

ARTICLE

THE HORIZONTAL MERGER EFFICIENCY FALLACY

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The Department of Justice and Federal Trade Commission Merger Guidelines (the “Merger Guidelines”), including the latest proposed revision in 2023 (the “New Merger Guidelines”), have continued to perpetrate what we call in this Article the horizontal merger efficiency fallacy. The fallacy arises because in the Guidelines the term “efficiencies” has become unmoored from its foundations in economic theory and has been reduced to the business school construct of cost savings. We show that cost savings can only be considered universally socially beneficial by acceptance of what is termed “the consumer welfare standard” (antitrust) or “the surplus theory of welfare” (economics), a theory that has been discredited and abandoned by welfare economists. In economic theory, efficiency means Pareto efficiency. We explore the various attempts to tether the cost savings definition of efficiency to Pareto efficiency and explain why these attempts have failed. We conclude that there is no sound way to theoretically reconcile cost savings with the economic meaning of efficiencies. We then move beyond the efficiency fallacy and show how modern welfare economics can be used to integrate congressional antitrust goals into the New Merger Guidelines. This requires abandoning the unsupported “standard deduction” for efficiencies and replacing it with an evidence-based assessment of how a specific merger under review potentially impacts congressional antitrust goals. This change renders the present efficiency rebuttal section of the New Merger Guidelines superfluous, and we provide specific reasons why this section as currently drafted is flawed and should be jettisoned.

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INTRODUCTION

The debate concerning the proper role of “efficiencies” in antitrust merger analysis has spanned many decades. Ever since Oliver Williamson’s 1968 seminal paper advocating efficiencies as a merger defense,¹ antitrust experts have grappled with how the antitrust agencies and the courts should integrate information about efficiencies into antitrust merger analysis. We argue that this debate was ill-conceived from its inception.

The problem is that there is no commonly accepted meaning of “efficiency.” Economists have a precise technical definition, while businesses and the general public do not. Businesses view efficiencies (“synergies”) as any cost savings to the business. But nothing ensures that these cost savings increase societal welfare. Indeed, such cost savings could arise from reductions in the workforce or externalization of costs—for example, pollution that results from relaxed regulation and creates a net detriment to welfare.

In contrast, economics views efficiencies globally. As an example, cost savings to a business that results from a decrease in labor costs may have a detrimental impact on the economy as a whole due to the reduced purchasing power of the business’s workers. This Article maintains that by permitting business definitions of “efficiency” to leak over into the antitrust lexicon, antitrust scholars have done a great disservice. Antitrust analysis purports to be informed by economic analysis. Therefore, it is the economic efficiencies that are relevant, rather than the provincial outlook of big business. This disjunction has led to misuse and abuse of the goals of antitrust law generally, and to misapplication of notions of efficiency more specifically, at the expense of the well-being of the overall economy.

This Article details, in eight parts, the disjunction between antitrust notions of efficiency and economic notions of efficiency and the effects of such disjunction.

Section I sets the stage, describing how “efficiency” became coextensive with “cost savings” in antitrust.

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

Section II explains how cost savings are related to the surplus theory of welfare and why the surplus theory of welfare is untenable and has been renounced by modern welfare economists. What industrial organization economists and antitrust lawyers mean when they assert that cost savings are “efficiencies” is that those cost savings can increase welfare under the specific welfare approach that most industrial organization economists have adopted. However, that approach has been soundly rejected by welfare economists. Under modern antitrust law’s ill-conceived approach, “efficiency” is being used to denote an idiosyncratic notion of optimal welfare, not Pareto efficiency.

Section III explains that efficiency in economics means Pareto efficiency. But that concept has limited utility in crafting antitrust policy and, therefore, is not an effective tool. Few policy decisions can be made in which there are some winners and no losers; yet those are the only policy decisions that the Pareto criterion can address. Antitrust disputes, like all litigation, have winners and losers. Nonetheless, endorsing outcomes with no losers is a type of unanimous consent that has ethical attractiveness. There is a basic equal respect for all individuals, because no one is allowed to be harmed. This has led some economists to attempt (albeit under assumptions which are unrealistic in our view) to draw a connection between Pareto efficiency, the surplus theory of welfare, and cost savings.

Section IV details why these attempts to link cost savings with Pareto efficiency have failed. This Article explains how the surplus theory of welfare and Pareto efficiency are economically related, uncovering the outlandish assumptions that are required to link the two theories. Proponents of tethering the surplus theory of welfare to Pareto efficiency either suppress or ignore these assumptions. This Article maintains that such deception is detrimental to honest debate about antitrust policy.

Section V addresses the fact that, in the extensive law and economics literature, “efficiencies” mean Kaldor-Hicks efficiency.² This definition is not the economic definition, but it is also not cost savings as used in antitrust. Elsewhere, drawing on the work of many prominent welfare economists, we have shown that applying the Kaldor-Hicks efficiency approach to evaluate antitrust policy is inconsistent as well as economically and ethically bankrupt.³ Here, this Article only points out the inconsistency in the economic treatment of efficiency in antitrust and in other areas of

2. In 1939, Lord Nicholas Kaldor suggested an approach which he thought would overcome the limitations of the Pareto principle by not requiring unanimous support for a policy proposal. Lord Kaldor suggested that a policy should be adopted if the policy’s beneficiaries could, in principle, enable people to be better off than they were before and compensate the people who lose because of the policy. But the compensation need not, in actuality, be made. This is referred to as a “potential Pareto” criterion (“PP”) or as “cost-benefit analysis.” See generally Nicholas Kaldor, *Welfare Propositions of Economics and Interpersonal Comparisons of Utility*, 49 *ECON. J.* 549 (1939). The other “potential Pareto” criterion, which comes from Sir John Richard Hicks, is that a policy should be not adopted if the beneficiaries of the non-adoption (who are the losers of the original policy) could, in principle, compensate the losers of the non-adoption (who are the beneficiaries of the original policy), and still be better off than they would be if the policy were adopted. See J. R. Hicks, *Consumers’ Surplus and Index-Numbers*, 9 *REV. ECON. STUD.* 126 (1942). “Kaldor-Hicks Efficiency” means Kaldor efficiency in most law and economics literature because authors do not distinguish between the Kaldor and Hicks definitions of efficiency. See Mark Glick, Gabriel A. Lozada & Darren Bush, *Why Economists Should Support Populist Antitrust Goals*, 2023 *UTAH L. REV.* 769, 799 n.110.

3. See generally Glick et al., *supra* note 2.

economic analysis of law, such as contracts and property law. Economists who study areas of the law other than antitrust do not conflate efficiencies with cost savings, so why do we try to do so in antitrust? This Article argues that we should not.

Section VI describes how modern welfare economists approach measurement of human welfare. This approach lies in stark contrast to the surplus theory of welfare. The modern approach is based on a social welfare function that is informed by survey data, psychological and experimental studies, philosophical intuition and argument, and other sources. This Article compares the various goals for antitrust enforcement suggested in opposition to the Chicago School Consumer Welfare Standard with these welfare findings. We find that there is strong congruence between those goals and the results of the major research in welfare economics.

Section VII argues that effective policymaking requires identifying the welfare-affecting policy factors that should be taken into account. This Article maintains that, in the case of antitrust, the identification process should be guided by the legislative priorities that motivated the antitrust laws in the first place. Congress made clear that its concern with curbing concentration through the antitrust laws was necessary to address threats to democracy, threats to small businesses, and objectionable income transfers, as well as price increases and output decreases. Accordingly, cost savings are relevant only when they favorably influence these congressional priorities—but, in practice, they rarely do. This justifies an entirely different focus.

Section VII develops a way to integrate congressional values into merger analysis. We contend that the Merger Guidelines' assumption of a "standard deduction" for the efficiencies undergirding the concentration levels that trigger an antitrust challenge should be replaced with an evidence-based welfare analysis. Under this approach, the concentration screening levels are calibrated by the likelihood that the specific firms and markets at issue could impact congressional antitrust goals.

Finally, Section VIII explains why the present efficiency rebuttal section in the New Merger Guidelines should be abandoned.

I. HOW ANTITRUST MERGER "EFFICIENCIES" BECAME CODE FOR "COST SAVINGS"

So how is it that antitrust economists and attorneys have come to define "merger efficiencies" as cost savings resulting from combining two or more companies? As we shall see, part of the problem was the initial failure to define "efficiency." This definitional vacuum provided a void that business interests were more than happy to fill, permitting an economic term to be replaced by a business school definition influenced by firm-centric values.

The modern literature on merger efficiencies—and the initial confusion—begins with Oliver Williamson's 1968 paper, *Economies as an Antitrust Defense*.⁴ Actually, Williamson never explicitly defined "efficiency," but referred to the concepts of "economies" and "scale economies."⁵ In the analytical part of his paper, efficiencies

4. Williamson, *supra* note 1.

5. *See id.* at 18–19.

were explicitly modeled as reductions in average costs, and Williamson referred to these reductions as “cost reductions.”⁶

Legal scholar Robert Bork borrowed from Williamson but had broader notions of efficiency in mind. Bork reproduced Williamson’s diagram of a merger that both raises price and reduces costs, labeled it “efficiency” in his book *The Antitrust Paradox*, and repackaged the concept as the impact of a merger on “consumer welfare.”⁷ But Bork was explicit that efficiencies are *not* just cost savings: “[C]ost savings are but one element or form of increased efficiency.”⁸

However, Bork neither elaborated nor explained what the other elements of efficiency were, in his view. Additionally, while he opposed an explicit efficiency defense for mergers, on the grounds that such an analysis was too complicated for the courtroom, he offered no elaboration on what those complications were.

The 1968 Merger Guidelines seemed to anticipate Williamson’s cost definition of efficiencies as economies of scale, but also adopted a dose of Bork’s skepticism. According to the 1968 Merger Guidelines, “[u]nless there are exceptional circumstances, the Department [of Justice] 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)”⁹ Thus, at least implicitly, the 1968 Merger Guidelines identified cost savings as efficiencies, but also reserved their consideration for “exceptional circumstances.”

This initial definitional confusion was ripe for exploitation by those interested in restricting the reach of the antitrust laws. The neoliberal agenda and push for antitrust reform expanded the notion of increased defenses to antitrust enforcement, including in the realm of efficiencies. Timothy Muris’s 1980 article, *The Efficiency Defense Under Section 7 of the Clayton Act*, advocated for an explicit efficiency merger defense.¹⁰ He wrote that “the efficiency defense, as that term is used in this article, refers to a cost-decrease.”¹¹ According to Muris, “[i]n merger litigation, an increase in efficiency should be defined as a decrease in costs.”¹² In defining efficiencies broadly, Muris reaches beyond Williamson. For Muris, cost reductions are not limited to scale economies, but also include the reduction of transaction costs, the cost of financing, and improvements in management.¹³

6. *Id.* at 21–22, 21 fig.1.

7. ROBERT H. BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* 107 (Bork Publ’g 2021) (1978).

8. *Id.* at 109.

9. U.S. DEP’T OF JUST., 1968 MERGER GUIDELINES § 10 (1968) [hereinafter 1968 MERGER GUIDELINES], <https://www.justice.gov/archives/atr/1968-merger-guidelines> [<https://perma.cc/D2EC-UKWZ>].

10. Timothy J. Muris, *The Efficiency Defense Under Section 7 of the Clayton Act*, 30 CASE W. RES. L. REV. 381, 383 (1980).

11. *Id.* at 385.

12. *Id.* at 417.

13. *Id.* at 418–19. In 1982, the DOJ issued new Merger Guidelines. The Merger Guidelines never define efficiencies, but they state that efficiencies can be a defense to a merger challenge. *See* U.S. DEP’T OF JUST., 1982 MERGER GUIDELINES § V, <https://www.justice.gov/archives/atr/1982-merger-guidelines> [<https://perma.cc/8FHT-69YU>].

Alan Fisher and Robert Lande joined the debate in 1983, offering a more skeptical assessment of efficiencies than Muris. They analyzed the role of efficiencies in merger legislation, the courts, and the agencies and concluded that an efficiency defense is neither workable nor desirable.¹⁴ In a paper exceeding one hundred pages, Fisher and Lande paradoxically devoted only a single paragraph to defining efficiencies. They wrote that efficiencies are “economies of scale, resource allocation, technological complementarities, specialization in product line, reduction in transportation costs, and various kinds of transaction-cost economies”¹⁵ All of these items can be understood as types of cost reductions.

A year after the Fisher and Lande article, the Department of Justice (DOJ) issued the 1984 Merger Guidelines. Section 3.5 of the new guidelines defined efficiencies as “economies of scale, better integration of production facilities, plant specialization, [and] lower transportation costs . . . [and asserted that it] may also consider claimed efficiencies resulting from reduction in general selling, administration, and overhead expenses”¹⁶ Again, efficiencies were understood as cost reductions. The DOJ and the Federal Trade Commission (FTC) issued revised Merger Guidelines in 1992 that carried the same efficiency description as the 1984 Merger Guidelines.¹⁷

Gregory Werden’s 1997 *Antitrust Magazine* article on merger efficiencies defined an efficiency resulting from a merger as “lower cost, higher quality, or greater facility for innovation.”¹⁸ Werden used the concept of asset utilization to classify efficiencies. By this, he meant how much an asset’s value can be spread over output. Innovation occurs when greater use of an intangible asset occurs. “Making one merging firm’s superior technology available to the other can lower the latter’s cost or improve its quality.”¹⁹ Physical assets and human resources can also be used by the merging parties to lower costs. Werden thus understood merger efficiencies as cost-reducing or quality-increasing effects of the combination of firms. However, post-merger quality increases simply imply that the merger allowed the parties to reduce the cost of the quality increase. Indeed, it would be difficult to argue that a firm was totally incapable of a quality increase absent a merger. Thus, under Werden’s construct, quality improvements are also a cost-savings concept.

In 1997, the DOJ and the FTC revised the Merger Guidelines with respect to efficiencies. In this updated version, efficiencies were defined as “better utilization of existing assets, enabling the combined firm to achieve lower costs in producing a given

14. See generally Alan A. Fisher & Robert H. Lande, *Efficiency Considerations in Merger Enforcement*, 71 CALIF. L. REV. 1580 (1983).

15. *Id.* at 1599. Professor of Law Daniel Crane adopted this definition of efficiencies. See Daniel A. Crane, *Rethinking Merger Efficiencies*, 110 MICH. L. REV. 347, 355 (2011).

16. U.S. DEP’T OF JUST., 1984 MERGER GUIDELINES § 3.5 (1984) [hereinafter 1984 MERGER GUIDELINES], <https://www.justice.gov/archives/atr/1984-merger-guidelines> [<https://perma.cc/63RU-E84X>].

17. Compare *id.*, with U.S. DEP’T OF JUST. & FTC, 1992 HORIZONTAL MERGER GUIDELINES § 4 (1992) <https://www.justice.gov/archives/atr/1992-merger-guidelines> [<https://perma.cc/478V-V3KC>].

18. Gregory J. Werden, *An Economic Perspective on the Analysis of Merger Efficiencies*, ANTITRUST MAG., Summer 1997, at 12, 12.

19. *Id.*

quantity and quality than either firm could have achieved without the proposed transaction.”²⁰ What remained unchanged was that efficiencies meant cost savings.

