Chapter 5

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Goals for Economic Organization: A Theoretical Analysis

ECONOMISTS HAVE GENERALLY AGREED that the economic goals of society are efficient resource allocation and a high rate of economic growth. They have, at least in the twentieth century, agreed that marginal analysis is a powerful tool for diagnosing these goals, irrespective of the political instrumentation through which they are sought.[1] To be sure, political economists differ sharply on which political instruments hold out the greatest promise for attaining these goals, but even a Soviet economist and an ardent proponent of a free market economy are likely to find themselves in substantial agreement on the goals themselves.

But while economists may agree on economic goals, even those who favor a free enterprise market economy do not always agree on the forms of industrial organization which hold out the greatest hope for attaining them. They may also disagree on the legal and social institutions that best preserve and nurture the forms of industrial organization they prefer.

These disagreements were much in evidence among the founders of the American Economic Association. Most of them had inherited from the classical economists a preference for competitive market organization. Yet to Professor Henry Adams, monopoly was an example in "harmony of control and unity of direction," and often produced goods more efficiently than competitive enterprise.[2] Professor Seligman stated at the Saratoga Conference on the Association's platform that[3]

[1] For example, compare George J. Stigler, The Theory of Price. Rev. ed. Macmillan, New York. 1952; and Abba P. Lerner, The Economics of Control. Macmillan, New York. 1946.

[2] Henry C. Adams, Relation of the State to Industrial Action. Publications of the American Economic Association, Vol. 1, No. 6 (January, 1887). Pp. 38-39, 42, 49.

[3] Ibid., p. 27.

competition is not in itself bad. It is a neutral force which has already produced immense benefits, but which may, under certain conditions, bring in its train sharply defined evils. Modern economics has, however, not yet attained that certainty in results which would authorize us to invoke increased governmental action as a check to various abuses of free competition.

Professors J. B. Clark, Irving Fisher and Frank Taussig had a stronger faith in competitive organization but misgivings about the nascent antitrust policy in the form of the Sherman Act as a means of preserving it. Clark viewed the act with outright hostility and Fisher and Taussig regarded it as inferior to positive trust regulation.[4]

The separate roads of economists on the desirability of competitive market organization as a goal have since converged. The postwar hearings on antitrust issues are replete with economists' testimony extolling the merits of competition. But while economists may now be surer of their ground, reservations — some made explicit and others implied — remain. Schumpeter's innovating monopolist is a sophisticated current counterpart of the technologically superior monopolist of an earlier era; competition is often considered as unworkable for agriculture and is still occasionally charged with creating "sick" industries and with leaving monopoly power uncountervailed; proponents of the "new competition" call for a new appreciation of big enterprise and less insistence on vigorous antitrust effort to maintain the economists' version of workably competitive market structures.

In the face of such lingering doubts, can economists who champion the goal of a reasonably competitive economy find sustenance in the logic of their discipline? There is little doubt that the antitrust principle has experienced a renaissance in the 1950's. In the United States antimonopoly legislation and enforcement machinery have been significantly strengthened; countries of Western Europe have initiated new and stronger anticartel policies; and treaties establishing the European Coal and Steel Community and the European Economic Community contain provisions for limiting private monopoly power. While such policies are a product of politics they envision economic goals. For this reason they should periodically be tested against the accumulated stock of relevant economic logic. Should they test out to be compatible with such logic the present course of industrial policy

[4] J. B. Clark, The Control of Trusts. Macmillan, New York. 1901. P. 12; Irvin Fisher, Elementary Principles of Economics. Macmillan, New York. 1912. P. 330-32; F. W. Taussig, Principles of Economics. 3rd ed. Macmillan, New York. 1921. P. 458.

stands unchallenged. If not, the canons by which private industrial enterprise is governed need critically to be re-examined. The essential purpose of this essay is to subject the goal of a reasonably competitive market organization to such a test.

IDEAL OUTPUT AND THE STATIC STATE

The logical starting point for inquiry into the case for a competitively structured society is Professor Pigou's "ideal" output[5] — that output which yields the highest total satisfaction to a community. Under conventional assumptions concerning the shape of a community's transformation curve (concave to the origin) and indifference map (each indifference curve convex to the origin), the ideal output occurs where the transformation curve is tangent to one of the community's indifference curves. Point E (Fig. 5.1) where $T_1 T_1'$ is tangent to $I_3 I_3'$ illustrates such an output — move away from E in either direction along $T_1 T_1'$ and the community is taken toward $I_2 I_2'$, a lower indifference curve where by definition the community is worse off. But point E is also where a perfectly competitive economy is in equilibrium. The slope of the transformation curve, as measured by a tangent to it at any point, indicates the ratio of the social marginal costs of outputs X and Y — the amount of one of them which society must forego in order to obtain a small increase in the other. And consumer equilibrium requires that the price line must be tangent to one of the community's indifference curves, otherwise consumers can move to another point on the price line and reach a higher indifference curve. Hence, the tangent to the community's transformation curve at point E (the ideal output) must also be the same as the price line tangent to the highest indifference curve the community can possibly reach. This follows from the equation of prices with marginal costs under competitive equilibrium, making the ratio of the prices of commodities X and Y, given by the slope of $P_3 P_3$, equal to that of their respective marginal costs, also given by the slope of $P_3 P_3$ (Fig. 5.1). Thus, in equilibrium, a perfectly competitive economy yields the ideal output E.

[5]See A. C. Pigou, The Economics of Welfare. St. Martins, New York. 4th ed., 1929. Esp. Part II; R. F. Kahn, "Some Notes on Ideal Output," Econ. Jour. (March, 1935). Pp. 1-35; William J. Baumol, Welfare Economics and the Theory of the State. Harvard University Press, Cambridge. 1952; and Joan Robinson, The Economics of Imperfect Competition. Macmillan, London. 1948. Chap. 27. The discussion here is cast in terms of community indifference and transformation schedules rather than Marshall-Robinson firm revenue and cost schedules to simplify the graphic display and to facilitate the introduction of several minor adaptations. The presentation follows closely that employed by Baumol, ibid., Chap. 3.

