution process,³⁰ and may be product-specific, plant-specific, or firm-specific.³¹ Product-specific, plant-specific, and firm-specific economies focus on various types of business behavior. Product-specific economies are associated with the volume of any single product made and sold. Examples of product-specific real economies are savings in machine running time, operator attendance time, and machine set-up time that result from production of large quantities of a specific product.³² A less quantifiable product-specific scale economy is the experience and learning gained by management and workers after producing a large volume of a specific product.³³ Plant-specific real economies are the decline of production and distribution unit costs as

29. Record at 2394-96, *United States v. IBM Corp.*, No. 69 Civ. 200 (S.D.N.Y. filed Jan. 17, 1969) (direct testimony of Frederick Scherer); Fisher Deposition Exhibit 8101-001, Dec. 4, 1980, at 378, *id.* (analytical narrative of Franklin Fisher, defendant's witness); Mancke Deposition Exhibit 8100-017, Nov. 20, 1980, at 768, *id.* (analytical narrative of Richard Mancke); Smith, *Survey of the Empirical Evidence on Economies of Scale*, in *Business Concentration and Price Policy* 213, 215, 223 (1955) [hereinafter cited as *Business Concentration*]. Because output of plants and firms is usually heterogeneous, measuring the size of economies of scale in empirical studies is very difficult. Saving, *Estimation of Optimum Size of Plant by the Survivor Technique*, 75 Q.J. Econ. 569, 570-72, 597 (1961) (estimating optimum size is difficult because plants produce various products at various rates with various degrees of vertical integration, and it is difficult to define the relevant industry in which such variety exists.).

30. F. Scherer I, *supra* note 4, at 104.

31. *Id.* at 81, 104; Asch, *supra* note 2, at 130-34; Dewey, *supra* note 24, in *Industrial Concentration*, *supra* note 12, at 4-7; McGee, *Efficiency and Economies of Size*, in *Industrial Concentration*, *supra* note 12, at 55, 58-61; Mueller, *The New Antitrust: A 'Structural' Approach*, 1 *Antitrust L. & Econ. Rev.* 87 (1967). Some economists identify types of operating efficiency other than product-specific, plant-specific, or firm-specific. R. Bork, *supra* note 2, at 105 ("Economies of scale, specialization of function, ability to obtain capital, management skill—all of these and many more elements . . . are causes . . . of efficiency."); Leibenstein, *supra* note 13, at 392 (motivation is the major element of operating efficiency).

32. See F. Scherer I, *supra* note 4, at 81; McGee, *supra* note 31, at 57, 58.

33. F. Scherer I, *supra* note 4, at 82; Haldi & Whitcomb, *Economies of Scale in Industrial Plants*, 75 J. Pol. Econ. 373, 383 (1975).

plant capacity and production increase.³⁴ Costs decline partially because of the ability to specialize factors of production.³⁵ Examples of real plant scale economies include lower unit costs in initial investment,³⁶ supervision and management,³⁷ maintenance,³⁸ and energy consumption.³⁹ Firm-specific real economies are the decline in production and distribution unit costs as firm size increases.⁴⁰ Examples of firm scale economies include lower unit costs resulting from specialization,⁴¹ massed reserves,⁴² and research and development.

The four techniques most commonly used by economists to measure scale economies and statistical cost studies, engineering studies, profitability studies, and survivorship studies.⁴³ Statistical cost stud-

34. J. Bain, *supra* note 15, at 57; F. Scherer I, *supra* note 4, at 82-83; McGee, *supra* note 31, at 58.

35. L. Weiss, *Economics and Society* 28 (1975). Specialization permits real economies in quantities of material and effort used to produce a unit of output. J. Bain, *supra* note 15, at 57.

36. Haldi & Whitcomb, *supra* note 33, at 378-81, 383. Initial investment cost, and consequently, the amortized portion of total cost, exhibits increasing returns to scale, that is, declining unit costs as quantity increases, up to the largest plants observed empirically. *Id.* at 383.

37. J. Johnston, *Statistical Cost Analysis* 23 (1960); Haldi & Whitcomb, *supra* note 33, at 382-83; *cf. Selection of Materials Submitted to the National Commission for the Review of Antitrust Laws & Procedures*, 48 *Antitrust L.J.* 891, 894-95 (statement of Robert Bork) (Efficient management is the most important type of production efficiency because "[e]verything else follows from [it]: superior product design; superior manufacturing techniques; superior labor performance; superior estimates of consumer desires and market trends; superior distribution practices."). *But see* National Commission Report, *supra* note 8, at 158 (whether managerial and financial economies should be allowed as a defense is disputed). *See generally* F. Scherer, *The Economies of Multiplant Operation: An International Comparison Study* (1975) [hereinafter cited as F. Scherer II].

38. F. Scherer I, *supra* note 4, at 83; Haldi & Whitcomb, *supra* note 33, at 382.

39. Haldi & Whitcomb, *supra* note 33, at 381.

40. F. Scherer I, *supra* note 4, at 84.

41. F. Scherer I, *supra* note 4, at 84. Professor Scherer identifies the types of specialization resulting from operation of the multiplant firm as both managerial (accounting, finance, marketing, operations, research, and legal talent) and production. The production specialization, however, actually results from plant scale economies, that is, more specialization can be achieved within individual plants for a given product line. *Id.*

42. *Id.*; Baumol, *The Transactions Demand for Cash: An Inventory Theoretic Approach*, 66 *Q.J. Econ.* 545, 547-49 (1952); *cf.* Brunner & Meltzer, *Economies of Scale in Cash Balances Reconsidered*, 81 *Q.J. Econ.* 422, 423, 436 (1967) (cash balances economies of scale usually not present). Beneficial massed reserve economies include large cash balances, more flexible production, market and finance risk of loss spread over a large volume, and greater returns on marketing expenditures. F. Scherer I, *supra* note 4, at 84.

43. F. Scherer I, *supra* note 4, at 92-94; Saving, *supra* note 29, at 572. Saving identifies a fifth technique, the questionnaire method, in which business persons are asked "which size of plant or firm is the optimum size in their industry." *Id.* This method is open to criticism on grounds that the data may not be accurate at the time

ies are useful for measuring real economies because they estimate the cost of producing a commodity by breaking production into component operations and assessing the cost of each operation.⁴⁴ These studies rely on cost accountants' data and employ standard statistical techniques to estimate the long run average total cost for a cross section of plant scales⁴⁵ by comparing input statistics with output statistics.⁴⁶ Methodologies used and conclusions drawn from statistical cost studies, however, have been criticized because the cost data are often unavailable, untimely, not comparable, and too simplistic.⁴⁷

given or at some time in the future. Moreover, the technique requires accurate capital cost data, which is rarely available. *Id.* Despite these deficiencies, this method was used by the government to prove that scale economies constituted barriers to entry in *United States v. IBM Corp.*, No. 69 Civ. 200 (S.D.N.Y., filed Jan. 17, 1969). See notes 114-17 *infra* and accompanying text.

44. J. Dean, *Managerial Economics* 296-313 (1951); J. Johnston, *supra* note 37, at 1; F. Scherer I, *supra* note 4, at 93; A. Walters, *An Introduction to Econometrics* 269-339 (1970); McGee, *supra* note 31, in *Industrial Concentration*, *supra* note 12, at 65-68; Scherer, *Economies of Scale and Industrial Concentration* [hereinafter cited as Scherer II], in *Industrial Concentration*, *supra* note 12, at 18; Smith, *supra* note 29, at 213-38; Walters, *Production and Cost Analysis*, 12 *Int'l Encyclopedia Soc. Sciences* 519, 521-23 (1968) [hereinafter cited as Walters I]; Walters, *Production and Cost Functions: An Econometric Survey*, 31 *Econometrica* 39, 52 (1963) [hereinafter cited as Walters II]. An ideal statistical cost study would evaluate short-run and long-run cost-output relationships. J. Johnston, *supra* note 37, at 27. These ideals, however, are rarely met. *Id.* at 26-29.

45. F. Scherer I, *supra* note 4, at 93. These studies usually estimate cost scale relationships at the plant level. *Id.*

46. *Id.*; Scherer II, *supra* note 44, in *Industrial Concentration*, *supra* note 12, at 18.

47. J. Blair, *Economic Concentration* 176 (1972) (unit cost data is fragmentary and out of date); J. Johnston, *supra* note 37, at 2, 28-30, 169-94 (listing six criticisms that relate to the short run average total cost function and three that relate to the long run average total cost function); F. Scherer I, *supra* note 4, at 93 (true cost variations associated with scale differences may be misstated if there are systematic differences in rent imputation between small plants and large); Stigler, *supra* note 12, at 55 (because cost data are influenced by productive services valuations, an over or under valuation will under or overstate efficiency); Friedman, *Comment*, in *Business Concentration*, *supra* note 29, at 230-31 (1955) (accounting cost studies only measure "the efficiency of the capital market in revaluing assets."); McGee, *supra* note 31, in *Industrial Concentration*, *supra* note 12, at 66 (Because they rely on accounting data used in routine business transactions, accounting cost studies are not very useful, and "suffer from arbitrary asset valuations and a host of other technical difficulties. Furthermore, quite different production programs (so far as different total volumes, product types, etc.) are often being compared."); Saving, *supra* note 29, at 572; Scherer II, *supra* note 44, in *Industrial Concentration*, *supra* note 12, at 18 (Data often are unavailable and when available not comparable because of differences in accounting conventions.); Smith, *supra* note 29, in *Business Concentration*, *supra* note 29, at 216, 221 (comparisons of cost data are highly suspect because cost allocations vary according to the cost accounting techniques used by the firm); Walters II, *supra* note 44, at 42-43 (1963) (accounting cost data are suspect because the unit period for accounting purposes usually differs from the unit economic period, the method of depreciation of assets is usually determined by the tax authorities, not

As to particular markets, therefore, the validity of statistical tests and techniques is doubtful.⁴⁸

Real scale economies also can be measured with engineering cost estimates, which utilize engineering techniques to measure the efficiency of various technical processes.⁴⁹ Engineering cost estimates have the advantages of avoiding arbitrary asset valuations by accountants and evaluating each relevant dimension of production.⁵⁰ Disadvantages, however, include failure to account for managerial and entrepreneurial ability⁵¹ and unrealistic economic assumptions.⁵² Moreover, the estimates are often not easily translatable into terms useful to economists.⁵³

Profitability studies are generally used to estimate scale economies for the firm as a whole.⁵⁴ These estimates do not distinguish between real and strictly pecuniary economies because profitability figures are not designed to provide such detailed information. Although profitability data is usually available,⁵⁵ profits may result from a variety of causes other than efficiency.⁵⁶ Moreover, profit figures may not ade-

economists, the valuation of capital services is at historical cost rather than current prices, and stock valuation is often somewhat arbitrary). See generally Harberger, *Monopoly and Resource Allocation*, 44 Am. Econ. Rev. 77 (1954).

