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ECONOMIES AS AN ANTITRUST DEFENSE REVISITED

OLIVER E. WILLIAMSON†

The merger of two firms is commonly viewed from an antitrust standpoint in terms of its anticompetitive effects on price. Sometimes, however, a merger will also result in real increases in efficiency that reduce the average cost of production of the combined entity below that of the two merging firms. The neglect, obfuscation, or even perverse interpretation of such economies was characteristic of antitrust enforcement in the early sixties and beyond. Indications exist, however, that economies are now being valued more positively.

When I first addressed the question of economies as an antitrust defense in 1968,¹ I had misgivings over whether public policy would really benefit from explicit consideration of the issue. The alternative of keeping the economies defense in the background and relying instead on someone connected with the enforcement process to intrude whenever antitrust actions of a strongly efficiency impairing kind were contemplated seemed to have merit. After all, antitrust enforcement officials and the courts were not altogether insensitive to efficiency considerations, and the potential operational problems of the courts' en-

† Professor of Economics, Law, and Public Policy, University of Pennsylvania. S.B. 1955, Massachusetts Institute of Technology; M.B.A. 1960, Stanford University; Ph.D. 1963, Carnegie-Mellon University. Research on this Article was supported by the Center for the Study of Organizational Innovation at the University of Pennsylvania.

¹ Williamson, *Economies as an Antitrust Defense: The Welfare Tradeoffs*, 58 AM. ECON. REV. 18 (1968).

tertaining an economies defense were not insignificant.²

Still, only six years earlier the Federal Trade Commission had stated that "[t]he necessary proof of violation of the statute consists of types of evidence showing that the acquiring firm possesses significant power in some markets or that its over-all organization gives it a decisive advantage in efficiency over its smaller rivals."³ And although the 1966 language of the Supreme Court in *United States v. Von's Grocery Co.*⁴ was somewhat more guarded, it scarcely dispelled the schizophrenic quality of *Brown Shoe Co. v. United States*,⁵ in which "[f]irst the Court says that the [Clayton] Act protects competition, not individual competitors, and in the next breath it says that the Act protects higher-cost from lower-cost competitors."⁶

My serving as Special Economic Assistant to the head of the Antitrust Division of the United States Department of Justice during 1966 and 1967 involved me in an operational way with the issues. Discussions with the career staff disclosed that possible economies associated with horizontal or vertical mergers were regarded with great skepticism, and an exclusive focus on anticompetitive effects was common. The suggestion that economies might warrant affirmative consideration was apt to be dismissed on the ground that even small anticompetitive effects would surely swamp any possible efficiency benefits to be realized from such mergers. The conglomerate, moreover, was widely held to lack redeeming efficiency properties altogether: "Doubtless some conglomerate mergers are harmless; some may even be useful. But the merger of unrelated activities seldom offers much prospect of efficiency"⁷

² See text accompanying notes 9-13 *infra*.

³ *In re Foremost Dairies, Inc.*, 60 F.T.C. 944, 1084 (1962) (emphasis supplied).

⁴ 384 U.S. 270 (1966).

⁵ 370 U.S. 294 (1962).

⁶ Posner, *Antitrust Policy and the Supreme Court*, 75 COLUM. L. REV. 282, 306 (1975). The tension running through the *Brown Shoe* Court's argument is illustrated by the following statement:

Of course, some of the results of large integrated or chain operations are beneficial to consumers. Their expansion is not rendered unlawful by the mere fact that small independent stores may be adversely affected. It is competition, not competitors, which the Act protects. But we cannot fail to recognize Congress' desire to promote competition through the protection of viable, small, locally owned businesses. Congress appreciated that occasional higher costs and prices might result from the maintenance of fragmented industries and markets. It resolved these competing considerations in favor of decentralization. We must give effect to that decision.

370 U.S. at 344.

⁷ *Economic Concentration: Overall and Conglomerate Aspects: Hearings Before the Sub-*

Faced with what appeared to be a rather hostile climate toward economies considerations, I resolved my misgivings in favor of going ahead with the economies-defense paper. To be sure, the partial equilibrium welfare economics apparatus upon which I relied to display the welfare tradeoffs is a blunt instrument that can be used in an intimidating way. To forestall the risk that subtle and complex policy issues might be resolved in an undiscerning manner, I specifically labeled the simple welfare economics model as "naive" and went on to introduce a number of economic and extraeconomic qualifications that must be considered.⁸

A reexamination of antitrust enforcement nine years later reveals that the treatment of economies in antitrust enforcement has improved. Although the economies argument has been used sometimes as a blunt instrument, officials charged with antitrust enforcement appear not to have been intimidated. In the meantime, new issues of an economies-related kind have arisen, which I attempt to address here. My revisitation of economies as an antitrust defense is in six parts. The operationality of an economies defense is examined in Section I. The basic partial equilibrium model, including qualifications, is set out in Section II. The relevance of rent-transformation arguments is treated in Section III. Transactional efficiencies are discussed in Section IV. The policy impact of the economies argument is assessed in Section V. My conclusions follow in Section VI.

I. OPERATIONALITY

Whether the standard partial equilibrium welfare economics model should be used to assess the merits of an economies defense in the case of a merger that arguably increases market power but simultaneously yields real cost savings turns partly on operationality considerations. Two problems arise in this connection; they are bounded rationality and the pairing of opportunism with a condition of information impactedness.⁹

comm. on Antitrust and Monopoly of the Senate Comm. on the Judiciary, 88th Cong., 1st Sess. 46 (1964) (statement of Dr. Corwin Edwards). *But see* Turner, *Conglomerate Mergers and Section 7 of the Clayton Act*, 78 HARV. L. REV. 1313 (1965). Turner, then head of the Antitrust Division, gave prominent attention in his article on conglomerates to possible efficiency consequences attributable to commonalities in marketing, manufacturing, and administration. But Turner failed to consider transaction cost economies of the kinds discussed in Section IV, and concluded that the possibility of other types of economies is necessarily "slight" in a "pure" conglomerate merger. *Id.* 1330.

⁸ Williamson, *supra* note 1, at 21-32.

⁹ I have had occasion elsewhere to develop a general framework for examining

The term "bounded rationality" refers to the computational and perceptual limitations of human agents in dealing with complex events. Abstract theories for dealing with policy problems that require policymakers to possess powers of calculation and perspicacity that vastly exceed their objective limits may fail for lack of operationality. In fact, my reliance on partial equilibrium rather than general equilibrium analysis¹⁰ is, in a sense, a concession that an economies defense cannot be dealt with satisfactorily in all of its rich complexity. Suppose, however, that this is a reasonable concession to operationality, so that the economic analysis is not vitiated by reason of its partial equilibrium orientation. A further problem is whether even partial equilibrium analysis can be introduced usefully into a judicial proceeding. Derek Bok's discussion of merger law and economics is relevant in this connection:

Lawyers have perhaps not always been explicit enough in articulating the peculiar qualifications which their institutions place upon the unbridled pursuit of truth, and this failure may in some measure explain the irritation with which their handiwork is so often greeted by even thoughtful economists. This problem cannot be solved, nor can the economist-critic be placated, by embracing more and more of the niceties of economic theory into our antitrust proceedings. Unless we can be certain of the capacity of our legal system to absorb new doctrine, our attempts to introduce it will only be more ludicrous in failure and more costly in execution.¹¹

Fifteen years later, Richard Posner contended that the capacity of the legal system to deal with the economic complexities of merger law is severely limited: "Rebuttal based on ease of entry, economies of scale, or managerial efficiencies should not be allowed, because these factors, though clearly relevant to a correct

matters of institutional design. O. WILLIAMSON, *MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS* (1975). Bounded rationality and opportunism/information impactedness are prominent features of that framework.

¹⁰ Partial equilibrium analysis involves an examination of one market while assuming that incomes, other prices, and production conditions remain unchanged. Second-order interdependencies are thus assumed to be negligible. When changes in the relevant market do affect the general economy, a general equilibrium analysis, in which prices and quantities for all markets must be determined together, is usually appropriate.

¹¹ Bok, *Section 7 of the Clayton Act and the Merging of Law and Economics*, 74 *HARV. L. REV.* 226, 228 (1960).

evaluation of the competitive significance of a merger, are intractable subjects for litigation."¹²

Whether the lack of economic sophistication of the courts is responsible for Posner's policy position is unclear. But suppose that the formal apparatus of partial equilibrium welfare economics poses no operationality problems for the courts. I submit that the courts still might decline to entertain a full-blown economies defense—whereby the economies and market power effects of a merger are expressly evaluated in net-benefit terms—because of the hazards of opportunism/information impactedness.

Although the government and the defendant have roughly equal access to market share statistics, and can present, interpret, and contest such data equally well, the same is not true with respect to a purported economies defense. Here, the data are distributed unevenly to the strategic advantage of the defendant; thus, an information-impactedness condition exists. Not only can the defendant use its information advantage by disclosing the data in a selective way, but advocacy legitimizes such disclosure. Unless the government can demonstrate that the data are incomplete or significantly distorted, which may not be easy, the advocacy process is poorly suited for purposes of getting a balanced presentation of the evidence before the court.¹³

In consideration of these infirmities, ought the entire economies-defense question be interred and attention turned to more practical matters? I think not, because sensitivity to economies in antitrust policy formation is enormously important. Such sensitivity is promoted by engaging in a dialogue concerning an economies defense, even though full-blown implementation of the specific tradeoff apparatus is never contemplated. This issue will be examined more thoroughly in Section V.

II. TRADEOFF ANALYSIS

A. *General Approach*

Arnold Harberger has offered three postulates of applied welfare economics analysis:

- (a) the competitive demand price for a given unit mea-

¹² Posner, *supra* note 6, at 313.

¹³ Note, however, that modern discovery practices may somewhat reduce the government's disadvantage. See FED. R. CIV. P. 26-37.

