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TOWARD LESS MONOPOLY

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Acceptance of the importance of economics in antitrust law has become widespread. The Association of American Law Schools has sponsored economic studies to supplement legal teaching materials; practicing lawyers increasingly are seeking economic aid in preparing for antitrust litigation; and recently a federal judge has obtained the assistance of a trained economist for a major Sherman Act case. In addition economics has an equally important role in determining what the law should be.

This article is directed toward the achievement of more effective anti-monopoly standards. The central objective of the study is ascertaining how to achieve more effective competition than now exists. There is a close connection between existing law and economic knowledge about monopoly. This connection makes possible a recommendation of legal standards for determining the existence of illegal monopoly based upon the foundation of existing law—particularly upon Judge Hand's decision in the *Aluminum Company* case.

The first three sections of this article develop the basis of a standard for determining illegality under section 2 of the Sherman Act, set out the standard and relate it to the problem of efficiency (economies of scale), and indicate the nature of the efficiency problem in a particular major industry—steel. The last three sections contain analysis of alternative methods of attacking the monopoly problem. Therein are considered various performance tests which have been suggested, the question of whether and under what circumstances there can be said to be too much competition, and the question of what "workable" competition has to offer as a guide to public policy.

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I. THE STEEL INDUSTRY AND THE ALCOA CASE

The steel industry has often been cited as a proper object of an anti-monopoly program. Although today there are a number of industries with considerably higher concentration ratios, either in terms of percentage of assets or in terms of percentage of production by a few large producers, of all industries steel is probably the most thoroughly investigated for indications of monopoly. Ever since the spectacular mergers which culminated in the formation of the United States Steel Corporation in 1901, the steel industry in general, and the United States Steel Corporation in particular, have periodically been the subject of Congressional or administrative investigation. Each of these major investigations has found what have been considered to be serious departures from effective competitive behavior. In the critical legal contests, however, the steel industry has an imposing record. Its most significant victory was in the dissolution suit brought against United States Steel and decided adversely for the government by the Supreme Court in 1920.¹

Since this case, the concept of illegal monopoly has undergone rather substantial change. Particularly, there has been a marked development in the definition of monopolization under section 2 of the Sherman Act.² This change has been summarized by Chief Judge Knox in *United States v. Aluminum Co. of America*:³

“. . . a marked development in the application of the anti-trust laws has been the diminishing significance attributable to the presence of actually abusive practices in the exercise of a corporation's market power. Courts formerly looked to an overt misuse of a defendant's dominant competitive position as a *sine qua non* of illegality.⁴ But this is no longer true. The more recent authoritative precedents indicate that the mere existence of what is denominated 'monopoly power,' irrespective of its exercise, may be the focal element that will resolve the outcome of a particular suit."

This interpretation of monopolizing under section 2 supersedes the opinion in the 1920 steel case only insofar as the absence of abuses

1. *United States v. United States Steel Corp.*, 251 U.S. 417 (1920).

2. 26 STAT. 209 (1890), 15 U.S.C. § 2 (1946): "Every 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 misdemeanor. . . ."

3. 91 F. Supp. 333, 340 (S.D.N.Y. 1950).

4. Judge Knox claims too much here. To hold that the misuse of a dominant competitive position has been an indispensable requirement for illegality under § 2 stresses the importance of *United States v. United States Steel Corp.*, *supra* note 1, to the exclusion of the other combination cases. The railroad cases cited by Judge Hand provide clear examples of illegally acquired power *regardless of the use made of it*. Narrowing the "how obtained" requirement to a narrow exception marks the more significant step in monopoly law.

is assumed to be the critical issue in a determination of the presence of illegal monopoly. In the *Alcoa* case Judge Learned Hand addressed himself to the question of what proportion a single producer must occupy in the market before an illegal power presumption can become applicable. His widely quoted words are: "That percentage [over 90] is enough to constitute a monopoly; it is doubtful whether sixty or sixty-four per cent would be enough; and certainly thirty-three per cent is not."⁵

The U.S. Steel Corporation at the time the steel case was tried produced some 50 per cent of the basic steel (ingots) made in the United States. This percentage does not create a presumption of illegality under the Hand interpretation of section 2 since it is well below the lower limit (64 per cent) which he emphasized. Moreover, the presumptive legality of the amount of power held by the United States Steel Corporation is strengthened by Attorney General Clark's approval of the post-World War II disposal of the Geneva Steel plant to U. S. Steel, and by the Supreme Court's opinion in *United States v. Columbia Steel Corp.*,⁶ where the issue involved was the propriety under the Sherman Act of the acquisition of the Consolidated Steel Corporation by U. S. Steel.

Although the steel cases may be consistent with respect to Judge Hand's opinion in terms of power as measured by the percentage rule he laid down, it is not so clear that the results in the steel cases are consistent with the theory by which his power rule was developed. This is apart from the questions which can be raised as to illegality based on intent to monopolize.⁷ Both monopolizing and attempting to monopolize are encompassed by section 2.

Judge Hand's "Power Rule"

Judge Hand builds his power rule by analogy to the price fixing cases:

"It is settled, at least as to § 1, that there are some contracts restricting competition which are unlawful, no matter how beneficent they may be; no industrial exigency will justify them; they are absolutely forbidden. . . . Starting . . . with the authoritative premise that all contracts fixing prices are unconditionally prohibited, the only possible difference between them and a monopoly is that while a monopoly necessarily involves an equal, or even

5. *United States v. Aluminum Co. of America*, 148 F.2d 416, 424 (2d Cir. 1945).

6. 334 U.S. 495, *rehearing denied*, 334 U.S. 862 (1948).

7. Calculated schemes to gain control over an appreciable segment of the market and to suppress competition run afoul of the Sherman Act. See *United States v. Paramount Pictures*, 334 U.S. 131, 174 (1948).

greater, power to fix prices, its mere existence might be thought not to constitute an exercise of that power. That distinction is nevertheless purely formal; it would be valid only so long as the monopoly remained wholly inert; it would disappear as soon as the monopoly began to operate; for, when it did—that is, as soon as it began to sell at all—it must sell at some price and the only price at which it could sell is a price which it itself fixed. Thereafter the power and its exercise must needs coalesce. Indeed it would be absurd to condemn such contracts unconditionally, and not to extend the condemnation to monopolies; for the contracts are only steps toward that entire control which monopoly confers; they are really partial monopolies.”⁸

Why is not Judge Hand's rule, since it is derived from the price fixing cases, that any degree of power held by a single firm is illegal if that same power would be illegal if jointly held by several firms in a price ring? An answer involves more than precedent. To so hold would be to classify everything as a monopoly, for, as Hand points out, a price fixing agreement is illegal irrespective of the degree of economic power. On the other hand, if price fixers in agreement are at all rational, their very acts of setting prices are a clear indication that they *expect* to exert economic power in a monopolistic manner. There is no reasonable alternative inference than that they specifically intend to monopolize. Intent would seem to be at least as satisfactory a common term as power in an analogy between price fixing and monopoly. Hand himself points out: “Although in many settings it may be proper to weigh the extent and effect of restrictions in a contract against its industrial or commercial advantages, *this is never to be done when the contract is made with intent to set up a monopoly.*”⁹ (Emphasis added.)

Judge Hand's concept of monopoly in the *Alcoa*¹⁰ case seems to approximate entire control. Section 1 contracts (such as price fixing agreements) he says “are really partial monopolies.” But these partial monopolies which are represented by price rings and other forms of loose associations are in terms of power no less “partial monopolies” than a similar aggregation of control in a single firm. The only difference between the price fixing case and a single firm with a similar degree of “partial monopoly” is, as Hand points out with respect to more complete monopolies, that in the latter case “its mere existence might be thought not to constitute an exercise of that power.”¹¹ He

8. *United States v. Aluminum Co. of America*, 148 F.2d 416, 427-428 (2d Cir. 1945).

9. *Id.* at 428.

10. But contrast his opinion in the *Corn Products* case, *infra* note 12.

11. *United States v. Aluminum Co. of America*, 148 F.2d 416, 428 (2d Cir. 1945).

then goes on to indicate that this last distinction is merely formal and is valid only as long as the monopoly (also true of partial monopoly although not specifically included by Judge Hand) remains wholly inert. The distinction disappears as soon as the monopoly begins to sell at all—it must sell at some price and the only price at which it can sell is a price which it itself fixes.

From this reasoning it might be concluded that monopoly power exists when any seller or group of sellers may by its own action cause a substantial change in the market price (either by direct action on price or through control of output, which must affect price). Such a conclusion would abandon entire control as a workable meaning of monopoly; and Hand's analogy to price fixing cases, insofar as it is valid in terms of power, seems to provide argument for doing so. The real power to monopolize is the power to fix prices. Emphasis prior to the *Alcoa* case was on how power was acquired. As Judge Hand pointed out as long ago as 1916 in *United States v. Corn Products Refining Co.*: "If the decisions of the Supreme Court are to be so understood, it is the mere possession of economic power, acquired by some form of combination, and capable, by its own variation in production, of changing and controlling price, that is illegal."¹²

It is notable that in the *Corn Products* case the proportion of the market in glucose and corn starch controlled by the defendants was only slightly more than 50 per cent in 1914 and was declining. Moreover in the *Addyston Pipe & Steel* case,¹³ in the *Reading* case¹⁴ and in the *Lehigh* case,¹⁵ the proportions of business done by the defendants¹⁶ were 30, 33 and 20. The *Reading* case,¹⁷ along with the *Southern Pacific*¹⁸ and *Union Pacific* cases,¹⁹ are among the cases cited by Judge Hand in the *Alcoa* opinion to establish the point that if the Aluminum Company of America, which produced 90 per cent of the primary virgin aluminum in the United States, had been formed by combination its monopoly position would be illegal.²⁰ These cases would seem to provide equally valid precedent for a "partial monopoly" rule considerably below the 90 per cent control present in the *Alcoa* case. In

12. 234 Fed. 964, 1012 (S.D.N.Y. 1916).

13. *United States v. Addyston Pipe & Steel Co.*, 85 Fed. 271 (6th Cir. 1898), *aff'd*, 175 U.S. 211 (1899).

14. *United States v. Reading Co.*, 253 U.S. 26 (1920).

15. *United States v. Lehigh Valley Ry.*, 254 U.S. 255 (1920).

16. Per cent of United States market. (Local control was considerably higher).

17. *Supra* note 14.

18. *United States v. Southern Pacific Co.*, 259 U.S. 214 (1922).

19. *United States v. Union Pacific Ry.*, 226 U.S. 61 (1912).

20. *Supra* note 5, at 429. Unless, in Hand's language, monopoly is "thrust upon it." *Ibid.* See Section III, *infra*.

fact in the *Reading* case,²¹ which was decided within seven weeks of the *Steel Co.*²² decision of 1920, and in which was represented a combination involving only about one-third of the anthracite coal production in a narrowly defined producing region, the court refers to the position of Reading as "this dominating power," and says "(t)hat such a power, so obtained, regardless of the use made of it, constitutes a menace to and an undue restraint upon interstate commerce within the meaning of the Anti-Trust Act. . . ." ²³ Again, the emphasis may be said to be on "so obtained" rather than on "power."

Hand's statement to the effect that 90 per cent control is enough to constitute monopoly, that it is doubtful whether 60 to 64 per cent would be enough, and that certainly 33 per cent would not be enough, is not necessary for the holding in the *Alcoa* case. The combination cases, which provide Judge Hand with examples of monopoly power, involved percentages of control well below the limits of 64 to 90 per cent. Judge Hand adopted a different and much higher standard for illegality in terms of power in the *Aluminum* case than he himself had required of the combination in the *Corn Products* case.²⁴

Setting any percentage of market control as a standard of presumptive illegality must, of course, be somewhat arbitrary. In addition to the problem of what the percentage should be, it leaves unsolved perplexing questions such as "33, 60, or 90 per cent of what?". It leaves considerable room for the ingenuity of lawyers and judges to determine both the product category which is applicable and the geographic scope of the market to be considered. The provisions of sections 1 and 2 of the Sherman Act have both a geographic and product diversity significance. They apply to any part of the United States and to any of the classes of things that enter into interstate commerce.²⁵ This is the problem of prescribing the industry to which any percentage rule is to apply. Judge Hand was confronted with the problem of what to include in the aluminum industry in the *Alcoa* case. He concluded that secondary aluminum was not properly included in the base from which the Aluminum Company's percentage of control was measured. It is obvious that he also concluded that it was not appropriate to include other light metals in measuring Alcoa's market control. Similar prob-

21. *Supra* note 14.

22. *Supra* note 1.

23. *United States v. Reading Co.*, 253 U.S. 26, 54 (1920).

24. It must be noted that all of these cases involved combination. It was not primarily the percentages of control that made for illegality, but they were deemed relevant by Judge Hand in deciding the *Alcoa* case, which did *not* involve combination. It is difficult to see why they would not have been equally relevant had the percentage of Alcoa's production of aluminum ingot been substantially lower.

25. See *Indiana Farmer's Guide Publishing Co. v. Prairie Farmer Publishing Co.*, 293 U.S. 268, 279 (1934).

lems are always present in monopoly cases irrespective of what percentage of control is deemed to be crucial. The doubts raised about Judge Hand's 64 to 90 per cent rule for determining presumptive illegality present a separate problem.

Moreover, even with a 90 per cent rule Judge Hand stresses that the standard is only presumptive. This presumption may be rebutted by a showing by the monopolist that monopoly has been "thrust upon it."

II. "MONOPOLY THRUST UPON"—ECONOMIES OF SCALE

"Having proved," said Judge Hand in *United States v. Aluminum Co. of America*, "that 'Alcoa' had a monopoly of the domestic ingot market, the plaintiff had gone far enough; if it was an excuse, that 'Alcoa' had not abused its power, it lay upon 'Alcoa' to prove that it had not. But the whole issue is irrelevant anyway, for it is no excuse for 'monopolizing' a market that the monopoly had not been used to extract from the consumer more than a 'fair' profit."²⁶

Judge Hand's statement is unquestionably true:

". . . from the very outset courts have at least kept in reserve the possibility that the origin of the monopoly may be critical in determining its legality. . . . This notion has usually been expressed by saying that size does not determine guilt; that there must be some 'exclusion' of competitors; that the growth must be something else than 'natural' or 'normal'; that there must be a 'wrongful intent,' or some other specific intent; or that some 'unduly' coercive means must be used. At times there has been emphasis upon the use of the active verb, 'monopolize,'. . . . What engendered these compunctions is reasonably plain . . . persons may unwittingly find themselves in possession of a monopoly, automatically so to say: that is, without having intended either to put an end to existing competition, or to prevent competition from arising when none had existed; they may become monopolists by force of accident. Since the Act makes 'monopolizing' a crime, as well as a civil wrong, it would be not only unfair, but presumably contrary to the intent of Congress, to include such instances. A market may, for example, be 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. Or there may be changes in taste or in cost which drive out all but one purveyor. A single producer may be the survivor out of a group of active competitors, merely by virtue of his superior skill, foresight and industry. In such cases a strong argument can be made that, although the result may expose the public to the evils of monopoly, the Act does not mean to condemn the resultant of those very

26. 148 F.2d 416, 427 (1945).

forces which it is its prime object to foster: *finis opus coronat*. The successful competitor, having been urged to compete, must not be turned upon when he wins."²⁷

This quotation from Judge Hand's opinion provides the rationale for the holding that monopoly, regardless of how powerful, is *not* illegal per se. Thus, even the 90 per cent control over aluminum ingot in the *Alcoa* case creates merely a presumption of illegal monopoly because "it may not have achieved monopoly; monopoly may have been thrust upon it."²⁸

In applying this rule to the Aluminum Company in the *Alcoa* case, Judge Hand gave a very restricted meaning to the phrase "thrust upon it." For example, Judge Hand, in commenting on the fact that Alcoa had stimulated new demand and opened up new uses for aluminum and then avowed it as evidence of the skill, energy and initiative with which it conducted its business, said: "we may assume that all it claims for itself is true. The only question is whether it falls within the exception established in favor of those *who do not seek, but cannot avoid, the control of a market.*"²⁹ (Emphasis added.)

The passive proposition "thrust upon it" is strictly and literally applied in the *Alcoa* case. This application, however, does not necessarily exclude the defense of the successful competitor, who, having been urged to compete, is turned upon when he wins. If "thrust upon" were to include only "passive" cases no rebuttal of a presumption of monopoly would be possible for other than inert business firms. But how can "a single producer who may be the survivor out of a group of active competitors, merely by virtue of his superior skill, foresight and industry" be said to behave so as to have had monopoly thrust upon him? It is this kind of circumstance, says Judge Hand, which provides the reason for requiring a rule making a presumption of monopoly rebuttable. Judge Hand's answer is by example. He seems principally concerned with natural monopolies—industries which support or are likely to support only single firms for reasons of efficiency (economies of scale). Judge Hand unquestionably had economies of scale in mind when he said, "A market may, for example, be so limited that it is impossible to produce at all and meet the costs of production except by a plant large enough to supply the whole demand."³⁰

27. *Id.* at 429.

28. *Ibid.*

29. *Id.* at 431.

30. *Id.* at 430. It is interesting to note that the word "plant" rather than "company" is used. Could monopoly be "thrust upon" a multi-plant company, especially if not brought about by merger?