48. J. Johnston, *supra* note 37, at 2; McGee, *supra* note 31, in *Industrial Concentration*, *supra* note 12, at 67.

49. J. Bain, *supra* note 15, at 71-83, 227-49; B. Boylan, *Economic Effects of Scale Increases in the Steel Industry* (1975); F. Scherer I, *supra* note 4, at 94; F. Scherer II, *supra* note 37, at 182-83; Bain, *Economies of Scale, Concentration, and the Conditions of Entry in Twenty Manufacturing Industries*, 44 Am. Econ. Rev. 35 (1954); Chenery, *Engineering Production Functions*, 63 Q.J. Econ. 507, 508-10 (1949); Smith, *supra* note 29, in *Business Concentration*, *supra* note 29, at 221; Weiss I, *supra* note 13, at 132-33. Management decisions regarding the desirability of alternate equipment and plant design are often based upon such studies. See sources cited *supra*.

50. McGee, *supra* note 31, in *Industrial Concentration*, *supra* note 12, at 69.

51. *Id.* Engineering studies include assumptions as to ideal or average managerial ability. *Id.* Other areas not covered by engineering studies include recruitment, evaluation, promotion, product design, research, planning, administration, cost and quality control, finance, and marketing. *Id.*

52. See Saving, *supra* note 29, at 572. Engineering cost studies assume that supply and demand for the product are also completely elastic. *Id.*

53. Walters II, *supra* note 44, at 43. The results of engineering studies separate processes that may be inseparable. *Id.*

54. F. Scherer I, *supra* note 4, at 92.

55. *Id.*

56. J. Blair, *supra* note 47, at 177 (profits may also reflect monopoly power, not solely efficiency); F. Scherer I, *supra* note 4, at 92 (same); McGee, *supra* note 31, in *Industrial Concentration*, *supra* note 12, at 83-88 (accounting profits not necessarily economic profits). Even if profits measure efficiency, profit rates for small firms are usually understated because profits are not broken down as to each product, and older equipment is undervalued. J. Blair, *supra* note 47, at 177-78.

quately reflect true profits because of various accounting conventions governing depreciation and asset valuation.⁵⁷

Equally ambiguous results are achieved with the survivorship technique, which infers optimal scale from observations of which size firm survives.⁵⁸ Firms are classified according to size, and if the market share of a given size-class increases, that size is assumed to be relatively more efficient.⁵⁹ As with profitability studies, no distinction is made between real and strictly pecuniary scale economies. Many economists, however, doubt the reliability of the survivorship technique because survival may result from causes other than greater efficiency, such as exercise of monopoly power, collusion, or undesirable labor practices.⁶⁰

57. McGee, *supra* note 31, in *Industrial Concentration*, *supra* note 12, at 84 (corporate profits fail to account for efficiency benefits accruing to the consumer). The statistical cost study method shares these faults. See note 47 *supra* and accompanying text.

58. Saving, *supra* note 29, at 572-73 (1961). The survivorship technique was initially used in 1924 by Willard L. Thorp in a census monograph to demonstrate a "trend in the size of plant under different patterns of industry growth." *Id.* at 573; see Stigler, *supra* note 12, at 54-55, 61-67.

59. Saving, *supra* note 29, at 574-83; Stigler, *supra* note 12, at 56; Weiss, *The Survival Technique and the Extent of Suboptimal Capacity*, 72 J. Pol. Econ. 246, 246 (1964) [hereinafter cited as Weiss II]. The survivorship technique estimates optimal plant size by comparing successive discrete size distributions, Markov Chains, and continuous size distributions. Saving, *supra* note 29, at 574 & n.9.

60. See generally F. Scherer I, *supra* note 4, 92-93 (The reliability of the survivorship technique depends on how reasonable it is to suppose that the optimum scale or distribution has itself remained unchanged and the emergence of new mistakes has been less important than the correction of old ones. These assumptions should not be taken for granted.); Saving, *supra* note 29, at 597 (When monopolistic industries are treated on an equal basis with competitive industries, the estimated optimum size may become a size that has considerably higher social costs than some nonoptimal size.); Stigler, *supra* note 12, at 62-63 (size and other factors are variable not static); Weiss II, *supra* note 59, at 246. "Large firms may survive and grow by means of predatory or restrictive policies or because of their ability to exploit suppliers. They may decline, relatively, because their market positions force them to hold an umbrella over the firms in the competitive fringe of the industry or because they feel a threat of dismemberment at the hands of the antitrust authorities. Small firms may survive and grow because of their ability to exploit monopsonistic positions in local labor markets or to circumvent the law. The survival technique makes no distinction between these advantages and those attributable to low social costs." *Id.* at 246. Professor Weiss gives the additional example that suboptimal smaller firms could survive in an oligopolistic market in which price is set above minimum average cost. The smaller firms would have an incentive to replace plants with suboptimal capacity with plants of optimal scale, but this would not be essential to their survival. *Id.* at 253. But see Weiss II, *supra* note 59, at 260 (Investigation of five industries using tabulations of all plant sizes reported in directories led to the conclusion that the estimates of minimum efficient scale derived from the survivorship technique were consistent with engineering estimates. In view of the limited nature of this study, however, it did not prove the validity of the survivorship technique.).

The characteristics of these techniques lead to various conclusions about their adaptability to antitrust analysis. Statistical cost studies and engineering studies should be preferred for antitrust purposes because they are more precise, likely to be available because they are made in the regular course of business, and more appropriate for measuring real scale economies.⁶¹ Profitability studies and survivorship studies are less precise and, therefore, may be less appropriate for use in antitrust litigation.⁶²

II. CURRENT LEGAL STANDARDS

Adapting economic theory to a legal context is problematic for several reasons. Economists do not universally agree on economic theory regarding efficiencies.⁶³ Measurement techniques, developed for purposes of empirical research, process complex economic data and may not be of practical use as legal evidence.⁶⁴ Nevertheless, economic theory concerning scale economies can and should be applied to several antitrust issues. First, plaintiff can prove that scale economies constitute a barrier to entry by a showing of the magnitude of minimum optimal scale and the percentage of the market required to achieve that scale.⁶⁵ Second, the effect that scale economies have on market structure can be used to infer the intent behind certain commercial conduct. For example, a capacity expansion that forecloses a competitor from growth or entry is not predatory if consistent with scale economies.⁶⁶ Third, the effect that scale economies have on market structure can be considered along with other structural factors to determine the competitive effect that a contemplated action has on a market. For example, scale economy concepts can be used to justify a merger when the scale economies that result from the merger outweigh any anticompetitive structural effects.⁶⁷ Further, the defendant can prove that divestiture is an inappropriate remedy when it would force operation at less than minimum optimal scale.⁶⁸

Courts, however, do not always use analysis of scale economies when it is appropriate. Scale economy issues are often not recognized.⁶⁹ Even when recognized, the economic concepts often

61. See notes 44-53 *supra* and accompanying text.

62. See notes 54-60 *supra* and accompanying text.

63. See note 29 *supra* and accompanying text.

64. *Id.*

65. See notes 26-28 *supra* and accompanying text.

66. See note 25 *supra* and accompanying text.

67. *Id.*

68. *Id.*

69. See, e.g., *Ford Motor Co. v. United States*, 405 U.S. 562, 568 (1972) (scale economies not addressed in analyzing erection of barriers to entry resulting from

cause confusion when courts attempt to apply them to specific fact patterns.⁷⁰ Finally, even after courts have correctly identified and analyzed such issues, they have failed clearly to delineate standards of proof.⁷¹ As a result of this confusion, reconciliation of the cases with economic principles is difficult. Nevertheless, adapting scale economy concepts to a legal framework is worthwhile and legally justified.

A. Natural Monopoly Cases

The importance of scale economy concepts is most obvious in markets in which the minimum optimal scale is equal to or greater than demand. Economists and judges refer to these markets as natural monopolies.⁷² That possession of natural monopoly power should not

acquisition); *United States v. Griffith*, 334 U.S. 100, 106-09 (1948) (scale economies not addressed in determining legality of master agreements in distribution of films to theatres); *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 425-26 (2d Cir. 1945) (scale economies not addressed in determining legality of plant capacity expansions).