William Kolasky and Andrew Dick authored an extensive review of the debate around merger efficiencies in 2003.²¹ In an Appendix titled *A Taxonomy of Efficiencies*, the authors classified efficiencies into four types: allocative, productive, dynamic, and transactional. At bottom, these categories are merely versions of cost savings. The authors used the term allocative efficiencies as coextensive with a situation where price equals marginal cost for a single firm.²² Production efficiency is described as “economies of scale, economies of scope and synergies,” which, again, is merely cost savings.²³ Dynamic efficiencies involve “innovation to lower costs and develop new and improved products.”²⁴ However, a merger is not strictly necessary to develop a new or improved product. Accordingly, this is just shorthand for the argument that the merger is alleged to reduce the costs (in money and possibly time) to achieve these improvements. Similarly, transactional efficiencies result from mergers that reduce transaction costs, including the costs of using the market for transactions in the face of market failures that make contracting costly.²⁵

In 2009, Malcolm Coate and Andrew Heimert reported on an internal study of merger efficiencies conducted at the FTC.²⁶ The authors defined twelve categories of efficiencies. Five categories involved reductions in fixed costs and five categories were defined as reductions in variable costs. The eleventh category was a reduction in transaction costs. A final category was reserved for claims that were difficult to classify due to lack of information from the merging parties. The study showed that both the understanding of efficiencies by the Bureau of Economics and the efficiencies claimed by merging parties were essentially limited to cost savings.

In a 2015 article, John Kwoka described the changing nature of efficiencies claimed by merging parties.²⁷ Kwoka identified three new types of efficiencies being asserted by merging parties: “dynamic considerations, quality benefits, and vertical

20. U.S. DEP’T OF JUST. & FTC, 1997 HORIZONTAL MERGER GUIDELINES § 4 (1997) [hereinafter 1997 HORIZONTAL MERGER GUIDELINES], <https://www.justice.gov/archives/atr/1997-merger-guidelines> [<https://perma.cc/MAX3-4YUE>]. The 2010 DOJ and FTC Horizontal Merger Guidelines track the efficiency definition in the 1997 Merger Guidelines. See U.S. DEP’T OF JUST. & FTC, 2010 HORIZONTAL MERGER GUIDELINES § 10 (2010) [hereinafter 2010 HORIZONTAL MERGER GUIDELINES], <https://www.justice.gov/atr/horizontal-merger-guidelines-08192010> [<https://perma.cc/NF75-C2XH>].

21. See generally William J. Kolasky & Andrew R. Dick, *The Merger Guidelines and the Integration of Efficiencies into Antitrust Review of Horizontal Mergers*, 71 ANTITRUST L.J. 207 (2003).

22. Yet, the authors provided no examples of horizontal mergers that move price toward marginal cost. See *id.* at 243. Instead, they described vertical integration as eliminating the double marginalization problem. *Id.*

23. *Id.* at 244.

24. *Id.* at 247.

25. *Id.* at 249.

26. See generally MALCOLM B. COATE & ANDREW J. HEIMERT, FTC, ECONOMIC ISSUES: MERGER EFFICIENCIES AT THE FEDERAL TRADE COMMISSION 1997–2007 (2009); Malcolm B. Coate, *Efficiencies in Merger Analysis: An Institutional View*, 13 SUP. CT. ECON. REV. 189 (2005).

27. John Kwoka, *The Changing Nature of Efficiencies in Mergers and in Merger Analysis*, 60 ANTITRUST BULL. 231, 231 (2015).

economies.”²⁸ Dynamic considerations involve “lowering of the total cost of achieving the same extent of technological output,” or “more innovation output per dollar of input.”²⁹ Quality improvements involve the transfer of best practices or benefits from integrating services.³⁰ Again, such quality improvements may not be merger-specific. Finally, vertical economies “derive from savings in information and transactions costs, from greater assurance of supply, from better coordination between stages of production, and from avoidance of double marginalization.”³¹

The New Merger Guidelines begin with a recognition that under controlling Supreme Court precedent, the Clayton Act does not allow for an efficiency defense.³² Instead, the New Merger Guidelines incorporate an efficiency rebuttal.³³ In essence, the New Merger Guidelines contemplate that if the merging parties can show the existence of verifiable and merger-specific cost savings that are passed on to consumers in lower prices, these price reductions can be factored into the analysis of the likely total anticompetitive effects from an undue increase in concentration post-merger.³⁴ Thus, it is clear that the New Merger Guidelines have adopted the cost savings definition of efficiencies.

In sum, the antitrust literature has been consistent regarding the meaning it assigns to “efficiencies.” At every turn, law professors and economists, as well as the agencies’ Merger Guidelines, define “efficiencies” in merger analysis as cost savings. But should they? We maintain, no. As we detail in subsequent sections, such an interpretation is unique to antitrust. Nowhere else in economics does “efficiency” mean “cost savings.”³⁵ In economics, efficiency means Pareto efficiency.³⁶ Where “efficiency” does mean “cost savings” is in the language of business owners. Indeed, the only arguable economic justification for equating efficiency and cost savings is within the surplus theory of welfare, where such cost savings can increase a narrow definition of welfare.³⁷

But antitrust law and policy’s review and oversight of proposed mergers should be driven by economic, not business, analysis, and should incorporate the most up-to-date and generally accepted economic analysis. Accordingly, calling cost savings “efficiencies” is not only confusing, but also unsupportable. It distorts economic terminology in a way that favors business owners, to the detriment of society as a whole.

There is yet another implication to this semantic exercise, however. No clear discussion of issues is possible if language is distorted in this way. But correcting the

28. *Id.* at 236.

29. *Id.*

30. *Id.* at 238.

31. *Id.* at 242.

32. U.S. DEP’T OF JUST. & FTC, 2023 MERGER GUIDELINES 1–2 (2023) [hereinafter 2023 MERGER GUIDELINES], <https://www.justice.gov/atr/2023-merger-guidelines> [<https://perma.cc/9ULE-K9ZC>].

33. *See id.* §§ 1, 3 (“Section 3 identifies rebuttal evidence that the Agencies consider, and that merging parties can present, to rebut an inference of potential harm under these frameworks.”).

34. *Id.* § 3.3.

35. *See infra* Section V.

36. *See infra* Section III.

37. *See infra* Section II.

semantics poses a conundrum, because we need to seriously engage with past authors who have accepted this confusing terminology. Accordingly, for clarity, when we mean “cost savings” we will call them “cost savings,” not “efficiencies.” When we mean “welfare improvements,” we will use that term and not further confuse the word “efficiencies.” When we use efficiency, it will mean what economists mean, Pareto efficiency, unless we enclose it in quotation marks for satirical purposes, as in the next section heading.

II. “EFFICIENCIES” IN THE ECONOMIC THEORY OF MARSHALL AND PIGOU: WHY COST SAVINGS ALONE ARE NOT NECESSARILY WELFARE-IMPROVING

A. *The Surplus Theory of Welfare*

The word “efficiency” has many meanings. In physics, it is a nonmonetary concept, the purpose of which is to describe the work performed per quantity of energy input. It is examined on a system basis.³⁸ But this definition is not identical to the way economists use the term.

In social sciences, “efficiency” has a strong positive connotation.³⁹ It appears to signify something socially beneficial: maximizing some “good,” subject to constraints that are “bad.” But when “efficiency” is used (or abused) as a synonym for cost savings, we may ask, what is so beneficial about cost savings? Why should society sacrifice the benefits of competition to achieve cost savings through mergers? The argument advanced by antitrust economists (which we use as coextensive with industrial organization economists who specialize in competition policy) is that cost savings increase welfare. But how do cost savings increase welfare? By “welfare,” economists mean human well-being as experienced by the individuals themselves.⁴⁰ Accordingly, linking cost savings to welfare requires a theory of welfare. Historically, that theory is known as the surplus theory of welfare, and a version of the surplus theory of welfare was repackaged and popularized by Robert Bork, as the “consumer welfare” standard.⁴¹

British economists Alfred Marshall and Arthur Pigou were the first to introduce the surplus approach to welfare to English-speaking economists. In 1890—the same

38. See generally PHILIP MIROWSKI, *MORE HEAT THAN LIGHT: ECONOMICS AS SOCIAL PHYSICS, PHYSICS AS NATURE’S ECONOMICS* (1989).

39. See generally Darren Bush, *Consumer Welfare Theory as an Ethical Consideration: An Essay on Hipsters, Invisible Feet, and the “Science” of Economics*, 63 ANTITRUST BULL. 509 (2018). A version of this article is also available online. See Darren Bush, *Antitrust Economics as Religion: Hipsters, Invisible Feet, and the “Science” of Consumer Welfare Theory*, SSRN (Sept. 25, 2018), <https://ssrn.com/abstract=4558404> [<https://perma.cc/DQX2-M4E3>]. Thomas J. Horton, *Restoring American Antitrust’s Moral Arc*, 62 S.D. L. REV. 11 (2017); Maurice E. Stucke, *Reconsidering Antitrust’s Goals*, 53 B.C. L. REV. 551 (2012); John J. Flynn & James F. Ponsoldt, *Legal Reasoning and the Jurisprudence of Vertical Restraints: The Limitations of Neoclassical Economic Analysis in the Resolution of Antitrust Disputes*, 62 N.Y.U. L. REV. 1125 (1987).

40. LOUIS KAPLOW & STEVEN SHAVELL, *FAIRNESS VERSUS WELFARE* 16 (2002) (“The hallmark of welfare economics is that policies are assessed exclusively in terms of their effects on the well-being of individuals.”).

41. See generally BORK, *supra* note 7, at 107–15. See Glick et al., *supra* note 2, at 775–76 for a discussion of Robert Bork’s adoption of Marshall’s theory of welfare.

year that Congress passed the Sherman Act⁴²—Marshall introduced the concept of consumer surplus in the first edition of his *Principles of Economics*.⁴³ Marshall defined consumer surplus in the following passage: “The excess of price which [a consumer] would be willing to pay rather than go without the thing, over that which he actually does pay, is the economic measure of this surplus satisfaction. It may be called *consumer’s surplus*.”⁴⁴

In other words, consumer surplus is the difference between the consumer demand curve and price—what a consumer is willing to pay compared to what she actually paid. Similarly, producer surplus is defined as the difference between the price the producer obtains for her product and the (variable) cost to produce that product. Thus, cost savings increase producer surplus and, if passed through to consumers in the form of lower prices, can potentially increase consumer surplus as well. This is the theoretical link between cost savings and welfare. But is the link more than theoretical?

Sociologist Elizabeth Popp Berman described how industrial organization economics used surplus theory to challenge the liberal New Deal and Great Society programs. In her view (and we concur), industrial organization economists’ use of the word “efficiency” in place of welfare expansion was simply clever marketing:

The systems analysts and [industrial organization] economists who brought the economic style to Washington typically saw it as neutral and technocratic. But its core values—particularly, its commitment to efficiency—led its advocates to distinctive types of policy solutions . . . Great Society legislation was not grounded in the economic reasoning of efficiency and cost-effectiveness. Instead, it prioritized other types of arguments that Lyndon Johnson and a substantial fraction of Democrats found compelling, including those based on universalism, equality, and rights.⁴⁵

The theory of welfare referred to by Professor Popp Berman, which we refer to as the output market surplus theory of welfare, is widely adopted by industrial organization economists, as evidenced by its universal endorsement by industrial organization textbooks.⁴⁶ Law professor and leading antitrust scholar Joe Brodley’s

42. 15 U.S.C. §§ 1–38.

43. See generally ALFRED MARSHALL, *PRINCIPLES OF ECONOMICS* (8th ed. 1920). Marshall’s seminal work was first published in 1890 and ran to eight editions last published in 1920. John K. Whitaker, *Marshall, Alfred (1842-1924)*, in *THE NEW PALGRAVE DICTIONARY OF ECONOMICS* 8350, 8353–54 (John Eatwell, Murray Milgate & Peter Newman eds., 3d ed. 2018). An earlier description of the concept of consumer surplus was advanced by economist Jules Dupuit. See generally Jules Dupuit, *On the Measurement of the Utility of Public Works*, in 2 *INTERNATIONAL ECONOMIC PAPERS* 83, 83–110 (1952). Dupuit’s article originally appeared in 8 *ANNALES DES PONTS ET CHAUSSEES* [ANNALS OF BRIDGES AND ROADS] 332–75 (2d ed. 1844).

44. MARSHALL, *supra* note 43, at 124.

45. ELIZABETH POPP BERMAN, *THINKING LIKE AN ECONOMIST: HOW EFFICIENCY REPLACED EQUALITY IN U.S. PUBLIC POLICY* 98 (2022). See generally BINYAMIN APPELBAUM, *THE ECONOMISTS’ HOUR: FALSE PROPHETS, FREE MARKETS, AND THE FRACTURE OF SOCIETY* (2019).

46. LYNNE PEPALL, DAN RICHARDS & GEORGE NORMAN, *CONTEMPORARY INDUSTRIAL ORGANIZATION: A QUANTITATIVE APPROACH* 22–23 (2011); PAUL BELLEFLAMME & MARTIN PEITZ, *INDUSTRIAL ORGANIZATION: MARKETS AND STRATEGIES* 70–71 (2d ed. 2015); DON E. WALDMAN & ELIZABETH J. JENSEN, *INDUSTRIAL ORGANIZATION THEORY AND PRACTICE* 70–71 (4th ed. 2016); F.M. SCHERER & DAVID ROSS, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 27–28 (3d ed. 1990); ROGER D. BLAIR & DAVID L. KASERMAN, *ANTITRUST ECONOMICS* 22–24 (2d ed. 2008); DENNIS W.

1987 paper on merger efficiencies is emblematic of the incorporation of this theory into antitrust law. Brodley wrote that, “[a]s used by economists, economic efficiency refers to a decision or event that increases the total value of all economically measurable assets in the society or total social wealth.”⁴⁷ Total value is the sum of consumer and producer surplus, plus the total goods and services produced at current prices.

Yet as we now explain, the surplus theory of welfare is seriously flawed, and cost savings alone do not correspond to improved human well-being.

B. The Output Market Surplus Theory of Welfare Is Flawed and Has Been Abandoned by Welfare Economists

There are several major flaws in the output market surplus theory of welfare that render it unreliable, and an inaccurate and biased measure of well-being. Three limitations were recognized by the founders of the theory, Marshall and Pigou, but then stripped from the theory when it was adopted by antitrust specialists. First, Marshall and Pigou included input markets, such as the labor market, and not just the output market. Second, surplus was recognized by Marshall and Pigou as only a part of welfare, not to be confused with a method to undergird economic policy. Third, both Marshall and Pigou understood that welfare is decidedly dependent on distribution. Later economists have pointed out numerous other logical inconsistencies in the theory that led to its abandonment by all but the industrial organization field (and economics textbooks).

1. Output Market Surplus Does Not Account for Labor Rents

Consumer surplus and producer surplus pertain to output markets. In input markets, the analogous concept is “economic rent,” the difference between the price the input supplier obtains and the minimum price required to induce the input supplier to supply the input. Total surplus is the sum of consumer surplus, producer surplus, and economic rent. Pigou clearly considered economic rent as part of welfare. For example, he wrote: “The economic welfare of a community consists in the balance of satisfactions derived from the use of the national dividend over the dissatisfactions involved in the making of it.”⁴⁸

Yet, paradoxically, labor rents and other input-supplier rents are ignored by merger analyses of efficiencies.⁴⁹ This is a clear error. Every output has inputs, and

CARLTON & JEFFREY M. PERLOFF, *MODERN INDUSTRIAL ORGANIZATION* 102–07 (2d ed. 1994); STEPHEN MARTIN, *INDUSTRIAL ECONOMICS: ECONOMIC ANALYSIS AND PUBLIC POLICY* 27–31 (2d ed. 1993); WILLIAM E. SHUGHART II, *THE ORGANIZATION OF INDUSTRY* 25–26 (1990); JEAN TIROLE, *THE THEORY OF INDUSTRIAL ORGANIZATION* 6–12 (1988).