- asures the value of that unit to the demander;
- (b) the competitive supply price for a given unit measures the value of that unit to the supplier;
 - (c) when evaluating the net benefits or costs of a given action (project, program, or policy), the costs and benefits accruing to each member of the relevant group (*e.g.*, a nation) should normally be added without regard to the individual(s) to whom they accrue.¹⁴

Although this approach represents a rather narrow view of economics, it often constitutes a useful beginning. Other factors, to the extent that they are thought to be relevant, usually can be introduced separately.¹⁵ Although the expertise required to make these subsequent adjustments often will be of an extraeconomic sort, economists need not disqualify themselves from any further involvement merely because the adjustments are not purely economic ones. Indeed, because these other factors frequently will fall outside the purview of any single discipline, decisionmaking responsibility reverts to nonspecialists by default. Still, the lack of strictly professional qualifications ought to be noted.

A net-benefit approach to the economies-defense issue is to be contrasted with common admonitions that “[w]herever non-competitive markets exist, government should operate to lead them to the competitive solution.”¹⁶ This latter position appears to be consistent with a literal reading of section 7 of the Clayton Act, which prohibits mergers “where in any line of commerce in any section of the country, the effect of such acquisition . . . may be substantially to lessen competition, or to tend to create a monopoly.”¹⁷ To be sure, the need to make hard choices is avoided by literal interpretations of passages of this kind. But ought the conflict between competition and merger economies always be resolved in favor of competition, even if current and prospective competitive effects are slight and the merger would yield substantial cost savings?

One possible response to such tradeoffs is to resort to regulation. Indeed, John Cable has argued that mergers that give rise

¹⁴ Harberger, *Three Basic Postulates for Applied Welfare Economics*, 9 J. ECON. LIT. 785, 785 (1971).

¹⁵ See text accompanying notes 32-34 *infra*.

¹⁶ Feldman, *Efficiency, Distribution, and the Role of Government in a Market Economy*, 79 J. POL. ECON. 508, 517 (1971).

¹⁷ 15 U.S.C. § 18 (1970).

to economies while enhancing market power should be permitted to occur, with the resulting combination made subject to price regulation.¹⁸ The resulting prices presumably would be "fair," if not strictly competitive. There is a growing appreciation, however, that regulation involves severe costs of its own and hence should be extended only reluctantly. Thus, although Cable supports his proposal for price regulation with the observation that "the kind of government intrusion into private sector decision-making which is envisaged is one for which there are existing precedents (and in the U.K. some considerable experience in recent years),"¹⁹ I find the results of government efforts at price management mainly dissuasive²⁰—not least of all in the United Kingdom.

A discussion of these issues, however, is beyond the scope of this Article. Accordingly, I will ignore the regulatory option and focus instead on the following two alternatives: (1) permit the merger, thereby facilitating the early realization of economies, with a resulting (possibly temporary) increase in monopoly power, or (2) prohibit the merger, thereby preserving competition but delaying the realization of economies because economies, if at all attainable without merger, could then be achieved only through internal expansion of the affected firms. Is the conventional position favoring the latter policy²¹ invariably to be preferred, or does a rational treatment of the merger question require that the allocative-efficiency implications of the economies/market power tradeoff be faced explicitly? Put differently, is the admonition to "make markets operate competitively" too simplistic an approach in light of legitimate efficiency goals?

Joe Bain is one of the few economists who has expressed concern that prevailing enforcement procedures lack rationality. As Bain has commented:

[A] standard of reasonableness, or definition of the grounds on which otherwise offending mergers could be found legal, is clearly needed and should be set forth in Section 7. The one simple rule that is obviously

¹⁸ J. Cable, *Economies as an Anti-Trust Defence: Does the First Best Matter?* (1975).

¹⁹ *Id.* 13.

²⁰ For a somewhat more sympathetic view of price controls—which, however, is very cautious on the merits—see Lanzillotti, *Industrial Structure and Price/Wage Controls: The U.S. Experience*, in *MARKETS, CORPORATE BEHAVIOR AND THE STATE* 324 (A. Jacquemin & H. de Jong eds. 1976).

²¹ See, e.g., Feldman, *supra* note 16.

needed is that a merger which may substantially lessen competition should be allowed if the merging firms can demonstrate that the merger would substantially increase real efficiency in production and distribution This sort of amendment would strengthen a very significant piece of legislation, and tend to assure that its enforcement would be in accord with accepted principles of economic rationality.²²

I believe that at the very least a parametric analysis of some of the simple cases is needed to reveal the implicit costs of a strict market power rule. The issue should not be avoided merely because tradeoff analysis cannot be implemented immediately. Discouraging irrational argumentation and administratively suppressing bad cases are surely goals that justify an analysis of the economies defense.

B. *The Naive Tradeoff Model*

For purposes of developing the tradeoff model,²³ I will assume that the merging firms in question are duopolists²⁴ of either a local or national sort, that the product is homogeneous, and that the degree of price increase is "margin restricted" by the prospect that geographically remote rivals will ship into the region or that potential entry will be activated locally.²⁵ The

²² J. BAIN, *INDUSTRIAL ORGANIZATION* 658 (2d ed. 1968).

²³ The model in this subsection relies on that in Williamson, *supra* note 1, as corrected in Williamson, *Economies as an Antitrust Defense: The Welfare Tradeoffs*, in *READINGS IN INDUSTRIAL ECONOMIES* (C. Rowley ed. 1972).

²⁴ "Duopoly" refers to the situation in which there are only two *sellers* in the relevant market.

²⁵ Implicitly, this is an entry barrier analysis. Entry barrier analysis with emphasis on potential competition is scarcely novel. Numbered among its early expositors are J.B. Clark and Alfred Marshall. J.B. CLARK, *THE CONTROL OF TRUSTS* 25-30 (1914); Marshall, *Some Aspects of Competition*, in *MEMORIALS OF ALFRED MARSHALL* 256, 269-80 (A. Pigou ed. 1966). More recent contributors include Paulo Sylos-Labini, Tibor Scitovsky, and Franco Modigliani. P. SYLOS-LABINI, *OLIGOPOLY AND TECHNICAL PROGRESS* (1962); T. SCITOVSKY, *WELFARE AND COMPETITION* 21-22 (1971); Modigliani, *New Developments on the Oligopoly Front*, 66 *J. POL. ECON.* 215 (1958). Scitovsky states the considerations as follows:

The individual price maker has to meet two forms of competition: the actual competition of his established rivals and the threat of competition from newcomers to his market. . . . Of the two . . . the threat of competition from newcomers and restraints on their entry to the market are by far the more important from the price maker's point of view.

T. SCITOVSKY, *supra* at 21. Although perhaps this should be qualified, in that the significance of potential competition is vastly greater if the number of established rivals is small, it nevertheless imparts the spirit of entry barrier analysis.

Entry barrier analysis of potential competition is not, however, without its critics. George Stigler argues that it is tantamount to solving the oligopoly problem "by mur-

argument may be simplified by assuming further that only competitive returns were being realized before the merger. The effects on resource allocation of a merger that yields both economies and postmerger market power can then be investigated in a partial equilibrium context with the help of Figure 1. The

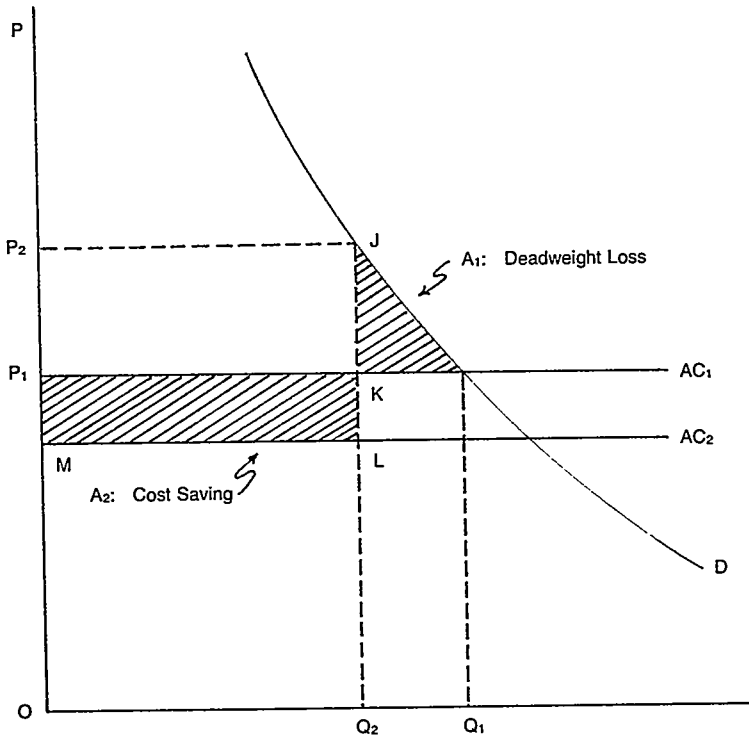


Figure 1

horizontal line labeled AC_1 represents the level of average costs of each duopolist before combination, while AC_2 shows the level of average costs after the merger. The price before the merger is given by P_1 and is equal to AC_1 . The price after the merger is given by P_2 and is assumed to exceed P_1 ; if it were less than P_1 , the immediate economic effects of the merger would be strictly positive.²⁶

der." G. STIGLER, *THE ORGANIZATION OF INDUSTRY* 21 (1968). Jagdish Bhagwati, by contrast, regards the entry barrier focus on potential competition as "the really fundamental innovation in oligopoly theory." Bhagwati, *Oligopoly Theory, Entry-Prevention, and Growth*, in 22 *OXFORD ECONOMIC PAPERS* 297, 298 (1970).

²⁶ This is a simple but basic point. It reveals that market power is only a necessary and not a sufficient condition for undesirable price effects to exist. It would be wholly irrational to regard an increase in the price-to-average-cost ratio (i.e., $P_2/AC_2 > P_1/AC_1$)

The net welfare effects of the merger are represented by the two shaded areas in the Figure.²⁷ The area designated A_1 is the familiar deadweight loss that would result if price were increased from P_1 to P_2 , assuming that costs remain constant.²⁸ But because average costs are actually reduced by the merger, the area designated A_2 , which represents cost savings, must also be taken into account. Geometrically, the net allocative-efficiency effect of the price increase and cost reduction resulting from the merger (judged in naive terms) is positive if the area represented by A_2 is greater than the area represented by A_1 ; the effect is negative if A_1 is greater than A_2 ; and the merger has a neutral effect if A_1 and A_2 are equal.