70. *See, e.g.*, *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 579-80 (1967) (advertising economies resulting from merger identified but held that economies are no defense); *Brown Shoe Co. v. United States*, 370 U.S. 294, 343-44 (1962) (efficiencies of integration resulting from merger are no defense under § 7 and are an affirmative reason for holding the merger unlawful); *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263, 276 (2d Cir. 1979) (integration efficiency argument accepted in defense of leveraging act when the two were unrelated), *cert. denied*, 444 U.S. 1093 (1980). *But see* *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 603 (1967) (Harlan, J., concurring) (analysis of economies is crucial to deciding case). Professor Bork has noted that "[m]odern antitrust [law's] . . . version of economics is a mélange of valid insights and obviously incorrect—sometimes fantastic—assumptions about the motivations and effects of business behavior [P]erhaps the core of the difficulty is that the courts . . . have failed to understand and give proper weight to the crucial concept of business efficiency [T]his failure has skewed legal doctrine disastrously." R. Bork, *supra* note 2, at 7. *See generally* Turner, *supra* note 5, at 1328-30.

71. *See* E.I. DuPont de Nemours & Co., [1980] Antitrust & Trade Reg. Rep. (BNA), No. 987, F-1, F-10 (F.T.C. Oct. 30, 1980) (simple tests inadequate; must proceed on a case-by-case basis, using a balancing approach that allows for rational, efficiency related conduct).

72. *Otter Tail Power Co. v. United States*, 410 U.S. 366, 369 (1973); *Hecht v. Pro-Football, Inc.*, 570 F.2d 982, 990 (D.C. Cir. 1977), *cert. denied*, 436 U.S. 956 (1978); *Greenville Publishing Co. v. Daily Reflector, Inc.*, 496 F.2d 391, 397 (4th Cir. 1974); *Union Leader Corp. v. Newspapers of New Eng., Inc.*, 284 F.2d 582, 584 (1st Cir. 1960), *cert. denied*, 365 U.S. 833 (1961); *Lamb Enterprises, Inc. v. Toledo Blade Co.*, 461 F.2d 506, 514-15 (6th Cir.), *cert. denied*, 409 U.S. 1001 (1972); *American Football League v. National Football League*, 323 F.2d 124, 130-31 (4th Cir. 1963); *Massena v. Niagara Mohawk Power Corp.*, [1980-2] Trade Cas. (CCH) ¶ 63,526, at 76,803 (N.D.N.Y. 1980); *Ovitron Corp. v. General Motors Corp.*, 295 F. Supp. 373, 378 (S.D.N.Y. 1969); C. Kaysen & D. Turner, *supra* note 3, at 191 (natural monopoly is a "monopoly resulting from economies of scale, a relationship between the size of the market and the size of the most efficient firm such that one firm of efficient size can produce all or more than the market can take at a remunerative price, and can continually expand its capacity at less cost than that of a

give rise to liability under section 2 was first suggested in *United States v. Aluminum Co. of America*.⁷³ Judge Hand in *Alcoa* argued that possession of monopoly power without intent to end or prevent competition gave rise to a "thrust upon" defense.⁷⁴ One example of this defense given by Judge Hand was when the market is "so limited that it is impossible to produce at all and meet the cost of production except by a plant large enough to supply the whole demand."⁷⁵ Although ambiguous, this language has been used by courts to hold that the "thrust upon" defense does indeed cover a natural monopoly situation.⁷⁶

Courts have only superficially discussed proof of the existence of natural monopoly power. Instead of relying on economic studies to prove that the minimum efficient scale will supply all the demand,⁷⁷ courts readily accept the existence of natural monopolies in certain industries such as daily newspapers in small towns,⁷⁸ professional

new firm entering the business"); E. Mansfield, *supra* note 1, at 267 ("a firm may become a monopolist because the average cost of producing the product reaches a minimum at an output rate that is big enough to satisfy the entire market at a price that is profitable"); F. Scherer I, *supra* note 4, at 91, 482 (A natural monopoly market, one in which there is room for only one firm, results from the relevant technology and the size of the market, that is, the level of demand at which price equals minimum unit cost.). The extent to which a natural monopoly market sets parameters for antitrust enforcement depends upon the shape of the long run average total cost curve. See note 24 *supra* and accompanying text (economists disagree on the shape of the long run average total cost curve).

73. 148 F.2d 416, 429-30 (2d Cir. 1945).

74. *Id.*

75. *Id.* at 430.

76. E.g., *Otter Tail Power Co. v. United States*, 410 U.S. 366, 377 (1973); *Hecht v. Pro-Football, Inc.*, 570 F.2d 982, 990-91 (D.C. Cir. 1977), *cert. denied*, 436 U.S. 956 (1978); *Greenville Publishing Co. v. Daily Reflector, Inc.*, 496 F.2d 391, 397 (4th Cir. 1974); *American Football League v. National Football League*, 323 F.2d 124, 131 (4th Cir. 1963); *Union Leader Corp. v. Newspapers of New Eng., Inc.*, 284 F.2d 582, 584 (1st Cir. 1960), *cert. denied*, 365 U.S. 833 (1961); *Massena v. Niagara Mohawk Power Corp.*, [1980-2] Trade Cas. (CCH) ¶ 63,526, at 76,802 (N.D.N.Y. 1980); *Homefinders of Am., Inc. v. Providence Journal Co.*, 471 F. Supp. 416, 425 (D.R.I. 1979), *aff'd*, 621 F.2d 441 (1st Cir. 1980); *Ovitron Corp. v. General Motors Corp.*, 295 F. Supp. 373, 377-78 (S.D.N.Y. 1969).

77. For a discussion of the relevant measures of efficient scale, see notes 43-60 *supra* and accompanying text.

78. *Union Leader Corp. v. Newspapers of New Eng., Inc.*, 284 F.2d 582, 584 (1st Cir. 1960), *cert. denied*, 365 U.S. 833 (1961); *United States v. Harte-Hanks Newspapers, Inc.*, 170 F. Supp. 227, 228 (N.D. Tex. 1959); see *Homefinders of Am., Inc. v. Providence Journal Co.*, 471 F. Supp. 416, 425 (D.R.I. 1979), *aff'd*, 621 F.2d 441 (1st Cir. 1980); Note, *Monopoly in the Daily Newspaper Industry*, 61 Yale L.J. 948, 1005 (1952). But see *Greenville Publishing Co. v. Daily Reflector, Inc.*, 496 F.2d 391, 397 (4th Cir. 1974) (required evidence that the market could not accommodate two newspapers). Courts finding natural monopolies have assumed that a certain quality of news and advertising is demanded by the public. See *Union Leader Corp. v. Newspapers of New Eng., Inc.*, 284 F.2d at 584 & n.4; *United States v.*

sports teams,⁷⁹ utilities,⁸⁰ and some contractual relationships with the government.⁸¹ Although never expressly analyzing cost factors that would evidence a natural monopoly, courts infer a natural monopoly when evidence has proven the existence of exclusive dealing arrangements, such as restrictive covenants,⁸² exclusive franchises,⁸³ exclusive contracts,⁸⁴ or essential facilities.⁸⁵ Such a conclusion is unwarranted without further examination of the underlying economic evidence. These cases are useful, however, for analyzing the bounds of acceptable behavior for a natural monopolist.

Once a market is termed a natural monopoly, lawful acquisition of monopoly power is virtually assumed.⁸⁶ Aggressive competition is

Harte-Hanks Newspapers Inc., 170 F. Supp. at 228. One court mentioned production scale economies as a factor relevant to the existence of a natural monopoly, but did not analyze such economies. *Id.*

79. *Hecht v. Pro-Football, Inc.*, 570 F.2d 982, 991 (D.C. Cir. 1977), *cert. denied*, 436 U.S. 956 (1978); *American Football League v. National Football League*, 323 F.2d 124, 131 (4th Cir. 1963). *But see Philadelphia World Hockey Club, Inc. v. Philadelphia Hockey Club, Inc.*, 351 F. Supp. 462, 505-13 (E.D. Pa. 1972) (use of reserve clause to restrain free movement of players from one team to another prevented another league from entering the market and constituted a § 2 violation). In *American Football League*, the district court apparently relied upon the informal opinion of an industry executive that a city could not support more than one team. *American Football League v. National Football League*, 205 F. Supp. 60, 70 (D. Md. 1962), *aff'd*, 323 F.2d 124 (4th Cir. 1963).

80. *Otter Tail Power Co. v. United States*, 410 U.S. 366, 369 (1973) (each town in service area could accommodate only one distribution system); *Town of Massena v. Niagara Mohawk Power Corp.*, [1980-2] Trade Cas. (CCH) ¶ 63,526, at 76,802 (N.D.N.Y. 1980) (transmission lines were a bottleneck); *City of Mishawaka v. American Elec. Power Co.*, 465 F. Supp. 1320, 1325-26 (N.D. Ind. 1979) (no reasonable substitute source of power available), *aff'd in part and vacated in part*, 616 F.2d 976 (7th Cir. 1980), *cert. denied*, 49 U.S.L.W. 3494 (U.S. Jan. 12, 1981) (No. 79-2059).

81. *Ovitron Corp. v. General Motors Corp.*, 295 F. Supp. 373, 376 (S.D.N.Y. 1969). In *Ovitron*, the government was the sole buyer of the product at issue. The low bidder for the production contract supplied the whole demand. The court mentioned that tooling for a large quantity of the product in satisfaction of the contract takes as much as one year. Unfortunately, there was no further analysis of production scale economies. *Id.* at 377 n.2.

82. *Hecht v. Pro-Football, Inc.*, 570 F.2d 982, 992-93 (D.C. Cir. 1977), *cert. denied*, 436 U.S. 956 (1978).