47. Joseph F. Brodley, *The Economic Goals of Antitrust: Efficiency, Consumer Welfare, and Technological Progress*, 62 N.Y.U. L. REV. 1020, 1025 (1987).

48. A.C. PIGOU, *THE ECONOMICS OF WELFARE* 85 (4th ed. 1932).

49. Ioana Marinescu & Herbert Hovenkamp, *Anticompetitive Mergers in Labor Markets*, 94 IND. L.J. 1031, 1032 (2019) (“To the best of our knowledge no court has ever condemned a merger because of its anticompetitive effects in labor markets.”); ERIC A. POSNER, *HOW ANTITRUST FAILED WORKERS* 76 (2021) (“And, indeed, the FTC and DOJ have never blocked a merger based on labor market effects. This is a serious mistake, for which there is no justification.”); Maurice E. Stucke, *Looking at the Monopsony in the Mirror*, 62 EMORY L.J. 1509, 1512 (2013) [hereinafter Stucke, *Looking at Monopsony*] (“Despite these concerns, the

studying input markets is no less important than studying output markets. Omitting economic rent from surplus calculations is a serious mistake unless input markets are unaffected by the output market—a dubious assumption at best. Moreover, employment and quality of work are key determinants of welfare, as we show in Section VI.

Therefore, Williamson’s definition of welfare, the one adopted in merger analysis, only makes sense if output market events, such as a merger of firms that produce final goods (consumer goods), have no effect on input markets. In particular, Williamson’s definition of welfare only applies if a merger has no impact on input prices. In an analysis that correctly encompasses all types of surplus instead of leaving rents out, cost savings that come from lower wages or unemployment are not efficiencies, they are simply transfers. To be welfare-enhancing, the cost savings must result despite input prices remaining unchanged, otherwise welfare gains in the output market would need to be offset against welfare losses in the input market. This leaves only two potential sources of cost savings resulting from a merger that are consistent with the Williamson model: a favorable shift of the production function (presumably due to technological change), or a change in output level to a level with lower average cost of production.

2. Economic Surplus Is Only a Part of Welfare

Both Marshall and Pigou understood that “not all desirable things are reckoned as wealth.”⁵⁰ In other words, surplus does not measure total welfare. It only measures that part of human welfare related to goods and services traded in markets.⁵¹ Marshall recognized that human quality of life can be impacted by many factors. He believed

larger jurisdictions, to date, have challenged few mergers or conduct cases that target monopsony or buyer power.”). A collection of recent sources on this topic can be found in Hiba Hafiz, *Interagency Merger Review in Labor Markets*, 95 CHI-KENT L. REV. 37, 38 n.1 (2020). The impact of monopsony power on minorities and women, who can be even more vulnerable to wage reductions, is discussed in Mark Stelzner & Kate Bahn, *Discrimination and Monopsony Power*, 49 REV. BLACK POL. ECON. 152, 160 (2022) (“Because of the socially constructed norm which places more household responsibilities on woman [sic] compared to men on average, women are more likely to supply their labor to a smaller geographical area. This gives the firms in that area more monopsony power over their female employees. Likewise, Black and Latino workers are less likely to respond to wage differences between jobs because of the potential monetary shocks that can befall a worker in the job transition process and the dramatically lower average and median household wealth of Black and Latino households compared with White counterparts. This allows firms to more intensely exercise their monopsony power over Black and Latino workers.”); see also Aryeh Mellman, Note, *Measuring the Impact of Mergers on Labor Markets*, 53 COLUM. J.L. & SOC. PROBS. 1, 21 n.97 (2019) (“In an October 2018 hearing, the FTC Chairman stated that FTC staff ‘has been specifically instructed to look at each merger for potential anticompetitive impacts on labor,’ but acknowledged that his agency had never challenged a merger ‘specifically over concerns related to labor market competition.’” (quoting *Oversight of the Enforcement of the Antitrust Laws: Hearing Before the Antitrust Subcomm. of the S. Comm. on the Judiciary*, 115th Cong. 31 (2018) (statement of Joseph Simons, FTC Chairman))).

50. Glick et al., *supra* note 2, at 777 (quoting MARSHALL, *supra* note 43, at 54).

51. *Id.*; see also MARSHALL, *supra* note 43, at 134 (“When we speak of the dependence of wellbeing on material wealth, we refer to the flow or stream of wellbeing as measured by flow or stream of incoming wealth and the consequent power of using and consuming it.”); Robert Cooter & Peter Rappoport, *Were the Ordinalists Wrong About Welfare Economics?* 22 J. ECON. LIT. 507, 513 (1984) (arguing that Marshall and Pigou were part of the material welfare school that considered only economic welfare in markets and were displaced by the ordinalists that considered all sources of welfare).

that surplus in markets only pertained to a part of welfare, which he labeled “economic welfare.”⁵² Pigou explained that this part of total welfare cannot be separated “in any rigid way” from other parts.⁵³ Pigou reasoned that economic welfare was worthy of study only so long as policies that impact economic welfare do not diminish other elements of welfare.

Pigou acknowledged that he had no evidence to suggest that promotion of economic welfare impacted noneconomic welfare. However, since Pigou’s time, significant experimental economic evidence, psychological studies, and historical case studies have shown that policies that have narrow economic motivations can crowd out other ethical and community motives.⁵⁴ As explained by economists Richard Layard and Jan-Emmanuel De Neve:

In the eighteenth-century Anglo-Scottish Enlightenment, the central concept was that we judge a society by the happiness of the people. But unfortunately, there was at the time no method of measuring wellbeing. So, income became the measure of a successful society, and GDP per head became the goal. But things are different now. We are now able to measure wellbeing, and policy-makers around the world are turning towards measures of success that go “beyond GDP.”⁵⁵

Given the dramatic progress in the study of economics in general, it is remarkable that antitrust and industrial organization economists continue to focus on surplus-based notions of welfare. Rather than acknowledge and embrace this paradigm shift in economic thought and pedagogy, consumer welfare advocates have instead doubled down on their outdated theories or pivoted to an output-based approach that is still fundamentally tethered to surplus-based notions of welfare.⁵⁶

3. Economic Surplus Ignores Distribution

Another defect recognized by Marshall and Pigou was their theory’s ignorance of the effect distribution has on welfare. Mergers are analyzed in markets. Consumer and producer surplus are only useful concepts in antitrust if they can be extended from a single individual to markets. This extension poses major problems.

When economists observe a consumer’s demand for a product or service, they measure the consumer’s willingness to pay in dollars. They do not directly observe the welfare or utility obtained. Therefore, economists need to know, or assume they know, how much welfare is represented by a dollar. If this relationship is constant and the

52. Marshall wrote that “not all desirable things are reckoned as wealth. The affection of friends, for instance, is an important element of wellbeing, but it is not reckoned as wealth, except by a poetic license.” MARSHALL, *supra* note 43, at 54.

53. PIGOU, *supra* note 48, at 11; MAURICE DOBB, WELFARE ECONOMICS AND THE ECONOMICS OF SOCIALISM: TOWARDS A COMMONSENSE CRITIQUE 30 (1969).

54. Sam Bowles extensively reviewed this evidence. *See generally* SAMUEL BOWLES, THE MORAL ECONOMY: WHY GOOD INCENTIVES ARE NO SUBSTITUTE FOR GOOD CITIZENS (2016); DUNCAN FOLEY, ADAM’S FALLACY: A GUIDE TO ECONOMIC THEOLOGY (2006).

55. RICHARD LAYARD & JAN-EMMANUEL DE NEVE, WELLBEING SCIENCE AND POLICY 1 (2023).

56. *See generally* Darren Bush, *Antitrust Heretics and the Problem of One-Sided Bias: An Essay* (October 13, 2023), <https://ssrn.com/abstract=4601891> [<https://perma.cc/A9PQ-6R88>] (describing attempts to rebrand, rename, and redefine consumer welfare).

same for all consumers, aggregation creates no problems. Accordingly, advocates of the surplus theory of welfare posit a uniform marginal social welfare gain for an extra dollar for all individuals, not because such uniformity is provable or even likely, but rather because such an assumption is essential to render the theory tractable and consistent.

For example, Nobel laureate Jean Tirole, in his widely used graduate industrial organization textbook, admitted that “extending the single-consumer case to multiple consumers creates new difficulties . . . the issue [being] that aggregate equivalent variation is not, in general, insensitive to redistributions of income between consumers.”⁵⁷ He continued, “Only under strong conditions can one ignore the distribution of income.”⁵⁸ Yet, two sentences later, he wrote that he “will treat income distribution as irrelevant.”⁵⁹

Marshall himself knew that the assumptions he made to give meaning to aggregate surplus were false, and only used them for convenience. Indeed, he explicitly acknowledged that “[a] greater utility will be required to induce him to buy a thing if he is poor than if he is rich.”⁶⁰

In his book, *The Economics of Welfare*, Pigou considered whether output or Gross Domestic Product (GDP) alone could be a measure of welfare, since it increased output-market surplus.⁶¹ He argued that GDP could not, because changes in distribution could cause adverse impacts on welfare even when GDP increased. Moreover, Pigou argued that one had to account for the impact of policy in other markets as well. As a result, Pigou contended that welfare increased when output increased only when distribution is held constant and all other effects in other markets are also accounted for: “It is evident that, provided the dividend accruing to the poor is not diminished, increases in the size of the aggregate national dividend, if they occur in isolation without anything else whatever happening, must involve increases in economic welfare.”⁶²

But the static distribution assumption is clearly false. Mergers impact distribution. Stakeholders in the merging firms are impacted, and prices and incomes are altered. Nonetheless, because of the false assumption of constant and equal marginal utility of money (or marginal social welfare of money), antitrust is allowed to ignore distribution and proceed as if distribution has no welfare effects.

No economist that the authors are aware of believes that the marginal utility of money actually is constant and equal, or that distribution is not important for welfare.⁶³ There are several ways to prove that the marginal utility of money is not constant and

57. TIROLE, *supra* note 46, at 12. Aggregate equivalent variation is a modern improvement on the concept of surplus. See *infra* Part II.B.5.

58. TIROLE, *supra* note 46, at 12, 31–39.

59. In defense, Tirole cited the redistributing central authority that we refute in Part IV.B.3, and the Compensation Principle that we refute in Section V. *Id.* at 12; see also *infra* Part IV.B.3, Section V.

60. MARSHALL, *supra* note 43, at 95.

61. See generally PIGOU, *supra* note 48.

62. *Id.* at 82.

63. Joseph Farrell & Michael L. Katz, *The Economics of Welfare Standards in Antitrust*, COMPETITION POL’Y INT’L., Autumn 2006, at 3, 10 (“It is, however, a widely held view that an additional dollar is worth more to society in the hands of a poor person than those of a rich one.”).

equal. One way uses the theory of risk aversion. Risk aversion means that people experience more disutility when their wealth declines in value than they gain in utility when their wealth rises by an equal amount.⁶⁴ A declining marginal utility from additions in wealth is a necessary condition for risk aversion. Because we know that risk aversion is a widely observed phenomenon, it is patently obvious that the constant marginal utility of money assumption cannot hold. Moreover, today we can measure the marginal utility of money using the tools of welfare economics, and the findings are consistent with a declining marginal utility of money. For example, Layard and DeNeve's 2023 book states:

An extra \$ of income produces a smaller and smaller amount of extra wellbeing the richer the person is. This old idea is now called "the diminishing marginal utility of income"; and before the behaviourist revolution, it was a central belief of every economist. . . .

Until the last few decades, this was simply a speculative belief. But the new science [of welfare] now makes it possible to measure the quantitative effect with some accuracy.⁶⁵

Once one accepts that the marginal utility of money is not constant, or that if marginal utility is constant it is not equal to that of every other consumer, then total utility depends on distribution, even when holding total surplus fixed. Net welfare increases when surplus transfers are made from the rich to the poor. Accepting these realities, surplus loses its meaning as an independent concept separate from distribution and is no longer viable as a measure of welfare.⁶⁶

The remarkable acceptance of the "constant marginal utility of money" distributional assumption by industrial organization economists and antitrust practitioners leads them into untenable ethical territory. Setting aside distribution makes policies that express equal respect and concern for all citizens impossible to justify.⁶⁷ Moreover, these assumptions contradict almost all ethical, moral, and religious traditions, which universally hold that distribution matters. The human belief in equal concern for all (or at least all in one's "community," however defined) is fundamental, and likely stems from our basic genetic makeup.⁶⁸ Recent research in

64. ANDREU MAS-COLELL, MICHAEL WHINSTON & JERRY GREEN, MICROECONOMIC THEORY 186 (1995) ("[W]e see that *risk aversion is equivalent to the concavity of $u()$* and that strict risk aversion is equivalent to the strict concavity of $u()$. This makes sense. Strict concavity means that the marginal utility of money is decreasing. Hence, at any level of wealth x , the utility gain from an extra dollar is smaller than (the absolute value of) the utility loss of having a dollar less. It follows that a risk of gaining or losing a dollar with even probability is not worth taking.").

65. LAYARD & DE NEVE, *supra* note 55, at 204 (emphasis omitted) (citation omitted).

66. Kaldor efficiency and Hicks efficiency reformulate the surplus theory on the basis of ordinal utility. See J.R. Hicks, *The Rehabilitation of Consumers' Surplus*, 8 REV. ECON. STUD. 108, 108–10 (1941). However, to avoid the problem of distribution these notions rely on Kaldor's compensation principle. J.R. Hicks, *The Foundations of Welfare Economics*, 49 ECON. J. 696, 700, 710 (1939).

67. WILL KYMLICKA, CONTEMPORARY POLITICAL PHILOSOPHY 32–33 (2002) (arguing that moral philosophers are in basic agreement that a core principle of justice is equal consideration for each person).

68. See Kim Sterelny, *How Equality Slipped Away*, AEON (June 10, 2021), <https://aeon.co/essays/for-97-of-human-history-equality-was-the-norm-what-happened> [<https://perma.cc/CB9W-B65M>] (noting that through 97% of human history, equality was the norm); M. Dyble, G.D. Salali, N. Chaudhary, A. Page, D. Smith, J. Thompson, L. Vinicius, R. Mace & A.B. Migliano, *Sex Equality Can Explain the Unique Social Structure of Hunter-Gatherer Bands*, 348 SCIENCE 796, 796

anthropology and human biology suggests that “inequality aversion plays an important role in guiding human social decision-making and appears to be ubiquitous across human populations,”⁶⁹ presumably because “social groups with more altruists will, for various reasons, outcompete other groups,”⁷⁰ or for other reasons such as the necessity of collaboration for survival. Accordingly, an approach that considers only the total surplus and ignores distribution cannot be ethically or scientifically justified.