Another of the examples which Judge Hand quotes as providing possible rebuttable evidence against what is presumed to be illegal monopoly relates to "changes in taste or in cost which drive out all but one purveyor."³¹ The reference in this connection fits the general economic prescription of the industry which may become a natural monopoly although past or present conditions did not or do not make this inevitable.

A case of monopoly "thrust upon" would also seem to arise when an enterprising seller brings forth for the first time a new product or a new service. For at least a short period of time such a seller is likely to have the market to himself. So limited, this is not dissimilar to the natural monopoly point. That this sort of monopoly should result in a violation of the Sherman Act would serve no useful purpose and might well provide an effective damper on an important phase of competition. Professor Schumpeter, especially, stresses this aspect of competition (which is discussed in section IV of this article).³²

Still another possibility of a monopoly thrust upon a seller arises from the possession of unique skills or special knowledge. The possession of the best brains, or the keenest foresight, or the most complete know-how can be viewed as a particular kind of economy of scale. On the other hand, if such an advantage should persist it might be difficult to square such a result with the exception described by Judge Hand "in favor of those who do not seek, but cannot avoid, the control of a market." At least, in the *Alcoa* case that skill in stimulating new demands and opening up new uses could not rebut the presumption of illegal monopoly in aluminum.

Irrespective of what the law is or what the law turns out to be about "monopoly thrust upon it," it is possible to limit the coverage of the exception principally to problems which in economics are covered by the general term "economies of scale." Here is the most important reason for not having a per se rule against any substantial degree of monopoly power irrespective of the source of power. It is concern over this efficiency exception which gives rise to the difficult public policy questions of providing for adequate relief in antitrust cases in a manner consistent with those purposes of the Act which Judge Hand has outlined. Apart from problems arising from economies of scale there would seem to be no more reason for tolerating economic power held by single concerns than for tolerating similar power aggregated through loose associations such as cartels.

31. *Ibid.*

32. See text at note 122 *infra*.

The importance of Judge Hand's power rule as legal precedent arises from the fact that he recognizes that economic power, in and of itself, irrespective of how it has been obtained or how it is used, can be illegal. The "thrust upon it" exception to the rule safeguards application to monopoly arising from efficiency—economy of scale. Application need not logically be restricted to the single dominant seller with 64 to 90 per cent of an industry's production.

Economies of Scale

There are industries in which a market is served economically by only one or a few sellers. It is generally considered to be wasteful socially to duplicate electric power facilities in the same community. This is a typical public utility case. In such industries even two producers of the same service for the same market cannot possibly have as low unit costs as one.³³ Productive resources in these industries are not economically divisible. Resources must be provided in large "chunks."³⁴ The economy of scale case involves costs which decline with increases in output over so wide a range that the market will not support more than one (or a few) firms of efficient size. Under such circumstances only does competition necessarily lead to monopoly.³⁵ It is this case that gives rise to the necessity of a "thrust upon it" exception to a monopoly power rule.

Properly defined, the economy of scale case relates to social costs, not to private costs. Social costs are costs which the community as a whole pays. They are reduced by economical utilization of scarce resources. Cost advantages accruing to particular business firms do not necessarily involve reduction of social cost. For example, a strong bargaining advantage, giving rise to preferential discounts in purchasing materials or services, represents cost savings to the firm obtaining it, but does not conserve resources.

Recognition of the importance of economies of scale in some particular area need not result in condoning wide areas of monopoly.

“. . . (w)hen the tendency toward diminishing cost is assignable to economies prior to or subsequent to the particular manufacturing process—economies, therefore, *external to the individual concern*, and thus available to any concern of whatever size in proportion to that size—competition need not end in monopoly. Thus, a better organization of the market in which raw

33. The analysis is not changed by applying it to a greater number of producers than one—that is, by making the rule applicable to the case of several firms as well as to the single firm.

34. See WATKINS, *INDUSTRIAL COMBINATIONS AND PUBLIC POLICY* 105 (1927).

35. See Section V of this article for other reasons for "too much" competition.

materials are bought, or a better method of utilizing by-products, would not of itself be of greater advantage to a large than to a small establishment.”³⁶

Nor, according to Professor Watkins, do high overhead costs necessarily lead to monopoly: “A high ratio of fixed capital costs to total cost would not provoke producers to ruinous price-cutting [and the elimination of all but the strongest] unless they expected that in the long run their profits would be increased by marketing a larger output at lower unit cost.”³⁷

Because many of the economies which make for lower costs are available to large and small firms alike, because most examples which are given as evidence of savings arising from large scale relate to technical engineering developments within plants, and because bargaining advantages (as contrasted to social cost savings) are often associated with large multi-plant firms, it has been suggested that a rather good guide to economies of scale is provided by the size of existing plants. The large plant, as contrasted to the large firm, is more likely to represent social, as opposed to private, advantage of size; and large firms typically claim external economies as economies of their scale. Two commonly alleged advantages of multi-plant operation represent possible cases of this sort—economies of selling and economies of large scale research.

It would be misleading, however, to limit the problem of efficiency to questions of technological adjustment within a plant. Efficiency consists of achieving a given result with the use of a minimum amount of resources. S. R. Dennison gives an interesting example:

“Presumably a cement works situated on the top of a mountain, to which coal and raw material had to be transported from one end of the country, and then the product carried to the other end, could be supremely efficient—even though far more resources (including transportation) had to be used to produce cement than were required for a more favorably-situated works. To consider only some of the more obvious factors affecting efficiency, and not the whole, is a common error likely to lead to serious mistakes of policy; it is, for instance, the basis of much over-estimation of the gains to be derived from the re-equipment of industry.”³⁸

Professor Stigler says that the comparative costs of private firms can be measured in only one way: by ascertaining whether firms of the various sizes are able to survive in the industry:

36. WATKINS, *op. cit. supra* note 34, at 118 n.3.

37. *Ibid.*

38. Dennison, *The Problem of Bigness*, 1 CAMBRIDGE JOURNAL 109, 112 (1947).

"Survival is the only test of a firm's ability to cope with all the problems: buying inputs, soothing laborers, finding customers, introducing new products and techniques, coping with fluctuations, evading regulations, etc. A cross-sectional study of the costs of inputs per unit of output in a given period measures only one facet of the firm's efficiency and yields no conclusion on efficiency in the large. Conversely, if a firm of a given size survives, we may infer that its costs are equal to those of other sizes of firm, being neither less (or firms of this size would grow in number relative to the industry) nor more (or firms of this size would decline in number relative to the industry)." ³⁹

Survival as an indicator of equal cost has been criticized as not being conclusive. Professor Bain believes survival of small firms to be equally consistent with alternative assumptions:

". . . the survival of some small firms in a group which the census calls an industry is not conclusive evidence that there are negligible advantages to large scale and that there are no significant artificial barriers to entry. Some small firms with significant disadvantages of small scale may survive on the starvation margin, while entry remains unattractive; geographical or other market imperfections may make it possible for small firms to succeed in supplying limited corners of the market while mass markets could be successfully supplied only by large-scale producers; the small firms in a census industry may be producing different products than the major firms." ⁴⁰

Bain's criticism points to the dangers of misapplication of a survival test for efficiency. Insofar as census definitions are to be relied upon, the warning is well justified. But census definitions may be departed from and special aspects of markets need not be ignored. However, equal danger of error is probably presented by recent tendencies to view minor product differentiation or spatial differentiation as evidence of unique industries.

The criticism that small firms with disadvantages of scale may survive on the starvation margin, while entry remains unattractive, seems to imply the existence of an economic umbrella held by the larger, more efficient firms over the small inefficient firms. At the same time other devices are assumed to keep similar small and inefficient firms from entering the industry. If this be the case, it would seem that optimum conditions are provided for the expansion of the existing small inefficient firms. In fact, the large (efficient) firms have adopted

39. Stigler, *Monopoly and Oligopoly by Merger*, 40 AM. ECON. REV. SUPP. 23, 26 (1950).

40. 40 AM. ECON. REV. SUPP. 64, 65 (1950).

a policy (through the exercise of their monopoly power) which in effect creates a subsidy for existing small (inefficient) firms to expand output, to increase scale of operations and to overcome the assumed disadvantages. That in the long run they do not do so (excluding the possibility that they are in a different part of the "industry" or serve another market) seems to create at least a strong presumption for the merits of a survival test.⁴¹

The dangers of adopting more rigorous standards of competition under the Sherman Act (either by court interpretation or legislation) for fear of causing results not consistent with maximum productive efficiency probably have been greatly over-stressed. This stress suggests that it is unlikely that there are many cases in which the presumption of monopoly power can be effectively rebutted by establishing economies of scale. This is a disputable point. It is not crucial to an argument calling for a new presumptive standard. It is not suggested that opportunity to establish real economies of scale should be foreclosed. It is not necessary to adopt a rigid arbitrary monopoly rule which allows no exception. A presumption of illegality (limited to civil actions and containing no criminal penalties) for firms producing, for example, more than 10 or 15 per cent of a product for a given market,⁴² instead of the 64 to 90 per cent required by the *Alcoa* case, would seem to be consistent with the analogy by which Judge Hand reached the conclusion in the *Alcoa* case; it would be consistent with the competitive purposes of the Sherman Act which he has outlined; and it would eliminate what has been described as a major gap in antitrust law—applicability to non-conspiring oligopolies.⁴³

An additional qualification of the presumption of illegal monopoly power might exclude single plant firms. It would be required that a firm not only have more than 10 or 15 per cent of the market but also have more than one plant supplying the market.⁴⁴ The burden of

41. Reference to long run in this connection, of course, relates to no definite period of time. Long run will differ among industries. A survival test, consequently, may require evidence of long-continued operation in some industries. Existing productive units of any given size may continue in use for long periods even though they will not be replaced.

42. The burden of establishing the relevant "product" and "market" need be no different than under current standards.

43. This is not to imply that current doctrines of conspiracy might not make many existing oligopolies illegal under existing law. Collusion or conspiracy may be established by indirect means. But the standards of proof and the evidentiary problems make for great uncertainty and high costs of litigation for both plaintiff and defendant.

44. An alternative standard, giving application to the "survival" test, might require divestiture of firms having more production than is called for by the presumptive standard (10 or 15 per cent) if the market supports and has supported firms with substantially smaller participation than the standard requires. A possible difficulty

establishing economies of multi-plant firms having more than 10 to 15 per cent of a market would rest upon those firms.⁴⁵

The proposed rule would not, of course, achieve perfect competition; but as Henry Simons has said: "[n]o sane advocate is asking for perfect competition, and no critic who is at once fair and competent will picture the policy [monopoly policy] as requiring drastic change in the organization of production. The requisite changes have to do mainly with ownership units and control devices not with operation."⁴⁶

III. SOME ASPECTS OF EFFICIENCY AND SIZE IN THE STEEL INDUSTRY

A steel industry is basic in an industrial economy. It is a big industry with large companies. The largest of these, United States Steel Corporation, is the third largest industrial corporation in the United States: it has assets in excess of two billion dollars, employs approximately 300,000 persons, and had sales in 1949 of almost two and one-half billion dollars. At the beginning of 1950, the U. S. Steel Corporation subsidiaries had capacity for the production of 32 million tons of steel per year of a total productive capacity of 99.4 million tons for the whole country. The next largest company, Bethlehem Steel, had capacity for producing 15 million tons, and the third largest, Republic Steel Corporation, had 8.7 million tons of steel making capacity. No other single concern had as much as 5 million tons or 5 per cent of the productive capacity for producing steel.⁴⁷

Most of the large steel-making companies are integrated concerns whose operations extend from mining and transporting raw materials (principally iron ore, coal and limestone), through manufacturing of coke and coke oven by-products, pig iron, raw steel, to producing a range of finished rolled steel products. In addition the activities of many of the larger steel producers extend to fabrication of numerous

here arises because of the danger of inhibiting possible future technological improvements leading to economies of scale within plants. This argument may, of course, be met by pointing to the fact that in such a case the presumption of illegality would be easily rebutted. On the other hand, it might be questionable public policy to hail into court a single plant firm which (through no more than an attempt to compete most effectively) had increased its market participation from, for example, 8 to 12 per cent—even when substantially smaller firms continued to exist.

45. This would allow, and indeed make necessary, the submission of evidence by those who are in the best position to obtain it—evidence which is much more likely to be understood and properly evaluated than is the kind of evidence required to show the existence of illegal monopoly power under existing standards.

46. SIMONS, *ECONOMIC POLICY FOR A FREE SOCIETY* 82 (1948).

47. *Hearings before the Subcommittee on Study of Monopoly Power of the Committee on the Judiciary, House of Representatives*, 81st Cong., 2d Sess. Serial No. 14, Part 4A, Steel 501 (1950). (Capacity is in net tons of ingots.)

products made from steel. The range of products differs among steel producers, some specializing in certain product categories. The U. S. Steel Corporation is represented in practically all branches of the iron and steel business except for certain specialty items.

In studying possible monopoly power in the steel industry, the recent monopoly subcommittee of the House of Representatives⁴⁸ focused upon the U. S. Steel Corporation in particular. Records concerning U. S. Steel's operations and policies are also available from numerous past investigations, including prior Congressional inquiries, governmental studies, antitrust cases, and from private sources which have made available useful data on the steel industry. In no small measure has the U. S. Steel Corporation itself aided in making information concerning its operations generally available.

The steel industry is an industry in which concentration, as measured by per cent of capacity or production, or by assets, or by sales of one, two, three or four major producers, is lower than in a number of other mass production industries. Furthermore, the position of U. S. Steel, the major producer, has been one of relative decline over a long period of time. For example, when U. S. Steel was formed in 1901 it represented approximately 66 per cent of all steel production. In 1950 its proportion of production was approximately 33 per cent.⁴⁹ While the industry grew from 24 to 99 million tons capacity from 1901 to 1950, U. S. Steel grew from 10½ to 32 million tons. The large over-all expansion in the steel industry over the past fifty years has come about from expansion of existing plants and from new plant developments in new areas. But the multiplicity of plants of the largest steel companies is to be accounted for in a large degree by the merging or acquisition of formerly competing companies. Most of the principal operating plants of U. S. Steel, or Bethlehem or Republic, can be traced back to prior individual ownership. The large Gary Works of U. S. Steel is a notable exception.

This industry is widely integrated both vertically and horizontally. It is a many-stage, multi-product industry. Typically, a large steel producing plant includes facilities for making coke, coke-oven by-products, pig-iron, steel ingots and a fairly wide variety of steel products. The largest steel companies also encompass ore operations, rail and water transportation and often engage in the further fabrication of rolled steel products. U. S. Steel is involved in all of these activities in a number of areas.

48. *Hearings, supra* note 47.

49. See Appendix 1.

U. S. Steel in 1950 had six principal subsidiaries specializing in making rolled steel products: Carnegie-Illinois Steel Corporation, American Steel and Wire Company, National Tube Company, Tennessee Coal, Iron and Railroad Company, Columbia Steel Company, and Geneva Steel Company. Carnegie-Illinois is the largest of these with principal plants in Pennsylvania, Ohio, Indiana and Illinois.⁵⁰ According to the Directory of Iron and Steel Works (American Iron and Steel Institute) for 1948, Carnegie-Illinois had capacity for the production of 21,692,000 net tons of steel ingots. This steel capacity was divided among nine separate steel plants.

The five other U. S. Steel subsidiaries could produce 9½ million tons of steel in 1948. (This figure represents the total of the capacities of 10 separate plants.) The total capacity of all U. S. Steel subsidiaries in 1948—31.2 million tons—was distributed among 19 plants in 9 states. By January, 1950, total capacity of the Corporation was increased to 32.0 million tons, and by October, 1951, to 33.9 million tons.⁵¹

In 1950 there were 14 integrated steel companies in the United States in addition to U. S. Steel having capacity for the production of steel in excess of one million tons a year.⁵² The total capacity of the country at this time was 99.4 million tons. Except for the three largest producers—U. S. Steel, Bethlehem and Republic—no single concern had as much as 5 per cent of the nation's steel-producing capacity. U. S. Steel Corporation had three plants, any one of which had more capacity than the Inland Steel Company, the country's eighth largest steel producer. U. S. Steel had 11 plants, each of which could produce more steel than either Crucible Steel Company of America or the Pittsburgh Steel Company, both among the 15 steel companies in the United States having more than 1 million tons of steel-making capacity.

The much larger number of separate producing plants, most of which were formerly separately-owned producing companies, as contrasted to the number of firms in the steel industry (particularly the United States Steel Corporation, Bethlehem Steel Company and the Republic Steel Corporation), has given rise to the question of the compatibility of such an arrangement with the maximum amount of effective competition in an efficient steel industry.

50. It was announced by the U.S. Steel Corporation in the latter part of 1951 that these operating subsidiaries were to be made divisions of a single operating company.

51. *Hearings, supra* note 47, at 501; and *BUSINESS WEEK* 102 (Oct. 13, 1951).