83. *Otter Tail Power Co. v. United States*, 410 U.S. 366, 369 (1973). Exclusive franchises have been expressly recognized as promoting distribution efficiencies. *Continental T.V., Inc. v. GTE Sylvania, Inc.*, 433 U.S. 36, 54-55 (1977).

84. *Ovitron Corp. v. General Motors Corp.*, 295 F. Supp. 373, 376-78 (S.D.N.Y. 1969).

85. *Hecht v. Pro-Football, Inc.*, 570 F.2d 982, 992-93 (D.C. Cir. 1977), *cert. denied*, 436 U.S. 956 (1978). In *Hecht*, the court applied the "essential facility" doctrine or "bottleneck principle," finding that a restrictive covenant in the defendant team's lease of the stadium, the only stadium in the relevant geographic market suitable for the exhibition of professional football games, mandated finding a natural monopoly. *See id.*

86. *See Otter Tail Power Co. v. United States*, 410 U.S. 366, 369, 377 (1973); *Hecht v. Pro-Football, Inc.*, 570 F.2d 982, 990, 991 (D.C. Cir. 1977), *cert. denied*,

tolerated; the winner in a fight for survival is not condemned for having won.⁸⁷ Acquisition of a natural monopoly market, however, is lawful only if specific exclusionary practices, such as predatory pricing,⁸⁸ group boycotting,⁸⁹ below cost bidding,⁹⁰ and price squeezing,⁹¹ were not used. Such practices might defeat the presumption of legality and give rise to liability.

Maintaining a natural monopoly also is presumed legal. The natural monopolist may defend against potential competitors⁹² and use the benefits of the natural monopoly to enter new markets through vertical integration or horizontal expansion,⁹³ even when extending into other natural monopoly markets.⁹⁴ As with acquisition, however, maintenance of a natural monopoly cannot be accomplished by means such as leveraging,⁹⁵ price squeezing,⁹⁶ and bottlenecking.⁹⁷

436 U.S. 956 (1978); *Greenville Publishing Co. v. Daily Reflector, Inc.*, 496 F.2d 391, 397 (4th Cir. 1974); *Lamb Enterprises, Inc. v. Toledo Blade Co.*, 461 F.2d 506, 515 (6th Cir.), *cert. denied*, 409 U.S. 1001 (1972); *John Wright & Assocs. v. Ullrich*, 328 F.2d 474, 480-81 (8th Cir. 1964); *American Football League v. National Football League*, 323 F.2d 124, 131 (4th Cir. 1963); *Union Leader Corp. v. Newspapers of New Eng., Inc.*, 284 F.2d 582, 584 (1st Cir. 1960); *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 429-30 (2d Cir. 1945); *Town of Massena v. Niagara Mohawk Power Corp.*, [1980-2] Trade Cas. (CCH) ¶ 63,526, at 76,803 (N.D.N.Y. 1980); *Ovitron Corp. v. General Motors Corp.*, 295 F. Supp. 373, 377 (S.D.N.Y. 1969); *United States v. Harte-Hanks Newspapers, Inc.*, 170 F. Supp. 227, 229 (N.D. Tex. 1959).

87. *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 430 (2d Cir. 1948).

88. *Greenville Publishing Co. v. Daily Reflector Inc.*, 496 F.2d 391, 397-98 (4th Cir. 1974).

89. *Union Leader Corp. v. Newspapers of New Eng., Inc.*, 284 F.2d 582, 584-85 (1st Cir. 1960).

90. *Ovitron Corp. v. General Motors Corp.*, 295 F. Supp. 373, 378 (S.D.N.Y. 1969).

91. *City of Mishawaka v. American Elec. Power Co.*, 465 F. Supp. 1320, 1332 (N.D. Ind. 1979), *aff'd in part and vacated in part*, 616 F.2d 976 (7th Cir. 1980), *cert. denied*, 49 U.S.L.W. 3494 (U.S. Jan. 12, 1981) (No. 79-2059).

92. *American Football League v. National Football League*, 323 F.2d 124, 131 (4th Cir. 1963).

93. *Town of Massena v. Niagara Mohawk Power Corp.*, [1980-2] Trade Cas. (CCH) ¶ 63,526, at 76,804, 76,821 (N.D.N.Y. 1980).

94. *Union Leader Corp. v. Newspapers of New Eng., Inc.*, 284 F.2d 582, 584 (1st Cir. 1960).

95. *Otter Tail Power Co. v. United States*, 410 U.S. 366, 377 (1973).

96. *City of Mishawaka v. American Elec. Power Co.*, 465 F. Supp. 1320, 1332 (N.D. Ind. 1979) (illegal use of power supply to attain local dominance), *aff'd in part and vacated in part*, 616 F.2d 976 (7th Cir. 1980), *cert. denied*, 49 U.S.L.W. 3494 (U.S. Jan. 12, 1981) (No. 79-2059); *Hecht v. Pro-Football, Inc.*, 570 F.2d 982, 992-93 (D.C. Cir. 1977) (illegally restraining use of scarce facility), *cert. denied*, 436 U.S. 956 (1978).

97. *Otter Tail Power Co. v. United States*, 410 U.S. 366, 377-78 (1973); *Hecht v. Pro-Football, Inc.*, 570 F.2d 982 (D.C. Cir. 1977); *see Helix Milling Co. v. Terminal Flour Mills Co.*, 523 F.2d 1317, 1320 (9th Cir. 1975), *cert. denied*, 423 U.S. 1053 (1976).

Scale economies inherent in a natural monopoly also receive deference when a court is determining appropriate relief after a natural monopolist has violated the antitrust laws.⁹⁸ Divestiture is generally not appropriate.⁹⁹ Illegal predatory practices are remedied by injunction or regulation,¹⁰⁰ presumably because it is in the public interest to preserve the scale economies achieved by the natural monopolist.¹⁰¹

B. Extension of the Natural Monopoly Cases

When scale economies play the central role in a market, as in the natural monopoly cases, courts have limited antitrust scrutiny and preserved the efficiency inherent in large scale economies. The logic of this deference can and should be extended to markets in which scale economies play an important, though less central, role¹⁰² because economies of scale generally exist for any production process and to that extent will control the structure of a market.¹⁰³ Serious practical problems, however, may arise in gauging the extent to which scale economies control a market¹⁰⁴ when scale economies are significant, but do not give rise to a natural monopoly. Strong and convincing evidence of the existence of scale economies is not likely to be present.¹⁰⁵ Courts would be forced to measure scale economies

98. Cf. notes 129-36 *infra* and accompanying text (deference to scale economies when determining relief under § 2).

99. *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 446 (2d Cir. 1945) ("Dissolution is not a penalty but a remedy; if the industry will not need it for its protection, it will be a disservice to break up an aggregation which has for so long demonstrated its efficiency."). Divestiture of a natural monopoly would, by definition, destroy scale economies. See note 73 *supra* and accompanying text.

100. E. Mansfield, *supra* note 1, at 267, 292-94 (the public often insists on government regulation when a merger creates a natural monopoly); F. Scherer I, *supra* note 4, at 482 ("[t]he most traditional economic case for regulation assumes the existence of natural monopoly"). Scherer lists three hypotheses explaining why regulation is necessary in the natural monopoly situation: to protect consumers from the inherent monopoly power, to promote political objectives, or to protect vested interests. *Id.* at 483. This Note does not address regulated industries because they are largely outside the scope of the antitrust laws, and because the legal and economic interrelations between regulation and competition are complex. C. Kaysen & D. Turner, *supra* note 3, at 4.

101. See note 72 *supra* and accompanying text.

102. Courts should respect the economic theory underlying the antitrust laws when deciding any antitrust case, see note 9 *supra* and accompanying text, as courts have when dealing with natural monopoly markets. See notes 72-100 *supra* and accompanying text.

103. 2 P. Areeda & D. Turner, *supra* note 1, ¶ 408; F. Scherer I, *supra* note 4, at 81.

104. For a discussion of problems with economists' techniques for measuring scale economies, see notes 27-48 *supra* and accompanying text.

105. Courts faced with natural monopoly cases have circumvented proof problems by using strong and concrete circumstantial evidence. Courts have concluded that

under section 2 by relying on difficult to obtain direct economic evidence¹⁰⁶ such as engineering studies¹⁰⁷ and opinion testimony of industry executives.¹⁰⁸ Nevertheless, because of the clear economic effect of scale economies, courts should strive to overcome these practical problems by more systematically measuring scale economies and incorporating them in analysis of liability and relief.¹⁰⁹

1. Section 2

Once proven, scale economies are relevant to three market structure¹¹⁰ and conduct¹¹¹ issues under section 2. First, when scale

a natural monopoly market exists without determining minimum efficient scale. See notes 77-85 *supra* and accompanying text. Circumstantial evidence of lesser scale economies, if available at all, is not likely to be clear and convincing.

106. See notes 48, 55, 58-59, 62 *supra* and accompanying text.

107. E.I. DuPont de Nemours & Co., [1980] Antitrust & Trade Reg. Rep. (BNA), No. 987, F-1, F-2 (F.T.C. Oct 20, 1980).

108. United States v. IBM Corp., No. 69 Civ. 200 (S.D.N.Y., filed Jan. 17, 1969).

109. Fisher Deposition Exhibit 8101-001, United States v. IBM Corp., No. 69 Civ. 200 (S.D.N.Y., filed Jan. 17, 1969) (analytical narrative of Franklin Fisher), Dec. 4, 1980, at 372-85 (scale economies cannot be determined with only vague statements of industry witnesses about the magnitude of minimum efficient scale); Mancke Deposition Exhibit 8100-017 (analytical narrative of Richard Mancke), Nov. 20, 1980, at 770, *id.* (testimony of industry witnesses relied on by government experts does not support their estimates of minimum efficient scale). These practical problems can be substantially overcome by using various measurement techniques to determine minimum efficient scale. See notes 29-62 *supra* and accompanying text.