The deadweight loss and the cost savings also can be expressed algebraically as follows:

$$A_1 \cong \frac{1}{2} (P_2 - P_1) (Q_1 - Q_2) = \frac{1}{2} (\Delta P) (\Delta Q)$$

$$A_2 = (AC_1 - AC_2) Q_2 = [\Delta(AC)] Q_2$$

The net allocative-efficiency effect is then given by $A_2 - A_1$. The effect is positive if the following inequality holds:

$$[\Delta(AC)] Q_2 - \frac{1}{2} (\Delta P) (\Delta Q) > 0$$

Dividing through by $P_1 Q_1$, substituting for $\Delta Q/Q_1$ the expression $\eta(\Delta P/P_1)$, where η is the elasticity of demand, and recognizing that $P_1 = AC_1$, we obtain:

$$\frac{\Delta(AC)}{AC_1} - \frac{1}{2} \eta \frac{Q_1}{Q_2} \left(\frac{\Delta P}{P_1} \right)^2 > 0$$

If this inequality holds, the net allocative-efficiency effect of the merger is positive. If the difference is equal to zero, the merger

as grounds for opposing a merger if, at the same time, the postmerger price were less than the premerger price (*i.e.*, $P_2 < P_1$) and the qualifications discussed below were insubstantial.

²⁷ The conventional partial equilibrium welfare function is given by $W = (TR + S) - (TC - R)$, where, under appropriate restrictions, the terms in the first set of parentheses reflect social benefits (total revenue plus consumers' surplus) and those in the second reflect social costs (total pecuniary costs less intramarginal rents). It will be convenient here and throughout the argument to assume that R is negligible.

²⁸ My use of deadweight loss is somewhat restrictive. Inefficiency is also a deadweight loss. For convenience of exposition, however, I refer to the Marshallian triangle as the deadweight loss and compare this to the cost saving aspects of a merger. Estimating the value of consumers' surplus by the Marshallian triangle follows the common and defensible practice of suppressing the income effects associated with a price change. The net social benefit associated with a particular cost-price configuration is defined as total revenue plus consumers' surplus less social cost, where social and private costs are assumed to be identical and externalities and producers' surplus are both assumed to be zero.

has a neutral effect. If the inequality is reversed, the merger has negative allocative consequences. This inequality says that if the decimal-fraction reduction in average costs exceeds the square of the decimal-fraction increase in price premultiplied by one-half the elasticity of demand times the ratio of the initial to final outputs, the allocative effect of the merger (judged in naive terms) is positive.

The cost reductions necessary to offset price increases for various values of the elasticity of demand are shown in Table 1.²⁹ Inspection of Table 1 discloses that a relatively modest cost reduction is sufficient to offset relatively large price increases even if the elasticity of demand is as high as 2, which for most commodities is probably a reasonable upper bound.³⁰ Because firms whose prices are margin restricted by the threat of entry can increase prices only modestly above minimum average costs—normally by less than a ten-percent premium³¹—the naive model suggests that a merger that promises nontrivial economies—say greater than two percent—will generally yield a net allocative-efficiency gain. This conclusion may be altered, however, by consideration of the qualifications to the naive model that follow.

Table 1

Percentage Cost Reduction $[(\Delta(AC)/AC) \times 100]$ Sufficient To Offset Percentage Price Increases $[(\Delta P/P) \times 100]$ for Selected Values of η

η ($\Delta P/P \times 100$)	3	2	1	$\frac{1}{2}$
5	.44	.27	.13	.06
10	2.00	1.21	.55	.26
20	10.38	5.76	2.40	1.10

²⁹ The computations assume that demand is isoelastic in the relevant range.

³⁰ Werner Hirsch's survey of price elasticities in the 1950's suggested an upper-bound price elasticity of three. Hirsch, *A Survey of Price Elasticities*, 19 REV. ECON. STUDIES 50 (1951-1952). More recent work by Hendrick Houthakker and Lester Taylor suggests somewhat lower upper-bound elasticities. H. HOUTHAKKER & L. TAYLOR, CONSUMER DEMAND IN THE UNITED STATES, 1929-70 (1966).

³¹ In a sample of 88 food manufacturing firms in the United Kingdom from 1965 to 1969, Keith Cowling *et. al.* found only four cases where the price-to-cost ratio exceeded 1.10 and none where it exceeded 1.20. K. COWLING, J. CABLE, M. KELLY & A. MCGUINNESS, ADVERTISING AND ECONOMIC BEHAVIOUR (1976).

C. *Qualifications*

I have discussed elsewhere a number of qualifications to the naive model,³² including matters of timing and incipency. Timing refers to the fact that significant economies often can be realized through internal expansion, especially in a growing market, if the merger option is blocked. Determining whether the delayed realization of economies is more than offset by the rivalry gains from prohibiting the merger requires an examination of the time stream of benefits and costs associated with the merger and nonmerger options.

Incipency is concerned with market power effects of a merger that are not discerned when the single merger is considered in isolation. That is, instead of a single merger, suppose that a series of mergers is contemplated, each of which realizes identical economies and, by itself, has negligible effects on market power. Cumulatively, however, the market power effects may be substantial. Merger assessments in such circumstances cannot proceed in a simple pairwise fashion, although net-benefit analysis of the same generic kind can be employed nevertheless.

A common objection to the partial equilibrium welfare economics model is that it makes insufficient allowance for income distribution effects. This objection can take alternative though related forms. One of these is that demand curves may not accurately reflect social benefits: "if the distribution of wealth . . . is unjust, there is no reason to pay heed to the tastes of those who have benefited from the injustice."³³ A second is that purchaser-interests and supplier-interests ought not to be weighted equally, which is at variance with Harberger's third postulate.

I interpret the first point to imply that the distribution of wealth is not merely incorrect but is egregiously unjust. This in turn implies, I believe, a serious breakdown in the political process. When this has occurred, evaluating policy alternatives in conventional partial equilibrium welfare economics terms amounts to tinkering and is apt to be unrewarding, because a massive reshaping of the system is really needed.

Lest arguments of this kind be invoked uncritically, however, those who take such positions presumably should advance

³² Williamson, *Economies as an Antitrust Defense*, in READINGS IN INDUSTRIAL ECONOMICS (C. Rowley ed. 1972).

³³ Feldman, *supra* note 16, at 519.

arguments and evidence that, when displayed, will elicit widespread popular support. Otherwise a presumption that existing defects are less than egregious seems warranted. When this latter condition obtains, it is surely too strong to claim that, in general, *no* heed should be paid to existing tastes (as disclosed by demand curves). To the contrary, when only modest income redistribution is indicated and is being effected by conventional measures (which normally involves taxes and transfers of a general rather than commodity-specific kind), the contention that social valuations are poorly reflected by a particular demand curve ought to be considered the exception rather than the rule and should be accompanied by supporting evidence.

The second point, that purchaser and supplier interests ought not to be weighted equally, is a variant on the above and reduces essentially to a dispute over how the region P_2JKP_1 in Figure 1 should be treated. Note in this connection that the area between the demand curve and the price at which a final product is purchased is a rough measure of consumers' surplus. In the premerger period, this area included the region P_2JKP_1 . In the postmerger period, the price has increased from P_1 to P_2 ; hence this region is "monetized" and shows up as profit. This transformation of benefits from one form (consumers' surplus) to another (profit) is treated as a wash under the conventional welfare economics model.

For some products, however, the interests of users might warrant greater weight than those of sellers; for other products, such as products produced by disadvantaged minorities and sold to the very rich, a reversal might be indicated. But a general case that user interests greatly outweigh seller interests is not easy to make and possibly reflects a failure to appreciate that profits ramify through the system in ways—such as taxes, dividends, and retained earnings—that greatly attenuate the notion that monolithic producer interests exist and are favored. In any event, a product-specific claim that user and producer interests should be weighted unequally as they relate to the region P_2JKP_1 does not vitiate the partial equilibrium model. It merely requires that the appropriate weights be specified. To the extent that purchaser interests are given greater weight than supplier interests, the economies burden is increased, *ceteris paribus*.

Additional or related qualifications to the naive model include the following:

- (1) Second-best considerations: The possibility that price in-

creases compensate for or compound distortions in other sectors should be recognized. The effects, however, can go either way and, in any event, are rarely estimable.

(2) Preexisting market power: When the merging firms enjoyed premerger market power, somewhat greater economies are needed to offset the welfare losses of a postmerger price increase. This consideration may be introduced easily into the basic model.

(3) Dispersion: Although the economies that a merger produces are usually limited to the combining firms, the price increase may be spread across a wide class of firms. On the other hand, although the economies of the merger are limited, the market power effects may be even more restricted. Thus, the merging firms may realize production economies on all transactions but enjoy monopoly power in only some of their markets.³⁴ Dispersion effects can thus go either way, depending on the particular circumstances.

(4) Technological progress: Although the naive model is easily extended to make allowance for the effects of technological progress, the direction of the effects will vary and is apt to be difficult to ascertain in particular cases.

(5) Politics: A rule limiting acquisitions by giant-sized firms may be warranted on populist political grounds.

A further qualification that to my knowledge has not been treated but that deserves consideration is the possibility that additional real costs in the form of induced transportation expense will be incurred as a result of the merger. Implicit in the naive model is an assumption that customers will reduce their purchases in response to price increases but will not deflect their purchases of the same commodity to buy from more remote suppliers. Some customers, however, may find it attractive to shift their purchases to more remote suppliers. This alternative will be advantageous to those buyers for whom the delivered price of the commodity from an adjacent supplier is less than the delivered postmerger price of the same commodity from the combined local duopolists, assuming that no price discrimination is practiced so that f.o.b. pricing prevails for all duopoly customers. Although the *effective* price to these mobile customers is less than

³⁴ The alleged monopoly effects in *Brown Shoe* were clearly of this variety, *Brown Shoe Co. v. United States*, 370 U.S. 294 (1962), and the Pabst-Blatz merger also appears to have been of this type, *United States v. Pabst Brewing Co.*, 384 U.S. 546 (1966).

the postmerger duopoly price, the *real cost* of supplying this group of customers is increased by the incremental transportation expense.