52. *Hearings Ibid.*

Efficiency and Size

The steel-making process in the typical large steel plant involves first the assembling and storage of the three basic raw materials—iron ore, coal and limestone. After the coal is converted into coke⁵³ the next step is the production of pig iron. This intermediary product (in the steel-making process) is produced in blast furnaces which are charged with ore, limestone, coke and air. In 1948 there were a total of 78 plants in the United States with capacity for the production of pig iron. These plants contained 223 separate blast furnaces, the combined capacity of which was 66.3 million tons of pig iron. The three largest steel-producing (also the largest pig iron-producing) companies had 126 of these furnaces in 31 separate plants and had capacity for producing 61 per cent of the nation's pig iron. Eleven independent pig iron producers without steel-making facilities had a total of 21 furnaces capable of producing slightly less than 4.3 million tons. The blast furnace capacity as distributed by company and by plant among all pig iron producers, among the largest steel-producing companies and among independent pig iron producers is depicted in the following table:

Pig Iron Capacity in the United States, 1948

Company	Annual capacity (1000 net tons)	Number of blast furnaces	Number of plants with capacity	Furnaces per plant	Capacity per furnace (1000 n. t.)	Capacity per plant (1000 n. t.)
All Producers	66,342	223	78	2.86	297	851
U. S. Steel	24,520	76	16	4.75	323	1,534
Bethlehem	9,690	29	5	5.80	334	1,938
Republic	6,327	21	10	2.10	301	633
Independent pig iron producers (11)*	4,265	22	14	1.57	194	305

* Companies without steel producing facilities.

Compiled from Iron and Steel Works Directory of the United States and Canada, 1948

The foregoing table indicates that although there is variation in the size of blast furnaces (smaller furnaces being operated by independent pig iron producers), principally the differences in the size of pig

53. Coke is typically made in by-product coke ovens in connection with blast furnaces and steel works.

iron-producing plants is to be accounted for by the number of furnaces. Large and small firms produce pig iron with similar facilities. In 1948 the largest pig iron-producing plant in the United States was U. S. Steel's Gary works. It had twelve furnaces capable of producing 4.4 million tons per year—more than the combined capacity of the eleven independent pig iron producers. On the other hand, U. S. Steel operated a plant in Ironton, Utah which had only one furnace capable of producing less than 200,000 net tons.

Over the last 50 years there has been a very substantial increase in the average size of blast furnaces. For example, the 1904 Iron and Steel Works Directory lists a total of 428 blast furnaces capable of producing 31.5 million net tons of pig iron. Thus, from 1904 to 1948, when there were 223 furnaces capable of producing 66.3 million tons, average furnace size increased from approximately 74,000 net tons to 297,000 net tons per year. In spite of this substantial increase, however, the fact that the large steel-producing plant typically contains a large number of blast furnaces forecloses a conclusion that economical blast furnace size accounts for the scale of operations in the largest steel plants.

Changes in coke-making operations in steel-making plants presents a parallel case. Significant technological advancement involving the introduction and expansion of the modern by-product process, supplanting the older beehive method, has made for better coke from poorer coal, greater yields, recovery of valuable by-products and greater output per oven. But here again, the large coke-making plant differs from the small plant primarily in terms of the number of ovens operated. A small pig iron producer with a single blast furnace is not foreclosed from operating a by-product coking operation in conjunction with the production of pig iron because of large economies of scale in the production of coke. More coke (as contrasted to coal) was shipped to iron producers when the older beehive process predominated as the method for producing coke.

The next step in the steel-making process in the large steel plant, after the pig iron production stage, is the making of the steel itself in furnaces which are charged either with pig iron or with steel scrap or both. This stage of the operation takes place principally in three types of furnaces—open hearth, bessemer or electric furnaces. Quantitatively the open hearth furnace is by far the most important. Of a total capacity for the production of steel ingots in 1948 of 94.2 million net tons, 83.6 million tons was open hearth capacity distributed among 954 furnaces in 95 separate plants—an average of something less than 88,000 tons per year per furnace, but an average of nearly

880,000 tons per plant. The average number of open hearth furnaces in the plants in the United States having such furnaces in 1948 was 10, although many large steel plants had many more. The U. S. Steel plant at Munhall, Pennsylvania, contained 61 open hearth furnaces and the Gary works of the same company contained 55. On the other hand, the average number of furnaces for the smaller semi-integrated concerns—concerns without pig iron-producing facilities—averaged 4.5 furnaces per plant. The following table indicates the relationship between furnace size and plant size among the largest producing companies and among the semi-integrated companies as compared to the industry average:

Open Hearth Ingot Capacity in the United States, 1948

Company	Capacity (1000 n. t.)	Number of furnaces	Number of plants with capacity	Furnaces per plant	Capacity per furnace (1000 n. t.)	Capacity per plant (1000 n. t.)
All producers	83,611	954	95	10.04	87.6	880
U. S. Steel	28,663	311	19	16.36	92.2	1,509
Bethlehem *	12,974	135	8	16.87	96.1	1,622
Republic	7,140	78	8	9.75	91.5	893
Companies without pig iron capacity (30)	6,479	141	31	4.55	46.0	209

* Includes Bethlehem Pacific Corp.

Compiled from Iron and Steel Works Directory of the
United States and Canada, 1948

The older method of making steel, the bessemer process, has largely been replaced by the open hearth process. In 1904, for example, 15.2 million net tons of bessemer steel could be produced in the United States. At that time there were 105 bessemer converters. By 1948 there were only 39 converters, ten of which were used only for melting the charge for open hearth furnaces. Total bessemer capacity had declined to only slightly over 5 million net tons. On the other hand the number of open hearth furnaces was increased from 577 in 1904 to 954 in 1948⁵⁴ and production increased from 12.7 million net tons to 83.6 million net tons. Although a very large increase in the

54. IRON AND STEEL WORKS DIRECTORY (1904); and DIRECTORY OF IRON AND STEEL WORKS OF UNITED STATES AND CANADA 463 (1948).

average size of open hearth furnaces is apparent from these figures, it is more significant for purposes of analyzing economies of scale in relation to the market that in 1948 more than 950 open hearth furnaces in 95 plants were used in the production of steel.

Prior to the advent of the open hearth furnace, steel had to be made exclusively from pig iron, for the bessemer converter or the crucible process can not utilize scrap steel. Today about as much scrap as pig iron is used in the steel-making process. The ability to use scrap, along with the facts that lower grade (high phosphorous) ores can be used and that quality can be more carefully controlled in open hearth furnaces, accounts in a large part for the displacement of the bessemer process. In addition to these technological reasons the ability to use scrap significantly reduced a possible barrier to entry into the steel business arising from close control of the principal steel-making ingredients.

A third method of making steel, and one of rising importance, is the electric furnace. The electric furnace process allows close control over operations and is especially important in the production of special and high grade steels in relatively small quantities. More recently, however, its use has been expanded to more general purpose steel. Depending largely or wholly on scrap as a raw material, the electric furnace has made steel-making feasible on a relatively small scale in areas which formerly could not support an economical steel-making operation. The relative plant and furnace size in electric furnace operation is shown in the following table:

Electric Furnace Steel Ingot Capacity in the United States
1948

Company	Capacity (1000 n. t.)	Number of plants with fur- naces		Furnaces per plant	Capacity per furnace (1000 n. t.)	Capacity per plant (1000 n. t.)
All Electric furnace producers	5,397	222	62	3.6	24.6	87.0
U. S. Steel	434	15	5	3.0	28.9	86.8
Bethlehem *	254	10	2	5.0	25.4	126.0
Republic	760	16	2	8.0	47.5	380.0
All other (41)	3,949	181	53	3.4	21.8	74.5

* Includes Bethlehem Pacific Corp.

Compiled from Iron and Steel Works Directory of the
United States and Canada, 1948

Although there have been technological developments in the steel-making process which, as has been indicated, have made for the use of larger units for the production of both pig iron and raw steel, by far the most significant technological advance has been in rolling processes, especially continuous rolling of light flat products such as sheets and strip.

Before the advent of the continuous rolling mill such products as sheets and tin plate, for example, were typically manufactured in small plants with the utilization of a great deal of direct labor. Although it requires very large capital investment, the continuous mill has reduced the cost of making sheet steel very markedly. As Mr. Ramseyer, a consulting engineer, testified: ". . . the cost above materials on a big continuous strip mill would be not more than one-fourth as much as the cost above materials in converting semifinished steel into sheets in the old-fashioned hot-steel mill."⁵⁵ The development of the continuous mill has had the effect of concentrating production in fewer plants than was formerly required.

The products of steel rolling mills include a wide variety of products of varying size and chemical composition. Heavy products such as rails and structural shapes must be rolled on facilities designed for the production of each of these particular products. Bars and wire rods are also rolled on facilities designed for their production. The rolling of light flat products such as sheets, strip and tin plate also require special equipment, and here especially changes in production techniques have made necessary much larger plants.

From 1904 to 1948 the number of rolling mills in the United States declined from 475 to 177.⁵⁶ Average annual production of all finished rolled products 1901-05 was 15.3 million tons. By 1948 production of finished rolled products had increased to 69.2 million tons.⁵⁷ Over this same period there was a marked change in the composition of products produced. Particularly this is evidenced by a tremendous growth, both actually and relatively, in the consumption of flat rolled products. Production of plates and sheets, for example, increased from 3.0 million to 25.7 million tons. On the other hand, rail production, which made up nearly one-third of rolled steel production in the earlier period, actually declined from 3.2 to 2.2 million tons.

There are wide divergences in the size of steel rolling mills depending primarily on the type of products produced. There are also

55. *Hearings, supra* note 47, at 414.

56. *DIRECTORIES, op. cit. supra* note 54, at xv (1904); at 473-75 (1948).

57. *STATISTICAL ABSTRACT OF THE UNITED STATES* 799 (1951).

significant differences in the plant capacity for the production of similar products in different plants.

For example, there were 9 plants in the United States capable of producing heavy rails in 1948. Average capacity was 300.5 thousand tons. The largest could produce 621.3 thousand tons. One plant had capacity for producing only 19 thousand tons. The comparable figures for other important selected steel products in 1948 were as follows:

Product	Number of plants	Average plant capacity (000 omitted)	Largest plant capacity (000 omitted)	Smallest plant capacity (000 omitted) ¹
Heavy shapes	23	227.7	1,275.0 *	5.0 *
Sheared plates	29	200.4	700.0 *	0.4 *
Hot rolled sheets	48	394.7	1,170.0 *	1.1 *
Strip for cold reduced black plate and tin plate	10	411.4	890.0	120.0
Bars (other than concrete reinforcing)	96	125.1	675.0 **	1.8 **
Wire Rods	36	172.1	440.0 **	2.5 **

* Excludes Carnegie-Illinois Steel Corp.

** Excludes U. S. Steel plants.

¹ Especially in flat rolled products, smallest plants probably produce specialty products.

Compiled from the Iron and Steel Works Directory of the United States and Canada, 1948

Large scale operations have become important in the production of numerous steel products. The foregoing table indicates a very wide range of plant size in each of a number of products, however. Were each product class made up of homogeneous products it is doubtful if the very small plants (the smallest plants in the foregoing table) would be included. Consequently, minimum plant size examples are not necessarily indicative of scale economies. It is notable that the largest plants designed for the continuous rolling of light flat products exceed a million tons of product per year. But it is also notable that continuous rolling is successfully achieved with very much lower capacity facilities. In fact the average mill for the production of tin mill

strip, a fairly homogeneous category, all of which is produced by modern methods, is slightly more than 400,000 net tons per year. Scale economies are greatest here. On the other hand, both bars and wire rods, products of the same general type, have long been made in small and medium size plants.

The Republic Steel Corporation, one of the major concerns in the bar business, with capacity for the production of more than three million tons of bars per year, has 9 plants which produce bars. The largest of these, its Buffalo plant, with an annual capacity of 675,000 tons, in addition to a 38 inch blooming mill and an 18 inch billet mill (for semi-finished stock), contains three bar mills, a 14 inch mill with a maximum capacity of 375,000 tons, a 10 inch mill with a maximum capacity of 200,000 tons, and an 8 inch mill with a capacity of 100,000 tons. Each of these is separately operated. There is, however, only one blooming mill, a 38 inch mill with a 600,000 ton capacity which provides the material which is fed into the three bar mills. Blooming mill operation is a principal limiting factor upon small scale operations in rolling mill plants. Republic Steel Corporation, for example, has 10 blooming mills in 8 different plants, the smallest of which has a capacity for the production of 500,000 tons per year and the largest of which is capable of producing 1,200,000 tons. Thus, the three bar mills at Republic's Buffalo plant provide balance for the capacity of the blooming mill there. On the other hand, blooming capacity, or its equivalent, is essential for the production of all finished steel. Were other products than bars produced at Buffalo, three bar mills would not seem to be required. So, for example, at Republic's Gadsden, Alabama, plant where one blooming mill with 600,000 tons capacity is operated, only 150,000 tons of bars are produced, and sheets, skelp and wire rods are also made, none of which can be produced in quantities in excess of 185,000 tons per year. Moreover, although there are savings in costs from producing some finished products from semi-finished material that has not cooled, integrated finishing operation is much more typical in the production of light flat rolled products than it is for other products, including bars. Consequently there is a significant amount of bar rolling carried on in plants which procure their semi-finished materials from outside plants. Republic's bar plant at Moline, Illinois with a total capacity of 90,000 tons per year provides this kind of example.

Although there are plants with large capacities for the production of light flat rolled products, plates, shapes and rails, still plants with substantially smaller capacities also exist in all of the product categories. The Inland Steel Company operating principally one large plant has

capacity for the production of a number of products in relatively small amounts. Except for sheets, for which Inland had capacity of one million tons (500,000 cold rolled), none of the 22 products for which the Iron and Steel Works Directory for 1948 listed capacity could be produced in amounts in excess of 250,000 tons.

Multi-Plant Operation

In addition to variations in the size of operations carried on in particular plants, the problem of scale economies involves questions concerning multi-plant operation. Each of the three largest steel producers, but especially U. S. Steel, has a great many separate plants. Are advantages present from having a large number of plants under one central management? Are these advantages of scale and not advantages which arise from the elimination of or preclusion of competition among the plants (monopoly advantage)? Of the economies of large multi-plant steel companies, among the more important that have been suggested are savings in administrative and selling costs in serving extensive markets, product specialization in particular plants making for operating economies, economies in raw material assembly and transportation, interplant competition and rivalry for better operating practice, adequate size to carry on essential research, and provision for an ample source of funds required for developing raw material sources and building new facilities.

a. *Savings in Administrative and Selling Costs.*—Advertising and sales expenses are incurred in selling steel, but they are of much less importance than in other industries which sell products to ultimate consumers. Steel is typically purchased by specification and the product of one company is readily substituted for that of another. If there are even minor price differentials changes in source of supply can be expected to occur. Product differentiation, such as exists, for example, in automobiles, refrigerators, ladies dresses, or cigarettes is not typical in steel. Relatively low selling expenses for steel have been characteristic in the industry.⁵⁸ There is probably greater variation in selling expense arising from differences in products sold than from differences in size of company.⁵⁹ There is no evidence that the smaller steel firms appear to be at a disadvantage, even though their markets may not be as extensive or their line of products as broad as those of

58. See REPORT OF THE COMMISSIONER OF CORPORATIONS ON THE STEEL INDUSTRY, PART III, 20 (1913).

59. A comparison of cost of selling and sales among steel companies yield no observable variation by size of company.

the largest firms. Furthermore, there are numerous successful independent selling firms in the steel industry which effectively serve large and small firms alike. The advantage in selling costs to firms having one or a very few plants is not readily apparent.

b. *Product Specialization.*—At the time the combination which became the United States Steel Corporation was formed, one of the contentions about the cost savings that accrued or were to accrue related to savings from specializing particular formerly competing plants in the production of a particular product or group of products. Professor Jenks in writing about the economies of U. S. Steel⁶⁰ quotes an estimate that the American Steel Hoop Company, then a subsidiary of U. S. Steel, by dividing up 85 or 90 sizes and varieties so that each plant specialized in one group of sizes or varieties was able to save from a dollar to a dollar and a half per ton simply by avoiding frequent change of rolls.

Economies achieved from product specialization are not necessarily to be ascribed to multi-plant companies. With respect to the particular example cited by Professor Jenks, why, if it was more economical to specialize, did not the formerly separate companies making up the American Steel Hoop Company so specialize? In 1904, after American Steel Hoop had been merged with National Steel Company and the Carnegie Steel Company under the name of the Carnegie Steel Company (of New Jersey), 10 small plants of the former Hoop Company were being operated. These were for the most part small non-integrated plants, many with facilities obsolete even at that time. The plants were scattered throughout western Pennsylvania and north-eastern Ohio. Principally they made barrel hoops, cotton ties, skelp and bars. Apart from the Upper Union Mill at Youngstown, Ohio, which was subsequently rebuilt and expanded, all of the other plants were later discontinued. Moreover, the discontinued capacity was supplanted by larger mills with facilities for producing a wider range of products and sizes than existed in the displaced mills.

There is some specialization in the production of steel. It is not limited to multi-plant companies. It is as common among the smaller one plant companies. Lukens Steel in Coatesville, Pennsylvania, for example, has long been an important supplier of wide plates. Pipe and tube production is carried on in plants specializing in these products both in single plant and multi-plant companies. Tubular products are also successfully produced in large multiproduct plants. A conclusion that product specialization is causally related to multi-plant operation is not justified.