110. The structural component of the actual monopolization offense under § 2 is that the defendant possesses monopoly power, that is, "the power to control prices or exclude competition." United States v. Grinnell Corp., 384 U.S. 563, 571 (1966) (quoting United States v. E.I. duPont de Nemours & Co., 351 U.S. 377, 391 (1956)). This can be proven by showing power to raise price above the competitive level, American Tobacco Co. v. United States, 328 U.S. 781, 811 (1946); American Column & Lumber Co. v. United States, 257 U.S. 377, 402-09 (1921), control over an overwhelming share of the relevant market, United States v. Grinnell Corp., 384 U.S. 563, 567 (1966); United States v. United Shoe Mach. Corp., 110 F. Supp. 295, 339 (D. Mass. 1953), *aff'd per curiam*, 347 U.S. 521 (1954); United States v. Griffith, 334 U.S. 100, 102-03 (1948); United States v. Columbia Steel Co., 334 U.S. 495, 527-28 (1948), or over a substantial share of the market in conjunction with market structure, conduct, and performance. United States v. E.I. duPont de Nemours & Co., 351 U.S. 377, 392 (1956). See generally 16 J. von Kalinowski, Antitrust Laws and Trade Regulation § 8.02[3] (1980). The structural component of the attempted monopolization offense under § 2 is a "dangerous probability" of monopoly, that is, the defendant has sufficient power to create a monopoly and has committed overt acts in furtherance of that goal. Walker Process Equip., Inc. v. Food Mach. & Chem. Corp., 382 U.S. 172, 175, 177 (1965); Lorain Journal Co. v. United States, 342 U.S. 143, 153 (1951); American Tobacco Co. v. United States, 328 U.S. 781, 785 (1946); Swift & Co. v. United States, 196 U.S. 375, 396 (1905); United States v. Aluminum Co. of Am., 148 F.2d 416, 431-32 (2d Cir. 1945). See generally 16 J. von Kalinowski, *supra*, § 8.02[3].

111. The conduct component of the actual monopolization offense under § 2 is the wilful acquisition or maintenance of market power, or the use of such power to foreclose competition or gain a competitive advantage. United States v. Grinnell Corp.,

economies constitute a barrier to entry, they may supplement traditional market share analysis to show that market power exists.¹¹² One discussion of scale economies constituting an entry barrier is in *United States v. International Business Machines Corp.*¹¹³ The government's economic witnesses have testified that IBM's market power is protected by a scale economy barrier that requires an entrant to achieve a 5% to 15% market share before it can operate at minimum efficient scale.¹¹⁴ According to government testimony, the entry bar-

384 U.S. 563, 570-71 (1966); *United States v. Griffith*, 334 U.S. 100, 107 (1948). This is often stated as a general intent requirement, that is, the "purpose or intent to exercise that power" for anticompetitive purposes. *Id.*; *American Tobacco Co. v. United States*, 328 U.S. 781, 809, 811, 814 (1946). General intent may be inferred when the monopolist has used predatory tactics to attain the monopoly position, *United States v. Grinnell Corp.*, 384 U.S. 563, 571, 576 (1966); *Lorain Journal Co. v. United States*, 342 U.S. 143, 153-54 (1951); *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 430-31 (2d Cir. 1945), or when the monopoly was legally acquired but illegally maintained or expanded. *United States v. Griffith*, 334 U.S. 100 (1948); *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295, 341-42 (D. Mass. 1953), *aff'd per curiam*, 347 U.S. 521 (1954). See generally 16 J. von Kalinowski, *supra* note 110, § 8.02[4]. The conduct component of the attempted monopolization offense is used to prove a specific intent to monopolize. *Times-Picayune Publishing Co. v. United States*, 345 U.S. 594, 626-27 (1953); *Lorain Journal Co. v. United States*, 342 U.S. 143, 149-51 (1951); *United States v. Columbia Steel Co.*, 334 U.S. 495, 531-32 (1948); *American Tobacco Co. v. United States*, 328 U.S. 781, 814-15 (1946); *Swift & Co. v. United States*, 196 U.S. 375, 396 (1905); E.I. DuPont de Nemours & Co., [1980] *Antitrust & Trade Reg. Rep. (BNA)*, No. 987, F-1, F-5 (F.T.C. Oct. 20, 1980); L. Sullivan, *supra* note 9, § 51, at 135. Specific intent is an elusive concept. See generally Hawk, *Attempts to Monopolize—Specific Intent as Antitrust's Ghost in the Machine*, 58 *Cornell L. Rev.* 1121 (1973). It has been defined as "the intent to indulge in means that are in some sense untoward." Cooper, *Attempts and Monopolization: A Mildly Expansionary Answer to the Prophylactic Riddle of Section Two*, 72 *Mich. L. Rev.* 373, 395 (1974) (footnote omitted). Specific intent may be inferred from somewhat unfair conduct. *Transamerica Computer Co. v. IBM Corp.*, 459 F. Supp. 626, 632-33 (N.D. Cal.), *aff'd*, 573 F.2d 646 (9th Cir. 1978).

112. See notes 26-28 *supra* and accompanying text. The natural monopoly situation is the extreme example of scale economies as a barrier to entry. Any potential entrant recognizing that the market can support only one firm would be deterred from entering. Fisher Deposition Exhibit 8101-001, Dec. 4, 1980, at 364-70, *United States v. IBM Corp.*, No. 69 Civ. 200 (S.D.N.Y., filed Jan. 17, 1969) (analytical narrative of Franklin Fisher).

113. No. 69 Civ. 200 (S.D.N.Y., filed Jan. 17, 1969).

114. Record at 69719-24, *United States v. IBM Corp.*, No. 69 Civ. 200 (S.D.N.Y., filed Jan. 17, 1969) (direct testimony of Leonard Weiss, March 16, 1978). Weiss relied on an estimate of minimum efficient scale for "Electric Capital Goods" made by C.F. Pratten, and testimony of witnesses from Univac, Xerox, General Electric, Record at 7095-86, *id.* (testimony of Ulric Weil); Plaintiff's Exhibit 320, at 26, *id.* (General Electric estimated that 10 to 15 percent of the general purpose market was required to have some stability in its product offering and its ability to serve customers), and RCA. Record at 13081-82, *id.*, (testimony of Vernon Wright) (RCA determined a 10% share of the general purpose market was necessary to provide and sustain a broad development program). No industry executives based their estimates

rier resulting from minimum efficient scale of this size is very high, substantially delaying entry and enhancing IBM's market power.¹¹⁵ IBM argues that scale economies are not a barrier to entry because firms have entered and operated successfully at less than 5% to 15% of the market.¹¹⁶ The government's legal argument that significant scale economies constitute a barrier to entry that evidences market power is consistent with at least some well accepted economic theory.¹¹⁷

The legality of acquiring and maintaining market power also can be analyzed using scale economy concepts. Although stronger evidence may be required to prove the specific intent element of attempted monopolization than the general intent element of actual monopolization,¹¹⁸ a defense based on scale economies is similar for either offense.¹¹⁹ For example, scale economies can justify capacity expansions that exclude competition from profitable growth opportunities.¹²⁰ Although *United States v. Aluminum Co. of*

upon studies of the shape of the firm's long run average total cost curve. Weiss concluded, very tentatively, that this information indicated that a 5% to 15% share of the market would be needed to be efficient in the relevant market. Record at 69725, *id.* (direct testimony of Leonard Weiss, March 16, 1978); Record at 53560-61, *id.* (direct testimony of Alan McAdams). McAdams testified that among the major barriers to entry to the relevant market was the scale of operations required to achieve efficiency, which he estimated to be at least 10% of the market. Record at 53560-61, *id.*

115. Record at 69723, *United States v. IBM Corp.*, No. 69 Civ. 200 (S.D.N.Y., filed Jan. 17, 1969) (direct testimony of Leonard Weiss, March 16, 1978). This minimum efficient scale for the relevant market was comparable to Bain's estimates of minimum efficient scale for five industries thought to have high scale economies barriers. *Id.*

116. Mancke Deposition Exhibit 8100-017, Nov. 20, 1980, at 771-72, *United States v. IBM Corp.*, No. 69 Civ. 200 (S.D.N.Y., filed Jan. 17, 1969) (analytical narrative of Richard Mancke, Defendant's witness).

117. Record at 69726-29, *United States v. IBM Corp.*, 69 Civ. 200 (S.D.N.Y., filed Jan. 17, 1969) (based upon economic framework of scale economy barriers in J. Bain, *supra* note 15, at 53-113).

118. See E.I. DuPont de Nemours & Co., [1980] Antitrust & Trade Reg. Rep. (BNA), No. 987, F-1 (F.T.C. Oct. 20, 1980); note 114 *supra* and accompanying text.

119. Compare E.I. DuPont de Nemours & Co., [1980] Antitrust & Trade Reg. Rep. (BNA), No. 987, F-1, F-11 (F.T.C. Oct. 20, 1980) (scale economies balanced against anticompetitive effects in an attempted monopolization case) with *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 429-30 (2d Cir. 1945) (thrust upon defense allows consideration of structural market forces in an actual monopolization case).