A simple spatial model to illustrate and assess these transportation expense effects is developed in the Appendix. The model reveals that if customers are widely distributed the induced transportation expense may be considerable. Because individual purchasing decisions are made on a pecuniary rather than a real-cost basis, the allocative-efficiency consequences of a pecuniary price change may differ greatly from the results predicted by the naive model.

III. MONOPOLY RENT TRANSFORMATION

A. *General*

The term "rent transformation" refers to any of several processes whereby either the prospect or the realization of supernormal profits induces expenditures in partially or fully offsetting amounts. These expenditures can be of an *ex ante* or *ex post* kind. In the former case, the anticipation of winning the prize (a monopolistic income stream) elicits preaward rivalry; aspirants incur real costs designed to enhance their qualifications for the award. Although only one or a few will be declared winners, the aggregate expenses of such rivalry may be substantial. Rent transformation will be exhaustive if the aggregate preaward expenses equal the expected, discounted gain.

Ex post rent transformation also involves rivalry. Given that prices exceed competitive levels, rivals incur expenses designed to improve their respective market shares. Again, rent transformation is exhaustive if the resulting expenses drive average costs up to the supernormal price level.

An early statement of the *ex ante* rent-transformation argument was made by Arnold Plant in the context of his discussion of patents.³⁵ Plant argued that the prospect of securing a patent would induce *ex ante* resources to be expended until the expected return to inventive activities was reduced to competitive levels. Anne Krueger's more recent discussion of *ex ante* rent transformation in the context of bribing public officials is par-

³⁵ Plant, *The Economic Theory Concerning Patents for Inventions*, 1 *ECONOMICA* 30 (N.S. 1934).

ticularly intriguing.³⁶ Assuming that the benefits of favors, once conferred by public officials, are not undone by *ex post* rivalry and that bribes to secure favors are pecuniary transfers, *ex ante* real costs will be incurred by those who aspire to receive bribes: "Competition takes place through attaining the appropriate credentials for entry into government service and through accepting unemployment while making efforts to obtain appointments. Efforts to influence those in charge of making appointments, of course, just carry the argument one step further back."³⁷

The regulation of the price of, and entry into, commercial airline service is an illustration of *ex post* rent transformation. Assuming that the regulated price exceeds the cost of supplying service and that the entry of new firms is barred, existing firms will engage in competition of a service-related kind, thus reducing profits to competitive levels.³⁸ Unlike normal competitive processes, wherein the influx of additional resources has supply augmenting effects that drive prices toward competitive cost levels, *ex post* rent transformation involves an increase in costs to the level of the regulated price.

B. *Application to Mergers*

Posner contends that the apparent benefits of an economies defense are vitiated by the prospect of rent transformation. His argument runs as follows:

Oliver Williamson . . . has argued that the refusal of the courts to recognize a defense of economies of scale in merger cases under the Clayton Act is questionable because, under plausible assumptions concerning the elasticity of demand, only a small reduction in the merging firms' costs is necessary to offset any dead-weight loss created by the price increase that the merger enables the firms to make. . . .

This analysis is incomplete, however. The expected profits of the merger . . . will generate *an equivalent amount* of costs as the firms vie to make such mergers

³⁶ Krueger, *The Political Economy of the Rent-Seeking Society*, 64 AM. ECON. REV. 291 (1974).

³⁷ *Id.* 293. Bribes and contributions offered by those seeking political favors strike me as trivial in relation to the expected benefits that are conferred. Research on this, including an examination of the factors responsible for the gap between payments and realizations, would be useful.

³⁸ Douglas & Miller, *The CAB's Domestic Passenger Fare Investigation*, 5 BELL J. ECON. & MANAGEMENT SCI. 205 (1974).

or, after they are made, to engross the profits generated by the higher postmerger price through service competition or whatever.³⁹

My first response to this is that the naive model, to which Posner evidently refers, is subject to a number of qualifications, most of which have been set out above.⁴⁰ Whether or not only a small cost reduction is needed turns on a specific assessment of these qualifications. Suppose, however, that none of these are quantitatively significant and that the merger gives rise to profits in the amount P_2JLM in Figure 1.

The issue then is whether *ex ante* or *ex post* costs will be incurred if an economies defense is admitted such that this profit region will be exhausted. Note in this connection that we are not dealing with a regulated industry; hence prices are not fixed at P_2 but will fall in response to new entry.⁴¹ Reference to "service competition or whatever," which is relevant in the regulatory context, thus appears to be inapposite. Rather, *ex post* rivalry responses to the monopolistic price P_2 will be of a normal, procompetitive kind and are not to be confused with rent transformation. Furthermore, assume (for reasons that are developed more fully in Section V) that the costs of litigating an economies defense are not great. Posner's argument then turns on *ex ante* rent transformation. Assessing this entails an examination of *process*. Posner is silent on this issue.

C. Ex Ante Adaptation—the N-Firm Case

Assume that there are N equally qualified firms, where N is a large number, that when joined with firm N+1 can realize the economies in question. Assume further that the N firms engage in a pecuniary bidding competition such that the amount offered to firm N+1 is equal to the discounted expected profits of the merger. The stockholders or managers of firm N+1 will then appropriate the entire profitability gain if noncollusive pecuniary bids are solicited. In the first instance at least, this is not a real-

³⁹ Posner, *The Social Costs of Monopoly and Regulation*, 83 J. POL. ECON. 807, 821 (1975) (emphasis supplied).

⁴⁰ See text accompanying notes 32-34 *supra*.

⁴¹ This assumes that existing firms maintain or expand output in response to entry. If existing firms adopt instead a conciliatory policy and withdraw supplies to make a place for entrants, price can be maintained at the P_2 level. Umbrella pricing does invite entry by high-cost firms and hence can result in rent transformation. Posner does not indicate, however, that he relies on umbrella pricing.

cost transfer and hence is not to be regarded as a welfare loss in assessing the real-cost consequences of the merger.

Might the prospect of being the beneficiary of the pecuniary offer, however, induce prior investments of a strategic positioning kind? At least with respect to the stockholders, this seems doubtful. Outsiders who perceive that a profit-enhancing merger can be arranged may buy in and bid up the stock of firm N+1 in advance of the merger bid. But this is an entirely pecuniary undertaking.

Consider, therefore, the managers of firm N+1 and assume that (1) managers are in a position to appropriate the full value of any profitability increment that accrues from the merger and (2) legal prohibitions against malfeasance are without effect. The first of these assumptions requires that managers enjoy an unusual degree of insularity from stockholder control. Indeed, the market for corporate control must not merely be weak: it must have collapsed altogether. This assumption is at variance with a good deal of opinion and some evidence to the contrary⁴² and thus will be rejected. Moreover, merely establishing that managers enjoy some degree of insularity does not imply that they are in a position to accept bribes. In advanced Western economies, legal and moral sanctions with respect to personal aggrandizement surely restrain behavior of this kind. That bribes will be forthcoming in an amount that accounts for even a significant fraction, much less the full value, of the merger is thus extremely doubtful.

For purposes of completing the argument, however, assume that managers can and do accept bribes in the amount of the full profitability gain associated with the merger. A credentializing process presumably will then be set in motion with the result that executives will be overqualified for their jobs. Educational and other expenses will be incurred by a large number of would-be executives in order to improve their prospects for being awarded a strategic management post from which they might demand and receive pecuniary bribes. Rents are transformed into real costs in this way.

For the argument to advance this far, the management insularity assumption noted above must be met. As indicated, I regard this assumption as implausible. But even if this were to be

⁴² Manne, *Mergers and the Market for Corporate Control*, 73 J. POL. ECON. 110, 112 (1965). See generally P. STEINER, *MERGERS: MOTIVES, EFFECTS, POLICIES* (1965).

granted, incurring credentializing costs for what surely must be regarded as a low probability event would require considerable foresight. Recent experimental studies of insurance purchases disclose that human agents respond less to low probability events than expected utility theory would predict.⁴³ Unless a threshold probability level is reached, low probability/high consequence events are treated as though the probability of occurrence were zero.

To be sure, these experimental findings relate to insurance behavior and have uncertain ramifications for strategic investments made in the quest of low probability/high yield managerial gains. For one thing, although most subjects in the experiments had relatively high probability thresholds, some of the subjects responded to very low probability hazards. Conceivably, rent transformation of a strategic positioning kind will occur with only modest participation, though this remains to be shown. Also, individuals may behave differently when faced with low probability opportunities than with low probability hazards. Both of these factors may support a more optimistic assessment of rent transformation than an initial reading of the experiments would suggest.

But offsetting considerations exist that I find very troublesome for the rent-transformation hypothesis. The insurance experiments involved well-defined hazards, and interdependencies among the subjects were absent. By contrast, the rewards of winning managerial games are vaguely defined and the underlying strategic investments involve many interdependencies. Vaguely defined rewards involving complex educational and career path games among players whose identities become known only at late stages in the competition do not seem to me to be the stuff upon which claims of exhaustive rent transformation are securely based.

A related consideration, although of secondary importance, is that the credentializing outlays that must be incurred in advance are presumably less than the expected value of the uncertain reward if, as seems reasonable, diminishing marginal utility of money obtains. Before refinements of this kind are even relevant, however, proponents of the rent-transformation theory

⁴³ H. Kunreuther, R. Ginsberg, L. Miller, P. Sagi & P. Slovic, Limited Knowledge and Insurance Protection: Implications for Natural Hazard Policy (June 1976) (unpublished findings from NSF-RANN research project).

must show that the probability thresholds of potential managers are reached and, if they are, that the gaming interdependencies referred to above do not render efforts to project net returns on strategic credentializing expenses nugatory.

Plausibility standards plainly vary. Those who are easily persuaded that managers enjoy extensive insularity, that managers *fully* credentialize on the basis of low probability events, and that the marginal utility of money is fairly constant will conclude that exhaustive *ex ante* rent transformation occurs in the merger context, as required by Posner's theory. On the other hand, those who are skeptical of any of these assumptions will conclude that rent transformation will be incomplete. As for myself, I believe that the insularity assumption is the most doubtful. Absent this assumption, the entire argument collapses.