60. JENKS, THE TRUST PROBLEM 37 (1911).

c. *Economies of Integration into Raw Material Supply and Transportation.*—Many, if not most, of the large steel firms own ore and coal properties and transportation facilities. These operations have come to be considered necessary adjuncts to steel production. Different explanations have been given for this development. Some have explained this phenomenon in terms of efficiency. A letter from Mr. Henry Oliver to Mr. H. C. Frick prior to the formation of the United States Steel Corporation stated (July 27, 1897):

"I claim that we could produce and deliver our ore to Lake Erie ports 20 to 30 cents per ton cheaper than it could be done by those now in control of the mines we seek. Our saving would be in steady and more regular mining, in avoiding a line of high salaried officers, in procuring lower freight rates, and in saving the Cleveland commission of 10 cents per ton."⁶¹

It is clear that all of the advantages Mr. Oliver expected to achieve did not arise from conditions which might be characterized as "efficiency." The absence of competition in the ore trades rather than the inherent advantage of ownership by a large user undoubtedly made for commercial advantages. The competitive condition of the ore trade in 1898 is of interest in this connection:

"The preliminary negotiations looking to the continuance in 1898 of the organization of Bessemer ore producers are on the assumption that the pool this year will include the Mesabi range. . . . Appearances thus far are that Mesabi producers will welcome an agreement."⁶²

Integration by steel-making concerns into ore-mining operations has long had its "protective" aspects, which still remain. Mr. White, Republic Steel Corporation president, said in April 1950:

"Steel, being the only market for iron ore, an iron-ore company, whose basic capital asset is iron ore in place in the ground, would be foolish not to seek some long-term arrangement with steel producers to make its future market safe. Conversely, iron ore, being a basic ingredient in steel, a steel producer, whose primary source of income on investment is the sale of steel and steel products, would be equally foolish not to seek some long-term source of iron-ore supply."⁶³

Judge Gary, testifying for the United States Steel Corporation before the Stanley Committee in 1911, gave a different kind of ex-

61. *Hearings before the Committee on Investigation of United States Steel Corporation*, H.R. 2597 (1910-1912).

62. 31 IRON TRADE REVIEW 3 (1898).

63. *Hearings*, *supra* note 47, at 222.

planation of the advantages of a steel company's ownership of ore and transportation facilities:

"The fact that the United States Steel Corporation is the owner of ore and of transportation companies—I should say, the fact that it is in control, because the ownership is in these subsidiary companies—enables it to receive some profits by the operation of those mines and those transportation companies, and, therefore, from the standpoint of the United States Steel Corporation, reduces the cost of production; and that being so, we would have some advantage over competitors not having such facilities, and could afford to sell cheaper than they could afford to sell." ⁶⁴

A similar contention was made in the *Bureau of Corporations' Report on the Iron and Steel Industry* at about the same time. The point is not a good one, as Professor Watkins has indicated in his book, *Industrial Combination and Public Policy*:

"The Report mentions as a distinct class of economies from integration the savings of 'profits' previously paid to others on materials purchased. Elsewhere the Bureau declares that the 'economies' derived from this last source were the chief advantages gained by the combination. It grants that the savings effected in this direction must have been considerable. The argument involves a kind of specious reasoning that has become familiar in recent years in the attack on the existing distributive organization (particularly on middlemen). Either the raw materials were sold to the blast furnace operators at a fair competitive price prior to the organization of the corporation or they were disposed of under monopolistic conditions. If the former, it is not apparent how the combine could have reduced the cost of its materials to its blast furnaces without sacrificing something on the capital and managerial ability devoted to getting out and transporting the raw materials, unless indeed the larger scale of these operations reduced somewhat the insured or uninsured risks. If, on the other hand, a monopolistic condition be assumed it is certain that the acquisition or lease of these iron and coal mines and limestone quarries and shipping facilities could not have been made save upon terms that gave their prior owners the full discounted value of the calculable returns from these properties operated as a monopoly. Consequently the 'profits' saved from the hands of the security holders of these mining companies became essential for meeting the demands for income from the holders of the securities of the combination. In whatever way they are regarded these particular 'commercial economies' of integration evaporate under analysis." ⁶⁵

64. *Hearings, supra* note 61, at 113.

65. WATKINS, *INDUSTRIAL COMBINATION AND PUBLIC POLICY* 118 n.3 (1927).

The principal advantage in the ownership of ore deposits and transportation facilities which can be related to the efficiency of operations has been said to be the regularization of the flow of raw materials. This was one of the advantages claimed by Mr. Oliver as early as 1897. Here is an advantage which rarely is alleged when there is effective competition in the market for the raw materials required. Flour mills, for example, do not find it advantageous to own wheat farms, nor do the cigarette companies grow their own tobacco. And in both cases a regular flow of raw materials for orderly production would seem as essential as for steel-making. Furthermore, ore is not necessarily used as it is received in the steel industry. Storage is usual. Ore can be shipped on the Great Lakes only during ice free months. The advantage of closely correlating ore production and transportation with steel-making is belied by operating practice. Ore mining properties owned or leased by steel firms are often if not typically separately managed by independent companies under long term operating agreements.

Historically the expansion of steel firms into the raw material and transportation business is principally to be explained by fear of being "caught short" or of being exploited by others. The absence of competition or an expected absence of competition on one level of operation (here ore mining or lake transportation) has created the occasion for integration from another level (steel-making).

d. *Inter-Plant Rivalry*.—Mr. Weir, chairman, National Steel Corporation, believes that some advantage occurs from having more than a single plant in a company. For example, he testified in recent hearings that "out of the larger number of plants there does come additional competition," and he felt that this was a significant addition to the competition in the steel industry as a whole.⁶⁶

The competition of the market place apparently does not provide the incentive or the comparative information required for maximizing efficiency in the steel industry, according to Mr. Weir. Mr. Weir's company, National, comprised of two principal producing plants each having a capacity slightly less than 2½ million tons, and Inland Steel Company, having one principal producing plant of 3.4 million tons, are generally regarded as among the more efficient of the steel-making concerns. The difficulties they encounter by not having extensive inter-plant competition apparently has not been serious.

It is notable that the advantage of multi-plant operation claimed here is hardly consistent with a previous advantage alleged to derive

66. *Hearings, supra* note 47, at 834.

from product specialization by plants, unless it can be assumed that the advantages accrued from inter-plant rivalry in non-competing products. But if this is the case, then why can not the same advantages be achieved from rivalry inside a single plant? The case for inter-plant rivalry is not too convincing. In no small measure the case seems to amount to a method for counteracting the absence of more effective inter-company competition.

e. *Research Requirements.*—One of the most widely claimed advantages of the large producing concerns over smaller producers is the ability to carry on much needed research. For example, Dr. R. E. Zimmerman, Vice President—Research and Technology, U. S. Steel, in a pamphlet submitted to the Celler Committee quotes with approval the statement on page 10 of the *Fourth Annual Report to the President by the Council of Economic Advisers* (Dec. 29, 1949): "In a stable and expanding economy there is room both for well conducted big business (*with its unique facilities for scientific and developmental experimentation*) and for small business with its display of individualism and self-reliance."⁶⁷ (Emphasis added.)

Dr. Zimmerman then goes on to point out that U. S. Steel is equipped with these "unique facilities." A number of typical developments are then illustrated in which research plays its part in a large basic industry. Among those listed are tin-plate, including electrolytic tinning; research on alloy steels and heat treatment; automotive steel; high-strength low alloy steels; television specialties; stainless steel; electric furnace operation (Heroult Electric Steel Making Furnace); large seamless pipe; ore beneficiation.⁶⁸

One of the "size requirements" of research is related to the high cost of disappointments. In this connection, Dr. Zimmerman states:

"Only a few of the developments with which research and technology in United States Steel have been deeply concerned have been mentioned as typical illustrations. A complete list would be long, replete with accomplishments, and as is inevitable in matters of research, marked with some costly disappointments. The latter may be illustrated by such projects as a \$1,500,000 attempt to develop an economically useful direct-reduction process for the production of sponge iron; a long, tedious, and expensive series of trials, in collaboration with one of the world's most famous scientists, to secure steel with three times the usual strength by casting the molten metal through a novel, intricate device into a vacuum; a \$300,000 experience with a new kind of electric furnace which later proved unnecessary; the development of many

67. *Id.* at 678.

68. *Ibid.*

types of initially promising equipment, products, and processes which were soon superseded because of the rapid advance of technology. These debit items in the accounts of research are productive of data and experience, but of no direct financial returns. All of which illustrates the point that in the persistent search for advanced techniques and better products, a progressive company must be prepared and able to absorb some very substantial and not infrequent losses. It must be large enough and strong enough to do so without impairment of its normal functions."⁶⁹

But how large is large enough for purposes of adequate research? National Steel Corporation, with less than 5 per cent of the nation's steel-making capacity, as well as other smaller steel companies, have research and development performance records which have been pointed to as outstanding. National's tin plate facilities are located in a single plant in West Virginia. Mr. Weir's company installed the first fully continuous, four-high rolling mill in 1926; it pioneered in the development of the electrolytic line, beginning with a pilot line in 1938; it now has the largest tin plate *plant* in the world,⁷⁰ and is building one of the largest oxygen plants in the United States.⁷¹

Apparently an extremely large multi-plant company is not required to carry on successful research in steel. According to Mr. Weir, for example, two per cent of the total number of National Steel employees have jobs in the research and development end of the business.⁷² This kind of work, he said, is carried on by all steel companies. Mr. Weir was asked the question directly with respect to research requirements and the size of his company.

"Question. Do you think your firm is too small to be able to effectively do research or to develop these new processes and methods?

"Mr. Weir. Not at all, no, sir."⁷³

Perhaps Mr. Weir could hardly be expected to testify otherwise about his own company.

Numerous witnesses, including steel company representatives, and other experts, testified before the Celler Committee that the development of continuous rolling techniques has been one of the most if not the most important technological development in the past 50 years. The American Rolling Mill Co. (now Armco Corp.), then one of the

69. *Id.* at 685.

70. *Id.* at 808, 809.

71. *Ibid.*

72. *Id.* at 809.

73. *Id.* at 835.

smaller integrated companies, held the basic patents in America in this important field, and it and National were among the first to put them into operation. The smaller integrated companies have generally been as fast or faster in working these new developments into their productive processes than has U. S. Steel. At the very least they have suffered no disadvantage on this score. As late as 1938, about a third of the tin plate capacity was held by U. S. Steel, but it had only 25 per cent of the cold reduced capacity. National Steel Corporation, on the other hand, had only 5.4 per cent of the older but 20.2 per cent of the newer capacity.⁷⁴

Not only have the smaller companies been at no particular disadvantage with respect to technology and research, but there are indications that the very large size of U. S. Steel, at least in the period prior to 1936, actually made for lags in development. An extensive survey by *Fortune Magazine* contained the following comment:

*"Technology. . . . the Corporation has contributed very little to the art of making steel. It was late getting into continuous strip mills. It was late getting into alloys. It has not yet adopted full combustion control on its open hearth furnaces. . . . Bethlehem patented the sensational Gray beam. . . . Republic is the leader in alloy steels. American Rolling Mills developed the continuous strip process. The Cold Metal Process Co. patented the Steckel reversing mill, most recent important advance. Inquiry uncovers just one triumph for the Corporation: it was the first to sense the importance of low alloys, i.e., high-tensile steel with small percentages of costly chromium, manganese, vanadium, and other alloy metals. . . ."*⁷⁵

Criticism concerning sluggishness in getting into new activities and discarding old methods and outmoded practice has not been confined to popular surveys. A very extensive engineering study was undertaken by an engineering firm in conjunction with the U. S. Steel Corporation. Its purpose was to analyze the workings of U. S. Steel and its policies. The engineering report for U. S. Steel was completed in 1938. Although it stated that the corporation was "equipped reasonably to meet present day competition in the steel industry in this country and abroad from the standpoint of types, quality of products made, facilities possessed, trained manpower in its mill(s), organization functioning, and business procedures now in effect or shortly to be made effective,"⁷⁶ it did point out that U. S. Steel's position in

74. *Hearings before the Temporary National Economic Committee, 76th Cong., 2d Sess., Part 18, 10,409 (1939).*

75. *FORTUNE* 173 (Mar. 1936).

76. *Hearings, supra* note 47, at 644.

some products was lagging because of the continuous hot strip mills of competitors.⁷⁷ The steel corporation was also advised that its relative position in steel rails was of comparatively little benefit to the corporation.⁷⁸ The report further pointed out that:

“the Corporation and subsidiaries lack adequate knowledge of the markets”;⁷⁹ “the Corporation has followed rather than led” in “the introduction of new products and in providing of new facilities for meeting changing market requirements”;⁸⁰ “National Tube, with the exception of Lorain and the plant at Gary, was not particularly good”;⁸¹ “the subsidiaries did not keep pace with competitors in the development and utilization of waste gases, particularly blast furnace gases”;⁸² “the Corporation was slow in getting into the production of cold rolled steel products,”⁸³ of “stainless steel products,”⁸⁴ and was also “slow in tin plate development.”⁸⁵

Much of the criticism of U. S. Steel in the thirties unquestionably arose because of its poor profit showing during the depression years as compared to profits of several smaller companies whose line of products was such that depression demand did not affect them so adversely. Also, a great deal of modernization has taken place since in U. S. Steel, as elsewhere within the industry.

In general, all steel companies, large and small, participate in the research and development which leads to technological change in steel making. There is nothing to show that research and engineering work in the steel industry is limited to one, two, or three companies.⁸⁶ The limitations imposed upon successful research in steel, in so far as they are effective, do not appear to be such that companies not having far-flung operations in many plants have lagged behind their larger competitors. An opposite conclusion is not entirely unwarranted.

f. *Adequacy of Funds.*—A very large capital investment is required to construct, supply and operate a steel producing company. The financial ability to undertake these operations is often pointed to

77. *Id.* at 588, 646.

78. *Id.* at 589.

79. *Id.* at 645.

80. *Ibid.*

81. *Ibid.*

82. *Id.* at 646.

83. *Ibid.*

84. *Ibid.*

85. *Ibid.*

86. *Id.* at 414. (See testimony of Mr. Ramseyer.)

as an advantage of large size. To replace the facilities of the National Steel Corporation, a concern with capacity for the production of approximately 5 million tons of steel per year, would require at 1950 costs, according to Mr. Weir (National's board chairman) approximately 1 billion dollars. A big continuous rolling mill for sheets would alone cost 50 million dollars.

Experience of the Government in disposing of the Geneva steel plant after the last war also indicates at least in part a "capital" problem. This plant, with capacity of approximately $1\frac{1}{4}$ million tons was built and operated during the last war for the Government by U. S. Steel at a cost approaching 200 million dollars. After the war it was disposed of by bid to U. S. Steel. The amount of new equipment and funds required to operate the plant for peace-time purposes, along with other factors, gave rise to a situation in which the U. S. Steel Corporation was the only bidder which bid in such a manner that a large part of the risk of income from future operations did not have to be assumed by the Government.

The high cost of obtaining an adequate and reliable supply of ore has also been cited as giving rise to very large capital requirements. Today substantial dependence upon the open market for an ore supply would be deemed foolish according to steel company representatives. With the depletion of the high grade ore deposits of the Lake Superior region, the high cost of beneficiating low grade ores or developing foreign deposits adds to already high capital requirements. For example, proposed taconite production is said to require in excess of 20 dollars of capital investment per ton of ore production.⁸⁷ In order to utilize the rich deposits being developed by the U. S. Steel Corporation in Venezuela, the railroad alone from the ore deposit to the coast has been estimated to cost 113 million dollars.⁸⁸

Large capital requirements unquestionably characterize the typical steel company. The size of these requirements depends in part upon the economies of scale at various levels of the productive process. The degree of integration, both horizontal and vertical, which may or may not result from economies of scale also affects the magnitude of investment required by a single concern. Commercial reasons in addition to economies of scale play an important part, as is evidenced by early acquisition of ore properties by steel producers. An absence of effective competition may lead to integration into new fields even though no economy of joint operation is apparent. One point of view

87. Lippert, *Cerro Bolivar—Saga of Iron Ore Crisis Averted*, 188 J. METALS 222, 225 (1950).

88. *Ibid.*

is expressed by Professor M. A. Adelman in a recent article on integration:

"Reliability of an adequate supply is not usually an objective fact or a calculable cost, but a judgment, a state of mind. In a 'thin' and unreliable market it may pay to 'roll your own' even at a higher cost, the additional burden being in effect an insurance payment."⁸⁹

Relatively small steel companies have large capital requirements, but it is not altogether clear that the costs of raising capital are such that only the two or three of the largest steel companies can get low costs, even though the lowest rates appear to be obtainable in so far as the issues of securities are concerned on issues of 50 million dollars or more.⁹⁰ Commissioner Donald C. Cook, Securities and Exchange Commission, presented to the Celler Committee a study concerned with financing of the steel industry.⁹¹

The S.E.C. study indicated that 14 of 16 steel companies included represented combinations of existing businesses; none was initially financed by the sale of equity securities.⁹² Before World War I (the formative period of these companies) public issues were relatively small and were offered "by more or less local underwriting firms."⁹³ Commencing around 1935 most of the steel companies went through extensive refunding operations (Kuhn, Loeb and Co. played a prominent role for Bethlehem, Republic, National, Youngstown, and Wheeling).⁹⁴ More recently, the companies have been retiring their publicly held debt, most financing being accomplished through private placements or bank loans.⁹⁵

Commissioner Cook reported that it is the small businesses that have serious problems of raising equity capital: "The largest cost by far in connection with financing a small company is the underwriting costs. . . . A large business, on the other hand, has many avenues through which it can finance."⁹⁶ Mr. Cook testified that financing a modern steel company at a cost of 200 or 250 million dollars would be

89. Adelman, *Integration and Antitrust Policy*, 63 HARV. L. REV. 291 (1949).

90. *Id.* at 33. "From 1945 to 1947, according to the Securities and Exchange Commission, the cost of flotation was 22 per cent of the gross proceeds for issues under half a million dollars, and declined steadily with increasing size, falling to only 1.15 per cent for issues of fifty million or over."