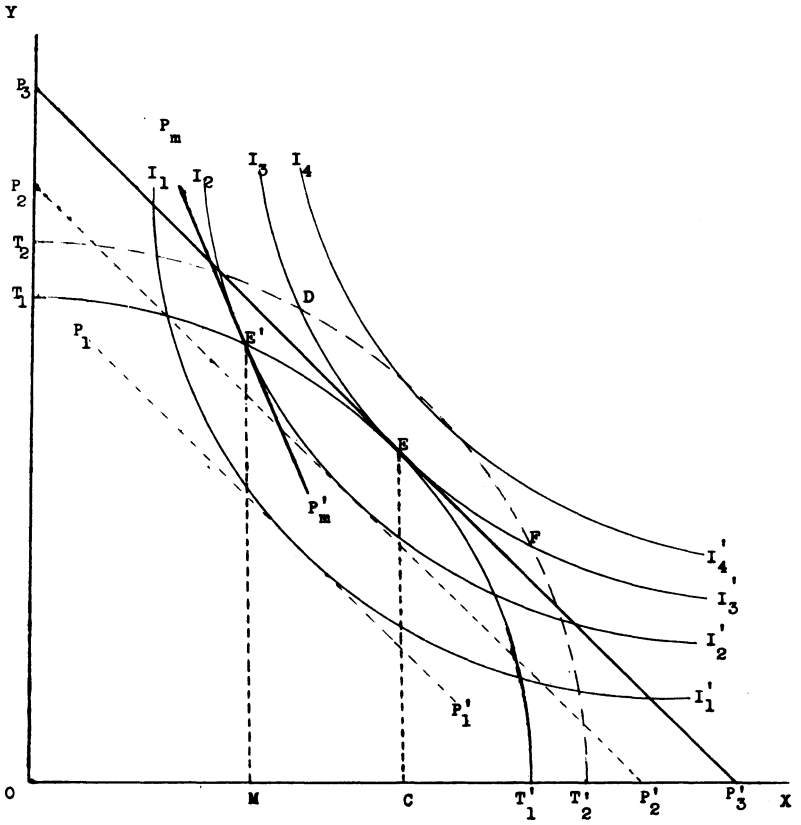

Fig. 5.1. Relationship of a community's transformation curve and indifference curve in establishing point of ideal output.

A monopolist in the midst of competitive industries prevents an equilibrium at the ideal output. For example, if X (Fig. 5.1) were produced by a monopolist and Y by a host of competitors, the monopolist would not maximize profits by producing OC of X (the competitive output) but rather by producing some smaller output OM and selling it at the highest possible price represented by the slope of the price line $P_m P_m'$.[6] The community then no

[6]If the monopolist were sufficiently powerful to avoid paying competitive rents to factors of production, it would produce more of X than if forced to pay such rents, but if it could avoid all payments of rent the monopolist would never find it profitable to produce more of $\overline{X}$ than the competitive rate of output. This point is explained lucidly by Baumol, op. cit., pp. 40-42.

longer receives the ideal output E, but is driven to a lower indifference curve I_2I_2' and hence to a less desirable output E'. In Marshallian terms, the price-to-marginal cost ratios for monopolized industries are higher than those for competitive industries or, stated somewhat differently, monopolized industries have Lerner indexes $\left(\frac{P - MC}{P}\right)$ with values exceeding zero. The value of the national product can therefore be increased by shifting resources from competitive to monopolized industries.

The implications the "ideal" output argument holds for the goals of public policy — granting for the moment the assumptions on which it rests — are clear: Monopolies should either be prevented or made to behave "as though" they were competitive industries. The antitrust laws frustrate incentives to monopolize which if left unproscribed would inflict on society avoidable social costs calculated in terms of departures for the ideal output. Public utility regulation, through the agency of regulatory commissions, can eliminate the difference between the "natural" monopolist's price and its marginal cost; it can do so by confronting the monopolist with an appropriately fixed price which eliminates the relevant portion of the downward sloping demand curve the unregulated monopolist confronts.

But the foregoing familiar argument for competitive market solutions rests on a set of highly restrictive assumptions. First, it assumes no divergency between marginal social and marginal private costs. If, through external economies and diseconomies, the private costs incurred by the firm are different from those borne by society, it follows that competitive firms do not equate social marginal costs with prices when they maximize their profits. Conceptually, therefore, the resulting price lines may intersect the transformation curve at any point and hence the competitive output may possibly be less ideal (on a lower indifference curve than I_2I_2' at E' in Fig. 5.1) than that resulting from monopoly.[7]

Second, it assumes that the national income is uniquely distributed to members of society, and that the intrusion of monopoly

[7]Some of the earlier literature on the ideal output attributed the external economies of one industry to the internal economies of some subsidiary industry, and hence concluded that if external economies existed the system must contain some monopolies of scale. cf. R. F. Kahn, op. cit., p. 11; E. A. G. Robinson, Structure of Competitive Industry. Chicago University Press, 1959. P. 138; and Frank Knight, Fallacies in the Interpretation of Social Cost. Quarterly Journal of Economics, 1924. Pp. 582-606. But it has been correctly pointed out that external economies may arise from other sources. cf. Piero Shraffa, The Laws of Returns Under Competitive Conditions. Economic Journal, 1926. Pp. 535-50; Baumol, op. cit., p. 34; Joan Robinson, op. cit., p. 341.

does not alter the community's indifference map, either through its effect on income distribution or by affecting the degree of perfection of demand for finished products.[8] It is through the indifference curves and transformation curve that the ideal output can be identified. If two families of indifference curves are involved, one each for two different income distributions, or one each for two different states of consumer knowledge, comparisons between monopoly and competitive outputs become ambiguous.

Third, it assumes that a given amount of resources[9] is employed as efficiently as the given "state of the arts" permits. More especially, it implicitly assumes that the transformation curve itself is unaffected by how industries are organized; that is, a given transformation curve is used for comparing equilibrium outputs for perfect competition throughout the economy and for the same economy containing at least one monopolist.

Subject to these assumptions[10] the static case for competitively structured industry has gained strength as it has undergone frequent critical re-examination. Professor Kahn, in one of the first comprehensive inquiries into what has become known as the "proportionality thesis," concluded:[11]

> The abandonment of the assumption of perfect competition does not entail any alteration in the condition for the maximization of the national dividend. "The amount of a factor in any use will be ideal when the value of the marginal product of each marginal unit (of resources) is the same in that use as in the alternative occupation."

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[8]The more usual assumption is that market demand must be perfect. cf. Baumol, op. cit., p. 25. This raises no problems if defined simply as the inability of any buyer to affect price. However, it also implies perfect buyer knowledge. But consumer knowledge is affected by the totality of past experience, and is perfect only after the consumer has experienced all possible combinations of goods at all possible prices. cf. Nicholas Georgescu-Roegen, The Pure Theory of Consumer's Behavior. Quarterly Journal of Economics, August, 1936. Pp. 545-93; Choice and Constancy of Economic Laws. Idem, February, 1950. Esp. pp. 127-28, 133, 135. The assumption of perfect knowledge is therefore unnecessarily restrictive and the weaker assumption that the degree of consumer knowledge is unaffected by the structure of the supply side of the market serves essentially the same purpose.

[9]The assumption of a given level of resource employment, instead of the traditional assumption of full resource employment, was introduced by Baumol, op. cit., p. 25. Baumol's assumption is equally as useful and formally less abstruce.