120. A preemptive capacity expansion is an effective anticipation of increases in demand and forestallment of all competition. This can be accomplished by progressively embracing each new opportunity as it opens and facing each newcomer with new capacity, *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 430-31 (2d Cir. 1945), or by building excess capacity or planning to fulfill foreseen demand with new and expanded plants of greater size than needed for minimum optimal scale. See E.I. DuPont de Nemours & Co., [1980] Antitrust & Trade Reg. Rep. (BNA), No. 987,

*America*¹²¹ held that a monopolist's maintenance of market share through repeated capacity expansions, though reasonably responsive to anticipated demand, was exclusionary conduct that constituted an abuse of monopoly power,¹²² the court did not consider whether Alcoa's expansions were consistent with scale economies. No subsequent case has addressed a scale economies defense to a charge that a capacity expansion was preemptory within the context of actual monopolization. Scale economies have, however, been accepted as a defense to the specific intent element of the attempted monopolization offense. The Federal Trade Commission (FTC) recently upheld an expansion strategy that was wholly responsive to projected demand increases *and* consistent with plant scale economies against an allegation that the expansion was primarily intended to preempt competitors' expansion plans.¹²³ The FTC held that the defendant should be permitted to expand capacity in increments of at least minimum efficient scale, even if the result was to preempt competition.¹²⁴

Scale economies also have been used to justify allegedly predatory behavior, other than preemptive capacity expansions, in actual monopolization cases. For example, a dealer reduction program is not predatory if justified by scale economies in which the manufacturer's unit cost of marketing his product is less when fewer dealers are trained.¹²⁵ Moreover, manufacturers can collectively switch distribu-

F-1, F-2 (F.T.C. Oct. 20, 1980); *cf.* *United States v. Columbia Steel Co.*, 334 U.S. 495, 526 (1948) (no per se rule against expansion of facilities to meet new demand).

121. 148 F.2d 416 (2d Cir. 1945).

122. *Id.* at 430-31.

123. E.I. Du Pont de Nemours & Co., [1980] Antitrust & Trade Reg. Rep. (BNA), No. 987, F-1, F-7 (F.T.C. Oct. 20, 1980). This case was brought under § 5 of the Federal Trade Commission Act, 15 U.S.C. § 45 (1976). The FTC, however, explicitly stated that analysis of the case would follow § 2 theory. [1980] Antitrust & Trade Reg. Rep. (BNA) at F-5. Specifically, complaint counsel charged that the expansion was premature and that announcements concerning expansion intentions were exaggerated primarily to preempt competitors' expansion. *Id.* at F-2; *cf.* *Hiland Dairy, Inc. v. Kroger Co.*, 402 F.2d 968 (8th Cir. 1968) (internal capacity expansion that would allow defendant to supply more than 20% of demand, without more, did not constitute an attempt), *cert. denied*, 395 U.S. 961 (1969).

124. E.I. DuPont de Nemours & Co., [1980] Antitrust & Trade Reg. Rep. (BNA), No. 987, F-1, F-11 (F.T.C. Oct. 20, 1980). The rationale for this decision was that the defendant, having achieved technological success, should not be denied the opportunity to compete for all the reasonably projected increase in demand. *Id.*

125. *Sargent-Welch Scientific Co. v. Ventron Corp.*, 567 F.2d 701, 712-13 (7th Cir. 1977), *cert. denied*, 439 U.S. 822 (1978). The reasoning is that a legitimate business purpose, such as the preservation of scale economies, is a sufficient defense to the general intent element of the offense. See 16 J. von Kalinowski, *supra* note 110, § 8.02[4] n.146 (the maintenance of monopoly power is unlawful only if it is accomplished by policies intended to limit or prevent the entry of new competitors or to exclude present competitors). It is fruitful to recall that in the natural monopoly situation, acts that result in exclusion of competitors are not necessarily condemned. See notes 87-97 *supra* and accompanying text.

tors with impunity if motivated solely by a desire to maintain economies of scale.¹²⁶ The existence of scale economies, however, does not constitute a complete defense to other predatory practices.¹²⁷ For example, monopoly power resulting from scale economies, whether pecuniary or real, cannot be leveraged from one market into another.¹²⁸

Finally, scale economy concepts can be used to determine appropriate relief under section 2. The remedial goal of eliminating illegal market power¹²⁹ must be balanced against any public injury resulting from a loss in economies.¹³⁰ Thus, divestiture is proper only

126. *Taxi Weekly, Inc. v. Metro Taxicab Bd. of Trade, Inc.*, 539 F.2d 907, 912-13 (2d Cir. 1976); see *Cartrade, Inc. v. Ford Dealers Advertising Ass'n*, 446 F.2d 289, 292-94 (9th Cir. 1971), *cert. denied*, 405 U.S. 997 (1972); *Joseph E. Seagram & Sons v. Hawaiian Oke & Liquors, Ltd.*, 416 F.2d 71, 76-78 (9th Cir. 1969), *cert. denied*, 396 U.S. 1062 (1970).

127. *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295, 344 (D. Mass. 1953), *aff'd per curiam*, 347 U.S. 521 (1954).

128. *Fortner Enterprises, Inc. v. United States Steel Corp.*, 394 U.S. 495, 509 (1969) (scale economies achieved in one market cannot be used to exert economic power over other products that company produces). Compare *United States v. Griffith*, 334 U.S. 100, 108 (1948) (Although large scale buying is not per se unlawful because it may yield price or other lawful advantages to the buyer, monopoly power gained through large scale buying may not be leveraged into another market.) with *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 603-04 (1967) (Harlan, J., concurring) (strictly pecuniary economies may not support a defense). But see *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263, 276 (2d Cir. 1979) (integrated business does not offend Sherman Act whenever one of its departments benefits from association with a division possessing a monopoly in its own market), *cert. denied*, 444 U.S. 1093 (1980).

129. *United States v. United Shoe Mach. Corp.*, 391 U.S. 244, 252 (1968). Other goals include terminating any illegal combinations and depriving the defendants of any of the benefits of the illegal conduct. *Id.*; *United States v. Crescent Amusement Co.*, 323 U.S. 173, 189 (1944); *United States v. Aluminum Co. of Am.*, 91 F. Supp. 333, 343 (S.D.N.Y. 1950).

130. Scherer, *Structure-Performance Relationships and Antitrust Policy* [hereinafter cited as Scherer III], in *Industrial Concentration and the Market System* 128 (E. Fox & J. Halverson eds. 1979) [hereinafter cited as *Concentration and the Market*]; Williamson, *Economies as an Antitrust Defense: The Welfare Tradeoffs*, 58 *Am. Econ. Rev.* 18, 18 (1968) [hereinafter cited as Williamson II]. This balancing is a tradeoff between social welfare benefits resulting from achieving scale economies and social welfare losses resulting from allocative inefficiencies caused by increased market power. *Id.* at 18-19, 23, 32. Through a partial equilibrium analysis, Williamson concludes that a merger that yields non-trivial real economies must produce substantial market power and result in relatively large price increases for the net allocative effects to be negative. *Id.* at 23. Similarly, a divestiture that destroys non-trivial real economies must divest substantial market power and result in relatively large price reductions for the net allocative effects to be positive. *Id.*; see Fox, *Economic Concentration, Efficiencies and Competition: Social Goals and Political Choices*, in *Concentration and the Market*, *supra*, at 137. The more market power a firm has, the less likely it is to maximize potential scale economies or lower price. *Id.* at 141. A court considering relief also will usually consider whether relief is necessary to re-

when scale economies are not seriously impaired.¹³¹ Although standards used by courts to determine the appropriateness of divestiture as a remedy in a section 2 case are not clear,¹³² courts have been reluctant to grant divestiture,¹³³ probably because they are unable to determine clearly its likely net effects.¹³⁴ Economists also are apparently unable to determine clearly the effects of divestiture. Although recent economic studies have indicated that scale economies mandate high degrees of concentration,¹³⁵ other studies show that many industries

store competition in the monopolized market and whether a less restrictive alternative to divestiture, such as an injunction, is appropriate. See *United States v. United Shoe Mach. Corp.*, 391 U.S. 244, 250-52 (1968); *United States v. Aluminum Co. of Am.*, 91 F. Supp. 333, 344 (S.D.N.Y. 1950); L. Sullivan, *supra* note 9, § 54, at 142-43; Elzinga, *The Goals of Antitrust: Other Than Competition and Efficiency, What Else Counts?*, 125 U. Pa. L. Rev. 1191, 1196, 1199 (1977).

131. See note 99 *supra* and accompanying text.

132. See, e.g., *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295 (D. Mass. 1953), *aff'd per curiam*, 347 U.S. 521 (1954); *United States v. Aluminum Co. of Am.*, 91 F. Supp. 333 (S.D.N.Y. 1950). A trend away from the "conduct" approach, addressing specific bad acts of the monopolist with injunctions, and towards a "structural" approach, restructuring the industry to encourage competition, is apparent in the post World War II era. Compare *Standard Oil Co. v. United States*, 221 U.S. 1, 75-77 (1911) (conduct approach) with *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 429-31 (2d Cir. 1945) (structural approach) and *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295, 345-46 (D. Mass. 1953) (same), *aff'd per curiam*, 347 U.S. 521 (1954).