D. *Ex Ante Adaptation—The Bilateral Case*

Posner's argument on *ex ante* expenditures is not saved by introducing heterogeneity among bidding firms. Suppose that instead of parity among all N bidding rivals, one firm among these rivals, firm K , enjoys an advantage in relation to the other firms with regard to the magnitude of the acquisition gain. Thus, firm K presumably will win the bidding competition by offering an epsilon more than the other $N-1$ bidders. To be sure, firm $N+1$ may ask that firm K pay the full value of the capitalized monopoly gain that will be realized by joining firms K and $N+1$. But all that can be established in bilateral monopoly cases of this kind is that the pecuniary bid that firm K will tender is bounded from below by what other less well-situated firms will offer and from above by the full value of the capitalized gain. Within this bargaining range, the actual terms under which an agreement is struck are indeterminate, being largely dependent on bargaining skills.⁴⁴

In circumstances in which bids fail to reflect full valuations, there is even more reason to be skeptical that real cost credentializing processes will occur that exhaust the rents in question. Complex games with indeterminate results simply do not form an adequate basis for confident claims of rent transformation.

⁴⁴ See generally W. FELLNER, *COMPETITION AMONG THE FEW* (1949). I conjecture that Prince Bernhard, who plainly enjoyed a unique advantage in relation to other administrators in the Dutch government, failed to extract the full value of the favors he dispensed in his dealings with aircraft suppliers.

Even if pecuniary bidding does not elicit human capital investments in amounts sufficient to accomplish exhaustive rent transformation, direct investments in physical capital might be made that do effect such a result. It will be instructive, for purposes of examining this possibility, to consider a specific example. Because exhaustive rent transformation relies on the absence of friction at some stage of the process, the relevant issue is whether the process linkages can be forged that are necessary to yield a plausible rent-transformation result. To the extent that a microanalytic examination of the process discloses that nontrivial frictions are being assumed away, exhaustive-rent-transformation arguments are suspect.

Consider, therefore, the following example: Products A and B are initially produced by firms X and Y. Firm X has a plant at location I from which it produces both A and B, using a partly common but not identical technology; firm Y has a similar plant producing A and B at location II. The costs of shipping A and B between locations I and II are considerable, but X and Y nevertheless compete rather vigorously for sales at the boundary of regions I and II. Assume further that A and B are manufactured under conditions of increasing returns and that economies of scale for neither A nor B are exhausted at either plant. Suppose that an exogenous transportation innovation is made that has diffuse effects, including a reduction in the costs of shipping items A and B between locations I and II. In particular, assume that although transportation costs initially precluded plant specialization, such specialization now becomes economical, and more efficient final supply will result if a single product is produced at each plant, thereby more fully exhausting economies of scale in manufacturing. Low-cost shipment, to both near and distant users, from each of the specialized plants would then result.

The question becomes how to arrange for such specialization to occur. Independent decisions to specialize is one possibility, but there is a malcoordination risk that both firms will choose the same product. If, as would be expected, there are higher net returns from specialization in one product rather than in the other, the likelihood of malcoordination is especially great. To avoid this result, agreement between the parties might be attempted, but problems of interfirm profit pooling would then have to be faced. For reasons given elsewhere, at least one of the

parties is likely to find profit pooling unattractive,⁴⁵ even if it were lawful. Because of such problems, the firms are likely to favor a merger. Not only are recurrent profit pooling disputes avoided in this way, but merger also facilitates a more cooperative general attitude, perhaps including an exchange of personnel that are specialized in the production of products A and B.

Market power effects may nevertheless appear. Not only does boundary competition between firms X and Y vanish when specialization occurs, but, if the firms merge, threats of potential competition out of the specialized product into the other product are sacrificed. Both cost reductions and price increases may thus result.

Assuming that the profits resulting from merger economies are not dissipated *ex post*, is it reasonable to argue that *ex ante* costs will be incurred in offsetting amounts? Two possibilities suggest themselves. First, assuming that users have access to exogenous innovations on nondiscriminatory terms, investors as a group, in anticipation of innovations of this kind, can incur *ex ante* expenses of a strategic positioning kind. Being strategically situated then permits them to reap the gains of such innovations when they occur. Alternatively, assume that inventors are able to extract the full value of an invention from all users, however remote. This alternative requires that price discrimination be feasible and lawful. The information requirements for price discrimination are frequently prohibitive, however, and price discrimination is commonly unlawful. Accordingly, I will restrict my attention to the first alternative, which depends on the proposition that the world generates no "surprises." All prospective gains must be anticipated in advance and real resources must be allocated in such a way that parties are strategically situated to take advantage of them.

To be sure, this does not imply that all investments must have assured, deterministic outcomes. Many involve investment in the face of uncertainty. As a class, however, each type of stochastic reward must induce resources to be invested such that marginal costs equal expected returns. Projects that prospectively generate monopoly rents naturally induce larger strategic investments than those that promise only competitive returns. Although there may be only a single winner for projects of this kind, and *his* return will vastly exceed *his* expenditures, aggre-

⁴⁵ *Id.* 129-36; O. WILLIAMSON, *supra* note 9, at 234-47.

gate investments made in the hope of acquiring the monopoly position must fully exhaust the discounted net returns if the rent-transformation theory is correct.

In circumstances, however, in which agents are myopic and only a fraction of the possible near-period outcomes are perceived, these assumptions are not valid. "Surprises" will occur because investors in firms such as X and Y usually will have no idea of how to pre-position themselves to take advantage of these possibilities, even in a stochastic sense. Investors such as these—who may reap nonappropriable second- or third-order benefits from events originating elsewhere—are more accurately described in windfall-gain than in strategic-positioning terms.

Whether the full-transformation or incomplete-transformation scenario is the more accurate one depends in the final analysis on the computational powers of economic agents in relation to the degree of complexity and uncertainty with which they are expected to contend. The issues here are akin to those examined by Roy Radner in his treatment of incomplete contingent-claims contracting⁴⁶ and those that I have treated previously in the context of markets and hierarchies.⁴⁷

I submit that for many problems, of which the above example is an illustration, the world is relatively complex in relation to the powers of human agents and that the incomplete-anticipation hypothesis is transactionally the more accurate one.⁴⁸ If I am correct, Posner's general rent-transformation theory, at least with respect to the merger policy implications that he associates with it, must be qualified.

E. Ex Post Systems Considerations—*The Invisible Hand*

An alternative adjustment process to rent transformation (of the pervasive kind envisioned by Posner) is that the appearance

⁴⁶ Radner, *Problems in the Theory of Markets Under Uncertainty*, 60 AM. ECON. REV. 454 (1970).

⁴⁷ O. WILLIAMSON, *supra* note 9, at 21-26, 253-58.

⁴⁸ The arguments here have been expressed nicely by J.E. Stiglitz as follows:

The fact that the outcome of "fundamental research" cannot be predicted throws serious doubt on the applicability of that fundamental construct of the modern attempt to extend conventional competitive analysis to inter-temporal and risk situations: the Arrow-Debreu or contingent-claim securities. For how can there be securities for classes of events before those events are conceived of? How, to take an absurd case, could there have been an Arrow-Debreu security for "an atomic disaster" before the possibility of an atomic bomb was conceived?

Stiglitz, *Information and Economic Analysis*, in CURRENT ECONOMIC PROBLEMS 27, 44 (M. Parkin & A. Nobay eds. 1975).

of supernormal profits signals investment opportunities, in response to which resources are reallocated from lower to higher yield uses with beneficial social results. This is the conventional resource-allocation response to differential returns among sectors. Groups and individuals seeking to promote their own interests effect an *ex post* reallocation of resources such that risk-adjusted returns among sectors are equalized.⁴⁹

Consider, for example, two sectors, say manufacturing and commercial real estate, for which returns are equalized initially, and assume that higher returns subsequently have become available in manufacturing. Assume, in particular, that the manufacturing sector is relieved of prior restrictions (such as excessively severe product testing restrictions) with the result that real cost savings, which show up initially as profitability gains, are realized. Assume further that this relief is attributable to an objective net-benefit calculation rather than to lobbying by manufacturing interests.

The appearance of higher profits in manufacturing signals changed investment opportunities. Additional resources presumably will be drawn into manufacturing until marginal returns are equalized. Absent reasons to believe otherwise, this reassignment of resources to higher yield uses is the "invisible hand" operating in the public interest, rather than pernicious rent transformation of a socially wasteful kind.

The usual presumption that profit opportunities give rise to resource reallocations of a socially beneficial kind can be rebutted, of course, by a showing that the adjustment process is instead a wasteful kind. But those who make such claims bear the burden of describing the process defects in sufficient detail to permit these claims to be evaluated. As Laurence Sullivan has correctly noted, Posner's work on antitrust is typically cryptic in process respects.⁵⁰ This observation applies with special force to his treatment of mergers encouraged by economies.⁵¹

To be sure, partial equilibrium welfare economics sometimes misses systems responses of a significant kind. Posner's

⁴⁹ For a discussion of invisible hand responses to changing economic opportunities, see Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 519, 524-28 (1945).

⁵⁰ Sullivan, Book Review, 75 COLUM. L. REV. 1214, 1216 (1975).

⁵¹ Arguments favoring franchise bidding for natural monopolies also illustrate the basic point: process arguments require self-conscious attention to transactional detail. Williamson, *Franchise Bidding for Natural Monopolies—In General and with Respect to CATV*, 7 BELL J. ECON. 73 (1976).

general rent-transformation position—"competition to obtain a monopoly results in the transformation of expected monopoly profits into social costs"⁵²—is designed to capture system effects that had hitherto been neglected. I submit, however, that *ex post* rent transformation occurs only under carefully delimited conditions, which are not present in the merger-for-economies context. To the contrary, if the threshold effects of changing conditions of the kind discussed in the manufacturing/commercial real estate hypothetical are sufficient to give rise to a system-wide response, invisible hand resource-allocation processes of the usual kind seem likely to govern.

IV. TRANSACTIONAL EFFICIENCIES

The usual tendency in discussing possible economies attributable to merger is to treat these economies in production function terms. I submit, however, that the cost savings attributable to merger frequently are not of a production function kind but instead have transactional origins.