[10]The assumptions made here do not exhaust the customary list. For example, community indifference curves assume the additivity of individual consumer preferences, and it must be assumed that such community indifference curves do not intersect. While these assumptions have raised skepticism about the entire community indifference approach, they are not especially germane to the competition-monopoly analysis.

[11]Kahn, op. cit., p. 20 (italics in the original).

But if the maximum dividend is to depend on the proportionality rather than the equality of prices and marginal costs, Joan Robinson's "world of monopolies" conceivably can allocate a given amount of resources as efficiently as a world of perfectly competitive enterprises.[12] Subsequent inquiries greatly weakened the proportionality thesis and, in the process, strengthened the argument for competitive resource allocation.

Lerner has pointed out that if workers' wages are not equal to the value of their marginal products they will not supply the ideal quantity of labor;[13] i.e., they will equate the marginal utility of added hours of leisure with that of the hourly wage rate, which will not be the same as the value of the marginal product the hour of labor creates. The same holds for other productive factors which may be used either inside or outside of business firms, and for goods which are both consumer goods and productive factors.[14]

Lerner also introduced,[15] and Professor McKenzie developed,[16] the argument that the proportionality thesis does not hold for an economy in which final products are produced by vertically disintegrated firms under variable combinations of factors. Consider for example a sheet-rolling mill which sells steel sheet to a steel fabricator, each of which is operated independently of the other and both have price-to-marginal-cost ratios of 110. The withdrawal of a unit of a productive factor from the steel fabricator will reduce total product by 110 times the unit cost of the factor. The employment of the unit of the productive factor in the sheet-rolling mill will increase its output by the same amount, and the subsequent employment of this output by the fabricator will increase total output by 110 times 110 times the unit cost of the factor. Hence, when all firms sell at prices proportional to marginal costs, it is possible to transfer some resources from later stages to earlier stages of a productive process and produce more of an intermediate product than is required to offset the output lost at the later stage. This possibility does not exist when the prices of goods and services are equal to their marginal costs and the prices of productive factors are equal to the value of their marginal products.

[12] Mrs. Robinson had reached this conclusion earlier, but had condemned monopoly principally on the grounds that it exploited productive factors by paying them a wage less than the value of their marginal product. See Joan Robinson, op. cit., p. 310.

[13] A. P. Lerner, The Economics of Control. Macmillan, New York. 1946. P. 103.

[14] Cf. I. M. D. Little, A Critique of Welfare Economics. Oxford University Press, New York. 1950. P. 136.

[15] A. P. Lerner, The Concept of Monopoly and the Measurement of Monopoly Power. The Review of Economic Studies, June, 1934. P. 172.

[16] Lionel W. McKenzie, Ideal Output and Interdependence of Firms. The Economic Journal, December, 1951. Pp. 785-803.

Finally, the proportionality thesis loses its appeal for a less elegant but pragmatically more persuasive reason. The price-to-marginal-cost ratio is determined by the elasticity of demand at the point where the marginal revenue and marginal cost schedule confronting the firm intersect. In order that the ratios be uniform throughout the economy it would be necessary for all firms to have the same elasticity of demand at the rate of output that maximizes their respective profits. There are no logical reasons for supposing that this will be the case. Hence, even if a given quantity of resources conceivably were ideally allocated when prices were proportional to marginal costs, a world of monopolies would be expected to bring about this result only through a fantastic accident.

To recapitulate, it can be demonstrated through a system of formal logic that a given quantity of resources is allocated to best satisfy consumer demand when the conditions of perfect competition prevail. It cannot be demonstrated through this or any other system of logic that an economy partly monopolistic and partly competitive, or one entirely monopolistic, can be expected to bring about an equally desirable allocation of resources. This conclusion is reached, and its validity usually left to rest, on a set of assumptions which are generally regarded as the imponderables of the economic system. It is proposed here to extend the analysis to the assumptions themselves. Divergencies between private and social costs, imperfect demand, and certain economies of size all may exist, and the fact that they do conceivably could weaken, strengthen or leave essentially undisturbed the case for competitive resource allocation that follows from the ideal output analysis as far as it has yet been carried.

MONOPOLY, COMPETITION, AND THE TRANSFORMATION FUNCTION

Of the three basic assumptions underlying the logical case for a competitively structured economy, the validity of that concerned with the transformation function has precipitated widest debate. The formal ideal output model makes no allowance for how the form of business organization may affect the production possibilities open to society; it is assumed that firms are organized so as to use the given resources as efficiently as the state of the arts permits, but that neither efficiency nor the state of the arts is affected by the intrusion of monopoly on the competitive economy. If monopoly is generally a more efficient form of industrial organization, the argument for competitive resource

allocation is significantly weakened; the reorganization of competitive industries into monopolies may increase the production possibilities of given resources by more than enough to compensate for any departure from the ideal output the presence of monopoly in the system may entail. In graphic terms (Fig. 5.1), if through monopolistic organization the transformation curve could be shifted from T_1 -T_1' outward to T_2 -T_2' society could reach the higher indifference curve I_4 and thereby be made better off than under competition. But it should be noted that this follows only if the economy is equilibrated on T_2 -T_2' somewhere between points D and F. If equilibrium should occur at any point to the left of D or to the right of F, society would still be worse off under monopoly in spite of its beneficial effect on production possibilities. In short, it is possible that monopoly produces goods and services more efficiently than competition, but it does not necessarily follow from this that society should, purely on economic grounds, prefer monopoly over competition. The output mix of the more efficient monopolists may be less desirable than that competitive firms would produce.

There are two reasons why monopoly may possibly be technologically more efficient than a large group of competing firms. The first is the familiar case of declining long-run average costs, or economies of scale.[17] The second is the case where the dynamism of innovation is contingent upon monopoly, the case put forward most cogently and with the greatest sophistication by the late Professor Schumpeter.[18] Both possibilities have cast serious doubts on the validity of monopoly-competition output comparisons, but on logical grounds they may very well tend as much to cancel out as to reinforce each other. The downward sloping average total cost schedule is a static concept which postulates that, under given factor prices and technology, large firms, (large relative to total market demand) may be more efficient than small ones. Hence, in time, producers will be relatively few. But an incessant attack on existing technology is the essential characteristic of Schumpeter's explanatory hypothesis of the dynamic capitalistic process. The perennial gale of creative destruction that unceasingly assaults prevailing cost functions tolerates no perennial lull for their full exploitation.[19] If the static apparatus of the ideal output analysis loses some of its relevancy for public

[17] Cf. Jacob Viner, Cost Curves and Supply Curves. Zeitschrift für National Okonomie, 1931. Reprinted in Readings in Price Theory (George J. Stigler and Kenneth Boulding, editors). Richard D. Irwin Press, Chicago. Pp. 212-16.

[18] Joseph A. Schumpeter, Capitalism, Socialism and Democracy, 2nd ed. Harper & Bros., New York. 1947. Chaps. vii and viii.