91. Mr. Cook's testimony begins in *Hearings*, *supra* note 47, at 420.

92. *Id.* at 423.

93. *Id.* at 426.

94. *Ibid.* It may be noted that the Wheeling Steel Corp., with less than 2 million tons capacity, is included among the "large" companies.

95. *Ibid.*

96. *Id.* at 433.

a difficult undertaking even if ore and other raw material supplies could be assured,⁹⁷ and that existing steel companies have been built by combination of smaller units.⁹⁸

Large scale production has afforded an opportunity for making more effective use of facilities and other resources in many industries, including the steel industry. Economies of scale, however, are often misinterpreted. Plants must be distinguished from companies. And even within plants the "up to a point proviso" is very important even if often overlooked. Decreasing costs do not continue infinitely with increases in size. Historically, there is little basis for explaining the size of the largest steel-making firms in the United States on the basis of efficiency. A very substantial increase in the number of competing companies could very probably be effected if the changes were limited entirely to the composition of ownership units and control devices without the slightest change in the actual patterns of production. Such a change in the control structure of the steel industry could not help but make for more competition.

IV. IDENTIFICATION OF MONOPOLY BY PERFORMANCE

The Sherman Act makes possible the application of several different kinds of tests to determine illegality under section 2. These may be described broadly as power, behavior and intent. Power, as has been indicated, has become relevant by broadening the coverage of illegal behavior to include any selling activity by one who has enough economic power to set a market price by the mere act of selling. Thus, strictly speaking, power alone is not enough, but as Judge Hand has pointed out, the distinction is a purely formal one, at least when 90 per cent of the market is involved.⁹⁹

A specific purpose or intention to create a monopoly has long been held to be illegal under the Sherman Act. Drawing a neat and logical distinction between "normal business practices" and an intention to create a monopoly has not been an easy task for courts. In the absence of documentary proof of a specific purpose or intent, the kind of behavior from which this intent may most clearly be inferred usually has involved actions which themselves would constitute illegal behavior under section 1. Thus, in the *Standard Oil Company of New Jersey* case¹⁰⁰ in 1911, although a prima facie case of intent was said to be established by the fact that so many corporations with so vast a capital

97. *Id.* at 434.

98. *Ibid.*

99. Unless, of course, monopoly is "thrust upon" the monopolist.

100. 221 U.S. 1 (1911).

were brought together, this presumption was found to be conclusive (*i.e.*, outweighing possible countervailing circumstances) in view of the conduct of the defendant—railroad rebates, division of territories, secret arrangements, etc.

Judge Hand, in deciding the *Alcoa* case, had the following to say about intent:

“Although the primary evil was monopoly, the Act also covered preliminary steps, which, if continued, would lead to it. These may do no harm of themselves; but if they are initial moves in a plan or scheme which, carried out, will result in monopoly, they are dangerous and the law will nip them in the bud. For this reason conduct falling short of monopoly, is not illegal unless it is part of a plan to monopolize, or to gain such other control of a market as is equally forbidden. To make it so, the plaintiff must prove what in the criminal law is known as ‘specific intent’; an intent which goes beyond the mere intent to do the act.”

This is the kind of intent that the Government tried so hard and so unsuccessfully to indicate to the lower court in the *Alcoa* case. Judge Hand disregarded this specific intent. The lower court found such proof necessary for a violation of section 2. Judge Hand, in reversing the lower court, found it unnecessary.

It has been suggested that the law should move from a concept of specific intent, as has been outlined, to one of more general intent as a means of determining illegality under the Sherman Act. In terms of economic analysis the suggestion is unpromising. The very basis of economic motivation is the proposition that individuals and business firms intend to maximize gains and minimize losses. Much of what passes for good salesmanship in the business community is probably an attempt to achieve at least some semblance of a monopoly position. Examples would include such activity as making a product so distinctive that close substitutes will not be available, attempting to get a long-term requirements contract, or disparaging a competitive product even by suggestion. Such instances are not likely to involve serious departure from competitive results, but not because businessmen would not like to achieve partial monopoly or do not intend to do so. Monopoly is of economic concern because of its results or its probable results. The essential precondition of monopoly is, as Judge Learned Hand has said, the power of a firm to significantly affect price by varying its output.

In the *Alcoa* case Judge Hand found it possible to dispense with intent as a requirement of illegality under section 2, in the case of a firm representing 90 per cent of the production in the market. In

the cases he cites for the establishment of such a result are instances in which monopoly power is recognized with much lower percentages of market control. Although the power to affect price is not precisely identifiable with any specific percentage of control, both in terms of past cases and in terms of actual market experience, a 10 to 15 per cent rule seems preferable to the 64 to 90 per cent rule which he suggests. Only a rebuttable presumption of illegality is suggested in either rule. The requirement of a showing of specific intent would be dispensed with only in *civil* cases and for multiplant firms supplying 10 to 15 per cent of market requirements. The rationale of the proposed rule is exactly that which was given by Judge Hand in establishing the so-called rule of the *Alcoa* case.

Concentration Measures

In attempts to describe the monopoly problem in a particular field much attention recently has been focused upon the number and concentration of sellers. Market structures, of course, are infinitely varied. They may be distinguished in a number of ways. In the context of the monopoly problem, the number of sellers and the number of buyers is relevant to the kind of independent action to be expected from each as well as to the possibilities of collusive action among them. A principal requirement of a competitive market is that there be enough sellers (or buyers) of a product or service so that each seller (or buyer) will arrange his own activities without regard for the offers of his rivals. With fewer and fewer sellers (or buyers) this result becomes less and less likely. The ability of single sellers or buyers (or combinations of either) to affect price or control output depends upon getting a sufficient concentration of control over the product demanded to make the exercise of this power possible.

The ability to affect price (monopoly power) will, of course be different depending upon the availability of close substitutes for the product offered in cases where a product is offered only by a few sellers. In the *Alcoa* case, for example, there was the question of what constituted the industry. Should the relevant product category include only virgin aluminum or should scrap aluminum also be included? What was the relevance of competition from other light metals such as magnesium or stainless steel? Such factors are economically relevant. At least they set the limits of Alcoa's monopoly power. To recognize the existence of such factors, however, does not negate the proposition that an increase in the number of sellers or buyers is always consistent with a more competitive result and not consistent with a less competitive result.

Indices of monopoly power which result from a "counting" technique, an index of monopoly which is roughly the inverse of the number of sellers,¹⁰¹ have been subjected to criticism principally because of the fact that demand elasticity (substitute products) is not properly accounted for. Thus a firm producing even 100 per cent of the supply of something the demand for which is infinitely elastic would have no monopoly power.¹⁰² This is the case of the presence of an available substitute product at a comparable price. A lower percentage of production of a product which had no close substitutes would represent a case of more effective monopoly power.

A similar criticism of statistical indices of power of the type described relates to the market area included. Obviously a statistical measure showing that no firm produced more than four or five per cent of the country's sand and gravel would not be a particularly relevant measure of monopoly power. High transportation costs in relation to value would make it possible for a single firm in a small area to restrict output and raise prices. Substantial power also means that the rapid entry of new firms can be prevented.¹⁰³ It is the difficulties of defining markets, in addition to such factors as customer habits, the effectiveness of advertising and product differentiation, that cause skepticism about the usefulness of much of the concentration of economic power data derived from census materials.

The questions which have been raised about the appropriateness of industry, product or geographic market classifications, and which in economic terminology are factors making for variation in the elasticity of demand, are all relevant to the measure of monopoly power. The power to monopolize is the ability to take advantage of the absence of close substitutes for the product offered.¹⁰⁴ Competition, however, is not dependent upon the availability of close substitutes: the elasticity of demand for a single firm may be very great while the market demand for a product is inelastic.

Under conditions of competition producers, irrespective of the availability of substitutes, will increase production to that point at which

101. Studies of the percentage of sales, or assets accounted for by the largest sellers, or the construction of Lorenz curves indicating the degree of departure from equally apportioned business, are all of this general type.

102. See Lerner, *The Concept of Monopoly and the Measurement of Monopoly Power*, 1 REV. ECON. STUDIES 157 (1933-34).

103. The qualification here is of special importance in considering effective monopoly power in any other than the short run. The problem of entry is in part the problem of potential competition as a market regulator.

104. Inasmuch as the limit of this power is set by the price of a substitute, at the point of monopoly price demand may be said to be very elastic. (Another product would be bought if the price were only a little higher.) Yet the ability to monopolize depends upon the degree of inelasticity in the demand schedule.

the cost of the incremental unit of output is just covered by the price (marginal cost equals price). Consequently a measure of the departure of price from marginal cost, while not measuring potential monopoly (monopoly power), does provide at least a valid guidepost for testing the monopoly being exercised.¹⁰⁵ A measure of monopoly power requires information concerning demand elasticity.¹⁰⁶

Alternative Tests

The type and complexity of information required to determine the presence of monopoly behavior has been indicated to be less complicated than that required to determine monopoly power. Knowledge of demand conditions is not essential in determining departures from competitive practice. It is not to be implied that there is any simple or easy rule which can be practically applied to show monopoly practices. The generally applicable rule—the departure of price from marginal cost—raises the difficulty of adequately specifying marginal cost, a procedure hardly less difficult than measuring demand elasticity.

A number of alternative earmarks of monopoly have been suggested which are indicative of conditions consistent with monopoly but not with competition. Each of the following characteristics have been said to be peculiarly associated with monopoly. It may be useful to indicate their advantages and their limitations as indicators of monopoly.¹⁰⁷

a. *An Identifiable Increase (or Decrease) in Marginal Cost Not Reflected in Price.*—An example cited as an illustration of this rule clearly points up problems of measurement.¹⁰⁸ One is asked to suppose that an excise tax of one dollar per unit is imposed on some product. If price tends eventually to rise by about one dollar—the full amount of the tax—the industry, it is said, can be considered as behaving competitively in this respect. The rule is slightly qualified by noting that under monopolistic conditions a rise in price of one dollar or more would occur only with unique relations between cost and demand conditions. The example is usable to distinguish competition from monopoly (even with the qualification noted) only if certain assumptions are made. First, it must be noted that the example states if price

105. See note 102 *supra*.

106. NUTTER, THE EXTENT OF ENTERPRISE MONOPOLY IN THE UNITED STATES 1899-1939, 7 (1951).

107. More precisely they indicate monopoly behavior. But monopoly behavior, of course, must entail some power.

108. See note 106 *supra*.

eventually is raised by a dollar. Here reference is undoubtedly made to long run results, after the number and size of the firms have had an opportunity to adjust themselves to the new conditions. In this respect alone, the rule could be applied only where adjustments would be made almost spontaneously. Otherwise changes in other factors, rather than the one the measurement of which is attempted, can occasion the resulting price.¹⁰⁹

Second, an equally important qualification, a monopoly might raise price by the full amount of the tax in spite of the demand and cost qualifications noted. The example assumes that the monopoly exerts its full monopoly power before as well as after the tax—that is, the monopoly price charged will be determined in such manner (marginal cost equals marginal revenue) that the full effect of the tax will not be reflected in price. Here political factors cannot be ignored. The steel industry provides a useful and interesting example. After World War II, in a period of considerable inflation, but prior to the imposition of price controls, the prices of steel products were held to levels which occasioned the need for non-price rationing. As a result so-called gray markets developed in the steel business.¹¹⁰ Subsequently, when the steel industry announced price increases it was called before a Senatorial committee to justify these increases. Obviously under this kind of circumstance, an increase of price by the full amount of a tax would hardly be evidence of pure competition in the steel business.

Numerous variations of the above kind of example might be illustrated, each dealing with particular changes in marginal cost which might be isolated. All of these would be subject to the kind of limitations noted. Cases of known changes in demand without changes in cost could provide similar examples. Here again difficulties of the same sort present themselves. Without making proper provision for the qualifications which have been indicated, tests of this sort are not likely to be reliable. Moreover, the kind of information required to meet the necessary qualifications involves information not easily obtained.

b. *The Existence of Non-Price Rationing.*—A competitive price being a price which equates the forces of supply and demand, the existence in the market of buyers who are willing to buy more at the existing price indicates a departure from competitive standards. The existence of persistent non-price rationing by firms is consistent only

109. For example, a change in the level of demand (or in other costs) prior to the establishment of the new equilibrium occasioned by the imposition of the tax.

110. The existence of these gray markets is itself a less ambiguous indication of monopoly power than the example under review.

with monopoly. In terms of monopoly behavior non-price rationing is indicative of the fact that monopoly revenue is not being maximized, at least in the short run, for the same amount of current sales could be made at a higher price. Because it is usual to criticize monopoly on the basis of "too high" prices and "excessive profits," this kind of evidence is more often cited in commending than in condemning the action of the firms involved. Such commendation comes from overlooking or not understanding a basic (if not the basic) disadvantage of monopoly—its effect upon resource allocation. Non-price rationing indicates the forced diversion of existing resources from more urgent to less urgent uses, regardless of whether the urgency of these uses is thought to be the proper province of individual buyers or of some central authority. The presence of voluntary non-price rationing presents one of the least ambiguous kinds of evidence of monopoly power and one which is rather easily spotted.

c. *Frequency and Amplitude of Price Change (Price Flexibility)*.—An important property of competition is the automatic response of price to changes in demand or cost. Price, under these conditions, will tend to be flexible over time if there are changes in the price-determining variables. But this statement suggests a reliable test for competitive behavior¹¹¹ only if the opposite case (price rigidity) can be said to characterize monopoly. A considerable amount of empirical evidence has been collected which indicates that some highly concentrated (monopoly?) industries such as aluminum, magnesium, nickel, and business machine rentals do exhibit a marked degree of price stability over time¹¹² but other evidence indicates that inflexibility and concentration do not correlate very well.¹¹³

It is not at all apparent that the profit maximizing interests of a monopolist will necessarily be achieved by a stable price structure. On the contrary, one might expect that for a monopoly price to remain stable over time would require either that marginal costs and demand did not change or that increases or decreases in demand were substantially counteracted by increases or decreases in marginal costs.

It cannot be said that great change is consistent only with competition. For given changes in the level of marginal cost, competitive price would be likely to change more than monopoly price,¹¹⁴ but for

111. See, for example, BAIN, *PRICING, DISTRIBUTION AND EMPLOYMENT*, c. 4 (1948).

112. See Stigler, *The Kinky Oligopoly Demand Curve and Rigid Prices*, 55 J. POL. ECON. 442 (1947).

113. See note 117 *infra*.

114. See previous discussion of the example of the imposition of a tax.

given changes in the level of demand, monopoly price would be likely to change more than competitive price. In any event no workable guide for empirical testing would easily be provided because of difficulties in isolating the numerous variables which could cause price changes.

Although complete price rigidity does not seem to be consistent with the exercise of maximum monopoly power at a particular point of time, there are likely to be countervailing circumstances which make price stability desirable to those having monopoly power. Long run as contrasted to short run interests may make desirable rigid stable prices. For example, even though a lower price would maximize current revenue, the lower price might spoil a future market. Another notable case is that of collusive or cooperative arrangements among several firms.¹¹⁵ In such cases the losses which are occasioned by departure from short run monopoly price are outweighed by the ease of administering a fixed price agreement or the ease of detecting departures from an agreement.

The applicability of a price rigidity test as an indicator of monopoly is dependent upon the availability of information concerning the frequency and amplitude in the change of actual realized prices as contrasted to reported published prices, and to changes in quality and quantity of the items priced. A rigidity test is most appropriately used for standardized or uniform commodities, but even then only if the realized prices for these commodities are considerably more stable than the significant elements of costs, particularly material and labor costs which vary with output in such manner as not to be counterbalanced by other costs.¹¹⁶ So prescribed, a useful test of monopoly involving the utilization of price change data is a particular application of the general rule for indicating the presence of monopoly by the disparity between price and marginal cost, requiring information in addition to the prices alone.¹¹⁷

d. *The Existence of Excessive Profits.*—The typical result of monopolistic behavior is a limitation of production so that price is above the level of marginal cost. Profits, however, are measured by the ex-

115. Rigidity may also conceivably result from such factors as the high cost of price change, involving, for example, a large catalogue cost.

116. For example, if rail prices remained unchanged for several years, but the price of the principal ingredients, labor and iron and steel materials, fluctuated frequently and widely, there would seem to be present monopoly power to prevent the prices of rails from reflecting these cost changes, unless other cost factors exactly counterbalance them.