A complete discussion of the transaction cost approach is a major undertaking. Some flavor of the approach is imparted, however, by the following statement:

[T]he transaction cost approach attempts to identify a set of market or *transactional factors* which together with a related set of *human factors* explain the circumstances under which complex contracts involving contingent claims will be costly to write, execute, and enforce. Faced with such difficulties, and considering the risks that simple, and therefore incomplete, contingent claims contracts pose, the firm may decide to bypass the market and resort to hierarchical modes of organization. Transactions that might otherwise be handled in the market would then be performed internally and governed by administrative processes.⁵³

It is my contention that mergers for conventional scale-economy reasons are much less common than mergers for transactional-economy reasons. In situations in which autonomous market contracting actually or prospectively incurs non-trivial transaction costs, nonmarket or market assisted modes

⁵² Posner, *supra* note 39, at 807.

⁵³ Williamson, *The Economies of Antitrust: Transaction Cost Considerations*, 122 U. PA. L. REV. 1439, 1443 (1974) (footnotes omitted) (emphasis in original).

warrant active consideration. Put another way, administrative modes of organization—firms—and autonomous contracting modes of organization—markets—are *alternative* ways of executing transactions. Unfortunately, this proposition, which is both familiar and acceptable as an abstract matter, has had only a limited impact on economic analysis of the firm⁵⁴ and even less of an impact on antitrust enforcement. This is especially true with respect to merger policy. Mergers, I submit, should be regarded positively when internal organization yields transactional economies that bring about a desired contractual result, provided that the resulting combination does not give rise, directly or indirectly, to market power effects that outweigh the transactional benefits.

Returning to the example in Section III B above, recall that the realization of economies of specialization required the two firms to move coordinately. If both specialized in the same product, the full benefits of specialization would be achieved incompletely. In principle, the firms could have arranged for coordination and profit pooling by contract, assuming that such arrangements are lawful. But the expense of writing and negotiating a comprehensive contract that both effectuates specialization and provides for effective adaptation to changing circumstances, when added to the expense of policing such agreements, often makes merger a more attractive alternative. Thus, transactional economies occur in the context of horizontal mergers when the joining of two otherwise rivalrous firms facilitates efficient adaptations that would otherwise be incompletely realized.

Vertical or conglomerate mergers are even more apt to be the source of transactional economies than are horizontal mergers. Furthermore, although vertical and conglomerate mergers can have market power effects,⁵⁵ horizontal mergers usually involve more serious market power effects. Therefore, considering vertical and conglomerate mergers in transaction cost terms is especially instructive.

Consistent with the production function bias noted above, vertical integration is regarded usually either in technological terms⁵⁶ or as a device that facilitates the anticompetitive purpose

⁵⁴ Coase, *Industrial Organization: A Proposal for Research*, in POLICY ISSUES AND RESEARCH OPPORTUNITIES IN INDUSTRIAL ORGANIZATION 59, 62-63 (V. Fuchs ed. 1972).

⁵⁵ O. WILLIAMSON, *supra* note 9, at 109-15, 163-70.

⁵⁶ E.g., J. BAIN, *supra* note 22, at 381.

of foreclosing markets. If the costs of operating competitive markets are zero, "as is usually assumed in our theoretical analysis,"⁵⁷ why else would a firm integrate?

Reformulating the vertical integration question in transaction cost terms calls attention to the difficulties sometimes encountered in market contracting for intermediate products. The analysis, which is somewhat involved and has been set out in detail elsewhere,⁵⁸ turns on the following proposition: the conditions under which intermediate products will be available from a large number of equally qualified suppliers frequently fail to be satisfied. To be sure, large numbers of well-qualified rivals may be available at the outset. If, however, experience acquired by a winning bidder greatly reduces the number of qualified suppliers (presumably because learning by doing is important and human capital thus acquired is imperfectly transferable), and if occasions to adapt to changing market circumstances are many, autonomous market contracting can easily give rise to costly and fractious bargaining. Inasmuch as social gains are realized whenever there are real cost savings, regardless of whether they are technological or transactional in nature, reorganizational changes that reduce bargaining and maladaptation costs—as vertical integration predictably does under the circumstances described above—warrant positive antitrust standing.

Whereas it is instructive to consider vertical integration in the context of substituting internal organization for imperfect competition in intermediate product markets, it is useful to regard conglomerate organization (of the appropriate kind⁵⁹) as an internal organizational response to imperfections in the capital market. Again, the issues are rather involved and have been set out elsewhere.⁶⁰ In brief, the conglomerate firm can, and sometimes does, act as a miniature capital market by transferring resources from lower to higher yield employment more efficaciously than the market. Such shifts typically yield social gains, and acquisitions that promote this process thus warrant favorable antitrust standing.

More generally, the argument is this: economizing on

⁵⁷ Arrow, *The Organization of Economic Activity*, in JOINT ECONOMIC COMMITTEE, 91ST CONG., 1ST SESS., AN ANALYSIS AND EVALUATION OF PUBLIC EXPENDITURES: THE PPB SYSTEM 47, 48 (Comm. Print 1969).

⁵⁸ O. WILLIAMSON, *supra* note 9, at 82-105.

⁵⁹ This qualification is essential. For an elaboration, see *id.* 156-58.

⁶⁰ *Id.* 132-75; Williamson, *supra* note 53, at 1480-91.

bounded rationality and attenuating opportunism are concepts central to an understanding of economic organization. To neglect these considerations and to adopt a strictly technological approach to the study of firm and market organization is at the very least incomplete. But it is worse than that; it is apt to be misleading. The misadventures of antitrust enforcement with respect to both vertical integration⁶¹ and conglomerate organization⁶² are fundamentally attributable to such neglect.

V. PUBLIC POLICY

Determining the public policy impact of the economies defense dialogue during the past eight years is rather difficult. I tend to think that a genuine transformation has occurred, but the evidence is fragmentary. Causality, moreover, is not implied by proof that a transformation in attitudes about economies has occurred; some or all of the change might have taken place irrespective of the tradeoff analysis and transaction cost arguments that are set out above. Be that as it may, it is of interest to examine some of the shifts that have been observed and to identify areas in which attention to the economies issue would be particularly useful.

A. *Academic Argument*

Whether one disputes my tradeoff analysis on theoretical or operational grounds, the fact remains that tradeoffs sometimes exist; yet the early literature frequently attempted to avoid the issues. The Bork and Bowman versus Blake and Jones exchange,⁶³ which took up almost the entire March 1965 issue of the *Columbia Law Review*, is illustrative. Eschewing a tradeoff relation, Bork was forced to assert that:

Economic analysis does away with the need to measure efficiencies directly. It is enough to know in

⁶¹ The Vertical Merger Guidelines of the Department of Justice give no positive standing whatsoever to transaction cost considerations. [1975] 1 TRADE REG. REP. (CCH) ¶ 4510. I believe a reformulation of these guidelines in transaction cost terms would result in a more discriminating set of criteria. O. WILLIAMSON, *supra* note 9, at 258-59.

⁶² The intervention of the Justice Department in the effort by Northwest Industries to take over B.F. Goodrich is an example of ill-conceived, protectionist antitrust enforcement in which considerations of competition in the capital market apparently were ignored. See O. WILLIAMSON, CORPORATE CONTROL AND BUSINESS BEHAVIOR 100-03 (1970).

⁶³ Bork, Bowman, Blake & Jones, *The Goals of Anti-Trust: A Dialogue on Policy*, 65 COLUM. L. REV. 363 (1965).

what sorts of transactions efficiencies are likely to be present and in what sorts of anticompetitive effects are likely to be present. The law can then develop objective criteria, such as market shares, to divide transactions [into those predominately one type or the other].⁶⁴

But this obviously leaves the mixed cases, which are the hard ones, unresolved. Indeed, unless one has some rough sense of the relative magnitudes of the efficiency and market power effects, it is difficult to interpret the conclusion reached by Blake and Jones that "claims of economic efficiency will not justify a course of conduct conferring excessive market power. The objective of maintaining a system of self-policing markets requires that all such claims be rejected."⁶⁵ What are the standards for "excessive" market power and "self-policing" markets? Are these standards really absolute or do they reflect an implicit tradeoff calculation? If the latter, should we not attempt to make this tradeoff explicit?

The denial of tradeoffs that appeared in some of the earlier literature is absent from the more recent academic discussions of the economies-defense issue. These discussions are more sensitive to tradeoff and transaction cost considerations.⁶⁶ To be sure, academic dialogue does not control policy. But the antitrust enforcement agencies do monitor the antitrust literature with interest and concern. Thus, although academic developments rarely occasion an explicit and abrupt reversal of policy, gradual and subtle effects are common. The evidence examined below suggests that such effects have occurred—at least in the limited sense that the merits of economies are now clearly valued.⁶⁷

B. *Uses of the Economies Defense*

Although my knowledge of economies-defense arguments in litigation, at the administrative level, and in pending legisla-

⁶⁴ *Id.* 411.

⁶⁵ *Id.* 427 (footnotes omitted).

⁶⁶ This Article is based on my introductory address to the Third Annual Conference on Economics of Industrial Structure sponsored by the European Industrial Economics Organization and held in Brussels in September 1976. The conference theme was "Antitrust and Economic Efficiency." All of the papers dealt with efficiency, and many dealt with tradeoff considerations.

⁶⁷ This was not always so. For example, see the quotation from the FTC's opinion in *In re Foremost Dairies, Inc.*, 60 F.T.C. 944, 1084 (1962), at text accompanying note 3 *supra*.

tion is incomplete, those aspects of the record with which I am familiar do suggest that there is a growing sensitivity to the economies issue. As I indicated in Section I, I do not think it feasible or rewarding for the courts to entertain explicitly an economies defense involving a full-blown tradeoff assessment. The courts may nevertheless find it instructive to permit arguments pertaining to technological and transactional economies to be brought before them. For one thing, permitting such arguments assures that economies will not be regarded perversely as anticompetitive. Additionally, an economies defense may help put the relevant issues in perspective. If the government argues that a merger has an anticompetitive purpose or effect, when, in fact, the evidence of either is extremely thin and speculative, permitting the defense to demonstrate that nontrivial economies exist presumably will make the court more reluctant to accept the government's contentions. On the other hand, when economies cannot be shown to exist or appear to be negligible, courts will perceive little social loss in holding for the government.