[19] Ibid., pp. 83-84.

policy by failing to take account of the dynamics of the innovating monopolist, it is not then greatly weakened by the possibility of ceteris paribus downward sloping long-run average cost functions.

The matter need not rest in quite this indecisive state. As Schumpeter himself put it, his refutation of inferences drawn from classical theory only yielded another theory — another principle by which to interpret economic facts.[20] As such it reduced to a persuasive system of logic much of what those who earlier had suspected that monopoly grew out of its own efficiency, and those who now extol the social beneficence of the "new competition,"[21] accepted on faith. Even so, Schumpeter's system does not sanction all forms of monopoly and trade restraints: Tacit and overt agreements to raise prices and limit output,[22] ordinary cartels bent only on preserving price structures,[23] and monopolization that deadens the drive to innovate, all fall under the classical theorem; and Schumpeter recognized that an all-pervading cartel system could as conceivably sabotage all progress as it could produce a larger and better bill of goods than perfect competition.[24] In truth, differences in practical policy inferences to be drawn from the logic of Schumpeter's alternative principle and classical theory are a matter more of degree than of kind. The one argues against "indiscriminate trust-busting or the prosecuting of everything that qualifies as a restraint of trade";[25] the other (presumably) for rigorous (but not necessarily indiscriminate) prosecution of monopoly and restraints of trade.

In short, the most serious challenge to the classical rationale for maintaining a competitively structured economy argues that any such policy should be administered with discrimination. This raises the factual question of whether monopoly should generally be considered, on technological grounds, a means or a barrier to the attainment of a larger and better national product. Schumpeter also appealed to facts, principally those found in the histories of the rayon, automobile, aluminum and petroleum industries.[26] These highly concentrated industries, he argued, rank high in terms of performance in the public interest. But it is also an important fact that they registered their impressive performance under a national policy of preserving competition, and the performance and the policy may not be unrelated. The old Standard

[20] Ibid., pp. 91-92.

[21] For a critical appraisal of the literature on the subject, see Edward S. Mason, The New Competition. Yale Review, August, 1953. Pp. 37-48.

[22] Schumpeter, op. cit., p. 85.

[23] Ibid., p. 102.

[24] Ibid.

[25] Ibid., p. 91.

[26] Ibid., pp. 89-90.

Oil Company was dissolved in 1911. Four of the oil companies created by the dissolution decree were among the top 35 firms in terms of research and development personnel in 1955.[27] The great period of growth, product improvement and price reductions in the rayon industry came in the 1920's, after American Viscose had lost control over the industry through its patent holdings and as 30 new competitors entered the field.[28] Between 1947 and 1954 the primary aluminum industry went through its greatest peacetime period of growth in history, with value of shipments increasing from $161 million to $604 million.[29] The growth followed the 1945 Aluminum Company[30] decision and the entry of three new competitors to the field. The automobile industry grew from infancy to maturity between 1916 and 1929; no less than 111 automobile companies, many of them small, had a hand in the growing process, and in reducing prices to the modest level of $700. Such isolated facts scarcely establish either the classical or Schumpeterian hypothesis concerning competition as a welfare goal, but they clearly do not call into serious question the logical case for a competitively structured economy.

Proponents of the "new competition" rest their case entirely on facts, which, they contend, show the large firm to be the principal source of economic growth and research effort.[31] However, what these facts are and precisely how they reveal this image of big business, are not entirely clear. If big firms have grown in proportion to the economy as a whole, then statistically they have "accounted for" much of the economy's growth. But this is neither relevant nor what those who state the case for bigness appear to have in mind. If big firms have grown at a more rapid rate than the economy as a whole it may mean that they have contributed relatively more to the economy's growth than other firms, or that they have grown at the expense of other firms. But if big firms have grown in size relative to the economy then

[27] James A. Worley, Industrial Research and Development and the New Competition. Unpublished Ph.D. thesis, Princeton University, 1958.

[28] Jesse W. Markham, Competition in the Rayon Industry. Harvard University Press, Cambridge. 1952.

[29] The Proportion of the Shipments (or Employees) of Each Industry, or the Shipments of Each Group of Products Accounted For by the Largest Companies as Reported in the 1954 Census of Manufactures. Bureau of the Census, United States Dept. of Commerce, July, 1957. P. 14.

[30] United States v. Aluminum Company of America. 148 F. 2d 416, 1945.

[31] Cf. David E. Lilienthal, Big Business: A New Era. Harper & Bros., New York. 1953; Frederick Lewis Allen, The Big Change. Harper & Bros., New York. 1952; A. D. H. Kaplan, Big Enterprise in a Competitive System. The Brookings Institution, Washington, D. C., 1954.

over-all concentration should have increased, and this both facts[32] and proponents of the "new constitution" deny.

Similarly, the facts recently analyzed by James Worley do not argue persuasively that research effort is highly correlated with size of firm.[33] It is true that research effort is highly concentrated, with the top 50 firms in 1955, in terms of research and development personnel employed, accounting for 33 per cent of such employees, and the top 100 firms for about 40 per cent. But only 26 of the 50 largest employers of research and development personnel appear on *Fortune's* 1955 list of the largest 50 firms in terms of assets, and only 33 of the largest employers are listed among the largest 100 firms. Worley correlated research and development personnel employed with total assets by firm for eight 2-digit Standard Industrial Classification industry groups.[34] If firms employed research personnel in proportion to their size as measured in terms of assets, the correlation coefficients should tend toward the value +1; they actually tend to fall between the values +0.5 and +0.6. While correlations on a 2-digit industry basis assume a higher degree of homogeneity of data than in fact exists, the coefficients provide little in the way of a factual basis for identifying intensity of innovational effort with mere size.

The facts also cast considerable doubt on the tendency for very large enterprise competitively to destroy established market power, a tenet of Schumpeter's theory essential to reasonably competitive performance, and a point given considerable emphasis by proponents of the "new constitution."[35] No doubt there are some striking examples where destruction of existing market positions has gone hand in hand with the creative process: Automobiles and trucks displaced the horse-drawn vehicle and, with the aeroplane, made heavy inroads on the railroads; synthetic fibers virtually destroyed the silk market; and television significantly reduced the markets of motion picture producers and exhibitors. The list could be extended. Membership in the group of leading American corporations by broad industry group has nevertheless shown an extraordinarily high degree of stability,[36]

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[32] For what has become the standard reference on trends in concentration, see Morris A. Adelman, The Measurement of Industrial Concentration. Review of Economics and Statistics, Nov., 1951. Pp. 269-96.

[33] Worley, citing the Fortune Directory of the 500 Largest U. S. Industrial Corporations, July, 1955; and the National Research Council – National Academy of Sciences, Industrial Research Laboratories, various issues.

[34] Worley, op. cit.

[35] Schumpeter, op. cit., p. 84; A. D. H. Kaplan, op. cit., esp. p. 132.