4. Willingness To Pay Assumes Preferences Are Always Self-Interested and Accurate

The defects in the output market surplus theory of welfare extend well beyond those originally acknowledged by Marshall and Pigou. The intractable problems extend to the use of willingness to pay to measure welfare and the assumptions that go along with it. F.Y. Edgeworth, a founder of neoclassical economics, stated the necessary assumption for using willingness to pay to measure welfare this way: “The first principle of economics is that every agent is actuated only by self-interest.”⁷¹ This is an important assumption because, if preferences are not necessarily self-interested, then it cannot be assumed that choices in the market necessarily reflect well-being. For example, as John Broome put the concern:

To be more exact, the choice needs to be based on good, self-interested reasons. They must be self-interested, because if a person were to make a choice for a reason which was not self-interested, then by considering the choice alone we should not get a proper indication of this person’s interest, as opposed to the interests of other people.⁷²

But experience tells us that people regularly act in ways that are not purely self-interested. Robert Frank summarized the state of the evidence as follows: “On the strength of the evidence, we must say that the self-interest model provides a woefully inadequate description of the way people actually behave. Yet the model continues to flourish.”⁷³

Experimental economics also finds that people do not behave in accordance with the self-interest model. Commenting on the totality of the experimental literature, economists Ernst Fehr and Urs Fischbacher stated: “First, during the last decade experimental economists have gathered overwhelming evidence that systematically refutes the self-interest hypothesis Second, there is also strong evidence indicating

(2015) (noting equality between men and women in hunter-gatherer societies). *See generally* LANTZ MILLER, *THE ROOTS OF EQUALITY: ANTHROPOLOGICAL AND NORMATIVE SOURCES* (2023); Yun Wang, Dang Zheng, Jie Chen, Li-Lin Rao, Shu Li & Yuan Zhou, *Born for Fairness: Evidence of Genetic Contribution to a Neural Basis of Fairness Intuition*, 14 SOC. COGNITIVE AFFECTIVE NEUROSCIENCE 539 (2019).

69. Katherine Jane McAuliffe, *The Evolution and Development of Inequity Aversion*, at iii (Mar. 2013) (Ph.D. dissertation, Harvard University), https://dash.harvard.edu/bitstream/handle/1/11156679/McAuliffe_gsas.harvard_0084L_10757.pdf [<https://perma.cc/5D22-HXST>].

70. Michael Tomasello, Alicia P. Melis, Claudio Tennie, Emily Wyman & Esther Herrmann, *Two Key Steps in the Evolution of Human Cooperation: The Interdependence Hypothesis*, 53 CURRENT ANTHROPOLOGY 673, 673 (2012).

71. SAMUEL BOWLES & HERBERT GINTIS, *A COOPERATIVE SPECIES: HUMAN RECIPROCITY AND ITS EVOLUTION* 9 (2011) (quoting F.Y. EDGEWORTH, *MATHEMATICAL PSYCHICS* 17 (1881)).

72. John Broome, *Choice and Value in Economics*, 30 OXFORD ECON. PAPERS 313, 333 (1978).

73. ROBERT FRANK, *PASSIONS WITHIN REASON: THE STRATEGIC ROLE OF THE EMOTIONS* 256 (1988).

that the deviations from self-interest have a fundamental impact on core issues in economics.”⁷⁴

Preferences can be other-regarding, meaning that choices are motivated by their effects on others, thereby compromising the link between choice and individual human welfare. Some choices are altruistic: someone reduces their own well-being to benefit the well-being of others.⁷⁵ Altruism by parents and within families is common and explained by the fact that family members carry the altruist’s genes.⁷⁶ And economists, such as Samuel Bowles and Herbert Gintis, have compiled significant evidence of non-kin-based altruism.⁷⁷

But other-regarding preferences can also be negative. Humans can harbor racial or ethnic bias, can be vengeful, and can at times be sadistic. Legal scholars Matthew Adler and Eric Posner offered the following example:

Frank has dedicated his life to leading the Ku Klux Klan and working for the oppression of blacks. Frank prefers that they be subordinated. The traditional welfare economist is committed to saying, in this case, that a race-based caste system might be worse for the oppressed but is better for Frank—better quite apart from any change in Frank’s material welfare or any other tangible benefit that racial oppression might produce.⁷⁸

Modern welfare economists consider negative, other-regarding preferences as a serious problem for a willingness-to-pay approach to measuring welfare.⁷⁹ For example, John Harsanyi, a Nobel Prize winning welfare economist, believed that “we must exclude all clearly antisocial preferences, such as sadism, envy, resentment, and malice.”⁸⁰ But once we move away from crediting all actual preferences, the process becomes more complicated, because we need an ethical theory to guide what preferences are excluded.⁸¹

74. Ernst Fehr & Urs Fischbacher, *Why Social Preferences Matter: The Impact of Non-Selfish Motives on Competition, Cooperation and Incentives*, ECON. J., Mar. 2002, C1, C1. Bowles and Gintis summarized the results of the literature on eight types of experimental games, including the prisoner’s dilemma, the dictator game, the ultimatum game, and various public goods games. BOWLES & GINTIS, *supra* note 71, at 19–45.

75. The material welfare economists, such as Pigou and Marshall, focused only on measurable outcomes like number of calories, not freezing, and not being a social outcast. Using this approach, it is easy to identify altruism. What is more difficult is identifying altruism when motives are subjective. See PIGOU, *supra* note 48, at 85; MARSHALL, *supra* note 43, at 49.

76. BOWLES & GINTIS, *supra* note 71, at 93–110; see also W.D. Hamilton, *The Genetical Evolution of Social Behaviour* (pts. I & II), 7 J. THEORETICAL BIOLOGY 1, 17 (1964).

77. BOWLES & GINTIS, *supra* note 71, at 53.

78. MATTHEW ADLER & ERIC POSNER, *NEW FOUNDATIONS OF COST-BENEFIT ANALYSIS* 33–34 (2006).

79. Charles Blackorby, Walter Bossert & David Donaldson, *Multi-Profile Welfarism: A Generalization*, 24 SOC. CHOICE & WELFARE 253, 257 (2005) (“Desire and preference accounts identify well-being with the satisfaction of self-interested individual wants. The (hypothetical) person must be fully informed and, for that reason, the preferences thus identified do not, in general, coincide with actual preferences.”).

80. John C. Harsanyi, *Morality and the Theory of Rational Behaviour*, in UTILITARIANISM AND BEYOND 39, 56 (Amartya Sen & Bernard Williams eds., 1977).

81. Ronald Dworkin argued that it is impossible to avoid counting other-regarding preferences. RONALD DWORKIN, *TAKING RIGHTS SERIOUSLY* 266–78 (1977). But the crediting of negative other-regarding preferences poses a challenge to democracy. A majority with negative other-regarding preferences can subordinate a minority. Dworkin made the interesting proposal that the foundation of legitimate inherent rights

Another necessary assumption that is required in order to equate preference with improved well-being involves the cognitive competence of human decision-makers. The connection between choice and well-being requires that agents are “rational” in the nontechnical sense that their “beliefs are [not] grossly out of kilter with available evidence.”⁸² Unfortunately, choices are influenced by the context and framing of the choice.⁸³

A further problem pointed out by Nobel Prize winning economist and psychologist Daniel Kahneman is that preference-based choices are merely an ex-ante prediction of the benefit one expects to receive from the choice made. There is often a disconnect, however, between formation of the preference and the actual experience of preference satisfaction. In particular, people are notoriously bad at predicting their degree of adaptation to post-choice situations. For example, people’s predictions of the satisfaction from a windfall in income do not take account of the immense ability humans have to adapt to higher income levels. Studies have found that recent lottery winners are no happier than those in a control group, for instance.⁸⁴ Economist Bruno Frey, summarizing the experimental literature on forecasting utility, concluded that individuals are not good at foreseeing how much utility they will derive from their future consumption. Research on affective forecasting shows, for instance, that people underestimate their ability to cope with negative effects. Usually, therefore, people have biased expectations about the intensity and duration of emotions. People fail to foresee that they will adapt more in the future than they predict at present.⁸⁵

Behavioral economists and cognitive psychologists have uncovered numerous other examples of misperception and cognitive errors. These errors open a gap between preference, choice, and well-being.⁸⁶ In sum, the willingness-to-pay approach to measuring welfare requires a plethora of unwarranted and dubious assumptions. As a consequence, welfare economists working with the cognitive sciences and other social scientists have developed an extensive multidimensional body of evidence concerning the factors that influence welfare.⁸⁷ Yet, antitrust economists paradoxically seem to

involves the protection of liberties that are threatened by large external preferences in a community. *Id.* at 275–78.

82. Paul Rozin & Edward Royzman, *Negativity Bias, Negative Dominance, and Contagion*, 5 PERSONALITY & SOC. PSYCH. REV. 269, 306–07 (2001).

83. Daniel Kahneman, Jack Knetsch & Richard Thaler, *The Endowment Effect, Loss Aversion, and Status Quo Bias*, 5 J. ECON. PERSPS. 193, 194 (1991).

84. Daniel Kahneman & Carol Varey, *Notes on the Psychology of Utility*, in INTERPERSONAL COMPARISONS OF WELL-BEING 127, 141–42 (Jon Elster & John E. Roemer eds., 1991).

85. BRUNO S. FREY & ALOIS STUTZER, HAPPINESS & ECONOMICS 20–25 (2002).

86. DANIEL HAUSMAN, MICHAEL MCPHERSON & DEBRA SATZ, ECONOMIC ANALYSIS, MORAL PHILOSOPHY, AND PUBLIC POLICY 130 (3d ed. 2017) (“The second objection arises from the fact that people are ignorant of many things. Consequentially, people may prefer something that is bad for them because they mistakenly believe it is beneficial. It is not true that x is better for A than y if and only if A prefers x to y . Indeed, many people live in circumstances in which their governments, their poverty, or their lack of education makes it almost impossible for them to make informed choices.”).

87. See, e.g., BRUNO S. FREY, HAPPINESS: A REVOLUTION IN ECONOMICS (2008); MARK ANIELSKI, THE ECONOMICS OF HAPPINESS: BUILDING GENUINE WEALTH (2007); JOSEPH STIGLITZ, AMARTYA SEN & JEAN-PAUL FITOUSSI, MISMEASURING OUR LIVES: WHY GDP DOESN’T ADD UP (2010); ALEX MICHALOS, DEVELOPMENT OF QUALITY OF LIFE THEORY AND ITS INSTRUMENTS (2011); DANIEL KAHNEMAN, ED DIENER & VORBERT SCHWARZ, WELL-BEING: THE FOUNDATIONS OF HEDONIC PSYCHOLOGY (1999).

remain willfully ignorant of this work. Section VI argues that this literature should replace the surplus approach in guiding antitrust policy.

5. Additional Inconsistencies of the Surplus Approach

Marshall measured an individual's demand curve at the amounts the consumer was willing to pay for each marginal quantity of the product. However, Marshall did not correct for changes in income remaining as the consumer made marginal purchases. Kaldor and Hicks reformulated Marshall's consumer surplus model in a way that is consistent with ordinal utility, an improvement over Marshall, and these contributions fixed Marshall's "constant income" mistake. To do so, Kaldor and Hicks defined the concepts of "compensating variation" (CV) and "equivalent variation" (EV); equivalently, one can use "willingness (and ability) to pay" (WATP) and "willingness to accept" (WTA). Consumer surplus lies between EV and CV (equivalently, between WATP and WTA). This dual nature of value, while incontestably more correct than the surplus approach, turned out to be even more problematic, however, because EV and CV can be inconsistent. EV and CV can result in different policy recommendations, or they can recommend one policy but once implemented can then dictate that the original policy be restored, as was first pointed out by economist Tibor Scitovsky.⁸⁸ These problems are incurable.⁸⁹ To ensure consistency, all individuals must have preferences that are quasi-homothetic and identical at the margin.⁹⁰ This means, for example, that if you make \$100 each week and spend \$10 on pizza, then when your income increases to \$100,000 a week you must spend \$10,000 on pizza.⁹¹

The accumulation of such problems has led welfare economists to reject the surplus approach. As Antoinette Baujard, a prominent welfare economist, described, "[e]xtremely serious . . . [criticisms] have been raised against this approach by the leading experts in the field."⁹² The 2015 Economics Nobel laureate Angus Deaton famously concluded that "there is no valid theoretical or practical reason for ever integrating under a Marshallian demand curve" (that is, calculating consumer surplus).⁹³

88. See generally T. de Scitovszky, *A Note on Welfare Propositions in Economics*, 9 REV. ECON. STUD. 77 (1941). His name is sometimes spelled "Scitovszky" or "de Scitovszky." See *id.*

89. See generally Charles Blackorby & David Donaldson, *A Review Article: The Case Against the Use of the Sum of Compensating Variations in Cost-Benefit Analysis*, 23 CAN. J. ECON. 471 (1990); Kjell Arne Brekke, *The Numéraire Matters in Cost-Benefit Analysis*, 64 J. PUB. ECON. 117 (1997).

90. Blackorby & Donaldson, *supra* note 89, at 473; see also W.M. Gorman, *The Intransitivity of Certain Criteria Used in Welfare Economics*, 7 OXFORD ECON. PAPERS 25, 28 (1955).

91. We have summarized this problem and several others in a previous work. See generally Glick et al., *supra* note 2.

92. Antoinette Baujard, *Welfare Economics*, (Groupe d'Analyse et de Théorie Economique Lyon-St Étienne, Working Paper No. 1333, 2013), <https://shs.hal.science/halshs-00906907/document> [<https://perma.cc/4EAJ-7FTM>] (first citing KENNETH J. ARROW, *SOCIAL CHOICE AND INDIVIDUAL VALUES* (2d ed. 1963); and then citing ROBIN BOADWAY & NEIL BRUCE, *WELFARE ECONOMICS* (1984)) (describing the main problems with this approach and listing prominent welfare economists that criticize it).

93. Marco Becht, *The Theory and Estimation of Individual and Social Welfare Measures*, 9 J. ECON. SURVEYS 53, 77 (1995) (quoting Angus Deaton, *Demand Analysis*, in 3 HANDBOOK OF ECONOMETRICS 1767, 1828 (Zvi Griliches & Michael D. Intriligator eds., 1986)).

In sum, cost savings cannot be assumed to result in welfare increases based on a surplus theory of welfare. The surplus theory is too riddled with wildly unrealistic assumptions and problems to be a reliable link between cost savings and welfare. Nor is there any basis in economics for referring to cost savings, even with a positive welfare effect, as “efficiencies.” In economics, efficiency refers to Pareto efficiency. But maybe the surplus approach can be resurrected by connecting it to Pareto efficiency? In that case, perhaps Pareto efficiency could be extended to cost savings. But, as Section III establishes, that also is a false hope.

III. THE PARETO THEORY OF WELFARE AND OF EFFICIENCY

Even at the time Marshall advanced his theory of consumer surplus, it was met with considerable skepticism. Partially in response to that skepticism, Vilfredo Pareto developed welfare economics in a manner that did not assume comparability of individual utility. Pareto’s theory also made it possible to consider all markets simultaneously.

In 1906, Pareto published his *Manual of Political Economy*, in which he developed the Pareto Principle.⁹⁴ He defined “Pareto improvements” as changes in which at least one agent is benefitted, while none are harmed. (The amount of benefit, which would be cardinal, is irrelevant: only direction matters.) Pareto defined, for the first time, the word “efficiency” in the context of economic policy: he defined a situation to be “efficient” if no Pareto improvements from it are possible, meaning that there is no possible change that would benefit one agent without making another worse off.⁹⁵

Pareto permeates the discipline of economics. *Every* major first-year Ph.D.-level microeconomics textbook today adopts Pareto’s definition of efficiency, although they sometimes redundantly introduce the terms “Pareto efficiency” and “Pareto optimality” as synonyms for “efficiency.” (Even more confusing is economists’ penchant to use “optimality” as a synonym for “Pareto optimality” even though this clashes with economists’ use of the word “optimal” in many other contexts.) In the well-known texts of Hal Varian,⁹⁶ and of Geoffrey Jehle and Philip Reny,⁹⁷ the word “efficiency” is *exclusively* used as a synonym for Pareto efficiency. In Andreu Mas-Colell, Michael

94. See generally VILFREDO PARETO, *MANUAL OF POLITICAL ECONOMY* (Aldo Montesano, Alberto Zanni, Luigino Bruni, John S. Chipman & Michael McLure eds., 2014) (1906).