The recent decision by the Federal Trade Commission to vacate the administrative law judge's order and dismiss the complaint in the *Budd Co.* case⁶⁸ is illustrative. The economies arguments introduced by the defendant appear to have been given careful consideration. The complaint had relied almost entirely on concentration ratio statistics for narrowly defined product markets; for example, open-top vans were said to constitute a line of commerce economically distinct from closed-top vans. The complaint stressed Budd's importance as a potential entrant and claimed that benefits conferred by Budd disadvantaged small rivals.

The defendant responded that all van trailers constituted the relevant market and that Budd was never perceived to be and was not a de novo potential entrant. The defendant also made a case for the economies resulting from the acquisition. The Commission agreed with the defendant's definition of the relevant market and regarded the acquisition as procompetitive, stressing that Gindy (the acquired firm) had labored under various handicaps that Budd's efforts helped it to overcome. One commentator has observed that the "importance of *Budd* . . . [resides] in its economically realistic application of complex anti-

⁶⁸ *Budd Co.*, [1973-1976 Transfer Binder] TRADE REG. REP. (CCH) ¶ 20, 998 (FTC No. 8848 Sept. 18, 1975).

trust concepts."⁶⁹

The Supreme Court has recently made clear its view that "competition based on efficiency is a positive value that the anti-trust laws strive to protect."⁷⁰ Although the case in question was not a merger case, the Court's opinion has since been cited favorably in entering judgment for the defendant in *Purex Corp. v. Procter & Gamble Co.*⁷¹ *Purex* involved, among other things, a claim by the plaintiff that the acquisition of Clorox by Procter & Gamble yielded real economies that gave Clorox an unfair advantage. An expert witness for Purex testified at one point that "efficiencies . . . from whatever source are a double-edged sword."⁷² But the district court was not persuaded that a return to *Foremost Dairies* standards⁷³ was warranted. Indeed, although misconceptions of economies are difficult to put to rest, Turner's characterization of the Commission's views in *Foremost Dairies* as bad law and bad economics⁷⁴ seems to be gaining ascendancy.

The courtroom, however, is not the only place where an affirmative attitude toward economies can be manifested. As Carl Kaysen has pointed out, "policy change comes about, in large part, by the way in which the enforcing agencies select cases and frame issues for courts and commissions to decide."⁷⁵ Thus, in the preliminary discussions that commonly take place before an antimerger suit is filed, the antitrust enforcement agencies could explore possible economies with defense counsel, company officials, and economists. Cases in which anticompetitive effects are of a highly speculative nature, but for which a reasonably plausible showing of real economies can be made, might be suppressed administratively.

One indication that the economies defense has had a policy impact at the administrative level is furnished by two internal "policy protocols" prepared during 1975 by Wesley J. Liebeler, recent Director of the Office of Policy Planning and Evaluation

⁶⁹ 89 HARV. L. REV. 800, 802 (1976). Note that the complaint in *Budd* relied heavily on *Brown Shoe Co. v. United States*, 370 U.S. 270 (1962), discussed at text accompanying notes 5-6 *supra*, which is notable for its absence of careful economic reasoning. One would hope that reliance on this aspect of *Brown Shoe* will decrease in the future.

⁷⁰ *Connell Constr. Co. v. Plumber & Steamfitters Local 100*, 421 U.S. 616, 623 (1975).

⁷¹ 419 F. Supp. 931, 936 (C.D. Cal. 1976).

⁷² Record at 2386.

⁷³ Text accompanying note 3 *supra*.

⁷⁴ Turner, *supra* note 7, at 1324.

⁷⁵ Kaysen, *Model-Makers and Decision-Makers: Economists and the Policy Process*, 1968 PUB. INTEREST 80, 85.

of the Federal Trade Commission.⁷⁶ One of these protocols deals with vertical integration and relies extensively on my transaction cost approach to the issue. The other is concerned with "industry-wide matters," including horizontal mergers, and urges caution in bringing horizontal merger cases, partly for the tradeoff reasons developed in Section II. Although both are merely discussion papers, they nevertheless constitute evidence that a sensitivity to economies that expressly relies on transaction cost and tradeoff considerations of the types discussed above is making inroads into the policymaking process.

The Merger Guidelines that were issued on the last day of Donald Turner's term as head of the Antitrust Division are mainly cautious with respect to an economies defense.⁷⁷ Although the Guidelines do not regard economies negatively, they do state that an economies defense is normally beyond the courts' competence to adjudicate. In light of the administrative

⁷⁶ W. Liebeler, Policy Protocol for Industry-Wide Matters (Jan. 31, 1976); W. Liebeler, Policy Protocol for Vertical Mergers (Nov. 30, 1975).

⁷⁷ The Merger Guidelines treat horizontal economies as follows:

Unless there are exceptional circumstances, the Department will not accept as a justification for an acquisition normally subject to challenge under its horizontal merger standards the claim that the merger will produce economies (*i.e.*, improvements in efficiency) because, among other reasons, (i) the Department's adherence to the standards will usually result in no challenge being made to mergers of the kind most likely to involve companies operating significantly below the size necessary to achieve significant economies of scale; (ii) where substantial economies are potentially available to a firm, they can normally be realized through internal expansion; and (iii) there usually are severe difficulties in accurately establishing the existence and magnitude of economies claimed for a merger.

[1975] 1 TRADE REG. REP. (CCH) ¶ 4510. A similar statement applies to vertical merger economies:

[T]he Department will not accept as a justification for an acquisition normally subject to challenge under its vertical merger standards the claim that the merger will produce economies, because, among other reasons, (i) where substantial economies of vertical integration are potentially available to a firm, they can normally be realized through internal expansion into the supplying or purchasing market, and (ii) where barriers prevent entry into the supplying or purchasing market by internal expansion, the Department's adherence to the vertical merger standards will in any event usually result in no challenge being made to the acquisition of a firm or firms of sufficient size to overcome or adequately minimize the barriers to entry.

Id. The conglomerate economies reservation is even stronger:

Unless there are exceptional circumstances, the Department will not accept as a justification for a merger inconsistent with the standards of this paragraph . . . the claim that the merger will produce economies, because, among other reasons, the Department believes that equivalent economies can be normally achieved either through internal expansion or through a small firm acquisition or other acquisition not inconsistent with the standards herein.

Id.

opportunities to consider the economies issue prior to filing a merger suit and the admitted difficulties of burdening the courts with a *quantitative* assessment of an economies defense in all merger cases, this seems to be a reasonable balance of theoretical merit with practice. That a quantitative assessment is too ambitious, however, does not imply that no assessment whatsoever should be attempted. On the contrary, in circumstances in which trial evidence discloses that purported anticompetitive effects are small or negligible, the introduction and qualitative evaluation of economies is apt to have merit. Not only is a better understanding of the economic incentives that underlie the merger likely to result, but—especially if the economies are at all substantial—the possibility that economies will be regarded inadvertently as anticompetitive will be forestalled. Moreover, inasmuch as the Merger Guidelines reflect a strong technological bias and as a result neglect transaction cost economies, an effort to reshape the Guidelines at this time would seem to be warranted. In particular, the Vertical Merger Guidelines, which advise that acquisitions will be subject to challenge when a ten-percent firm at one stage of an industry acquires a six-percent firm at another stage, appear to be unnecessarily restrictive.

C. *The Dominant-Firm Context*

The Monopolization Reform Act of 1976, which Senator Hart introduced on May 13, 1976 as an amendment to the Sherman Act, expressly provides for an economies defense.⁷⁸ The bill is designed to deal with dominant-firm industries.⁷⁹ As the law is currently interpreted, dominance does not constitute a section 2 violation if the structure of the industry is attributable to “a superior product, business acumen, or historic accident.”⁸⁰ But as Turner has pointed out, “[t]here is no apparent reason why any firm should have a right to enjoy indefinitely, or even for seventeen years, the fruits of monopoly from sources other than original unexpired patents or economies of scale.”⁸¹ Because standards for superiority are typically relative rather than absolute, dominance that has its origins in “default failure” or

⁷⁸ S. 3429, 94th Cong., 2d Sess., 122 CONG. REC. S7154 (daily ed. May 13, 1976).

⁷⁹ The bill's standards for inferring dominance are somewhat weak. I suggest that the term “dominant firm” be restricted to those industries in which the output of a single firm has persistently exceeded 60% of the relevant market and entry barriers are great.

⁸⁰ *United States v. Grinnell Corp.*, 384 U.S. 563, 571 (1966).

⁸¹ Turner, *The Scope of Antitrust and Other Economic Regulatory Policies*, 82 HARV. L. REV. 1207, 1220 (1969).

“chance event failure” arguably does not warrant antitrust insularity.⁸² Rather than bring dominant-firm cases on what often appear to be contrived conduct grounds,⁸³ I urge that structural cases be brought whenever a persistent dominant-firm condition is observed that is unlikely to be upset by unassisted market forces. The dominant firm charged with such a violation should be permitted, however, “to rebut the presumption of unlawful monopolization by demonstrating that its dominance was the result of economies of scale leading to a natural monopoly, of the exercise of an unexpired patent, or of a continuing indivisible, absolute management superiority.”⁸⁴

Senator Hart’s argument in support of the Monopolization Reform Act runs along similar lines. In discussing the bill in the Senate, he observed that a principal impediment to a section 2 monopoly case under existing law is

the disproportionate amount of time . . . spent on questions of intent and superior performance. Government attorneys cull through the defendant’s records in hopes of finding the hot document from which predation might be inferred. . . . Meanwhile, little or no attention is given to what ought to be the principal question: Does the defendant firm have a degree of economic power which should no longer be accepted in a competitive economy?⁸⁵

Regarding the economies issue, the bill stipulates that a “defendant shall not be required to divest itself of such monopoly power if it can show that such monopoly power is due solely to valid patents lawfully acquired and lawfully used, or that such a divestiture would result in the loss of substantial economies of scale.”⁸⁶ This raises a new issue: if a full-blown economies defense should not be permitted in a merger proceeding, why litigate economies in the context of a dominant-firm case? I submit

⁸² Williamson, *Dominant Firms and the Monopoly Problem: Market Failure Considerations*, 85 HARV. L. REV. 1512 (1972).