[36] See Jesse W. Markham, review of A. D. H. Kaplan, Big Enterprise in a Competitive System. American Economic Review, June, 1955. Table on pp. 450-51.

and membership in the largest 50, irrespective of industry, apparently has been characterized by a declining rate of turnover.[37] The corporation's "continuity of life" and almost unlimited authorized activities (ultra vires is a very nearly obsolete legal phrase) account for some of the low turnover on the list of the largest 50 — companies can change industries without losing their corporate identity — but do not explain why the "Big Three" and the "Big Four" tend to be the same companies for decades. The gales unquestionably blow, but they are something less than perennial and often have the force of zephyrs — a possibility Schumpeter himself recognized in his assessment of 20th century trustified capitalism.[38]

For reasons which need no elaboration here, statistical derivations of ceteris paribus long-run firm cost functions have yielded little in the way of valid generalizations about efficiency and size of firm,[39] and there is little prospect that they shall ever do so. Milton Friedman has suggested study of the temporal behavior of the size distribution of firms as a more promising approach,[40] a variation of which may be described as follows: If, over time, increases in demand are met by proportionate increases in the number of firms, it can be assumed either that firms in operation at the beginning of the period confronted upward sloping cost curves or some other positive check on growth; if increases in demand are met by no increases and possibly by decreases in the number of firms, it can be concluded either that firms in operation at the beginning of the period could produce the additional output at a lower cost than new entrants or that potential entrants confronted some positive barrier to entry.

Comparisons of changes in output — assumed to be in response to changes in demand — and changes in firm population — for total manufacturing and for various subsectors — between 1935-39 and 1951, lead to intermediate conclusions (Table 5.1). For all

[37] Seymour Friedland, Turnover and Growth of the Largest Industrial Firms 1906-1950. Review of Economics and Statistics, February, 1957. Pp. 79-83.

[38] See Joseph A. Schumpeter, The Instability of Capitalism. Economic Journal, September, 1928. P. 384; and Business Cycles. McGraw-Hill, New York. 1939. Vol. II, p. 1044.

[39] See Cost Behavior and Price Policy. Committee on Price Determination, Conference on Price Research, National Bureau of Economic Research, New York. 1943; Caleb A. Smith, Survey of the Empirical Evidence on Economies of Scale; and comment by Milton Friedman, in Business Concentration and Price Policy, National Bureau of Economic Research. Princeton University Press, Princeton. 1955. Pp. 213-238; Richard C. Osborn, Efficiency and Profitability in Relation to Size. Harvard Business Review, March, 1951. Pp. 82-94; Hans Staehle, The Measurement of Statistical Cost Functions: An appraisal of some recent contributions. American Economic Review, June, 1942. Pp. 321-33.

[40] Business Concentration and Price Policy. Op. cit., p. 237.

manufacturing the increase in output was more than two times the increase in firms; in textiles, leather, lumber, stone, clay and glass, firms increases greatly exceeded output increases; in food, printing and publishing, chemicals and paper, increases in output substantially exceeded increases in firms. A host of factors other than the shape of ceteris paribus firm cost functions obviously influence the results of such comparisons — mergers, patent holdings, capital costs, factor and product price movements, new products, trade restraints and shifts in the cost functions, to mention only a few. Moreover, the industries shown are themselves aggregates comprising a heterogeneity of economic activity. Nevertheless, the increases in firms induced by increases in demand are, on the whole, large enough to refute any hypothesis that manufacturing generally is characterized by significant unexploited economies of scale.

Finally, neither the facts nor the logic of large-scale enterprise argue strongly that the profits maximizing motive should stimulate innovations, or even the full exploitation of scale economies, in preference to alternative activities which offer financial reward. Business firms, especially large firms, must weigh

Table 5.1. Percentage Change in Number of Firms and in Index of Physical Volume of Production for All Manufacturing and for Major Manufacturing Groups, 1935-39 to 1951

Industry	Change in Physical Volume Production	Change in Number of Firms
	(per cent)	(per cent)
All manufacturing	131	59
Textiles and textile products	85	102
Leather and leather products	-1	128
Lumber and lumber products	53	119
Paper and allied products	108	63
Printing and publishing	71	18
Chemicals and allied products[1]	191	70
Stone, clay and glass products	139	160
Food and kindred products[2]	57	10
Metal and metal products[2]	N.A.	104

[1] Includes products of petroleum and coal.
[2] Per cent increase, 1947 over 1935-39; firm population data not available for later years.

Sources: Changes in production calculated from Federal Reserve Board Indexes of physical volume of production. Changes in firm population calculated from Department of Commerce series appearing in various issues of the Survey of Current Business. The Department of Commerce considers the data for the various industry groups to be considerably less accurate than the data for total manufacturing.

the relative marginal profitability of research, advertising, new plant construction and expansion by merger, among others. And although Schumpeter defined innovation broadly enough to include most of this wide variety of activities, clearly all of them do not necessarily make for greater economies in the use of resources. It is surely possible, for example, that a $1 million increase in a firm's advertising budget to alter existing community preferences, even if made at the expense of research and development, may be entirely consistent with the logic of profits maximization. It also is apparently consistent with the facts. In 1956 total research and development expenditures, including that contracted out to private firms by the federal government, was estimated at $6.1 billion, and total advertising expenditures at $9.9 billion.[41] In 1955 the 50 largest corporations in the United States in terms of assets included 26 of the largest 50 firms in terms of research and development employees and 19 of the largest 50 firms in terms of advertising expenditures (Table 5.2); the 100 largest firms in terms of assets included 51 of the 100 largest in terms of research and development employees and 44 of the largest 100 in terms of advertising expenditures. The largest firms in terms of research and development generally were not the largest in terms of advertising. The largest 50 on the research and development list included only 12 of the 50 largest advertisers, the largest 100 only 24 of the 100 largest advertisers.

It is not to be inferred from this that research and development activity necessarily brings greater economic benefits to society than advertising. As will be shown below the effects of advertising are to be judged in part on whether it overcomes imperfect buyer knowledge or merely exploits it. But it does follow that any random sample of firms drawn from the largest 100 is likely to contain almost an equal number of the largest advertisers and the largest employers of research personnel, that the sample's total advertising expenditures will equal its research expenditures, and hence that the large firm is preoccupied as much with altering the demand for existing products as with developing new products and processes.

The most serious challenge to the classical basis for a competitively organized industry may call to question a ruthless attack on all market power, temporary or enduring and however attained. But the Schumpeterian principle falls far short of laying to rest the general presumption against monopoly, and clearly

[41] Research and development expenditures from Business Plans for New Plant and Equipment. Economics Department of McGraw-Hill, New York. 1957. P. 12; advertising expenditures compiled from Printers Ink, August 23, 1957. P. 55.