95. This definition is well known in economics. See, e.g., MAS-COLELL ET AL., *supra* note 64, at 307–08 (“An economic outcome is said to be Pareto optimal if it is impossible to make some individuals better off without making some other individuals worse off. This concept is a formalization of the idea that there is no waste in society, and it conveniently separates the issue of economic efficiency from more controversial (and political) questions regarding the ideal *distribution* of well-being across individuals.”).

96. Varian neither defined nor used the single word “efficiency” in the text of his book. It appears in some of his headings, such as “13.10 Efficiency and Welfare,” but the accompanying text always puts the word “Pareto” before “efficiency.” See, e.g., HAL R. VARIAN, *MICROECONOMIC ANALYSIS* 226, 227 (3d ed. 1992).

97. See, e.g., GEOFFREY A. JEHLE & PHILIP J. RENY, *ADVANCED MICROECONOMIC THEORY* 186 (3d ed. 2011) (“Now it would seem that to obtain an *efficient* outcome, the total surplus—the sum of consumer and producer surplus—must be maximised. Otherwise, *both* the producer and the consumer *could be made better off* by redistributing resources to increase the total surplus, and then dividing the larger surplus among them so that each obtains strictly more surplus than before. But we must take care.” (emphases added)).

Whinston, and Jerry Green's text, *Microeconomic Theory* (MCWG),⁹⁸ all but one use of the word "efficiency" in the main text refers to Pareto efficiency.⁹⁹

Thus, the question arises: Might Pareto efficiency provide a usable alternative or enhancement to surplus theory in antitrust analysis? To answer this question, we must first examine the conditions for Pareto efficiency, its ethical attractiveness, and its drawbacks, because such an understanding is a necessary foundation to considering the relationship between Pareto efficiency, surplus theory, and cost savings.

A. Conditions for Pareto Efficiency

There are three necessary conditions for a Pareto optimum: distribution efficiency, production efficiency, and allocative efficiency. These conditions define what economists mean by efficiency and the various types of efficiency.

Distribution efficiency can be defined in a simple pure exchange economy (i.e., an economy with no production). In such an economy, provided certain simplifying assumptions are made, a Pareto efficient allocation has the following property: suppose that, upon taking one unit of a commodity—say, apples—from one person—say, Jones—it is the case that Jones would accept " x " units of another commodity—say, bananas—as full compensation for his loss of the apple. The number x is called Jones's marginal rate of substitution (MRS) of bananas for apples. At a Pareto efficient allocation, i.e., where no more Pareto improvements are possible, all persons in the economy must have equal MRS of bananas for apples.¹⁰⁰ In this situation, where the economy is limited to exchange, we say that we have achieved "distributive efficiency."

Production efficiency occurs when firms have exhausted all voluntary mutually beneficial trades of inputs. This occurs in an economy with production when the "marginal rate of technical substitution" (MRTS) (also known as the "rate of technical substitution") of the contribution that different "factors of production" (for example, land and irrigation water) make to output (for example, apples or bananas) are all equal. The "MRTS of land for water in the production of apples" is the extra amount of land

98. MAS-COLELL ET AL., *supra* note 64.

99. See, e.g., *id.* at 307–08. Although nowhere in the main text of the book is there an instance of "efficiency" being used in the sense of "cost saving," there is one footnote in the book that does use "efficiency" that way: "An example where the assumption of an optimal allocation of production is not valid is the Cournot duopoly model of Chapter 12 when firms have different efficiencies. There, firms with different costs have different levels of marginal cost in an equilibrium." *Id.* at 330 n.18.

100. The proof of this result is by contradiction. Begin by supposing that the situation is Pareto efficient but that there are two consumers, Jones and Smith, whose MRS's of apples for bananas are different. Suppose Jones's MRS is three and Smith's MRS is two. Now take an apple away from Smith. Give Smith two bananas taken from Jones, thus leaving Smith as well off as she was initially; and give Jones the apple taken from Smith. Had Jones been left with one more apple and three fewer bananas, Jones would have been as well off as he was originally, but he is actually left with one more apple and two fewer bananas, so he is better off than he was originally. With Smith as equally well off as she was originally and Jones better off than he was originally, the original situation cannot have been Pareto efficient because additional improvement was possible. This contradiction establishes the proof. The case in which Jones's MRS was less than Smith's is proven similarly. For a discussion of this and other issues with Pareto efficiency, see Mark Glick & Gabriel A. Lozada, *The Erroneous Foundations of Law & Economics* (Inst. for New Econ. Thinking, Working Paper No. 149, 2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3812839 [<https://perma.cc/SX4C-DJQK>].

needed to keep the number of apples produced constant if one reduced the amount of water used by one unit. In an economy with more than one output, Pareto efficiency requires “efficient production,” which in turn requires MRTS to be equal in each industry; otherwise, a rearrangement of the utilization of the factors of production could result in greater output of one commodity and no smaller output of any other commodity. Thus, for example, “efficient production” would require equality of “the MRTS of land for water in the production of apples” and “the MRTS of land for water in the production of bananas.”

Finally, allocative efficiency occurs when neither an economy’s utilization of its factors of production nor its distribution of produced goods can be altered to make some people better off without making some others worse off. An economy has allocative efficiency if it has both distribution efficiency and production efficiency. When economists refer to “efficiency” (modified by no adjective) in an economy with production, they mean “allocative efficiency.” An economy with production is Pareto efficient if and only if it has allocative efficiency.¹⁰¹

B. *The Attractiveness of and Objections to Pareto Efficiency*

Pareto efficiency has several admirable qualities lacking in the surplus approach, principally the ability to avoid most of the questionable assumptions required by the surplus approach. Pareto efficiency does not require an assumption of cardinal utility, it does not require assuming constant and equal marginal utility of money, and it considers the impact of all markets in the economy. This gives Pareto efficiency theoretical appeal.

Pareto efficiency is also ethically attractive because policy change is recommended only if no individual is harmed. In this respect, all individuals are treated with equal consideration, because policy change requires unanimous consent. This is sometimes referred to as “the principle of minimal benevolence.”¹⁰²

On the other hand, Pareto’s approach is not value neutral. Pareto’s theory attributes no value to increased equality. An allocation that gives all society’s goods and services to one person and lets all other people starve to death is Pareto efficient

101. The proof of this result is too lengthy to present here, but we can show the proof of a closely related result in a model with a simpler description of production. To this end, abstract away from factors of production (land and irrigation water, in our discussion above), and define the “marginal rate of transformation” (MRT) to refer to the ultimate tradeoff at the margin between apple output and banana output. In particular, assume that, adjusting land and irrigation water appropriately, reducing output by one apple would result in the ability to produce four more bananas, and vice versa, so that the MRT of bananas for apples is four. Under such circumstances, any situation in which the common MRS of bananas for apples of Jones and of Smith was not equal to four would not be Pareto optimal. To prove this, assume by way of contradiction that the situation is Pareto optimal but that the MRT is not equal to the MRS: suppose that although the MRT of bananas for apples is four, the MRS of bananas for apples of Jones and Smith is five. Create two more apples, one each for Jones and Smith, by using as inputs eight bananas, four each from Jones and Smith. Each person now has one more apple and four fewer bananas. Had each person been left with one more apple and five fewer bananas, they would be equally as well off as before, but actually they are left with one more apple and four fewer bananas, so they are better off than they were before; hence, the original situation was not Pareto optimal. The case in which the MRT is greater than the joint MRS is proven similarly. See Glick & Lozada, *supra* note 100.

102. HAUSMAN ET AL., *supra* note 86, at 150.

(assuming no other-regarding preferences). Additionally, a policy that did slight harm to one person but enormously benefitted millions of others would not pass muster under the Pareto principle.

Nonetheless, because of the attractiveness of Pareto efficiency, and because economics has adopted Pareto's principle as the definition of "efficiency," some antitrust economists and scholars have attempted to derive the surplus theory from Pareto efficiency and thereby link cost savings to economic efficiency (that is, to Pareto efficiency). Before addressing these attempts, two more economics concepts must be defined: the first fundamental theorem of welfare economics and the theory of the second best. These concepts will be necessary to evaluate the link between cost savings and Pareto efficiency discussed in Section IV below.

C. *An Explanation of the First Fundamental Theorem of Welfare Economics*

Pareto efficiency is incorporated into two formal theorems of welfare economics. This Part addresses the first fundamental theorem of welfare economics, which was originally proven by Oskar Lange, Abba Lerner, and Harold Hotelling, and was later generalized by Kenneth Arrow and Gerard Debreu.¹⁰³

The first fundamental theorem deals with perfectly competitive economies. "Perfect competition" is defined as a situation in which all economic agents are price takers—they believe they are unable to affect any of the prices relevant to themselves (input prices or output prices). Such a belief would only be rational if there were an infinity of infinitely small firms, which is obviously very different from today's economy. Note that a necessary condition for a perfectly competitive equilibrium to exist in the first place is that no sector of the economy has increasing returns to scale (because a perfectly competitive firm's optimal output under increasing returns to scale, assuming there exists some output level generating positive profit, is infinity, which cannot be an equilibrium level of output). Of course, if no sector of the economy had increasing returns to scale, few mergers would ever generate cost savings; instead, one might expect that firm breakups would generate cost savings, or that firms of any size would be equally prosperous. This should be a clue that the first theorem of welfare economics would have problematic relevance to antitrust policy in a modern economy.

The first fundamental theorem states that, under a particular set of further unrealistic assumptions, perfectly competitive equilibria are Pareto optimal.¹⁰⁴ The further unrealistic assumptions are: (1) there are no externalities, (2) there are no barriers to entry, and (3) all agents have the same information. We will refer to perfect competition, no increasing returns to scale, and the three additional assumptions itemized above as the "Arrow-Debreu assumptions." When the Arrow-Debreu assumptions hold, perfect competition is Pareto efficient. This is the first fundamental theorem of welfare economics.

103. See Baujard, *supra* note 92, at 6.

104. *Id.* at 7 (noting that preferences must also be monotonic and markets must be complete).

D. *An Explanation of the Theory of the Second Best*

The first theorem derives part of its importance from another result: when the Arrow-Debreu assumptions hold, at least one perfectly competitive equilibrium exists. This additional result ensures that the first theorem is not empty. However, this is a theorem of existence, not directionality—that is, nothing in this existence theorem establishes that an Arrow-Debreu economy would ever *move* in the direction of perfectly competitive equilibrium. The existence theorem is solely a proof of existence—it asserts no dynamic theory of stability or convergence,¹⁰⁵ and attempts to add such a theory later are hindered by the Sonnenschein-Mantel-Debreu theorem that excess demand functions need not be well-behaved and can have any shape.¹⁰⁶ Furthermore, the real economy is not perfectly competitive, because it does not even approximately obey the Arrow-Debreu assumptions. If it did, antitrust problems would not exist.

To evaluate the efforts to link cost savings with Pareto efficiency we must also introduce the theory of the second best. R. G. Lipsey and Kelvin Lancaster's article *The General Theory of the Second Best*¹⁰⁷ shows that if the economy is not perfectly competitive, then any incomplete move in the direction of perfect competition can reduce welfare rather than increase it.¹⁰⁸ The theory of the second best emphasizes how pitifully little can be said about how to improve an economy which is short of attaining "perfect competition everywhere."¹⁰⁹

To be more precise, the theory of the second best states that if there are more than zero deviations from the Arrow-Debreu assumptions, there are situations in which

105. See Frank Ackerman, *Still Dead After All These Years: Interpreting the Failure of General Equilibrium*, 9 J. ECON. METHODOLOGY 119, 120 (2002) ("The equilibrium in a general equilibrium model is not necessarily either unique or stable, and there are apparently no grounds for dismissing such ill-behaved outcomes as implausible special cases."); Duncan K. Foley, *What's Wrong with the Fundamental Existence and Welfare Theorems?*, 75 J. ECON. BEHAV. & ORG. 115, 119 (2010) ("[N]o robust account of the stability of an exchange economy toward the set of Walrasian allocations exists.").

106. Hugo Sonnenschein, *Market Excess Demand Functions*, 40 ECONOMETRICA 549, 549 (1972); Rolf R. Mantel, *On the Characterization of Aggregate Excess Demand*, 7 J. ECON. THEORY 348 (1974); Hugo Sonnenschein, *Do Walras' Identity and Continuity Characterize the Class of Community Excess Demand Functions?*, 6 J. ECON. THEORY 345 (1973); Gerard Debreu, *Excess Demand Functions*, 1 J. MATHEMATICAL ECON., 15, 15 (1974); S. Abu Turab Rizvi, *The Sonnenschein-Mantel-Debreu Results After Thirty Years*, 38 HIST. POL. ECON. 228, 230 (2006).

107. R.G. Lipsey & Kelvin Lancaster, *The General Theory of the Second Best*, 24 REV. ECON. STUD. 11 (1956).

108. According to Professor Richard S. Markovits, this follows although "law-and-economics scholars and various other sorts of economists [have] chosen to ignore it." Richard S. Markovits, *Second-Best Theory and Law & Economics: An Introduction*, 73 CHI.-KENT L. REV. 3, 3, 7–8 (1998).

109. See Lipsey & Lancaster, *supra* note 107, at 17. More precisely, they note:

It should be obvious from the discussion in the preceding sections that the principles of the general theory of second best show the futility of "piecemeal welfare economics." To apply to only a small part of an economy welfare rules which would lead to a Paretian optimum if they were applied everywhere, may move the economy away from, not toward, a second best optimum position. A nationalized industry conducting its price-output policy according to the Lerner-Lange "Rule" in an imperfectly competitive economy may well diminish both the general productive efficiency of the economy and the welfare of its members.

Id. (footnote omitted).

adding another deviation from the Arrow-Debreu assumptions will be welfare improving (i.e., will be a Pareto improvement). For example, if an industry is using a polluting technology, then in the absence of any government pollution regulation, allowing the industry to merge to monopoly might increase welfare, because it will reduce output and thus reduce pollution. Or consider another example: if firms in an industry have some monopsony power in the labor market, because they are the only buyers, then allowing the workers to unionize might increase welfare, because it might raise wages back towards their competitive level.¹¹⁰ It follows from the above that antitrust efforts to get “closer” to the Arrow-Debreu conditions may well be misguided because they could result in lower welfare.

In sum, all economics can tell us is that if the economy were in a position of perfect competition, then it would be Pareto efficient. But there is no theory that establishes that an economy would ever achieve this state on its own, nor that intervention to improve competition in some part of the economy would move us closer to Pareto efficiency (i.e., would be a Pareto-improving move). This creates a challenge for economists who wish to show that cost savings or “more competition” can advance the economy toward greater Pareto efficiency. We now turn to those theories and demonstrate their inability to salvage the “efficiency as cost savings” approach.

IV. THEORIES THAT ATTEMPT TO DERIVE THE SURPLUS THEORY AND THE BENEFIT OF COST SAVINGS FROM PARETO EFFICIENCY

This Section describes two attempts by antitrust economists to tether the surplus theory to Pareto efficiency and thereby provide a link between cost savings and “efficiency” as understood by economists. Both rely on the concepts explained in Section III.