133. See note 99 *supra* and accompanying text.

134. *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295, 347-48 (D. Mass. 1953) (reluctance to order dissolution is caused in part by lack of expertise in economic theories upon which structural relief is based), *aff'd per curiam*, 347 U.S. 521 (1954); see L. Sullivan, *supra* note 9, §§ 53, 55, at 141, 145; Williamson II, *supra* note 130, at 19. In *United Shoe*, Judge Wyzanski was unwilling to grant divestiture when it appeared impossible to create three independent, integrated firms. In particular, the operation had one plant, one set of jigs and tools, one foundry, and one laboratory. 110 F. Supp. at 348. Commentators have criticized *United Shoe* for its failure to recognize the flexibility of American business to respond to changed conditions. See Baldwin, *The Feedback Effect of Business Conduct on Industry Structure*, 12 J.L. & Econ. 123, 128 (1969); Dewey, *Romance and Realism in Antitrust*, 63 J. Pol. Econ. 93, 93-101 (1955). Because courts lack a basis for evaluating net effects of a merger, they often are predisposed to disallow it. See Williamson II, *supra* note 130, at 19. This predisposition flows from a reluctance to sacrifice long-term competitive consequences to short-term efficiency gains. *Id.* Courts, however, are not predisposed toward granting structural relief in § 2 cases. When the net effects are in doubt, it seems that courts are more willing to maintain the status quo than order divestiture after measuring the tradeoff between long-term anticompetitive consequences and short-term efficiency gains. Courts arguably do not possess the expertise to conduct this type of tradeoff analysis, but it can and should be performed by the Antitrust Division of the Justice Department or the FTC. *Id.* at 34; see *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295, 347-48 (D. Mass. 1953), *aff'd per curiam*, 347 U.S. 521 (1954).

135. Lohr, *Antitrust: Big Business Breathes Easier*, N.Y. Times, Feb. 15, 1981, § 3, at 1, col. 2.

could be considerably fragmented without seriously sacrificing scale economies.¹³⁶ Thus, divestiture should be granted only when solid economic evidence showing that scale economies would not be destroyed has been introduced.

2. Section 7

Scale economies are relevant within the context of section 7¹³⁷ to assess the probable competitive effects of a merger.¹³⁸ Liability under section 7, which is intended to arrest the undue concentration of economic power in its incipiency, arises when the merger may substantially lessen competition or tend to create a monopoly.¹³⁹ Factors used by courts to determine the probable anticompetitive effects of a merger include concentration in the industry¹⁴⁰ and the possibility of increased barriers to entry.¹⁴¹ Generally, courts will consider all economic and statistical data relevant to a determination of the probable impact of the merger,¹⁴² including resulting scale economies that create a barrier to entry or that have a procompetitive effect.

Although, as an economic matter, monopolies and mergers give rise to the same scale economy issues,¹⁴³ the framework of section 7

136. F. Scherer II, *supra* note 37, at 393-96; Scherer III, *supra* note 130, at 133.

137. For the text of § 7, see note 11 *supra*.

138. Turner, *supra* note 5. In this seminal article on conglomerate mergers, Professor Turner notes that varying degrees of pro and anticompetitive consequences result from the various types of mergers, *id.* at 1317-22, and argues that if anticompetitive effects predominate, the merger should be discouraged. *Id.* at 1320. When beneficial effects such as the promotion of scale economies predominate, however, and such effects are unlikely to be realized in the absence of the merger, the merger should be encouraged. *Id.* at 1318. When the potential anticompetitive effects of a merger are great, but substantial scale economies are also likely to result, the possibility of achieving economies through internal growth should be considered. *Id.* at 1320-21.

139. Clayton Act § 7, 15 U.S.C. § 18 (1976) ("may be substantially to lessen competition, or tend to create a monopoly" (emphasis added)).

140. *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 578 (1967); *United States v. Von's Grocery Co.*, 384 U.S. 270, 276-77 (1966); *United States v. Philadelphia Nat'l Bank*, 374 U.S. 321, 362-67 (1963); *Brown Shoe Co. v. United States*, 370 U.S. 294, 334-46 (1962).

141. *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 579 (1967); *Emhart Corp. v. USM Corp.*, 527 F.2d 177, 180-82 (1st Cir. 1975).

142. *See FTC v. Procter & Gamble Co.*, 386 U.S. 568, 603 (1967) (Harlan, J., concurring) (economies, including advertising economies, may be used to defend a merger); *Brown Shoe Co. v. United States*, 370 U.S. 294, 334 (1962) (merger that would foreclose substantial share of market "without producing any countervailing competitive, economic, or social advantages" violates § 7). *But see FTC v. Procter & Gamble Co.*, 386 U.S. 568, 580 (1967) (majority opinion) (possible economies cannot be used as a defense to illegality); *United States v. Philadelphia Nat'l Bank*, 374 U.S. 321, 371 (1963) (an otherwise violative merger is not saved by evidence that it is beneficial "on some ultimate reckoning of social or economic debits and credits").

143. *Compare Brown Shoe Co. v. United States*, 370 U.S. 294, 312-23 (1962) and 95 Cong. Rec. 11484-507 (1949) (House debates on H.R. 2734, a bill to amend the

creates more formidable analytical problems.¹⁴⁴ First, section 7 mandates scrutiny of probable, not actual, economic effects.¹⁴⁵ Moreover, section 7 case law defines three general categories of mergers, horizontal,¹⁴⁶ vertical,¹⁴⁷ and conglomerate,¹⁴⁸ from which the kinds of scale economies likely to result are quite different.¹⁴⁹ The result is that section 7 law on scale economies is confused and ambiguous.¹⁵⁰

Nevertheless evidence of scale economies can and should be used in several ways in the context of a section 7 case. First, scale economies can be used to assess the competitive environment in which a merger occurs. In *Brown Shoe Co. v. United States*,¹⁵¹ the Supreme Court held that analysis of the "structure, history, and probable future" of the market would provide the setting to judge the likely anticompetitive effects of the merger.¹⁵² In a market in which scale economy barriers exist, that is, when minimum efficient scale constitutes a significant share of the market, firms will compete less strenuously among themselves.¹⁵³ Because potential entrants usually com-

Clayton Act) with *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 427-29 (2d Cir. 1945).

144. *United States v. Aluminum Co. of Am.*, 91 F. Supp. 333, 345 (S.D.N.Y.) ("It is not unreasonable to suggest that a court may act more readily to keep apart what has never been joined together, than to dismember an existing entity which, in general, has well served the public."), *aff'd*, 192 F.2d 602 (2d Cir. 1950). Thus, courts seem more likely to resolve ambiguities in favor of the defendant in § 2 cases and in favor of the government in § 7 cases.

145. *Turner*, *supra* note 5, at 1318. For the language of § 7, see note 11 *supra*.

146. Horizontal mergers are defined as "economic arrangement[s] between companies performing similar functions in the production or sale of comparable goods or services," *Brown Shoe Co. v. United States*, 370 U.S. 294, 334 (1962), or as mergers between direct competitors. Merger Guidelines of the Department of Justice, [1977] Trade Reg. Rep. (CCH) ¶ 4510, at 6883.

147. Vertical mergers have been defined as "economic arrangements between companies standing in a supplier-customer relationship," *Brown Shoe Co. v. United States*, 370 U.S. 294, 323 (1962), or as acquisition "backward" into a supplying market or "forward" into a purchasing market. Merger Guidelines of the Department of Justice, [1977] Trade Reg. Rep. (CCH) ¶ 4510, at 6885.

148. Conglomerate mergers are defined as mergers that are neither horizontal nor vertical. This includes geographic or product extension mergers, that is, those involving two firms selling the same product in different geographic markets or similar products in the same market. Merger Guidelines of the Department of Justice, [1977] Trade Reg. Rep. (CCH) ¶ 4510, at 6887.

149. See *Turner*, *supra* note 5, at 1320-22; see notes 166-77 *infra* and accompanying text.

150. See *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 580, 597-604 (1967); *Brown Shoe Co. v. United States*, 370 U.S. 294, 334, 344 (1962); notes 151-164 *infra* and accompanying text.

151. 370 U.S. 294 (1962).

152. *Id.* at 322 n.38.

153. *Kennecott Copper Corp. v. FTC*, 467 F.2d 67, 77 n.8 (10th Cir. 1972), *cert. denied*, 416 U.S. 909 (1974). This is true for any firm with market power that oper-

prise a major competitive force in *these* markets,¹⁵⁴ courts are likely to invalidate a merger that eliminates a potential entrant.¹⁵⁵

Evidence of scale economies may also be introduced as a defense in a section 7 case. Although the Supreme Court has held that economic evidence in defense of a merger should not be considered when the merger is horizontal¹⁵⁶ or conglomerate,¹⁵⁷ and usually should be considered when the merger is vertical,¹⁵⁸ no express distinction is made on the basis of policy or congressional intent.¹⁵⁹ Circuit and district courts have also taken inconsistent positions on the appropriateness of scale economies as a section 7 defense. The Ninth Circuit and one district court have rejected an operating efficiencies defense in horizontal cases.¹⁶⁰ In contrast, the First Circuit, the

ates behind barriers to entry. *See* *Fruehauf Corp. v. FTC*, 603 F.2d 345, 353 (2d Cir. 1979).

154. *Kennecott Copper Corp. v. FTC*, 467 F.2d 67, 77 n.8 (10th Cir. 1972), *cert. denied*, 416 U.S. 909 (1974).

155. *Id.*; *cf.* *Ford Motor Co. v. United States*, 405 U.S. 562, 577-78 (1972) (court applied "potential entrant" theory and found liability, but did not discuss scale economies in relevant market).

156. *United States v. Philadelphia Nat'l Bank*, 374 U.S. 321 (1963). In *Philadelphia National Bank*, the Court held that if the merger results in a lessening of competition and an increase in concentration, economic evidence in defense of the merger would not be considered. *Id.* at 371. *But cf.* *United States v. General Dynamics Corp.*, 415 U.S. 486, 498 (1974) ("structure, history and probable future" of a market is relevant in determining the anticompetitive effect of a horizontal merger (quoting *Brown Shoe Co. v. United States*, 370 U.S. 294, 322 n.38 (1962))).