Table 5.2. Cross-Classification of Largest 50 and Largest 100 Corporations According to Assets, Advertising Expenditures and Research and Development Personnel, 1955

	Largest 50		
	Assets	Advertising	Research and Development
Assets	50	19	26
Advertising	19	50	12
Research and Development	26	12	50
	Largest 100		
Assets	100	44	51
Advertising	44	100	24
Research and Development	51	24	100

Sources: *Fortune* Directory of the 500 Largest United States Industrial Corporations, July, 1955; Printers Ink, August 24, 1956. P. 73; and Worley, cited in footnote 27.

establishes no logical basis for a public policy favoring it. As an ideology it accepts most of the substance of antitrust policy, and may very well exaggerate both the scope and effects of the portion it rejects.[42] The industries to which it appeals for empirical verification may have performed laudably because of antitrust policy rather than in spite of it. Furthermore, the facts on large-scale enterprise reveal no high correlation between innovational activity and mere business size, but instead a complex intermixture of bigness, research effort and large advertising outlays. Accordingly, they suggest a major modification of the Schumpeterian hypothesis: On balance, advertising and innovational effort are two of several alternative paths to size and market power, and to retaining them, once achieved. Among the largest firms the traffic over one path appears to be no heavier than that over the other. Hence, it is equally as defensible to hold that big business threatens the existence of its rivals through attacks on the community's preferences as to hold that it does so through the new product, the new process and the new technology. This is an attack of a different character, and determination of its public policy implications requires analysis of its possible effects on the state of consumer knowledge.

[42] Cf. Edward S. Mason, Schumpeter on Monopoly and the Large Firm. Review of Economics and Statistics, May, 1951. P. 144.

MONOPOLY, COMPETITION, AND CONSUMER KNOWLEDGE

Analysis of the effects of market structure on the equilibrium output mix of the economy has concentrated heavily on conditions of supply, very likely because the taxonomy of markets has been built on the number and size distribution of sellers industries comprise. But there are persuasive reasons for supposing that demand for given final goods and services may differ between competition and monopoly: (1) Under perfect competition the "invisible hand" at work in the market integrates and organizes the bits and pieces of knowledge dispersed in the minds of many buyers and sellers.[43] Under monopoly and oligopoly sellers must communicate directly to buyers on such matters as price and quality. There may be no a priori grounds for concluding that one communication system is more efficient than the other, but they would very probably not allocate resources the same way. (2) As soon as the assumption of pure competition is dropped, as Chamberlin has explained,[44] selling costs such as advertising become an important determinant of the equilibrium of the firm through their effect on demand and costs. The introduction of selling costs as a variable in the equilibrating mechanism makes it inadmissible to assume that the firm's demand and cost functions are independent of each other; firms confront a family of such functions, a cost and demand function for every outlay of selling costs. (3) Because demand for goods and services is affected by the state of consumer knowledge, it follows that it is affected by actions firms take which make knowledge less imperfect, or less perfect.

But because imperfect knowledge is associated with departures from competition, it does not follow that its costs to society are attributable to monopoly. In truth, contemporary theory holds that imperfect knowledge is an important source of monopoly power rather than the other way around.[45] It does follow, however, that the communication methods and strategies sellers use in markets characterized by imperfect buyer knowledge can affect the magnitude of such costs, and herein lies a legitimate public concern. Much has been said on the wastes of advertising, such as that of competing oligopolists which all could profitably

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[43] Cf. G. B. Richardson, Imperfect Knowledge and Economic Efficiency. Oxford Economic Papers, June, 1953. Pp. 140-41.

[44] E. H. Chamberlin, The Theory of Monopolistic Competition. 5th ed. Harvard University Press, Cambridge. 1946. Chaps. vi and vii.

[45] Cf. Tibor Scitovsky, Ignorance as a Source of Oligopoly Power. American Economic Review, May, 1950 supplement. Pp. 48-53; and Chamberlin, op. cit., p. 118.

discontinue collusively but none could profitably do alone.[46] This misses the essential point. The "advertising message" created on Madison Avenue, however abrasive on the ears, can impart information as well as misinformation, and which it does is of greater public concern than whether it is a defensive or offensive strategem.

This point can be illustrated by reference to the demand side of the welfare diagram used earlier to define the ideal output (Fig. 5.2). Consider the case where the buying public is highly informed on the relative amounts of satisfaction given by alternative combinations of commodities X and Y, and let the points of indifference with this state of knowledge be represented by the solid curves I-I and I_1-I_1. With the price ratio given by P-P, the public would maximize its total satisfaction at B, taking OD of X and OE of Y. Now suppose the producer of Y had misinformed the public, advertising desirable qualities of Y it did not possess, and as a consequence shifted the indifference curves I-I and $I_1 I_1$ to I′-I′ and I_1'-I_1' respectively. At the same prices the public would, ex ante, consider itself best off at C, taking OD′ of X and OE′ of Y, but ex post would find itself on a lower indifference curve than it was at B. The argument can of course be reversed, letting the seller of Y advertise so as to make the public more informed and leading it from some other point on the price line (G for example) to B, where expected and actual satisfactions are closer together.

It is submitted that the complexities confronting rational choice at the mid-twentieth century make this more than just another empty box. Economic theory traditionally has assumed that man either inherited or acquired through repeated experience the ability to weigh rationally the relative satisfactions derived from alternative baskets of consumer goods. In a world of poverty where a large portion of income was parcelled out in daily purchases of food and clothing this assumption may have been valid; if the grade of flour or meat purchased today did not live up to expectations one could try a different grade tomorrow. The household budget of our more "opulent society" is composed differently. Between 1930 and 1950 outlays on food and clothing increased from $29 billion to $96 billion, or by a little in excess of threefold; outlays on various durable and semidurable household furnishings and automobiles and accessories increased from $5 billion to nearly $30 billion, or by sixfold.[47] The cost of reducing

[46] Cf. Melvin Warren Reder, Studies in the Theory of Welfare Economics. Columbia University Press, New York. 1947. Pp. 72-73.

[47] United States Department of Commerce, Survey of Current Business. 1951 and 1956 National Income numbers.