A. *Deriving Efficiency of Consumer and Producer Surplus from the First Fundamental Theorem of Welfare Economics*

Several industrial organization textbooks and antitrust papers attempt to link the sum of consumer and producer surplus to Pareto efficiency by use of the first fundamental theorem of welfare economics. The implication is that surplus can be thought of as efficiency because of its relationship to Pareto efficiency, and that cost savings that increase surplus are also, therefore, a valid type of efficiency. The argument proceeds as follows: according to the first fundamental welfare theorem, perfect competition is Pareto efficient. In perfect competition, price is equal to marginal cost in all markets. Now the link: when price equals marginal cost, the sum of consumer and producer surplus is at its maximum. Thus, maximizing consumer and producer welfare results in Pareto efficiency. One can find this argument in the industrial organization textbooks authored by Kip Viscusi, John Vernon, and Joseph

110. Eugene K. Kim, *Labor's Antitrust Problem: A Case for Worker Welfare*, 130 YALE L.J. 428, 436–38. Unions *might* raise wages “too much,” above their competitive level, and even so much that unionization reduces welfare. However, the idea that the competitive level is the optimal one is itself only true if all other markets in the economy are perfectly competitive, because of the theory of the second best. Therefore, in the real world, determining the theoretically desirable wage level would be difficult.

Harrington,¹¹¹ and Giles Burgess.¹¹² It reappears in Kolasky and Dick's 2003 merger efficiency paper,¹¹³ and in the Ph.D. microeconomics textbooks by Varian¹¹⁴ and by Jehle and Reny.¹¹⁵

In our view, the argument is both misleading and has, at best, only marginal utility because of its reliance on the assumption of perfectly competitive markets (including a full set of futures markets). The fact that in a perfectly competitive equilibrium the economy achieves both Pareto efficiency and maximum consumer and producer surplus means very little for antitrust policy in the real world, because of the theory of the second best. Because perfectly competitive markets do not exist, increasing consumer and producer surplus in any actual economy does not necessarily move the economy closer to Pareto efficiency. One cannot even say that decreasing the number of competitors in any market decreases social welfare—it does not, for example, in our earlier example of an industry of polluting firms.

Presumably, the authors of these textbooks understand the limitations and unrealistic assumptions of their argument. Yet, remarkably, they are willing to present it with, at best, caveats banished to footnotes, thereby creating the impression that such caveats can be ignored. This is a disservice to readers interested in applying economics to antitrust policy.

B. *The Assumptions Necessary To Derive Surplus Theory from Pareto Efficiency*

In his paper *Essays on Consumer Welfare and Competition Policy*, Gregory Werden, then-senior economic counsel at the FTC, set forth the correct relationship between Pareto optimality and total surplus:

Following the formal analysis of Mas-Colell, Whinston and Green . . . changes in total surplus can be related directly to changes in social welfare if three assumptions are made. First, due to the smallness of the part of the economy under study, prices in the rest of the economy are unaffected, so all other goods are treated as a single composite good—a “numeraire.” Second, each consumer’s utility equals the amount consumed of the numeraire plus a function of the amount consumed in the market under

111. W. KIP VISCUSI, JOHN VERNON & JOSEPH HARRINGTON, JR., *ECONOMICS OF REGULATION AND ANTITRUST* 75–76 (3d ed. 2001). However, the authors make clear that the argument is flawed. For example:

Many of the listed assumptions will be relaxed and discussed in detail throughout this book. . . .

Once we begin to relax these assumptions, it becomes clear that we need to develop partial equilibrium tools. That is to say, it becomes incredibly complex to deal with a general equilibrium model in which some markets are monopolies, externalities exist, imperfect information about product quality obtains, and so on. Hence, we now turn to welfare economics concepts in the context of a single market

Id. (footnote omitted) (citing Lipsey & Lancaster, *supra* note 107).

112. See generally GILES H. BURGESS, *THE ECONOMICS OF REGULATION AND ANTITRUST* (1997).

113. Kolasky & Dick, *supra* note 21, at 242–43.

114. VARIAN, *supra* note 96, at 222–25.

115. JEHL & RENY, *supra* note 97, § 4.3.3, at 186–87.

study. Third, a redistributive mechanism allocates the numeraire in the socially optimal manner.¹¹⁶

Werden was correct that, under these three assumptions made by MCWG, a relationship between Pareto efficiency and consumer and producer surplus could be established.¹¹⁷ What is remarkable is that Werden offered no comment on the nonsensical and fanciful nature of these assumptions.¹¹⁸

To be precise, if the first two assumptions are satisfied, then maximizing the surplus in each single market (i.e., “in partial equilibrium”) achieves a Pareto efficient allocation for the entire economy.¹¹⁹ The third assumption is only required in order to go beyond Pareto efficiency and maximize social welfare. We next consider the realism of these assumptions one by one.

1. The Market Must Be Tiny, and All Other Markets Must Be Perfectly Competitive, and the Arrow-Debreu Assumptions Must Hold

The first assumption has several parts, only the first of which is alluded to by Werden. He said that the market of concern must be so tiny that “prices in the rest of the economy are unaffected, so all other goods are treated as a single composite good—a ‘numeraire.’”¹²⁰ Because MCWG recognized this as a very strong assumption, they noted that it can be replaced by instead assuming that the nonsubstitution theorem applies. This roughly means that the numeraire must be the only nonproduced input into production, that there can be no joint production anywhere in the economy, and that all other sectors must have constant returns to scale.¹²¹ But, the nonsubstitution theorem assumptions seem even less realistic than the “tiny market” assumption.¹²²

116. Gregory J. Werden, *Essays on Consumer Welfare and Competition Policy*, SSRN, at 2 (Mar. 2, 2009) [hereinafter Werden, *Consumer Welfare*], https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1352032 [<https://perma.cc/M57Q-XPJT>]; see also MAS-COLELL ET AL., *supra* note 64, at 316–34.

117. MAS-COLELL ET AL., *supra* note 64, at 328–34.

118. Werden, *Consumer Welfare*, *supra* note 116, at 2. This is the case even though MCWG themselves clearly lay out these assumptions in their sections 10.E and 10.G. See MAS-COLELL ET AL., *supra* note 64, at 328–34, 341–44.

119. This is MCWG’s Proposition 10.D.1. See MAS-COLELL ET AL., *supra* note 64, at 325–26.

120. Werden, *Consumer Welfare*, *supra* note 116, at 2.

121. MAS-COLELL, ET AL., *supra* note 64, at 342 (“[T]he nonsubstitution theorem . . . implies that the prices of all other goods will remain fixed if the numeraire is the only primary (i.e., nonproduced) factor, all produced goods other than *l* are produced under conditions of constant returns using the numeraire and produced commodities other than *l* as inputs, and there is no joint production.”).

122. MCWG suggested another way out of the tiny market assumption, but it did not help much either. They wrote:

Even when we cannot assume that all other prices are fixed, however, a generalization of our single-market partial equilibrium analysis is sometimes possible. Often we are interested not in a single market but in a group of commodities that are strongly interrelated either in consumers’ tastes (tea and coffee are the classic examples) or in firms’ technologies. In this case, studying one market at a time while keeping other prices fixed is no longer a useful approach because what matters is the simultaneous determination of all prices in the group. However, if the prices of goods outside the group may be regarded as unaffected by changes within the markets for this group of commodities, and if there are no wealth effects for commodities in the group, then we can extend much of the analysis presented in Sections 10.C to 10.F.

What Werden did not mention is that the tiny market assumption is not the only condition placed on other markets. There is an even more seriously problematic assumption described by MCWG:

We conclude this section with a warning: When the numeraire represents many goods, the welfare analysis we have performed is justified only if the prices of goods other than good l are undistorted in the sense that they equal these goods' true marginal utilities and production costs. Hence, these other markets must be competitive, and all market participants must face the same price. If this condition does not hold, then the costs of production faced by producers of good l do not reflect the true social costs incurred from their use of these goods as inputs.¹²³

The actual assumption is that *all the other markets must be perfectly competitive*, and there must be *no distortionary taxes anywhere, nor any externalities*.¹²⁴ These conditions should not be surprising, given our remarks above about the theory of the second best: maximizing surplus *in this one market* turns out to achieve a perfectly competitive equilibrium and maximizes welfare, but only if all the other markets are *also* in perfectly competitive equilibrium.¹²⁵ If one of the other markets is not perfectly competitive or has an externality, then maximizing surplus in this one market, thereby achieving perfectly competitive equilibrium in this one market, has no guaranteed welfare implications, and might make welfare worse.

But, in the real world, the “other” markets will never all be perfectly competitive and free of externalities. If they were, antitrust would only be a concern in a single industry. Consequently, maximizing surplus does not, in the real world, lead to Pareto efficiency. The obvious conclusion economists should have drawn is that the surplus theory cannot be linked to Pareto efficiency. Yet, remarkably, this is not the conclusion conveyed to students. Moreover, there is no defensible retreat to the proposition that “the closer we get to a world of perfect competition and no market distortions, the closer surplus maximization will approximate Pareto Efficiency.” The theory of the second best establishes that getting closer does not necessarily make things better.

2. Utility Must Be Quasilinear

Now, consider the second assumption. In Werden's words, “each consumer's utility equals the amount consumed of the numeraire plus a function of the amount consumed in the market under study.”¹²⁶ This is the “quasilinear utility” assumption that in MCWG's notation requires individuals' utility to have the form $m + \phi(x)$ where m is the composite “numeraire” good and x is the good under study.¹²⁷ The practical implication of this mathematics is stated clearly: “Recall that with quasilinear

Id. (emphasis omitted). However, these two “if” clauses are only slightly weaker than the conditions laid out in the body of our discussion of the tiny market's heroic assumptions.

123. MAS-COLELL ET AL., *supra* note 64, at 334.

124. Thus, the assumption requires that proper taxes have been imposed so that the externalities' prices are undistorted. But how are the proper taxes to be calculated when the externality is intertemporal and multigenerational, as in climate change?

125. See *supra* notes 101–124 and accompanying text.

126. Werden, *Consumer Welfare*, *supra* note 116, at 2.

127. MAS-COLELL ET AL., *supra* note 64, at 317.

utility functions, wealth effects for non-numeraire commodities are null.”¹²⁸ In other words, *everyone in the entire economy has to consume an identical amount of the good x under study* (assuming everyone faces the same prices). That is what “null (or no) wealth effect” or “null (or no) income effect” actually implies. Note the condition is not that everyone has to spend an identical *proportion* of their budget on this good—instead, everyone has to consume precisely the same *amount* of this good.¹²⁹ This is complete fiction, not serious social science.

MCWG describe the assumption as follows (note that their “ x ” is their consumer’s consumption of their “good l ”):

The assumption of no wealth effects for good l , on the other hand, is critical for the validity of the style of welfare analysis that we have carried out in this chapter. Without it . . . Pareto optimality cannot be determined independently from the particular distribution of welfare sought, and we already know . . . that area measures calculated from Walrasian demand functions [i.e., surplus measures] are not generally correct measures of compensating or equivalent variations (for which the Hicksian demand functions should be used).¹³⁰

The implication is clear. If everyone in the entire economy is not consuming an identical amount of the good under study, there is no way to get from “surplus in one market” to Pareto efficiency. This unreasonable assumption further breaks any realistic link between consumer and producer surplus and Pareto efficiency.¹³¹

3. There Must Be a Social Planner To Establish that Maximizing Surplus Maximizes Welfare

The third assumption takes us even farther afield from reality. To show that maximizing surplus actually leads to the unique socially optimal allocation for *any* social welfare function would require a truly bizarre assumption. It requires that there is an omniscient and omnipotent social planner who “allocates the numeraire in the socially optimal manner.”¹³² As MCWG described:

In the discussion that follows, we assume that the welfare judgments of society are embodied in a social welfare function $W(u_1, \dots, u_I)$ assigning a social welfare value to every utility vector $(u_1, \dots, u_I)$ In addition, we suppose that (as in the theory of the normative representative consumer . . .)

128. *Id.*

129. What if your budget is insufficient to consume this amount? Why, then you just consume negative amounts of some other goods! Their exact quotation is: “We let each consumer’s consumption set be $\mathbb{R} \times \mathbb{R}_+$, and so we assume for convenience that consumption of the numeraire commodity m can take negative values. This is to avoid dealing with boundary problems.” *Id.*

130. *Id.* at 343.

131. Yet, it is regrettably common for economists to adopt the assumption of quasilinear utility, arguing that income effects are “small,” and pointing as evidence to a famous 1976 paper by Robert Willig. *See* Robert Willig, *Consumer Surplus Without Apology*, 66 AM. ECON. REV. 589 (1976). However, even in Willig’s paper, hiding in plain sight in Table 1 is one entry having the relative error of using consumer surplus instead of an exact welfare measure as being 125%. *Id.* at 595 tbl.1. *See* MAS-COLELL ET AL., *supra* note 64, at 90 for a discussion regarding consumer surplus that “the approximation error may be quite large as a fraction of the deadweight loss.”

132. Werden, *Consumer Welfare*, *supra* note 116, at 2.

there is some central authority who redistributes wealth by means of [lump sum] transfers of the numeraire commodity in order to maximize social welfare. The critical simplification offered by the quasilinear specification of individual utility functions is that when there is a central authority who redistributes wealth in this manner, *changes in social welfare can be measured by changes in the Marshallian aggregate surplus . . . for any social welfare function that society may have*.¹³³

The existence of this benevolent, omniscient central authority is unrealistic to the point of absurdity, but it is important to realize how heavily many economists depend on that assumption, and for how long they have done so. A revealing example is in Tirole's textbook, where one reads:

Market intervention does have desirable or undesirable income-redistribution effects. But I will [be] . . . using Musgrave's framework in which the distribution branch of government worries about distribution and the allocation branch . . . deals with efficiency. . . . The classic drawback of this approach is that the distribution branch may not function, and compensation need not occur. *This caveat should be borne in mind in all our welfare conclusions*. For instance, the conclusion . . . that allowing a monopolist to price-discriminate perfectly improves welfare would be reversed if social planners were to put a much higher weight on the consumers' incomes than on the incomes of the firm's shareholders.¹³⁴

Positing the existence of this nonexistent benevolent central authority is pernicious beyond the fact that no such entity exists.¹³⁵ To the extent this assumption leads to the approval of more mergers, there are increased resources that will be spent to influence governments to establish rules that favor big business, not to distribute welfare.¹³⁶

133. MAS-COLELL ET AL., *supra* note 64, at 328.

134. TIROLE, *supra* note 46, at 12 (emphasis added) (citation omitted).

135. See Carl Shapiro, *Antitrust: What Went Wrong and How To Fix It*, ANTITRUST, Summer 2021, at 33, 42 ("The Populists implicate lax antitrust as the central cause of many of our social and economic problems, while I see other public policy failures—including weak voter-protection and anti-corruption laws, inadequate protections for workers, highly unequal access to education and health care, and a tax system that contains many regressive elements—as the central culprits."). But the "other public policy failures" are *caused* by lax antitrust. Shapiro objected, using the UK and France as counterexamples. *Id.*

136. See MORDECAI KURZ, *THE MARKET POWER OF TECHNOLOGY: UNDERSTANDING THE SECOND GILDED AGE* 4 (2023) ("I therefore argue that, unrestrained by policy, rising market power threatens the foundation of democratic institutions."). For empirical evidence of this see Bo Cowgill, Andrea Prat & Tommaso Valletti, *Political Power and Market Power*, SSRN, 1, 4 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4390776 [<https://perma.cc/4SUU-EQBF>] (last updated Nov. 10, 2023) (finding that "a positive association between mergers" and lobbying as well as "some evidence for a[] [positive] association of mergers with campaign contributions"), and Juan Pablo González & Hye Young You, *Money and Cooperative Federalism: Evidence from the EPA Civil Litigation*, 3–4 (PIEP Conf., 2022), https://piep.conferences.wcfia.harvard.edu/sites/projects.iq.harvard.edu/files/piep/files/epa_01.pdf [<https://perma.cc/CFE6-E7JU>] (finding a positive correlation between campaign contributions to Republicans, but not Democrats, and lenient decisions on prosecutorial strategies by U.S. state attorneys general for environmental enforcement).