157. *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 580 (1967) (*Clorox*). In *Clorox*, the majority held that possible economies cannot be used as a defense to illegality in the context of a conglomerate merger when the effect of the merger was to entrench the acquired firm in a dominant position. Justice Harlan's concurring opinion in *Clorox*, however, criticized the majority's analysis of economies. He argued that real economies are an appropriate defense under § 7. Moreover, he noted the difference between advertising economies and economies resulting from production, distribution, and marketing. *Id.* at 603 (Harlan, J., concurring). Economists call the savings in advertising strictly pecuniary economies, and the others real economies. *See* notes 17-19 *supra* and accompanying text.

158. *Brown Shoe Co. v. United States*, 370 U.S. 294 (1962). In analogizing the vertical aspects of the merger at issue, the Court stated that various economic and historical facts should be considered when the percentage of the market foreclosed is neither a monopoly nor de minimus. *Id.* at 328-29. The Court found that Congress intended that the economic purpose of a vertical merger be considered. *Id.* at 319.

159. The trend, however, apparently is to consider economic evidence. *See* notes 5-6, 9 *supra* and accompanying text.

160. *RSR Corp. v. FTC*, 602 F.2d 1317, 1325 (9th Cir. 1979), *cert. denied*, 445 U.S. 927 (1980); *International Tel. & Tel. Corp. v. General Tel. & Elec. Corp.*, 518 F.2d 913, 936 (9th Cir. 1975); *Crown Zellerbach Corp. v. FTC*, 296 F.2d 800, 825-27 (9th Cir. 1961), *cert. denied*, 370 U.S. 937 (1962); *United States v. Bethlehem Steel Corp.*, 168 F. Supp. 576, 618 (S.D.N.Y. 1958) (citing congressional intent to halt the growing tendency toward increased concentration of power in spite of possible efficiency and lower cost to the ultimate consumer that may result from the merger). *But see* *Crown Zellerbach Corp. v. FTC*, 296 F.2d 800, 826 n.32 (9th Cir. 1961) (economies of scale specifically mentioned as a factor to consider).

D.C. Circuit, one district court, and the FTC have argued that evidence of scale economies resulting from a merger should be considered in defense of a merger under section 7.¹⁶¹

Some courts have suggested the extreme and clearly erroneous position that a merger should be held unlawful *because* it results in efficiencies. Specifically, they hold that a section 7 violation can be established by proof that the merged firm will be more efficient than its smaller competitors as a result of the merger.¹⁶² This argument unreasonably extends the populist notion that antitrust law should protect small business, and fails to recognize that a reason for promoting competition is that competition forces firms to operate efficiently.¹⁶³

A more logical approach, implicit in recent Court decisions, is that real economies are always procompetitive and should be weighed against anticompetitive effects in all merger cases.¹⁶⁴ This balancing

161. *Emhart Corp. v. USM Corp.*, 527 F.2d 177, 181-82 (1st Cir. 1975) (A § 2 case, analyzed using § 7 case law, held that entrenchment theory under § 7 makes strictly pecuniary economies resulting from a merger unlawful. It does not hold, however, that real economies resulting from a merger are unlawful.) *Northern Natural Gas Co. v. Federal Power Commission*, 399 F.2d 953, 967 n.28 (D.C. Cir. 1968) (merger doesn't result in use of excess capacity or make possible other economies of scale; in fact, it is possible that scale economies were sacrificed in order to protect the market from an independent competitor); *United States v. Wilson Sporting Goods Co.*, 288 F. Supp. 543, 566 n.38 (N.D. Ill. 1968) (in dicta, explicitly endorsed Justice Harlan's concurring opinion in *Clorox*, which accepts a "real" scale economies defense as the more logical approach); *Beatrice Foods Co.*, [1973-1976 Transfer Binder] Trade Reg. Rep. (CCH) ¶ 20,944, at 20,792 (F.T.C. 1975) ("improved efficiency and price reductions are certainly no reason to condemn a merger not otherwise shown to be anticompetitive").

162. *Brown Shoe Co. v. United States*, 370 U.S. 294, 344 (1962); *Purex Corp. v. Procter & Gamble Co.*, 596 F.2d 881, 887-88 (9th Cir. 1979); *United States v. Ingersoll-Rand Co.*, 218 F. Supp. 530, 554 (W.D. Pa.), *aff'd*, 320 F.2d 509 (3d Cir. 1963); *Foremost Dairies Inc.*, 60 F.T.C. 944, 1084 (1962); see R. Bork, *supra* note 2, at 6-7 (Because business efficiency lowers costs, it necessarily benefits consumers. Therefore, when it is seen as a positive evil, the legality of business behavior that results in efficiency will not be upheld. This is the worst possible result.).

163. Turner, *supra* note 5, at 1324-25. "This position is not only bad economics but bad law . . . [T]he supposed purpose to preserve small business has never been translated into rules banning conduct that was not arguably anticompetitive or harmful in some other respect." *Id.*

164. Turner, *supra* note 5, at 1316-17; United States Dep't of Justice, *Antitrust Guide Concerning Research Joint Ventures*, [1980] Antitrust & Trade Reg. Rep. (BNA), No. 992, 3-4 (Spec. Supp. Dec. 4, 1980); see note 7 *supra* and accompanying text. The Justice Department explicitly endorses a balancing approach in analyzing the competitive effects of a research joint venture under § 7 of the Clayton Act or § 1 of the Sherman Act. [1980] Antitrust & Trade Reg. Rep. (BNA) at 3. One example that the Guide gives of a valid justification for a joint venture is when individual firms cannot independently and efficiently finance research projects, presumably because this will increase innovation. *Id.* at 4. Moreover, joint research that replaces individual research by the participants is still justified if it results in substantial efficiencies. *Id.*

approach is mandated by the clear economic effect of scale economies, the feasibility of various measurement techniques, and the importance of efficiency as an antitrust goal,¹⁶⁵ and is understood best within the context of the three types of mergers.

Horizontal mergers are most likely to yield real scale economies in production, research, distribution, cost of capital, management, skill, and knowhow, as well as to allow the firm flexibility to alter production levels so that each of its plants produces at minimum efficient scale.¹⁶⁶ They are also most likely to result in anticompetitive effects.¹⁶⁷ Moreover, even if strong antimerger standards were applied, the firm could probably achieve these economies by internal expansion.¹⁶⁸ In cases in which the benefits of scale economies clearly outweigh anticompetitive effects, however, the merger nevertheless should be upheld.¹⁶⁹

Vertical mergers are less likely to yield real scale economies, but will often yield efficiencies of integration and firm scale economies.¹⁷⁰ Because the anticompetitive effects of a vertical merger are more remote than those of a horizontal merger, and barriers to entry are likely to deter internal expansion, a strong policy against vertical mergers is more likely to prevent scale economies from being realized.¹⁷¹ As with horizontal mergers, however, the facts of a specific case may alter this general balance and lead to invalidating a vertical merger.¹⁷²

Conglomerate mergers generally result in few scale economies and few anticompetitive effects.¹⁷³ Significant real economies from a pure conglomerate merger are unlikely because the products of the acquiring and the acquired firm generally are not interrelated.¹⁷⁴ Conglomerate mergers are likely, however, to yield strictly pecuniary economies in management services, advertising costs, and capital costs.¹⁷⁵ The savings in management and advertising are likely to be

165. See notes 6-7, 23, 29-62 *supra* and accompanying text.

166. Blair, *The Conglomerate Merger in Economics and Law*, 46 Geo. L.J. 672, 679-80 (1958); Turner, *supra* note 5, at 1317.

167. Turner, *supra* note 5, at 1320.

168. *Id.*

169. See *Brown Shoe Co. v. United States*, 370 U.S. 294, 334 (1962). But see *United States v. Philadelphia Nat'l Bank*, 374 U.S. 321, 363 (1963).

170. F. Scherer I, *supra* note 4, at 78-79. Vertical mergers are likely to result in a more efficient arrangement of facilities from continuous production economies. Vertical mergers may, however, introduce complications for a firm when the minimum efficient scale for the two production processes is not the same.

171. Turner, *supra* note 5, at 1321.

172. *Id.* at 1330.

173. Blair, *supra* note 166, at 679-80; cf. Turner, *supra* note 5, at 1329 (Blair overstates this principle).

174. Turner, *supra* note 5, at 1329.

175. *Id.* at 1330.

greater when the products of the merging firms are similar.¹⁷⁶ Although it is possible that anticompetitive effects will result from a conglomerate merger, it is not as likely as it is for either horizontal or vertical mergers.¹⁷⁷ Thus, the required showing of beneficial economic effects arguably should be less for conglomerate mergers. As with all section 7 cases, courts should balance the merits of each case on an ad hoc basis.¹⁷⁸

CONCLUSION

A free market economy relies on market mechanisms to promote social welfare. When the market mechanisms fail, market power results. The purpose of antitrust law is to control exercises of such power. Antitrust law, however, must be able to distinguish between exercises of market power and aggressive business behavior that results in social benefits. Application of economic theory to specific cases allows courts to make that distinction. Promoting scale economies is one example of business behavior that improves social welfare that could be confused with the exercise of market power. Courts can use the work of economists to identify and allow realization of scale economies. As the arbiters of what constitutes beneficial economic behavior, courts have the responsibility to do so.

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176. *Id.*

177. *Id.*

178. See notes 169, 172 *supra* and accompanying text.