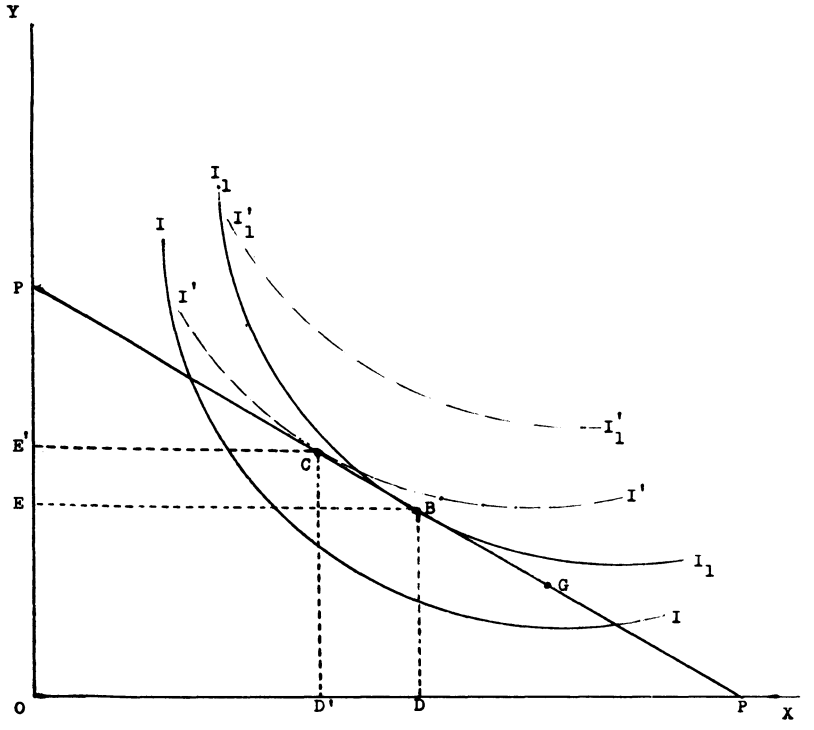

Fig. 5.2. Use of transformation curve to find the public's total satisfaction of a product.

imperfect buyer knowledge by repeated experimentation with such goods is obviously prohibitive, which incidentally may explain the emergence of consumer research institutions.

If, as Scitovsky asserts, imperfect consumers' knowledge is a source — by his estimate, the primary source — of market power,[48] it is then as appropriately a concern of public policy as merger, monopolization, price fixing and similar business practices which have generally been regarded as having a more direct bearing on the structure and performance of industry. This concern is most clearly expressed in Section 5 of the Federal Trade Commission Act, which prohibits unfair methods of competition, in the various labelling acts administered by the Federal Trade Commission, and in the general applicability of the antitrust laws to advertising media.

[48] Tibor Scitovsky, op. cit., p. 48.

Advertising, construed broadly enough to include all dissemination of information by sellers, conceivably could (1) increase consumer knowledge and lead the economy, through reducing the difference between expected and realized satisfaction, closer to the ideal output; (2) decrease consumer knowledge, with the opposite effect; or (3) leave the state of consumer knowledge unaffected. There is a strong presumption that misrepresentation and deceptive advertising make the state of knowledge less perfect. In doing so it reduces the probability that the output of the economy will be ideal, and for two reasons: It increases the difference between expected and realized satisfaction, and, by making knowledge less perfect, it creates a basis for greater monopoly power. Accordingly, provisions of the antitrust laws which outlaw misrepresentation and deceptive practices are as consistent with a policy objective of efficient resource allocation as those prohibiting the more commonplace forms of monopoly, and in recent years have been put to more frequent use. During 1957 the Federal Trade Commission issued 324 complaints and 213 cease and desist orders; 255 complaints and 180 orders were against deceptive practices.[49]

But advertising need not be deceptive in order to make buyer knowledge less perfect. Given a limitation on the capacity of an advertising medium, its occupancy by some large advertisers precludes competitors and potential competitors from occupying it on an equal basis. Such a constraint on the dissemination of information makes buyer knowledge less perfect than it otherwise would be. National network television, limited to three networks having a total of less than 75 prime nighttime viewing hours per week, is especially illustrative.[50] In 1955 the 25 largest users of network television accounted for 59 per cent of total network time sales.[51] The network facilities could not have accommodated 25 additional advertisers of equal size. Concentration of control in networking and in the use of network advertising — assuming it to be a superior medium for those who use it — contributes to concentration of control in industry generally. It also makes knowledge less perfect than it would be if there were no constraint on its dissemination. Hence, such concentration like deceptive advertising, is a proper concern of public policy.

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[49] Federal Trade Commission, News Summary. January 16, 1958.

[50] See: Network Broadcasting. Report of the Committee on Interstate and Foreign Commerce, House Report 1297, 85th Cong. 2nd Sess. Washington, D. C. January, 1958. Chap. 4.

[51] Compiled from: Printers Ink Marketing Guide, August 24, 1956.

GOALS FOR ECONOMIC ORGANIZATION AND ECONOMIC THEORY: SUMMARY

Classical economics provided a theoretical framework on which to construct policies designed to attain the goals of economic progress and efficient resource allocation. A re-examination of this relevant body of theory leads to the following observations which can be made with reasonable confidence:

1. Unless it can be shown that monopolistic organization is conducive to more rational consumer choice or to greater economies in the use of resources, it logically follows that an economy organized along competitive lines produces a national product superior to that produced under monopoly; i.e., competitive organization produces a more "ideal" output.

2. Conceivably, monopolistic organization can produce more efficiently than competitive organization under given technological conditions, and can generate a higher rate of innovation. It does not follow, even if monopolistic organization produces both of these favorable effects, that it better serves consumers' welfare than a competitively structured industrial organization; the outcome depends on the equilibrium output mix which would result if there were a monopolistic sector.

3. The form of market organization may possibly affect society's welfare by influencing the state of consumer knowledge. Under monopoly (oligopoly) the selection of channels and methods of communication between seller and buyer is subject to the discretion of the seller – the hand that coordinates market information is not "invisible." If firms with market power exploit the state of imperfect buyer knowledge they confront or make knowledge less perfect, they affect consumers' welfare adversely; if they select methods of communication which enable buyers to exercise more rational choice they affect it favorably. Since some firms will very likely profit from spreading knowledge and others from spreading ignorance, generalizations on the relationship between the profit maximizing incentives of firms with market power and the state of buyer knowledge are hazardous. All that can safely be said is that public constraints on the dissemination of false information and the monopolization of channels of information such as advertising media are in the public interest: they reduce the social costs of uninformed choice and tend to prevent the rise of monopoly power built entirely on imperfect buyer knowledge.

These observations do not establish a blueprint for the precise

form of economic organization society should set as its goal, but they do establish a rational skepticism for monopolistic organization. The details must be shaped by facts, and the further usefulness of theory for purposes of establishing such a goal depends on the bases it provides for interpreting them. The facts, however, are not only to a large extent unknown, but are known to be infinite in number and subject to frequent change. Conflicting theories often can in some sense be empirically verified because all attempted verifications rest on limited facts. As George Gaylord Simpson has put it:[52]

> Each student thus actually puts his theory into the data, and it is not surprising that each then gets his own theory out of these data when he is through.

The classical, Schumpeterian and "new competition" theories all look to how forms of economic organization serve consumer welfare; and although all three acknowledge the logical case for competitive market organization, each offers a factual case for differences in detail. Certain facts may document each case equally well.