The conclusion is inescapable. Cost savings cannot be justified as efficiencies by deriving the surplus theory from Pareto efficiency.¹³⁷ So, why does the notion that cost savings inherently signify efficiency persist in antitrust? As the next Section details, no other area of the law follows this practice.

V. ECONOMISTS DO NOT CONSIDER COST SAVINGS AS EFFICIENCIES IN ANALYZING LEGAL ISSUES OUTSIDE OF ANTITRUST

There is a large body of literature on law and economics, and economists have analyzed and debated legal doctrines in virtually every area of law. In all areas of law except antitrust, economists have adopted the definitions of efficiency suggested by Kaldor and Hicks, variously referred to as Kaldor-Hicks efficiency, the compensation principle, or potential Pareto efficiency. In his classic book *Economic Analysis of Law*, Richard Posner wrote:

Because the conditions for Pareto superiority are almost never satisfied in the real world, yet economists talk quite a bit about efficiency, it is pretty clear that the operating definition of efficiency in economics is not Pareto superiority. When an economist says that free trade or competition or the control of pollution or some other policy or state of the world is efficient, nine times out of ten he means Kaldor-Hicks efficient, as shall this book.¹³⁸

The leading case book on law and economics takes a similar approach: “In this book, an efficient allocation of resources is one that cannot be improved in either the Paretian or Kaldor-Hicks sense.”¹³⁹ In other words, in law and economics, outside of the antitrust context, “efficiency” means “Kaldor-Hicks efficiency,” whereas in the antitrust context, “efficiency” means “cost savings,” which is completely different. Why the difference? Because, in antitrust, business interests have successfully

137. However, this third assumption is not the only way to link the surplus theory of welfare to a social optimum. MCWG note, “Another way to justify the use of aggregate surplus as a welfare measure in the quasilinear model is as a measure of *potential Pareto improvement*.” MAS-COLELL ET AL., *supra* note 64, at 334. This is because under the potential Pareto criterion, the social planner is indifferent to distribution, so there is no need to have a redistributing central authority. *See infra* Section V. To be precise, if the first two assumptions mentioned by Werden are satisfied, and if one adopts the potential Pareto criterion, then maximizing the surplus in one market (which requires minimizing costs) achieves a socially optimal allocation for the entire economy. *See* Werden, *Consumer Welfare*, *supra* note 116. The question to be answered is how desirable the potential Pareto criterion is.

138. RICHARD POSNER, *ECONOMIC ANALYSIS OF LAW* 14 (4th ed. 1992).

139. DAVID BARNES & LYNN STOUT, *CASES AND MATERIALS ON LAW AND ECONOMICS* 17 (1992); *see also* MARK SEIDENFELD, *MICROECONOMIC PREDICATES TO LAW AND ECONOMICS* 49, 54 (1996) (“The first measure we will look at is that used by most microeconomists; it is called Pareto superiority. . . . Economists have come up with another, related measure of efficiency, called Kaldor-Hicks efficiency”); ROBIN PAUL MALLOY, *LAW AND ECONOMICS: A COMPARATIVE APPROACH TO THEORY AND PRACTICE* 38, 40 (1990) (“In discussion of efficiency, the concept of Pareto superiority or Pareto optimality are often referred to. . . . Two British economists, Nicholas Kaldor and John R. Hicks, came up with a different measure of efficiency.”); DANIEL H. COLE & PETER Z. GROSSMAN, *PRINCIPLES OF LAW AND ECONOMICS* 10 (2004) (“Various *measures* of allocative efficiency are used, although two are most common: the Pareto criterion and the Kaldor-Hicks (or ‘potential Pareto’) criterion. Of these, the Pareto criterion is more often used in theoretical models, and the Kaldor-Hicks criterion is more useful in the real world, where it serves [as] the basis for cost-benefit analysis.”); THOMAS J. MICELI, *THE ECONOMIC APPROACH TO LAW* 4–5 (3d ed. 2017) (“The basic definition of efficiency in economics is Pareto efficiency. . . . Economists [also employ] a relaxed notion of the Pareto criterion referred to as Potential Pareto efficiency, or Kaldor-Hicks efficiency.”).

supplanted the notion of “efficiency” generally accepted in economics with their own notion of “efficiency.”

But the solution is not as easy as simply restoring an economic definition of efficiency to antitrust analysis. The Kaldor and Hicks approaches have proven to be riddled with the same problems and inconsistencies that applied to the surplus approach. Because there are two criteria of value, EV (Hicks efficiency) and CV (Kaldor efficiency), the theory can lead to conflicting policy recommendations and reversals, which most textbooks render opaque by never revealing that Hicks efficiency and Kaldor efficiency are not the same. Moreover, the Kaldor-Hicks efficiencies, like the surplus approach, ignore distribution by assuming the marginal utility of money is constant and equal.¹⁴⁰ Additionally, unlike Pareto efficiency, under Kaldor-Hicks efficiency, the utility of losers and winners is compared, which requires assumptions that rule out perverse or other-regarding preferences. Yet, the law and economics textbooks almost uniformly fail to alert students to such issues.¹⁴¹

Kaldor and Hicks efficiencies attempt to link themselves to Pareto efficiency by use of the so-called compensation principle: a policy change is considered “Kaldor-Hicks efficient” if the winners—actual winners, in the Kaldor case, and potential winners, in the Hicks case—*could compensate* the losers and still retain some benefits.¹⁴² If a policy is Kaldor-Hicks efficient, the “winners” could *potentially*

140. Marc Fleurbacy & Peter J. Hammond, *Interpersonally Comparable Utility*, in 2 HANDBOOK OF UTILITY THEORY 1187 (Salvador Barberà, Peter J. Hammond & Christian Seidl eds., 2004) (“At this stage, many economists of the so-called ‘Chicago school’, following Harberger (1971) in particular, succumb to the temptation of just adding different individuals’ monetary measures. ‘A dollar is a dollar’, they might say, regardless of how deserving is the recipient. Implicitly, they attach equal value to the extra dollar a rich man will spend on a slightly better bottle of wine and to the dollar a poor woman needs to spend on life-saving medicine for her child. Of course, any such judgement is a value judgement, even an interpersonal comparison, which lacks scientific foundation. Thus, the ‘surplus economists’ who just add monetary measures, often of consumer surplus rather than individual welfare, make their own value judgements and their own interpersonal comparisons. Moreover, their comparisons not only lack scientific content, but most people—especially non-economists—also find them totally unacceptable from an ethical point of view. Surely it is better to avoid interpersonal comparisons altogether rather than make them in such a biased way.” (footnote omitted)).

141. We have in a previous article detailed the definitions used in law and economics texts. See the Appendix to Glick & Lozada, *supra* note 100, at 94–114. An exception to our general statement that law and economics texts do not alert students to crucial caveats is RICHARD ZERBE, *ECONOMIC EFFICIENCY IN LAW AND ECONOMICS* (2001).

142. VISCUSI, VERNON & HARRINGTON, *supra* note 111, at 76. They explain:

[I]f everyone is made better off by the change (or no one is made worse off, and at least one person is made better off), then the Pareto criterion would say that the change is “good.” It is hard to argue with this criterion for evaluating public policies. The problem is that one is unlikely to find many “good” real-world policies. In most cases in the real world, at least some people will be harmed.

A generally accepted alternative standard in applied microeconomics is the *compensation principle*, which is equivalent to choosing policies that yield the highest total *economic surplus*. The basic idea is that if the “winners” from any policy change can, in principle, compensate the “losers” so that everyone is better off, then it is a “good” change. Note that actual compensation of the losers is not required. If it were required, of course, it would satisfy the Pareto criterion.

Id.

compensate the “losers” so that the result would be a Pareto improvement, but the winners need not do so; hence the term “potential Pareto criterion.”¹⁴³

But the compensation principle does not carry the same ethical attractiveness as the Pareto principle, because there can be harm to some people from the policy change. For example, consider two policies: (A) allow a company to increase its air pollution, damaging the health of people downwind; (B) tax the increase in pollution and redistribute the tax proceeds to the pollution victims. Suppose that adopting “policy A together with policy B” is a Pareto improvement. Then an adherent of the compensation principle would not only support “policy A together with policy B,” he must necessarily also support “policy A alone” (because policy B is “merely” redistributive). But what sense does it make to support policy A, because “policy A together with policy B” is a good policy? As philosopher and legal scholar Jules Coleman put it, what sense does it make to support a policy “in virtue of its potential to be something other than it is”?¹⁴⁴ In 1978, welfare economist John Chipman¹⁴⁵ and James Moore archly wrote that advocating policy A because policy A plus policy B would be good “is to wash one’s hands of the responsibility for one’s own actions.”¹⁴⁶

In sum, economists who study law outside of antitrust do not treat cost savings as efficiencies. They attempt to hew closer to Pareto efficiency by use of the potential Pareto or Kaldor-Hicks criteria. But this approach has been demonstrated to be hopelessly flawed and lacks the ethically redeeming qualities of Pareto efficiency. As a consequence, welfare economists have abandoned it as they have abandoned the surplus approach.

So, is antitrust analysis doomed to a future where outdated and defective measures of whether a proposed merger is beneficial continue to be applied in perpetuity? We think not, as other subdisciplines within economics offer potentially useful measures and mechanisms to evaluate whether a proposed merger will be a net benefit to human well-being.

VI. MODERN WELFARE ANALYSIS

Welfare economics today favors the social welfare function approach to measuring welfare. The social welfare function approach was first formulated more than three quarters of a century ago by Abram Bergson and Paul Samuelson.¹⁴⁷ The

143. Even here there are technical difficulties. Boadway and Bruce show that summing EV or CV may not always satisfy the compensation test. The relationship is complex. *See generally* BOADWAY & BRUCE, *supra* note 92, at 262–91.

144. Jules L. Coleman, *Efficiency, Utility, and Wealth Maximization*, 8 HOFSTRA L. REV. 509, 546 n.62 (1980).

145. Chipman was a Fellow of the Econometric Society, of the American Academy of Arts and Sciences, and of the Guggenheim Foundation, a Distinguished Fellow of the American Economic Association, and an elected member of the National Academy of Science. *See John S. Chipman: Timeline of Selected Honors and Tributes*, UNIV. OF MINN., <https://sites.google.com/umn.edu/chipmantimeline> [<https://perma.cc/9TQA-NNJL>] (last visited Jan. 7, 2024).

146. John S. Chipman & James C. Moore, *The New Welfare Economics 1939–1974*, 19 INT’L ECON. REV. 547, 580 (1978).

147. Abram Bergson, *A Reformulation of Certain Aspects of Welfare Economics*, 52 Q.J. ECON. 310 (1938); *see also* PAUL SAMUELSON, *FOUNDATIONS OF ECONOMIC ANALYSIS* 219–29 (1947).

framework is now widely used by economists in many fields. Using social welfare function, policies can be ranked by their ability to increase human welfare. Like Pareto efficiency, social welfare function analysis considers the impact of policy outcomes (consequentialism) on human well-being (welfarism). In antitrust, we contend that the outdated surplus approach should be replaced by some aspects of the social welfare function approach, even though we do not believe that a full social welfare function analysis is feasible for an individual antitrust case.¹⁴⁸

A social welfare function has at least three components (and a fourth, if uncertainty is factored into the analysis).¹⁴⁹ First, the identity of the individuals with standing must be established. Do all individuals affected by the policy count, or only a subset? As an example, consider whose welfare counts under the consumer welfare standard. The theory posits that only the welfare of consumers matters, even though there is no principled reason for this limitation. Most social welfare function analyses require that the welfare of all individuals affected by a policy change are taken into account.

Second, there must be a utility function, a method to convert measures of well-being into numbers for an individual. Economists often conceive of welfare as preference realization. Welfare measurement can be dollars derived from information concerning an individual's willingness to pay, as discussed in Part II.B. But welfare can also be understood as possession of an objective set of goods or opportunities that translate into subjective well-being.

Third, once welfare is measured, there must be a method to aggregate individual welfare numbers. As explained above, in antitrust economics today, the sum of surplus is used to aggregate welfare, which requires a constant and equal marginal utility of money (or marginal social welfare of surplus), so that a shift in surplus distribution produces no change in welfare.¹⁵⁰ A pure, unweighted sum of utility or welfare is called a utilitarian aggregation, because only the total counts. While the utilitarian approach is defended by economist John Harsanyi,¹⁵¹ most moral philosophers (such as Ronald Dworkin, James Griffin, Will Kymlicka, G.A. Cohen, and Amartya Sen) have argued that some form of equality of welfare lies at the heart of justice and morality and therefore aggregation must incorporate weights that favor the worse off.¹⁵² This way, policy may take account of inequality and recognize that it is unjust to allow persistent inequalities that are not related to the actions of individuals themselves.¹⁵³

148. See *infra* Section VIII.

149. MATTHEW ADLER, MEASURING SOCIAL WELFARE: AN INTRODUCTION 4, 8–10 (2019).

150. In the case of a society of two persons, current antitrust economics treats social welfare as the sum of person 1's surplus, S_1 , and person 2's surplus, S_2 : $W = S_1 + S_2$. Then the marginal social welfare of person 1's surplus (which is $\partial W / \partial S_1$) is 1, and the marginal social welfare of person 2's surplus is 1. Clearly 1 is a "constant," and 1 is "equal" to 1, proving the claims of being "constant" and "equal." The extension to a society of more than two people is obvious.

151. Harsanyi, *supra* note 80, at 40–41.

152. See generally RONALD DWORKIN, SOVEREIGN VIRTUE: THE THEORY AND PRACTICE OF EQUALITY (2000); JAMES GRIFFIN, WELL BEING: ITS MEANING, MEASUREMENT, AND MORAL IMPORTANCE (1986); KYMLICKA, *supra* note 67, at 32–33; G.A. COHEN, ON THE CURRENCY OF EGALITARIAN JUSTICE AND OTHER ESSAYS IN POLITICAL PHILOSOPHY (2011); Amartya Sen, *Utilitarianism and Welfarism*, 76 J. PHIL. 463 (1979).