⁸³ See O. WILLIAMSON, *supra* note 9, at 226-27.

⁸⁴ *Id.* 221 (footnotes omitted).

⁸⁵ 122 CONG. REC. S7153 (daily ed. May 13, 1976) (remarks of Sen. Hart).

⁸⁶ S. 3429, 94th Cong., 2d Sess., 122 CONG. REC. S7154 (daily ed. May 13, 1976). The White House Task Force on Antitrust Policy also offered an economies defense in connection with its proposed decentralization policy, but the Task Force doubted that such a defense could be argued successfully. WHITE HOUSE TASK FORCE REPORT ON ANTITRUST POLICY 12-14, in [1969] ANTITRUST & TRADE REG. REP. (BNA) No. 411 (Spec. Supp. Part II).

that there are significant differences between merger and dominant-firm cases that justify the distinction. First, mergers are already relatively numerous, and if an economies defense were permitted, the number of proposed mergers in which market power effects arguably obtain might increase greatly. By contrast, dominant firms are preexisting conditions, and their numbers are relatively small.⁸⁷ Thus, allowing an economies defense in the dominant-firm context would neither alter the number of dominant firms nor give rise to a large number of cases. Second, ordering dissolution is a much more serious economic undertaking than ordering divestiture. In the latter case, the acquired assets are reasonably well defined and the prospect of serious loss of economies is limited by the prior "natural" division of functions that existed between the previously autonomous firms. A badly conceived dissolution order, however, could give rise to severe diseconomies because natural dividing lines may not be apparent without an inquiry into economies.

To be sure, an economies defense still poses serious economic and legal difficulties in the context of a dominant-firm case. Unless, however, one dismisses or condones chance event and default failures—which appears to be Posner's position⁸⁸—there are no easy choices. In circumstances in which unassisted market forces have little prospect in the short run of upsetting dominance of either chance conferred or default failure kinds, acquiescence understandably leads to charges that antitrust enforcement is a charade.⁸⁹ This has demoralizing consequences and encourages countervailing power arguments and actions of dubious merit. A bill such as Senator Hart's Monopolization Reform Act should help to avoid these results. And provision for an economies defense in such a bill should serve to deter antitrust enforcement of a counterproductive kind.

VI. CONCLUSION

Specialization among the social sciences has some of the same advantages as does advocacy in legal argument: faced with

⁸⁷ In national markets, there are less than a dozen, although they are by no means insignificant in terms of aggregate volume of business. W. SHEPHERD, *MARKET POWER AND ECONOMIC WELFARE* 151 (1970).

⁸⁸ Posner disregards chance events and implicitly condones default failure in the context of a superior skill defense. Posner, *Oligopoly and the Antitrust Laws: A Suggested Approach*, 21 *STAN. L. REV.* 1562, 1596-97 (1969).

⁸⁹ Galbraith, *Control of Prices and People*, 76 *THE LISTENER* 793, 794 (1966).

events of considerable complexity, an understanding of core issues may be achieved only if particular—even partisan—points of view are pressed vigorously. The specialist role assigned to economists is that of examining issues in a “rational spirit.” Kenneth Arrow expressed it as follows: “An economist by training thinks of himself as the guardian of rationality, the ascriber of rationality to others, and the prescriber of rationality to the social world.”⁹⁰ Such a rational-spirit orientation is, I think, useful to antitrust enforcement. Even to recognize the possibility that economies might be regarded as a defense to an otherwise unlawful merger suggests that enforcement of section 7 of the Clayton Act may be amenable to rational design. This was not always so.

It should be understood that reference to rationality does not imply that allocative efficiency is all that matters. Allocative efficiency is, however, a valued social goal. Moreover, as between alternative public policy instruments—which include taxes, government spending, transfer payments, the enforcement of civil rights laws, and the like—antitrust enforcement is unusually well suited to promote efficiency goals. Since a matching of goals with instruments generally promotes effectiveness, in both public and private sectors, allocative efficiency presumably ought to be featured prominently in the formulation of antitrust policy and its enforcement. At the very least, the implied sacrifices in efficiency that the pursuit of other valued social goals entails ought to be set out expressly whenever possible.

The naive tradeoff model and the amendments thereto that are described in this Article contribute to such a purpose. They supply a framework within which sociopolitical and other economic objectives thought to be relevant to merger policy can be examined in relation to an allocative efficiency goal. Tradeoffs are faced more directly rather than suppressed. The misuse of antitrust enforcement on behalf of protectionist interests is less easy to justify as a result.

Although severe operational problems would be posed if the courts were to entertain a full-blown economies defense in connection with mergers—and for this reason I do not recommend such an effort—the benefits of tradeoff analysis do not vanish on this account. Merely to display efficiency consequences in qualitative or crude quantitative terms should help to create and

⁹⁰ K. ARROW, *THE LIMITS OF ORGANIZATION* 16 (1974).

sustain an enforcement atmosphere in which economies are socially valued. Allowing economies to be introduced informally into pretrial discussions with the antitrust enforcement agencies and to be represented favorably to the courts should further contribute to this simple, but basic and worthwhile, purpose.

APPENDIX

To the extent that price increases by the merging firms induce adjacent producers to ship into the region, so that additional transportation expense is incurred, the welfare assessment must be adjusted. A simple spatial competition model will serve to illustrate the argument.

Suppose the market is a loop market of length L with N sellers located at intervals L/N along the loop. Assume that customers are uniformly distributed and that each has a completely inelastic demand.¹ Competitive conditions prevail initially, so that entry takes place until the f.o.b. price is reduced to AC_1 . Delivered price thus is given by $AC_1 + td$, where t is the transportation expense per unit of travel and d is the distance of the customer from the nearest producer. Each supplier then will sell to the customers located $\frac{1}{2}(L/N)$ on each side of his plant, and delivered price to the most remote customer will be $AC_1 + \frac{1}{2}(L/N)t$.

Suppose now that two adjacent firms merge and, for reasons unique to their situation, realize a reduction in average costs in amount δ . At the same time, the f.o.b. price is increased to P_2 . In the new equilibrium, the duopolists will serve the entire region between their two plants and will serve customers on each side to a distance D , where $0 < D < \frac{1}{2}(L/N)$. The delivered price at D is given by

$$(A-1) \quad P_2 + tD = P_1 + t(L/N - D),$$

where $P_1 = AC_1$.

Profits by the duopolists are given by

$$(A-2) \quad \pi = P_2Q_2 - AC_2Q_2$$

where P_2 is as given above, $Q_2 = L/N + 2D$, and $AC_2 = AC_1 - \delta$. Substituting these relations into (A-2) and differentiating the resulting expression with respect to D , the optimal value of D is

$$(A-3) \quad D^* = \frac{\delta}{4t},$$

and the resulting value of P^*_2 is

$$(A-4) \quad P^*_2 = AC_1 + t(L/N) - \frac{1}{2}\delta.$$

¹ The inelastic demand assumption is unrealistic but greatly simplifies the exposition. This precludes customers from adapting by reducing their consumption of the commodity in question as its price is increased (which is the usual source of monopoly deadweight losses); instead, customers adjust by buying from more remote suppliers.

Whether the price is raised the full amount or somewhat less than this, the welfare effects can be assessed by considering the shaded regions of the following figure.

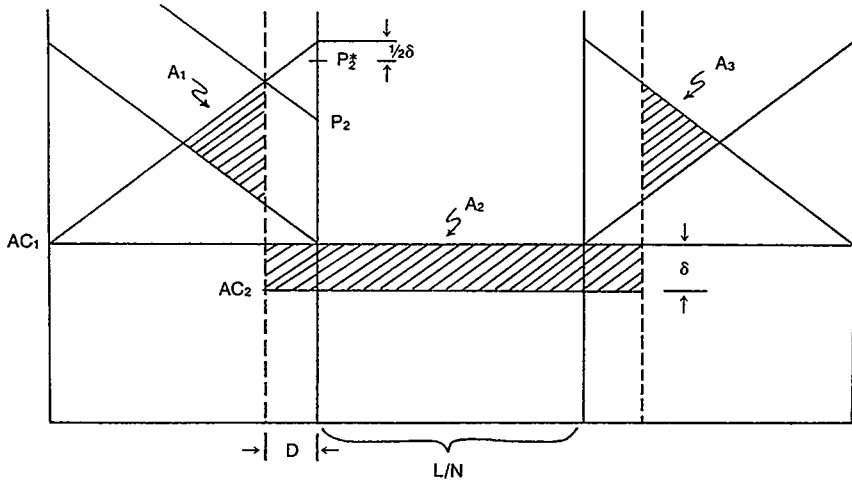


Figure 2

The area A_2 is the cost savings resulting from economies of production and is given by $\delta(L/N + 2D)$. A_1 and A_3 are the incremental transportation expenses of supplying customers from more distant locations. The two triangles are equal, and their area is given by one half the base times the height of each, where $B = t(L/N - 2D)$ and $H = \frac{1}{2}(L/N) - D$. The welfare gain is given by $A_2 - (A_1 + A_3)$. The critical test relation thus is

$$(A-5) \quad \Delta W = \delta(L/N + 2D) - \frac{1}{2}t(L/N - 2D)^2.$$

If P_2 is set at the profit maximizing value given by (A-4) and D is given by (A-3), a welfare gain will obtain if δ exceeds $0.31(L/N)t$. Clearly, if transportation expense to remote customers had been a nontrivial fraction of the delivered price total, the production economies needed to realize a welfare gain are correspondingly great.

The situation is improved, of course, if the duopolists are subject to a threat of entry whenever f.o.b. price exceeds AC_1 or if adjacent firms can also merge and realize the production economies in question. Net welfare gains from the merger (and similar mergers), assessed in terms of the tradeoff between production economies and the induced transportation expense, then become much more likely.

To be sure, the model is overly simple, and the argument is only illustrative. Nonetheless, the model demonstrates that differential transportation expense is a real cost that needs to be recognized in circumstances in which a price increase by the merging firms results predictably in local customers shifting their purchases to more remote suppliers.