117. For confirmation see NEAL, *INDUSTRIAL CONCENTRATION AND PRICE INFLEXIBILITY* 132 (Am. Council Pub. Affairs 1942): "These findings indicate that whatever the incidence of concentration on a manufacturing economy, it is rather futile to look for it in price behavior. . . ."

cess of revenue over total cost. Under either competitive (non-equilibrium) or monopoly conditions, profits may or may not exist for considerable periods of time. This statement, of course, does not mean that there is not greater likelihood that profits will exist under monopoly, but it does mean that a monopolist will not always be able to cover all costs. The declining industry provides an apt example.

Under competition profits tend to be eliminated. However, it is not true that profits will not arise under competition when conditions are changing. Moreover, meaning of profit as used in economic analysis is much narrower than as used in accounting or business terminology. Data are available only for the latter. Reported profits may vary depending upon accounting procedures utilized. Business profits normally include residual items which in economic terms are costs. Typical of such cost items often included in reported business profits are the cost of using funds on which actual interest charges are not paid or contracted to be paid, self-insured risks, and provision for replacing worn or obsolescent equipment at current cost.

Another kind of difficulty is presented by profit comparison. Comparing profits among competing companies can give rise to misleading or erroneous results. Suppose, for example, an industry is composed of 11 firms. The largest produces 50 per cent of a single product, and each of the other firms produces approximately 5 per cent each. Under these circumstances it is conceivable that the leading firm might restrict production in order to charge a higher price irrespective of the independent competitive action of the other firms. Under such circumstances (especially without collusion) the smaller firms could be expected to expand production to the point where their marginal costs equal price. They would thereby benefit at the expense of the larger firm.¹¹⁸ Here, of course, is a typical example of the fact that monopoly power in an industry benefits all members of the industry—here restriction benefits (profitwise) those who have the monopoly power proportionately less than those who do not.

e. *Price Discrimination.*—Under perfectly competitive conditions price discrimination on goods of the same kind sold in similar quantities would be impossible. Buyers in a market would be indifferent to sources of supply and sellers would be indifferent to the uses to which the product would be put or the locations in which it would be used. This is not the case for the monopolist. He must be concerned with the demand characteristics of his product in order to maximize his gain. If markets can be subdivided or customers segregated so that

118. Entry would not be rapid in such a case.

a monopolist can charge more to some with urgent requirements and less to others with less urgent requirements, such a course of action will probably be followed because it tends to maximize net revenue. Consequently, the presence of price discrimination has been stressed as an important indicator of monopoly.

The existence of price discrimination, however, has been said to evidence the existence of more active competition than would be likely in its absence, even though not meeting perfectly competitive standards. An example may arise when, for reasons previously indicated, stable prices are required for purposes of detecting departure from prices set by prior agreement. In such a case the agreement itself is an earmark of monopoly power, but one which may be difficult to detect. Here different prices to different customers involving price discrimination, charged either by a non-cooperating member of the cartel or by an outsider, are a method by which the effectiveness of such an arrangement can be destroyed. Cutting prices across the board in a non-discriminatory fashion might be possible but would be more easily detected and retaliated.¹¹⁹

A similar case can be made with respect to price uniformity. A uniform price in a market characterizes competition. It arises from the principle of indifference among buyers and sellers. Competition assumes general knowledge of alternatives on the part of buyers and sellers. Nevertheless uniformity of prices has often been used as evidence of conspiracy in antitrust cases. Courts generally have not been impressed with analogies to competitive results when bids on contracts are identical to three or four decimal places. Of course, if competition were effective enough bids would be superfluous because nobody could be expected to bid less than the market price and no buyer would pay more. Consequently, when conditions generally unfavorable to competitive results are present, price uniformity (especially when bid specifications make possible a wide variety of costing alternatives on the part of individual bidders) can indicate the existence of less effective competition than would otherwise be present. In cases of this kind another competitive requirement—knowledge (at least knowledge by competitors of what others will do, or even detailed knowledge of competitors costs)—may be a detriment to effective competition even though perfect competition has been said to require thorough knowledge and foresight.¹²⁰

119. Those who favor laws against price discrimination have contended that the situations in which price discrimination is defensible are capable of definition, and in any event are very rare. See Hutt, *The Nature of Aggressive Selling*, 1 *ECONOMICA* 298, (N.S.) 319 n.2 (1935).

120. See KNIGHT, *RISK, UNCERTAINTY AND PROFIT* c. 3 (1921).

Workable Competition

Because of the kinds of problems which have just been described, in which departures from perfectly competitive conditions may or may not represent departure from conditions of more effective competition under the imperfect conditions found in actual markets, or (a contradictory reason to the foregoing) because of a conviction by some that too much competition is as great a danger to effective public policy as is too little,¹²¹ considerable attention has been given in economic literature in recent years to the formulation of possible standards for "workable" competition. Workable competition in the latter sense raises important public policy questions about anti-monopoly statutes.

V. TOO MUCH COMPETITION?

Various standards for competitiveness have been suggested. Some of the writers who have been concerned with workable competition would be extremely critical of any tests (especially those relating to the short run) of the kind that have just been discussed. Professor Schumpeter, especially, makes this point when he discusses the incessant revolutionizing change which characterizes the economic structure.¹²² He calls it creative destruction. Note his criticism of static analysis of monopoly performance (the kind included herein up to this point):

"But economists who, *ex visu* of a point of time, look for example at the behavior of an oligopolist industry—an industry which consists of a few big firms—and observe the well-known moves and counter-moves within it that seem to aim at nothing but high prices and restrictions of output are making precisely that hypothesis. They accept the data of the momentary situation as if there were no past or future to it and think that they have understood what there is to understand if they interpret the behavior of those firms by means of the principle of maximizing profits with reference to those data. . . . the problem that is usually being visualized is how capitalism administers existing structures, whereas the relevant problem is how it creates and destroys them. As long as this is not recognized, the investigator does a meaningless job. As soon as it is recognized, his outlook on capitalist practice and its social results changes considerably.

The first thing to go is the traditional conception of the *modus operandi* of competition. Economists are at long last emerging from the stage in which price competition was all they saw. As soon as quality competition and sales effort are admitted into the sacred precincts of theory, the price variable is ousted from

121. The two types are too often not distinguished. The first type calls for a more competitive result, the second for a less competitive result.

122. SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY c. 7 (1942).

its dominant position. . . . it is not that kind of competition which counts but the competition from the new commodity, the new technology, the new source of supply, the new type of organization. . . . This kind of competition is as much more effective than the other as a bombardment is in comparison with forcing a door. . . ."

With respect to potential competition, Schumpeter then says:

" . . . In many cases, though not in all, this will in the long run enforce behavior very similar to the perfectly competitive pattern."¹²³

Except as to emphasis (and this is important) there is little here that would be denied by economists of a wide variety of persuasions as to the role of competition as a guide for public policy. On the other hand, exclusive concern with long run considerations is consistent with neither the purpose nor the interpretation of this country's anti-monopoly law. Most price fixing pools, or market division agreements which the Sherman Act is said to condemn unequivocally are of a short run nature. That they contain the seeds of their own eventual destruction is not to say that they are necessarily desirable while they last. The same may be said about similar market control exercised by the single firm. Nothing in the above quoted passage by Professor Schumpeter would seem to be inconsistent with attempting to achieve the most effective competition possible in both the short and long run.

But Schumpeter goes farther. Trade restraints, he says, may actually be beneficial¹²⁴ for several reasons. First, the profits from restrictive activity, even in cases in which there is slow or balanced growth, might provide an effective means by which to finance additional growth.¹²⁵ Also, restrictive practices may do much to steady and alleviate temporary difficulties including not only general depression conditions (such as existed during NRA) but particular cases in special industries under the impact of new commodities and new technologies.¹²⁶ The possibility of monopoly gains, he says, provides essential incentive for productive effort by new as well as existing companies. These arguments are not, however, meant to cover all cases of restrictive activity, but they do "show that there is no general case for

123. *Id.* at 84.

124. *Id.* at c. 8.

125. *Id.* at 87.

126. Protective devices such as patents, temporary secrecy, or long period contracts secured in advance are only special cases of a larger class of restraints according to Schumpeter. *Id.* at 88.

indiscriminate 'trust busting' or for the prosecution of everything that qualifies as a restraint of trade."

Here is the argument that price competition is no unmixed blessing from the point of view of the public interest. This kind of argument, especially as it relates to price fixing, division of markets, and other conspiratorial activity covered by section 1 of the Sherman Act, has long been rejected by courts. As early as 1898, Judge Taft said:

"It is true that there are some cases in which the courts, mistaking, as we conceive, the proper limits of the relaxation of the rules for determining the unreasonableness of restraints of trade, have set sail on a sea of doubt, and have assumed the power to say, in respect to contracts which have no other purpose and no other consideration on either side than the mutual restraint of the parties, how much restraint of competition is in the public interest, and how much is not.

The manifest danger in the administration of justice according to so shifting, vague, and indeterminate a standard would seem to be a strong reason against adopting it."¹²⁷

That the courts reject the argument that particular limitations on the rigors of price competition can be desirable in the public interest does not dispose of the economic issues which are raised. Professor Schumpeter's arguments, insofar as they carry conviction, would seem to suggest moving in the opposite direction from Judge Hand, diminishing the coverage of section 1 to conform with the less rigid requirements of section 2.

The first reason given for the desirability of some monopoly is that the surplus profits of the restrictions of the past provide the funds for future growth. The source of investment funds is some form of savings. High income receivers generally save more and spend less than do low income receivers. It seems reasonable to expect that the recipients of monopoly returns have higher than average incomes. Thus monopoly is said to have an "income effect." In this sense anything which made the rich richer and the poor poorer would in like manner provide funds for future growth.

If monopoly provides more funds, these funds arise because of a restriction of production in the monopolized area; but attention must not be directed solely to this area. Lower outputs in the area of monopoly divert labor and other resources to other areas—areas involving less urgent demand. This diversion involves a reduction in the total income of the community in real terms. Even if monopoly can

127. *United States v. Addyston Pipe and Steel Co.*, 85 Fed. 271, 284 (6th Cir. 1898), *aff'd*, 175 U.S. 211 (1899).

be said to augment savings in the monopoly area, there is no reason for believing that the diversion of income to monopolists (who will save relatively more and spend relatively less) is enough to outweigh the loss in savings occasioned elsewhere in the economy by the re-allocation of resources arising from the monopoly.

At best, the case that monopoly may provide needed funds for additional growth is a tenuous one. The imponderables are numerous and complex. Many would hold that insofar as the case rests on creating greater income inequality, other and more serious economic questions are raised. The case is far from compelling, however, in the narrower context.

The merits of a case for larger investment funds involve knowing why the existence of more funds than are provided under competition is desirable. What is the proper amount of investment? How can the "proper" amount of savings be determined better than through the exercise of free choice in a competitive market? If monopoly results in greater saving something else has to be given up. This loss may not be counterbalanced by what was obtained. As Professor Arnold Plant has pointed out,¹²⁸ the other product which is foregone when scarce factors are diverted for a particular use often escapes the attention of economic analysts.¹²⁹

Monopoly can also call for wasteful expenditure of capital funds. There are numerous examples of funds being spent to "invent around" patents. And the very process of duplicating unused existing facilities of monopolists is a typical means by which monopoly is undermined. Perhaps a substantial amount of new entry is of this type.

There is no more ground for deciding that the proper amount of capital is provided by monopoly than there is for deciding that the proper amount of any product or service is produced under monopoly. Such a conclusion runs counter to a fundamental principle of economics concerned with the disposition of scarce economic resources in such manner as to attempt to maximize the total utility to be derived from an infinitely large variety of independent choices. The amount of monopoly in the system has no fixed relationship to the "right" amount of investment, and no rule for determining the proper amount of investment in the absence of the standard of the market place has been forthcoming.

128. Plant, *Economic Theory concerning Patents for Invention*, 1 *ECONOMICA* 30 (1934).

129. The problem here is closely associated to another argument for monopoly profit—that it provides the necessary incentive for new investment. The patent analogy is clearer in this connection.

The second principal reason which has been advanced for countenancing restraints of trade relates to the stabilizing effects of the restraints in ironing out fluctuations in general business activity, or alternatively, in softening the effects of disruptive changes in particular industries even in the absence of generally adverse conditions. These and closely related reasons represent a position which is much more widely held and generally acclaimed than is the position that monopoly makes available needed funds for industrial expansion.¹³⁰ Professor J. M. Clark, for example, speaks of the ruinously low prices likely to result from unlimited market chaos.¹³¹ The thesis here is that imperfect competition may be too strong as well as too weak, and that workable competition needs to avoid both extremes. Professor Clark also holds that, when industry is in a chronic state of partly idle capacity, to insist that producers shall compete unchecked appears to amount to inviting competition, and private enterprise with it, to commit suicide.¹³² Professor M. A. Adelman presents a similar point of view:

"Over the whole business cycle, were there no restrictions on competition, price would soar at one time and later plummet down with incremental cost. Profits would fluctuate even more violently, and capacity would be furiously and wastefully built in the boom and then scrapped in the depression, accentuating both."¹³³

Like views are expressed in the *Report of the National Recovery Administration on the Operation of the Basing Point System in the Iron and Steel Industry*:

". . . Under the N.R.A. it [accepted standard of fair play between business and business] has been extended to the avoidance of cut-throat competition which would have generally demoralizing and disastrous effects on the business structure of industry, not confined to inefficient or badly-financed concerns."¹³⁴

130. Professor Schumpeter, however, applies the doctrine to all forms of trade restraints, including apparently even collusive activity among competitors to fix prices. See SCHUMPETER, *op. cit. supra* note 122. Most proponents of workable competition would limit application to less obvious restraints.

131. Clark, *Toward a Concept of Workable Competition*, 30 AM. ECON. REV. 241 (1940).

132. CLARK, *ECONOMICS OF OVERHEAD COSTS* 435 (1923).

133. Adelman, *Effective Competition and the Antitrust Laws*, 61 HARV. L. REV. 1289, 1346 (1948). The quotation should not imply that Professor Adelman does not also recognize waste from the absence of competition. He goes on to say: "Whether these wastes are greater or less than the wastes of the system which keeps competition at some distance from industry never appears in the *Cement* and other basing point cases." *Id.* at 1347.

134. NRA, *REPORT ON THE OPERATION OF THE BASING POINT SYSTEM IN THE IRON AND STEEL INDUSTRY* 66 (1934).

The need for trade restraint to make competition workable is not newly recognized. A. J. Eddy, the intellectual god-father of "open price competition" wrote in 1914: "The argument that the public may profit by the demoralized prices that prevail for a time is more specious than sound; it amounts to the proposition that the community profits in the end from commercial savagery, from the ruin of its members.

. . . " 135

Running through much of this argument are the colorful adjectives "ruinous," "cut-throat," "demoralizing," "chaotic," etc. They have long been used by business men to describe competition to which they are subjected, competition which they quite understandably do not enjoy. Recently, and notably in the work of Professor J. M. Clark, there has been an attempt to give these terms somewhat more precise meaning. But a satisfactory answer as to why and how they should be applied in the formulation of public policy still needs to be established.

The principal difficulty here involves a now familiar question about resource allocation. Do the advocates of stability through trade restraint directly meet it? Note what is considered a crucial case—a particularly depressed industry, with high overhead costs, having capital equipment without alternative use, selling a product with an inelastic demand. It is said that when these conditions are present, active price competition will drive down prices to the level of incremental costs, which will be such a small proportion of total cost that even the efficient members of the industry will be ruined.¹³⁶ This end is presumed to result from marginal cost pricing in accordance with the competitive norm. Two questions can be raised about the example. The first involves the likelihood of the results forecast; the second relates to the desirability of the assumed result.

The likelihood of the predicted results raises a serious question as to only one part of the forecast. Competition will drive prices to incremental costs; incremental costs in higher overhead cost industries will, of course, represent a small part of total costs; and bankruptcy or reorganization may, but not necessarily will, be required. On the other hand, the predicted withdrawal of capital (which will be junked, permanently retired or otherwise lost) from industry is not at all clearly associated with the low prices which competition causes. Will

135. EDDY, *THE NEW COMPETITION* 252 (4th ed. 1915).

136. The only relevance of demand inelasticity in this situation is that it makes possible a conclusion that the low prices occasioned by effective (ruinous?) price competition, with the dire consequence forecast, would be unnecessary. Moreover, demand inelasticity means more restriction on employment and output in the industry as a result of few as compared to many sellers.

resources in the long-run be wasted because of a plant scrapping rate induced by free competition?

Whether a plant or production machinery which is neither worn out nor obsolescent will be scrapped will depend on its usefulness in current production. [Here such usefulness is assumed to be small. Even less plant would be useful under less competitive conditions with higher prices and lower outputs.] Also scrapping will depend upon the expectation of future use. But either there is an expectation of future use or there is not. If there is not, it is difficult to see why a non-competitive firm has less reason to scrap plant than a more competitive one. In fact the opposite case would seem more reasonable, unless the existence of the currently maintained prices somehow makes for different behavior—perhaps a psychology of optimism predicated on the fact of current solvency. But even if this is true of firms which are avoiding losses, and even if the opposite (pessimism) can be said to characterize those which are losing money because they are covering only incremental costs, it is not sufficient to justify a prediction of a higher scrapping rate for existing plants. It is necessary to assume further that there is nobody else in the community who thinks highly enough of the future prospects to pay more than scrap value.