The present posture of public policy — more specifically, antitrust policy — reflects in part the inconclusiveness of the facts on which these theories turn. It condemns the more flagrant forms of monopoly, virtually all collusive price fixing, certain specific actions which tend substantially to lessen competition, unfair methods of competition, especially misleading advertising, and treats agriculture as a special case. It has never contemplated the goal of approximate perfect competition, or even that which conforms to the less rigorous standards of workable competition.[53] But it is of some significance that in the broad sweep of antitrust policy the trend has been toward more severe circumscriptions of monopoly and unfair methods of competition, and this trend has developed concurrently with the development of a tremendous quantity of marketing facts. The drive toward more competitive resource allocation has even touched agriculture. If, as a logical proposition, the greatest reward of monopoly is, as Professor Hicks says, "a quiet life," then the most persuasive argument for laws preserving competition may be the assurance they give to the rest of society that it does not bear the costs of the monopolists' tranquility. The logic of economic theory

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[52] George Gaylord Simpson, The Meaning of Evolution (Mentor Book edition). New American Library, New York. P. 37.

[53] Cf. United States v. Aluminum Company of America, 44 F. Supp. 97, 1942.

concerned with industrial progress and efficient resource allocation strongly suggests, although the facts do not in a scientific sense prove, that this assurance should be at least as strong as it is. In any case, neither theory nor the facts make a convincing case that the assurance should be weaker, or that the goal of a reasonably competitive economy which public policy presently envisages should be less ambitious.

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Discussion

EXCEPT INSOFAR as he considers competition a goal in itself, Mr. Markham is concerned with means rather than ends. In particular, he takes as given objectives (1) efficient allocation of a given bundle of resources and (2) efficient creation and exploitation of new technological information. He compares monopoly and competition with respect to the extent that each environment contributes to attainment of these objectives.

In evaluating the two types of organizations according to their efficiencies in allocating a given bundle of resources, Mr. Markham employs as a point of departure a familiar theorem of static welfare economics. This theorem states that if there are no external economics in production and consumption (i.e. if the level of activity in one economic unit has no effect upon the technological relations in another and one person's consumption pattern is not an argument in another person's utility function) and there are no increasing returns to scale in production, then competitive equilibrium yields the outcome that no one can be made better off without making someone worse off. There is the possibility that monopoly may be able to employ technologies that are not feasible for competitive units (i.e. there are marked economies of scale). But Mr. Markham finds no evidence lending strong support to this possibility.

Although it is not relevant to Mr. Markham's argument, it should be indicated that there is nothing sacred about achieving an outcome such that no one can be made better off without making someone worse off. For example, that such a condition cannot be achieved with farm price supports doesn't convince farmers that such supports are bad. Perhaps of more relevance in selling farmers on the desirability of a free market is the theorem that any of the many possible situations in which no one could be made better off without making someone worse off could

be a point of competitive equilibrium. In particular, it would be possible to redistribute resources so that farmers could achieve their current incomes with a free market and nonfarmers would be better off than they could be with price supports.

Markham breaks some new ground in comparing the dynamics of competition and monopoly. He finds no evidence to support the contention that monopoly leads to more rapid discovery and innovation than does competition. I am not startled by this finding. Classical economic theory implies a greater adjustment to a given environmental change under competition than under monopoly and a correspondence between the amount of change and its speed.

A peripheral issue is the larger advertising expenditure associated with monopoly and the potential informational value of such advertising. Although one cannot deny that some advertising is informative, I believe that as a means of providing information, current advertising procedures are inefficient. One might compare the cost of the information provided by some of the consumer products testing agencies with the costs and information associated with the advertisements (for cigarettes and cosmetics, for example) to check the validity of this belief.

In his comparisons of competition and monopoly, Mr. Markham takes for granted the existence of a market to provide information to decision makers. Although I believe that the price mechanism is one of man's greatest inventions, and that its applications should be extended to areas in which it is not being used currently, there are cases in which competitive equilibrium could not be established or, if it could, would not yield the outcome that no one could be made better off without making someone worse off. These cases are those where there are increasing returns to scale or external economics in production or consumption. I will make some conjectures about organization for providing goods and services when the market cannot perform satisfactorily. These conjectures are related to Mr. Markham's findings.

The terms competition and monopoly may not be applicable to nonmarket situations. However, competition is essentially a highly decentralized form of organization in which many different independent units decide how to produce and how much to produce. Although monopoly may be decentralized with respect to decisions about how to produce (a cartel is an example), its decision with respect to how much to produce must be centralized. Consequently, we can consider competition and decentralization as virtually synonymous and monopoly and centralization as equivalent.

Because elementary education is a service such that one

person is willing to pay something in order that other persons' children receive it, we shouldn't organize its provision as we would that for wheat. However, we still have a choice as to whether the direction of such education is centralized or decentralized even though central governmental support is provided. At one extreme we could have the federal government specifying the curriculum, teaching methods, class sizes, etc.; at the other we could give grants to parents conditional upon these grants being spent to purchase education but let anyone who wanted to operate a school do so and sell the service. Some restrictions might be placed upon curriculum and teachers, but there could be considerable freedom with respect to how and what to teach. The organization would be decentralized rather than the highly centralized one at the other extreme.

Although we ought to make many more of our highways toll roads rather than freeways, much of our street and highway system can best provide services for which no direct charge can feasibly be levied. Revenues from taxes on motor fuels and from license fees will continue to be used to construct and maintain such facilities. However, there is some choice as to whether decisions with respect to how to build roads, where to locate them, etc., are made by a single agency or by the many state and local units, even though federal funds are provided.

Defense against military invasion for all of the citizens of a city can be provided as inexpensively as it could be if only one citizen were to be protected. Consequently, defense cannot feasibly be "sold" to individual citizens. But, again, we can have one or several defense agencies.

Just as competition appears to yield better results than monopoly in cases where a market is feasible, I would conjecture that decentralization generally will yield better results than centralization where markets cannot or should not be employed. A decentralized school system may contain some poor teachers and some useless courses. But it also offers opportunities for experimentation and innovations that are not characteristic of centralized systems. There is a low probability that most of the teachers will be incompetent and that much of the curriculum will be useless. Similarly, decentralization of the provision of highway services offers opportunities to experiment with new materials and new designs that otherwise might never be employed. Some of these experiments will be failures just as some competitive firms do not survive. But the long-run outcome probably will be better than that of no ventures and no failures.

This discussion has little relevance for agricultural policy. However, many of the schemes for solving the "farm problem"

— whatever it may be — are schemes which would keep farmers from competing with each other through taking away from them the freedom to make certain choices and substituting centralized decision making. Agricultural economists have shown such schemes to be inefficient in the sense that they violate the conditions for a static welfare maximum. Mr. Markham's evidence suggests that such schemes may also have serious long-run effects. A stagnant agriculture with all farmers poor farmers might be a result of highly centralized decision making.