Whether bankruptcy or reorganization occurs has no rational relevancy to the question of whether or not existing facilities will be scrapped. The relevant considerations to plant scrapping, in both good times and bad, involves a question of the relative value of the facilities in all of their alternative uses as compared to their value as junk. The fact that only one alternative non-scrap use has been assumed does not change the nature of the calculation. Moreover, the amount of the funds expended for the facilities and the relative part the fixed costs which they represent play in total costs is also irrelevant to the determination of whether or not the facilities will be scrapped. Insofar as the present value of expected earnings of plants or plant facilities exceeds scrap value, facilities can be expected to be used. Of course, perfect forecasting is never possible. But this kind of imperfection is not overcome by the introduction of trade restraints.

The problems of uncertainty and instability created by generally depressed market conditions present serious problems of public policy. A serious depression could engender pessimism which would create conditions forcing abandonment of facilities which may well be needed in the future. But here again, the question relates to resource allocation—whether the misallocation of resources caused by departure from marginal cost pricing has any necessary connection with the achievement of a generally stable price level.

At any particular time many plants and facilities need to be scrapped. There would be a waste of the country's resources if they were not scrapped. Others need to be shifted to alternative use. Here it is the dynamics of change (creative destruction in Schumpeter's language) that calls for competition (not its absence) so that new demands can be accommodated quickly and efficiently.

The need for bankruptcy or reorganization arises in many instances from differences in the capital structure which have nothing to do with the operation of the firm's productive facilities. Two steel firms, for example, operating with a substantial portion of their facilities idle, and each having large and expensive fixed plant facilities, may well be faced with very different prospects for staying solvent. Suppose the capital of one of these firms is entirely in the form of equity securities (common stocks) and that of the other in non-equities (bonds). Competitive pricing may be "ruinous" to the second and not to the first if "ruinous" is thought to be related to the need for reorganization. There is no reason to suppose that resources will be withdrawn from one and not from the other, however. No satisfactory answer has been provided which indicates that bankruptcy or reorganization caused by too much competition is undesirable. Legal recognition is merely given to what has happened.

Finally, the question remains whether the existence of some monopoly (including trade restraints by sellers acting jointly) is required to provide the necessary profit incentive for maximum productive effort. The same, or a closely related problem, has been described as the problem of uncertainty.¹³⁷ "The main implication of a program of workable competition," says Professor Fellner, "is to decide, on the basis of the specific information available for individual industries, what degree of competition is obtainable by methods of practical policy without substantial loss of technological efficiency at the time when the policy is adopted, *and does not presumably create a degree of uncertainty such as would offset the advantages.*"¹³⁸ (Emphasis added.)

Here again the possibility is suggested that there is something in the "dynamics" of capitalistic progress which may overcome the acknowledged disadvantages of less than maximum efficiency in resource allocation available under competition when viewed at a single point of time—"statics." Fellner says, for example: "It seems reasonable to maintain as a general proposition that a market structure compares favorably with another if it brings *somewhat worse* allocation of re-

137. FELLNER, *COMPETITION AMONG THE FEW* c. 11 (1949).

138. *Id.* at 289. Technological efficiency has long been recognized as a limitation on competitive behavior. See Section II of this article. The problem here is to see what else is involved.

sources on a "static" level but, at the same time, markedly speeds up technological advance, especially if it also improves the distribution of income."¹³⁹ That less, rather than more, competition is likely to bring about this result is subject to considerable doubt. In fact Fellner's analysis provides very good reasons for supposing that this is an unlikely case.¹⁴⁰ But even if it is significant, in order to evaluate this justification it is necessary to know why particular "technological advance" sponsored by departures from competition is desirable. Here the incentive which less competition provides is suggested to be the incentive to technological change or product variation. But profits (and losses) arise under competition when conditions are changing.¹⁴¹ Competition here creates incentive. Moreover, the Fellner point is very similar to the previous argument concerning the availability of funds provided by monopoly. The position is vulnerable on similar grounds.¹⁴² There just is no system of economic calculus which can prove that the social gain from new productive facilities and technical changes or innovations created by monopoly offsets the loss of other output.

The principal form of uncertainty is that connected with the sale price of products.¹⁴³ "The main immediate sources of uncertainty are the amount of supply to be expected from other producers and the consumers' wants and purchasing power."¹⁴⁴ It is the anticipation of future income from sales which does provide the incentive to expand production as well as to embark on new ventures. What is the relationship of monopoly to this general problem of incentive (prospective profits)? Is some restraint on the amount of price competition that would otherwise prevail an essential carrot to be dangled before the donkey of industrial progress? If it is true that the expectation of some form of monopoly profit makes it *desirable* to increase production and to adopt better production methods, does not competition do more? Competition makes it *essential*.

139. *Id.* at 286.

140. *Ibid.* Fellner points out that broadening of market structures will frequently stimulate progress and a further narrowing will impede it. Fellner's opinion seems to be characterized in the following: "The more incomplete the co-ordination of business policies with respect to these variable [technological change and product variation], the more likely does it become that firms introduce changes which are partly at the expense of competitors rather than merely the changes which a monopolist would also adopt." *Ibid.* See also *id.* at 287 n.2.

141. It need not be assumed that every departure from a *stationary* competitive economy identifies monopoly, even though short-run quasi-rents may be involved. Schumpeter and others seem to so identify monopoly with departures from *stationary* competition.

142. See text at note 128 *et seq.*

143. КНИГТ, *op. cit. supra* note 120, at 317.

144. *Id.* at 318.

It is not necessary to state categorically that the only incentive which monopoly in its various forms can provide in the public interest are those which would have been produced were the monopoly absent. There are cases which Professor A. C. Pigou discusses as divergences between marginal social net product and marginal trade net product.¹⁴⁵ Here the effects of employing a unit of resource fail to be reflected in the remuneration of the person responsible for the investment. Some of the examples which Professor Pigou cites are applicable to the monopoly case and some are not. No incentive, for example, is provided for the private construction of a lighthouse, the services for which no toll can be collected, and a lighthouse is about as non-competitive an enterprise as can be imagined. On the other hand, a patent system provides a clear case in which the social net product of new inventions is thought to be greater than the trade net product which would accrue to inventors if they were not given monopoly protection.¹⁴⁶ Even here, it should not be overlooked, however, that—"Insofar as the new enterprises compete for their resources, capital and labour, in open competition with existing businesses, economists have strong grounds for the presumption that the gains from their success will outweigh the losses. If, however, innovation is especially encouraged, to the loss of other production, by monopoly price conditions, is it not conceivable that there may be 'too much invention of the wrong kind' . . . ?"¹⁴⁷

The case for "too much price competition" is far from convincing. It creates more economic problems than it solves, and provides no conceivable guide for appropriate public policy. The "sea of doubt" upon which Judge Taft refused to embark his legal craft is no more suitable for economic excursions. Legal rules calling for price competition contain sound economic insight or intuition. More recent decisions which affirm and strengthen them may not be dismissed summarily on economic grounds by vague references to newer notions of competition. If it had become necessary for courts to distinguish good cartels from bad cartels, or just prices from unjust prices, or to distinguish offsetting innovation advantages in determining the legality of price fixing arrangements, antitrust laws would probably have become unenforceable, or have been converted to instruments for increasing business regimentation.

145. PIGOU, *ECONOMIES OF WELFARE* c. 11 (4th ed. 1932).

146. This and similar examples, however, do not provide a case for countenancing private monopoly. They provide, rather, examples of legitimate fields for social control.

147. Plant, *supra* note 128, at 51. See also a similar point on trade-marks by Chamberlin, quoted in note 148 *infra*.

VI. CONCEPTS OF WORKABILITY

Up to this point the discussion of "workable competition" has been limited to questions regarding the alleged advantages of less, rather than more, competition. A considerable amount of discussion, also included under the phrase "workable competition," has as its objective not a rationalization of less competition but rather the achievement of the maximum competition which particular types of markets make possible. The previous discussion of price discrimination (IV) although recognizing the inconsistency of price discrimination with perfectly competitive conditions, suggests that its presence may bring about a condition of more competition than would otherwise prevail. Other similar examples have been cited as involving problems of workability.¹⁴⁸

Many economists who would not agree that there is real danger from too much competition are interested in the problem of workable competition (sometimes referred to as effective competition), which has as its goal achieving maximum competition in any particular market structure. But more often workability is defined in terms of the amount of monopoly that may safely be tolerated irrespective of how much more might be desirable. An example is Professor Wilcox's tentative definition of workable competition: "An industry is workably competitive when (1) there are a considerable number of firms selling closely related products in each important market area, (2) these firms are not in collusion, and (3) the long run average cost curve for a new firm is not materially higher than for an established firm."¹⁴⁹

An almost identical test of workability has been suggested by Professor Mason. After pointing out the nature of the problem ("None of the markets encountered meet the tests of pure competition; at the same time they fall short of a degree of monopoly justifying public regulation. What is the test of effective competition?"), Mr. Mason goes on to say: "Workable competition is con-

148. Product differentiation has been described as indicative of monopoly. It has also been described as competition in quality. Given heterogeneous tastes it is suggested that a great deal of product differentiation seems to be consistent with maximum welfare. See, for example, Chamberlin, *Product Heterogeneity and Public Policy*, 40 AM. ECON. REV. SUPP. 85 (1950). But see also CHAMBERLIN, *THE THEORY OF MONOPOLISTIC COMPETITION* 249 (5th ed. 1947): "The question [of evaluating trade-mark monopoly] is one of weighing variety at a higher price against a more uniform product at a lower one. . . . Since less monopoly would be created, [if trade-marks were not fully protected] there would be less attention given to trying to create it and correspondingly more to production." (Emphasis added.)

149. Stigler, *The Extent and Bases of Monopoly*, 32 AM. ECON. REV., SUPP. PT. 2 (1942). Stigler comments here that the first two points serve to eliminate not only monopoly and explicit collusion but also tacit avoidance of competition for fear of retaliation by close rivals. The reference to collusion here is clearly something to be avoided in a standard for workability. Compare this with standards of workability (Section V) where the advantage of some collusion is alleged.

sidered to require, principally, a fairly large number of sellers and buyers, no one of whom occupies a large share of the market, the absence of collusion among either group, and the possibility of market entry by new firms."¹⁵⁰

The first two requirements of workability, a large number of sellers and the absence of collusion, are consistent with a standard free competition for the short as well as the long run. Here recognition is given to the fact that the theoretical presumption in an economy of private enterprise is in favor of the market;¹⁵¹ that is, if collusive or cooperative activity takes the place of competition, then it is possible to exercise a degree of economic power (monopoly power) that is inconsistent with the most effective use of the nation's resources.

Here is economic justification of the rule against trade restraints (such as price fixing) which are outlawed by section 1 of the Sherman Act. Extension of this position by analogy to price fixing, as we have seen, gave rise to Judge Hand's "power rule" and brought about the conclusion of "monopolizing" in the *Aluminum* case.

In the foregoing discussion of Judge Hand's opinion in the *Aluminum Company* case, a question was raised about the desirability of applying a monopoly power test of illegality only in those instances in which the percentage of output was in excess of 64 to 90 per cent. If production of a product (without closely competing substitutes) is confined to several firms (each producing, for example, one third of the output), the first tenet of workability, a substantial number of sellers, does not seem to be met, irrespective of the vagueness of a standard phrased in terms of "a substantial number." Nor does current interpretation of the Sherman Act directly meet this economic problem. Indirectly it may, however, by broadened coverage of what may be deemed conspiratorial activity under section 1: ". . . it is enough to warrant a finding of a 'combination' within the meaning of the Sherman Act, if there is evidence that persons with knowledge that concerted action was contemplated and invited, give adherence to and then participate in a scheme."¹⁵²

The kind of language just quoted has been said to cast doubt on the legality of numerous arrangements in which price leadership occurs. Such activity has been variously referred to by such terms as "conscious parallelism" and "spontaneous coordination." These terms are legally

150. Mason, *The Current Status of the Monopoly Problem in the United States*, 62 HARV. L. REV. 1265, 1267 (1949).

151. Advocates of workable competition would stress, however, that these presumptions may often be rebutted by the facts. See, for example, Adelman, *Integration and Antitrust Policy*, 63 HARV. L. REV. 29 (1949).

152. *FTC v. Cement Institute*, 333 U.S. 683, 716 n.17 (1948).

relevant only insofar as they evidence conspiracy or collusive behavior.¹⁵³ If conspiracy can be inferred, it is relevant not only for establishing a violation of section 1 but also for establishing a violation of section 2, either as evidence of illegal purpose or intent or as a method of lumping firms together to reach the crucial power percentage (64 to 90). It is possible, therefore, that a firm, though not within the scope of Judge Hand's power rule in the *Alcoa* case, can through "conspiracy" with others, be brought within the coverage of section 2. Thus, as in *American Tobacco Co. v. United States*, decided after the *Alcoa* case, where "the authorities support the view that the material consideration in determining whether a monopoly exists is not that prices are raised and that competition actually is excluded but that power exists to raise prices or to exclude competition,"¹⁵⁴ the relevant power which is referred to is the power of a group of independent sellers acting in concert. It is not inconceivable, for example, that joint use of a formula pricing scheme (basing point system) could give rise to the *Alcoa* result in the steel industry.¹⁵⁵

This, of course, represents a somewhat different concept of power than that represented by the court in *United States v. United States Steel Corp.*¹⁵⁶ in which the Gary dinners were used as evidence of the fact that U. S. Steel was without monopoly power: "Its power was efficient only when in cooperation with its competitors" and "*in and of itself* [U. S. Steel] is not now and never has been a monopoly or a combination in restraint of trade. . . ." (Emphasis added.)¹⁵⁷

It seems important to emphasize that the definitions of workability which have been cited call for a substantial number of firms as well as for the absence of collusion. The Sherman Act, as has been indicated, has been interpreted to place almost exclusive emphasis on the latter.

153. *But see* Milgram v. Loew's, Inc., 192 F.2d 579 (3d Cir. 1951). The concept of conspiracy is capable of considerable extension. For example: "The voicing of the same invalid reasons for identical equivocal action is of itself sufficient from which to infer guilt." *Id.* at 585.

154. 328 U.S. 781, 811 (1946).

155. For an analysis of basing point pricing systems as indicative of collusive behavior, see Stigler, *A Theory of Delivered Price Systems*, 39 AM. ECON. REV. 1143 (1949); MACLEUP, *THE BASING POINT SYSTEM* (1949); Bowman, Book Review, 17 U. OF CHI. L. REV. 218 (1949). See also references in Markham, *The Nature and Significance of Price Leadership*, 41 AM. ECON. REV. 891 (1951); FETTER, *MASQUERADE OF MONOPOLY* (1931).

156. 251 U.S. 417 (1920).

157. *Id.* at 440-441. Fetter has criticized this view severely. "Only a singular ignorance of the history of the American trust movement as well as of the theory of monopoly," he said, "could make it possible for anyone, judge or layman, to believe that monopoly is monopoly only when acting without the compliance and cooperation of smaller competitors." FETTER, *MASQUERADE OF MONOPOLY* 83 (1931).

The argument might be made that the requirement of a substantial number of sellers is unnecessary if the legal concept of conspiracy is stretched to cover all cases where there is substantial departure from competitive behavior. A tendency in this direction seems to characterize recent court decisions. It is, of course, not impossible that the interpretation of conspiracy under the Sherman Act will come to encompass most price leadership examples. With the application of broader conspiracy concepts arise problems of evidence, which are at least as difficult as those which have been raised concerning the recognition of monopoly or monopoly power.¹⁵⁸ What is required is not solely related to a definition of conspiracy. Equally important is a method of recognizing significant departure from the most effective competition that can be achieved.

The need for a substantial number of competitors for effective competition has been stressed by Professor Fellner.¹⁵⁹ After pointing out various reasons why oligopolistic coordination falls short of that degree of coordination (monopolizing?) achieved by a single firm, he points out the impossibility of forcing rival firms to disregard the effects of their moves on one another:

“No one can be forced to behave as if he possesses less intelligence than he really does. Specific manifestations of oligopolistic coordination can be suppressed. But in each case where this is done, it is necessary to ask the question as to what other manifestations of oligopolistic co-ordination are likely to show if certain business policies are outlawed.”¹⁶⁰

Subsequently he stated: “Unless the basic characteristics of market structure itself are changed, the objectionable market results will be promptly replaced by different but equally oligopolistic results.”¹⁶¹ Here is the economic rationale for at least the presumptive desirability of as large a number of competing sellers as possible.¹⁶² In *United States v. National Lead Co.*¹⁶³ Mr. Justice Burton pointed out that there was no showing that four major competing units would be preferable to two. The analysis here would at least suggest that a

158. The relevant question here would be whether or not the activity alleged to be collusion was susceptible of only one explanation—a mutual desire to avoid competition. Is the activity of any two sellers which is not consistent with an economist's definition of that behavior which active competition would require evidence of collusion?

159. Fellner, *Collusion and Its Limits Under Oligopoly*, 40 AM. ECON. REV. SUPP. 54 (1950).

160. *Id.* at 58.

161. *Id.* at 59.

162. It is suggested that “. . . effective price leadership, for the most part, is a result of monopoly rather than a cause of it. . . .” Markham, *The Nature and Significance of Price Leadership*, 41 AM. ECON. REV. 891, 894 (1951).

163. 332 U.S. 319 (1947).

greater number of competitors is more likely rather than less likely, to bring about competitive results.

The third requirement of workable competition—the possibility of market entry by new firms—may be alternatively stated by the general condition that the long run average cost curve for a new firm is not materially higher than for an established firm. Unlike the other two requirements for workability, this requirement, that there be no substantial impediments to new entry, has influence only in terms of long run results. If the number of firms contemplated by “substantial” is large enough, and the kind of activity contemplated to be covered under the term “collusion” is broad enough, there would not be need for concern over problems of entry of new firms. Competitive practice might be assumed from existing firms. It must be presumed, therefore, that the two previous conditions for workability are such as to at least make possible a substantial departure from competitive results.

A discussion of the impediments to entry as a barrier to the achievement of workable competition may be alternatively stated as questions of why the existing firms (assumed to be few in number) constitute the industry, and how long they can be expected to maintain this position.¹⁶⁴ As to the first question (why there are so few), a number of reasons have been suggested. Among the more important are: (1) Patents (including patent pooling arrangements and unpatented “know how”); (2) control over essential resources (labor or material); (3) large capital requirements; (4) mergers or consolidations; (5) temporary aggressive pricing to drive out new entrants (discrimination or other abusive practice); (6) control over market outlets; (7) economics of scale (including both production economies and economies of selling and research).

Explaining the existence of “a few” firms by such reasons as the first six listed is principally useful in shifting the locus of the monopoly problem rather than solving the question how much monopoly may be tolerated—the principal reason for the existence of a concept of workable competition. Moreover, why the existence of such conditions (for example, the existence of patents, or control of resources, or control over markets) should necessarily limit the number of producers in an industry is by no means so clear as is generally contended.

Suppose for example, a single steel producer controlled all of an essential raw material, iron ore. Would this be a logical reason for the existence of only one or a few steel making firms even in the ab-

164. Stigler, *Discussion*, 40 AM. ECON. REV. SUPP. 63 (1950).

sence of substitute product such as scrap? Why treat the monopoly problem here as a dubious problem of entry into the steel business when the obvious problem involves a direct attack on the monopoly of ore?¹⁶⁵ And, of course, whether or not the relaxation of the assumption of only one ore seller still leaves a monopoly problem depends upon exactly the same kind of a measurement problem for which an answer is being sought. Attention is merely shifted to another industry.

Furthermore, if a monopoly of ore is assumed to exist, but for some reason no direct legal attack can be made at that level (an approximation of the patent case), it is at least arguable that the interests of the ore monopolist would be served not by extending monopoly power into the steel industry, but rather by sponsoring maximum competition in steel to increase steel production and thereby increase the consumption of ore. The case is, of course, not limited to raw material control. Market control, or patent control raises an identical problem.

Price discrimination has been criticized as a means of preventing new companies from entering an industry.¹⁶⁶ A typical case involves specific price cuts by an existing firm or firms directed solely to the limited market of the new entrant. After the entrant has become discouraged and has withdrawn, prices are then raised to the old level. The undesirability of this kind of activity has long been recognized. The Clayton and Robinson-Patman Acts specifically condemn this kind of discrimination; and purposely restraining entry into a field has long been held illegal under the Sherman Act.

The ability to use price discrimination for non-competitive results (such as control over new entry) depends upon the existence of sufficient economic power to manipulate price successfully. The existence of such power gives rise to the question of its source; and once again the problems of measurement are suggested. Even if the desirable effects of any discrimination are denied, will alternative means of exercising this power for similar results be available?

Another circumstance which is said to be a significant barrier to the entrance of new firms into an industry is a requirement of a large amount of financial resources. The need for capital, of course,

165. Assuming forward integration from the ore business to the steel business by the ore monopolist does not change the nature of the problem. Such integration may, of course, be rational in the absence of competition at the forward level, but then only if the ore monopolist could avoid paying the discounted market value of the monopoly in the steel business. Monopoly in both ore and steel may also make the vertical integration desirable to maximize the return of both, but it could hardly be said to explain either.

166. Railroad rebates in the early history of the oil industry are often cited as an example.

is closely associated with the necessary amount of productive equipment required to carry on a successful operation. The point is closely related to the problem of economics of scale—particularly the efficiency of small scale as contrasted to large scale producing facilities. This is not to say, however, that the barrier is capital requirements. High capital requirements are not necessarily related to economies of scale. Insofar as entry into an industry requires a large degree of integration, either backward to assure necessary sources of raw materials or forward for assured market outlets, the amount of investment required for new entry can be substantially increased even though the additional functions are not essential for efficiency.

A pertinent question with respect to financial requirements as a bottleneck to the entry of new competitors is what causes the limitations on funds for new enterprise. The usual explanation of potential competition (the threat of entry) as a market regulator is that when monopoly power of existing firms is exercised by restriction of output and by increased prices, this result (except in the case of declining cost industries or in industries which because of demand conditions do not cover total cost in spite of the exercise of monopoly power) will make for higher than average rates of return for newcomers in the fields in which the monopoly is being exercised. If such a situation exists and a market for investment funds exists, why are not funds forthcoming even in large amounts? If they are not forthcoming because of such factors as uncertainty of future prices or demand, or danger of retaliation by existing firms, or control by existing firms over strategic supplies or markets, or control over patents or exclusively held skills or "know how," then it is, to say the least, misleading to attribute the failure of entry to the most apparent reason facing the prospective entrant—the unavailability of funds. In many cases the unavailability of large amounts of funds merely reflects the real causes.

It is well known, moreover, that the very existence of a very broad market in investment securities makes possible the accumulation of very large amounts of investment funds from a wide variety of sources. The fact that business is no longer dependent for funds upon the personal savings of the enterpriser himself and his close friends has greatly expanded the amount of funds which are available not only for existing businesses but also for prospective new entrants. That risks and uncertainties are higher for the latter, or that in some cases funds may not be forthcoming at all, is not necessarily evidence that large financial requirements are the real barrier to entry.¹⁶⁷

167. Corporate savings of existing firms provide a large part of the funds going for new plant investment. These are not costless funds to existing firms, however. The apparent advantage they provide over new entrants may merely reflect low

Professor Stigler lists the cigarette industry as a striking example of capital requirements as a barrier to entry. He points out:

"There are no economies of scale in production but there are some economies in advertising, partly because of the nature of the advertising media, partly because advertising over a long period has cumulative effects. *As a result of the scarcity of large equities*, the three big companies have maintained large profits and dominance over the domestic market for more than thirty years." (Emphasis added.)¹⁶⁸

It is not clear, however, that financial requirements are necessarily the barrier to entry. The difficulties in obtaining funds could reflect risks or even economies of scale. It is interesting to note that Philip Morris and Co. in 1949, while spending some \$17.5 million for sales and general administrative expenses on gross sales of \$228 million, produced and advertised seven different brands of cigarettes in addition to smoking tobacco. Prior to the acquisition of the Axton-Fisher Tobacco Company in 1944 the company had one producing plant. Two are now operated. At least with respect to advertising of minor brands of cigarettes, it is difficult to understand what "financial" advantage due to advertising accrues to Philip Morris which would be a substantial barrier to a much smaller company.

In a great many industries the small number of firms may be explained by the merger of existing firms. It is a popular conception that these mergers are arranged to achieve more efficient utilization of the facilities involved. At least as plausible is the theory that they are arranged to avoid or eliminate competition. This statement is especially true of horizontal mergers—mergers of competing concerns at the same level in the production process. Merger of competing producers provides a possible means of achieving monopoly power while avoiding a charge of collusion under the Sherman Act. Although with respect to future mergers, section 7 of the Clayton Act as recently amended¹⁶⁹ might be said to prevent acquisitions the effect of which may be substantially to lessen competition or to tend to create

dividend rates to stockholders or excess earnings due to the exercise of monopoly power. They do not necessarily reflect cost savings so substantial as to impede entry. Advantage is provided only insofar as higher than competitive rates are charged for floating new security issues, or savings in costs are achieved over procuring funds elsewhere. But even in this case the larger the quantity of funds required from investment sources the less this advantage is likely to be. See SEC studies on cost of securities by size of issue, *supra* note 90.

168. STIGLER, *THE THEORY OF PRICE* 227 (1952).

169. 38 STAT. 731 (1914), as amended, 15 U.S.C. § 18 (1950). Section 7 of the Clayton Act as now amended forbids both the acquisition of stock and assets in competing companies where the effect is or may be to lessen competition.

monopoly, it is not clear as yet what can be done here that is impossible under the Sherman Act.¹⁷⁰ Moreover, as to past mergers, divesting formerly merged properties requires not only a finding of violation of monopolizing or attempting to monopolize in violation of section 2 of the Sherman Act, but also the necessity of convincing a court that divestiture is a necessary requirement to the reestablishment of conditions of effective competition.

The absence of a substantial control created by horizontal merger generally has not been listed as a necessary requirement for workability by the advocates of workable competition. The requirement of a large number of sellers, even apart from its vagueness, does not necessarily encompass all the cases of substantial monopoly power arising through mergers. Irrespective of the existence of a large number of unmerged companies, the resulting economic power residing in the merged companies is not less than if these same companies were in collusion. Why is the latter inconsistent with workable competition and not the former? With respect to possible effect upon entry the cases are not different. An assumption that mergers (especially horizontal mergers) should be tolerated because of the requirements of economies of scale seems dubious. That economies of large scale makes monopoly conditions inevitable is not a reason for tolerating mergers. Mergers can not correct past mistakes as to plant scale¹⁷¹ or product specialization.¹⁷²

Reliance on long run effects of easier entry to overcome the short run monopoly achieved through merger may make for an unnecessarily large loop hole in anti-monopoly policy. Professor Stigler has developed this point at length: "If the entry of new firms is not too rapid, the merger may make monopoly profits for a considerable period; and, even though thereafter the losses are permanent, their discounted value need not be so large as to wipe out initial gains."¹⁷³ Here is an explanation of the exercise of declining monopoly power which may be effective for long periods of time. In many industries, especially those

170. See 46 ILL. L. REV. 444 (1951) (discussion of effectiveness of §7 of the Clayton Act as amended).

171. It cannot be argued that merger might hasten this result in the interest of more rapidly achieving efficiency. The same facilities exist as before. The past mistakes in building too many facilities are not corrected by merger, even though similar plants will not be built again.

172. Competition would presumably force the most efficient result in the absence of merger. The case involves the question of plant divisibility, essentially a problem of scale of operations. See note 171 *supra*.

173. Stigler, *Monopoly and Oligopoly by Merger*, 40 AM. ECON. REV. SUPP. 23, 25 (1950).

with a large proportion of fixed assets, it may take a long time to achieve a condition of long run equilibrium.

"If the specialized resources of the merger are not indestructible, investment can be withdrawn from the industry so that, after the initial period of gain and a subsequent period of loss, the long run equilibrium will be attained, with the merger receiving a competitive rate of return on its investment in the industry. (The period of loss arises because in general it requires less time to increase than to withdraw investment.) If the industry's demand is growing, the amount of resources the merger must withdraw will be reduced; and, if the demand is growing sufficiently rapidly, no investment need be withdrawn: the merger can maintain its absolute size but decline in relative size."¹⁷⁴

The steel industry provides a good example. Ease of entry, together with conditions under which it can take place rapidly, can create "potential" competition and, as Mr. Corwin Edwards has pointed out, "reduce the likelihood of collusive agreement . . . moderate the restrictions in agreements actually made . . . lessen the restrictive effect of concentrated control over production or purchases, and . . . diminish the advantage which the most powerful enterprise can obtain through coercion";¹⁷⁵ but to hold that this action is enough safeguard to assure effective competitive pricing¹⁷⁶ would be tantamount to saying that no law against price fixing or market allocation is required in the interest of maintaining effective competition. Such a position, while representing the view of perhaps the majority of economists at the time of the passage of the Sherman Act in 1890,¹⁷⁷ is scarcely heard today—at least in this extreme form. The merger case is not essentially different from the cartel case which is so generally disparaged. In fact, it is likely to be worse. Mergers allow less freedom for independent action than do cartels, are less limited in the amount of monopoly power they can exercise, and represent much more permanent forms of organization. Voluntary agreements can be breached and often are breached.

More vigorous competition would be achieved if there were (1) more sellers (2) less collusion, and (3) easy entry of new firms. These standards of workable competition are relevant and important. In fact, the recommendations of this study may be viewed as a means of implementing (1) (increasing the number of sellers). The problem

174. *Ibid.*

175. EDWARDS, *MAINTAINING COMPETITION* 186 (1949).

176. This statement is not to imply that Mr. Edwards holds this view.

177. See, for example, CLARK, *THE FEDERAL TRUST POLICY* c. 5 (1931).

is not, however, how much monopoly can safely be tolerated. The more important question is whether the entire community would be better off with more competition than now exists. An affirmative answer is required. The principle limiting factor to the desirability of more competition is found in economies of scale. This factor involves a question of whether the real cost (excluding monopoly advantages of bargaining) of producing a product are such that the market can only be supplied efficiently by a small number of firms; or, more broadly, of whether the advantage of the competition created by a larger number of firms is outweighed by the real costs of obtaining the needed production under these conditions.

There are differences of informed opinion as to the importance of economies to be derived from very large scale production. These differences, however, relate primarily to optimum plant size. Whether or not so limited there is a tendency to adopt the popular view—the bigger the better. It is not necessary to enter this controversy here. Considerable progress toward less monopoly (more competition) can be achieved in the public interest without departing from Judge Hand's "thrust upon it" rule. It is *not* suggested that a presumption of monopoly may no longer be rebuttable by establishing economies of scale. It is suggested that the standard of presumption needs attention.

It is indefensible economically to limit what Judge Hand has called "partial monopoly" to such cases of joint action as are covered by section 1 of the Sherman Act. Single firms with far less than 90 per cent of the production of an industry can and do exert monopoly power. To extend Judge Hand's monopoly power rule in civil cases (to multi-plant firms producing 10 or 15 per cent of the output for a market) would buttress a long-avowed public policy which supports free competitive enterprise.¹⁷⁸

178. Notable success has not accompanied world-wide attempts (not excluding the United States) to supplant or improve upon the competitive market as a means of determining how much of what should be made when, where, how, by whom and for whom. A competitive market is a more practical, effective institution than its vastly under-rated reputation would indicate.

APPENDIX 1

 UNITED STATES STEEL CORPORATION PRODUCTION
 AS A PERCENT OF TOTAL UNITED STATES
 PRODUCTION

PRODUCT	YEAR					
	1901 ¹ .	1911 ¹ .	1920 ³ .	1930 ³ .	1940 ⁴ .	1948 ⁴ .
Iron Ore	45.1	45.8	40.0	41.3	46.2 ⁵ .	43.1 ⁵ .
Pig Iron	43.2 ² .	45.4 ² .	39.4 ² .	40.2 ² .	38.7 ² .	35.9 ^{2a} .
Ingots & Steel for Castings	65.7	53.9	45.8	41.2	34.2	33.1
All Finished Rolled Products	50.1	45.7	41.6	36.6	32.7 ⁶ .	31.3 ^{6a} .
Heavy Products						
Rails	59.8	56.1	58.1	51.2	53.8	49.0
Shapes	62.2	47.0	43.9	44.6	42.3	42.9
Plates ⁹ .		43.8			53.2	31.1
Other Hot Rolled Products	64.6	47.8	39.8	38.1 ⁷ .		
Sheets		21.5			21.8	19.0
Merchant Bars					18.8	21.7
Reinforcing Bars					26.5	22.1
Strip					18.9	18.9
Wire Rods	77.6	64.7	56.0	46.1	32.7	40.2
Further Finished Products						
Tin and Terne						
Plate	73.0	60.7	45.1	37.5	34.4 ⁸ .	38.4 ⁸ .
Wire Nails	65.8	51.4	54.0	44.6	34.5	40.1
Seamless Tubes					48.8	45.0

NOTE—Sources are indicated by the note references at the column heads unless otherwise indicated.

1. *United States v. United States Steel Corp.*, 251 U.S. 417 (1920). Vol. 3 of Defendant's Exhibits, pp. 69, 71, 73.

2. Includes ferro-alloys.

2a. Excludes ferro-alloys.

3. ANNUAL STATISTICAL REPORTS, AMERICAN IRON & STEEL INSTITUTE covering years listed.

4. *Hearings before the Subcommittee on Study of Monopoly Power of the Committee on the Judiciary*, H.R., 81st Cong., 2d Sess. Serial No. 14, Part 4B, Steel Exhibits 659-660 (1950).

5. Compiled from ANNUAL STATISTICAL REPORT OF THE AMERICAN IRON AND STEEL INSTITUTE and ANNUAL REPORTS OF U.S. STEEL CORPORATION.

6. Includes all finished steel products produced for sale.

6a. Includes all finished steel products shipped.

7. Includes black plate for tinning.

8. Does not include terne plate.

9. Includes sheared and universal plates.