153. See, e.g., KASPER LIPPERT-RASMUSSEN, LUCK EGALITARIANISM (2016).

This approach is referred to as prioritarian.¹⁵⁴ The standard assumption adopted by economists to capture sensitivity to the distribution of well-being is the Pigou-Dalton axiom, which states that “a pure, gap-diminishing transfer of well-being from a better-off [individual] to a worse-off individual, with everyone else unaffected, is an ethical improvement.”¹⁵⁵ We note that the surplus approach violates Pigou-Dalton and, as a result, is in tension with modern welfare scholarship.¹⁵⁶

Critical to our proposal for reform of antitrust is the measurement of welfare. In our discussion of the surplus approach, we highlighted the numerous defects inherent in measuring welfare by observing willingness to pay.¹⁵⁷ Modern welfare economics now offers an alternative.¹⁵⁸ For the last fifty years, scholars have been developing the subjective well-being approach, in which comprehensive surveys ask subjects some variation of the question, “Overall, how satisfied are you with your life these days?”¹⁵⁹ Individuals answer the question on a scale from zero to ten. Economist Bruno Frey reports that subjective happiness studies have been performed in eighty countries, comprising over 80% of the world’s population, at various periods of time.¹⁶⁰ The results of these numerous surveys have been verified by high correlations of the answers across the same questions, over time.¹⁶¹ Scholars have used a variety of comparisons to verify survey answers: comparing survey responses with objective measures of brain activity, with reports by third parties familiar with the survey subjects, with the predictive power of subject’s answers, and with other factors.¹⁶²

154. *See id.* at 29–30; COHEN, *supra* note 152, at 70.

155. ADLER, *supra* note 149, at 95.

156. There is a lively debate on the meaning of equality of persons. Most philosophers stress equality of opportunity because of respect for the freedom of humans to select how much effort to expend to achieve outcomes. Dworkin and John Rawls focused on the distribution of objective goods or resources. *See generally* DWORKIN, *supra* note 152. The problem with these approaches is that people can derive different amounts of welfare from the same resources. G.A. Cohen argued in favor of a type of equality of opportunity to achieve welfare. *See generally* COHEN, *supra* note 152. Sen’s capability approach is a middle ground. Sen focused on equality of actual capability to achieve an outcome. He is interested in what resources do for persons with respect to ability to function or occupation. Sen’s approach can be justified not only by equality but by the value of actual freedom of individuals. *See generally* Sen, *supra* note 152.

157. *See supra* Part II.B.4.

158. *See generally* STIGLITZ ET AL., *supra* note 87; FREY, *supra* note 87; MARC FLEURBAEY & DIDIER BLANCHET, BEYOND GDP MEASURING WELFARE AND ASSESSING SUSTAINABILITY (2013); ANIELSKI, *supra* note 87; JACHIM WEIMANN, ANDREAS KNABE & RONNIE SCHOB, MEASURING HAPPINESS: THE ECONOMICS OF WELL-BEING (2015); KAHNEMAN ET AL., *supra* note 87.

159. U.N., WORLD HAPPINESS REPORT 17 (John F. Helliwell et al. eds., 2023), <https://happiness-report.s3.amazonaws.com/2023/WHR+23.pdf> [<https://perma.cc/T5Z7-GXRW>]. There are several versions of this question. For example, the Cantril ladder question asks:

Please imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?

LAYARD & DE NEVE, *supra* note 55, at 19. Gallup uses this question as well. *See Understanding How Gallup Uses the Cantril Scale*, GALLUP, <https://news.gallup.com/poll/122453/understanding-gallup-uses-cantril-scale.aspx> [<https://perma.cc/Q2PR-KP24>].

160. FREY, *supra* note 87, at 20.

161. *Id.* at 20–24.

162. LAYARD & DE NEVE, *supra* note 55, at 18–23.

Scholars then use objective and subjective data, as well as social science research, to determine the factors that explain well-being.¹⁶³

To take one example (using a Congressional antitrust goal), living in a democratic country has a positive impact on well-being.¹⁶⁴ Objective data from the World Bank, the Economist Intelligence Unit, and the Varieties of Democracy project can be used to study this relationship. Moreover, the relationship can be confirmed by other economic research. For example, Daron Acemoglu and James Robinson concluded that inclusive economic and political institutions are the key common element in successful economies, and they are essential to prosperity and development.¹⁶⁵ Similarly, income inequality lowers well-being.¹⁶⁶ Again, epidemiological evidence supports this conclusion, as income inequality correlates with greater drug use, violence, mental illness, and other problems.¹⁶⁷

An enormous amount of research has focused on the determinants of well-being. Large-scale analyses by international organizations, including the European Union, the United Nations, the World Bank, the Organisation for Economic Co-operation and Development, and many governments have assembled similar sets of indicators that materially impact well-being either positively or negatively.¹⁶⁸ For example, the Eurostat expert group converged on nine critical well-being factors: (1) material living conditions (income), (2) productive activity (unemployment and quality of work), (3) health, (4) education, (5) leisure and social interactions, (6) economic security and personal safety (poverty and crime), (7) governance and basic rights (democracy and good government), (8) natural and living environment (pollution), and (9) overall life experience.¹⁶⁹ Joseph Stiglitz, Amartya Sen, and Jean-Paul Fitoussi and the World

163. See, e.g., Des Gasper, *Subjective and Objective Well-Being in Relation to Economic Inputs: Puzzles and Responses*, 63 REV. SOC. ECON. 177 (2005); Filomena Maggino, *Methodologies To Integrate Subjective and Objective Information To Build Well-Being Indicators*, UNIVERSITA DEGLI STUDI FIRENZE (2009), https://florence.unifi.it/retrieve/handle/2158/370602/11439/maggino_-_paper.pdf [<https://perma.cc/N9C6-D3C9>].

164. See, e.g., David Dorn, Justina A.V. Fischer, Gehhard Kirchgässner & Alfonso Sousa-Poza, *Is It Culture or Democracy? The Impact of Democracy and Culture on Happiness*, 82 SOC. INDICATORS RSCH. 505, 505, 512 (2007) (“[A] significant positive relationship between democracy and happiness [exists] even when controlling for income and culture measured by language and religion.”); FREY, *supra* note 87, at 64 (“Overall, these results suggest that individuals living in countries with more extensive democratic institutions feel happier with their lives according to their own evaluation than individuals in more authoritarian countries.”); Michael O. Allen, Kenneth Scheve & David Stasavage, *Democracy, Inequality and Antitrust*, SSRN (Feb. 3, 2023), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4358176 [<https://perma.cc/G7YS-R6H7>].

165. DARON ACEMOGLU & JAMES ROBINSON, *WHY NATIONS FAIL: THE ORIGINS OF POWER, PROSPERITY AND POVERTY* 43–44 (2012).

166. Shigehiro Oishi, Selin Kesebir & Ed Diener, *Income Inequality and Happiness*, 22 PSYCH. SCI. 1095, 1099 (2012) (showing that U.S. happiness levels are negatively related to inequality).

167. See generally RICHARD WILKINSON & KATE PICKETT, *THE SPIRIT LEVEL: WHY GREATER EQUALITY MAKES SOCIETY STRONGER* (2010) (showing income inequality undermines community and correlates with status anxiety, mental illness, greater drug use, more violence, and lower life expectancy).

168. See generally EUROSTAT, EU, *FINAL REPORT OF THE EXPERT GROUP ON QUALITY OF LIFE INDICATORS* (2017); U.N., *supra* note 159; WORLD BANK, *THE CHANGING WEALTH OF NATIONS: MEASURING SUSTAINABLE DEVELOPMENT IN THE NEW MILLENNIUM*, (2011); OECD, *GUIDELINES ON MEASURING SUBJECTIVE WELL-BEING* (2013).

169. EUROSTAT, *supra* note 168, at 8. These factors are multidimensional.

Happiness Report have formulated similar factors.¹⁷⁰ Psychologists also report results consistent with the economic studies.¹⁷¹

Finally, moral philosophers have offered consistent lists of well-being components—Martha Nussbaum, George Sher, James Griffin, and Richard Kraut, for example, have discussed key factors of well-being.¹⁷² Critically, these quality-of-life factors are related to many of the New-Brandeisian alternative goals for antitrust: inequality,¹⁷³ unemployment and quality of work,¹⁷⁴ democracy,¹⁷⁵ protection of small business,¹⁷⁶ macroeconomic growth,¹⁷⁷ and sustainability.¹⁷⁸

170. Stiglitz, Sen, and Fitoussi list eight factors: material living standards, health, education, personal activities including work, political voice and governance, social connections and relationships, the environment, and insecurity. STIGLITZ ET AL., *supra* note 87, at 15. The U.N. World Happiness Report lists physical and mental health; human relationships; income and employment; character virtues, including pro-sociality and trust; social support; personal freedom; lack of corruption; and effective government. U.N., *supra* note 159, at 19.

171. Michael Argle, *Causes and Correlates of Happiness*, in WELL-BEING: THE FOUNDATIONS OF HEDONIC PSYCHOLOGY, *supra* note 87, at 353, 356–57.

172. MATTHEW ADLER, WELL-BEING AND FAIR DISTRIBUTION: BEYOND COST-BENEFIT ANALYSIS 166–67 (2012) (“Nussbaum argues that the central human capabilities are: life; bodily health; bodily integrity; the senses, imagination, and thought; emotions; practical reason; affiliation; other species; play; and control over one’s environment. Sher endorses a list suggested by Parfit: moral goodness; rational activity; the development of one’s abilities; having children and being a good parent; knowledge; and the awareness of true beauty. Griffin’s [list] is: accomplishment; ‘the components of human existence’ (roughly, autonomy and physical integrity); understanding; enjoyment; deep personal relations. Kraut argues that the good for a human being consists of ‘the exercise of cognitive, social, affective, and physical skills.’” (first quoting JAMES GRIFFIN, VALUE JUDGMENT: IMPROVING OUR ETHICAL BELIEFS 29 (1996); and then quoting RICHARD KRAUT, WHAT IS GOOD AND WHY: THE ETHICS OF WELL-BEING 145 (2007))).

173. See Lina Kahn & Sandeep Vaheesan, *Market Power and Inequality: The Antitrust Counterrevolution and Its Discontents*, 11 HARV. L. & POL’Y REV. 235, 246–47 (2017); Jonathan Baker & Steven Salop, *Antitrust, Competition Policy, and Inequality*, 104 GEO. L.J. ONLINE 1, 13–14 (2015), https://scholarship.law.georgetown.edu/cgi/viewcontent.cgi?params=/context/facpub/article/2474/&path_info=Baker_Salop_Antitrust_Competition_Policy_and_Inequality.pdf [<https://perma.cc/CL3C-SBGE>].

174. See POSNER, *supra* note 49, at 19–23; Stucke, *Looking at Monopsony*, *supra* note 49, at 1527–29.

175. Sanjukta Paul, *Recovering the Moral Economy Foundations of the Sherman Act*, 131 YALE L.J. 175, 252–53 (2021); see also Stephen Martin, *Dispersion of Power as an Economic Goal of Antitrust Policy* 15 n.21 (Krannert Sch. Mgmt. Purdue U., Working Paper No. 1285, 2016) (quoting N. Pac. Ry. Co. v. United States, 356 U.S. 1, 4 (1958)), <https://business.purdue.edu/research/working-papers-series/2016/Martin-Dispersion%20of%20Power%20as%20an%20Economic%20Goal%20of%20Antitrust%20Policy.pdf> [<https://perma.cc/XL3Y-QKGX>]; Harlan M. Blake & William K. Jones, *Toward a Three-Dimensional Antitrust Policy*, 65 COLUM. L. REV. 422, 422 (1965).

176. See Sandeep Vaheesan, *The Evolving Populisms of Antitrust*, 93 NEB. L. REV. 370, 427 (2014) (noting purpose of antitrust laws is protecting non-elite groups, like small businesses and consumers, from powerful corporations); Robert H. Lande, *Wealth Transfers as the Original and Primary Concern of Antitrust: The Efficiency Interpretation Challenged*, 34 HASTINGS L.J. 65, 104 (1982) (“[T]he congressional intent to assist small businesses can be interpreted as promoting distributive, rather than efficiency, considerations.”). See generally John J. Flynn, “Reaganomics” and Antitrust Enforcement: A Jurisprudential Critique, 1983 UTAH L. REV. 269. Economic research shows that self-employed persons typically are more satisfied with their jobs than employees at large corporations. Cf. Sana El Harbi & Giles Grolleau, *Does Self-Employment Contribute To National Happiness?*, 41 J. SOCIO-ECON. 670 (2012). See generally Matthias Benz & Bruno S. Frey, *Being Independent Is a Great Thing: Subjective Evaluations of Self-Employment and Hierarchy*, 75 ECONOMICA 362 (2008); Stefan Schneck, *Why the Self-Employed Are Happier: Evidence from 25 European Countries*, 67 J. BUS. RSCH. 1043 (2014).

In place of the outdated antitrust “efficiency” narrative, premised on cost savings contributing to welfare, we propose that antitrust policy should consider factors that have been shown to impact well-being and that can be influenced by antitrust policy. Before we discuss how to do this, however, we first must ask, who should select the well-being factors that antitrust policy should address? The answer is self-evident: antitrust policy should be guided by the policies Congress had in mind when it enacted the antitrust statutes.

VII. CONGRESSIONAL GOALS AND EFFICIENCY

Sen has emphasized the importance of the process by which welfare policy goals are selected and has asserted that the manner in which goals are selected and who participates should be a collective decision.¹⁷⁹ Antitrust is uniquely situated to determine its goals because, while the courts decide what the law is, courts generally share the premise of adhering to the congressionally intended objectives of the law.¹⁸⁰ Courts interpret the statutes “to give effect to the intent of Congress.”¹⁸¹ In this Section we show, first, that Congress never mandated that efficiencies, let alone cost savings, would be a defense to an otherwise anticompetitive merger and, second, that Congress made clear that its goals for limiting the concentration of economic power included (1) protecting political democracy, (2) protecting small businesses and opportunities for entrepreneurship, and (3) preventing adverse income transfers.

There is a virtual consensus among antitrust scholars that efficiency is not a stated goal of congressional merger regulation.¹⁸² As Herbert Hovenkamp summarized:

177. See Michael E. Porter, *Competition and Antitrust: A Productivity Based Approach*, 46 ANTITRUST BULL. 919, 920 (2001).

178. See, e.g., Simon Homes & Michelle Meagher, *A Sustainable Future: How Can Control of Monopoly Power Play a Part* (pts. 1–3), 44 EUR. COMPETITION L. REV., 16, 61, 148 (2023).

179. Antoinette Baujard & Muriel Gilardone, *Sen Is Not a Capability Theorist*, 24 J. ECON. METHODOLOGY 1, 9 (2017).

180. Moreover, efficiencies are not mentioned in the statutory language of any of the antitrust statutes. See, e.g., The Clayton Act, Pub. L. No. 63-212, 38 Stat. 730 (1914) (codified at 15 U.S.C. §§ 12–27); Celler-Kefauver Anti-Merger Act, Pub. L. No. 81-899, 64 Stat. 1125 (1950) (amending 15 U.S.C. § 18, 21). In one instance, Congress did provide an efficiency defense in an antitrust law. See Robinson-Patman Act, Pub. L. No. 74-692, 49 Stat. 1526 (1936) (codified as amended at 15 U.S.C. § 13).

181. *United States v. Am. Trucking Ass’n, Inc.*, 310 U.S. 534, 542 (1940). See generally CONG. RSCH. SERV., STATUTORY INTERPRETATION: THEORIES, TOOLS, AND TRENDS (2023), <https://crsreports.congress.gov/product/pdf/R/R45153> [<https://perma.cc/2L3U-HUVD>].

182. Nor were efficiencies a congressional goal in passage of the Sherman Act. See 21 CONG. REC. 2462 (1890). Senator Sherman himself recognized that the benefits of cost savings are rarely, if ever, passed on to consumers. *Id.* at 2460. He said: “It is sometimes said of these combinations that they reduce prices to the consumer by better methods of production, but all experience shows that this saving of cost goes to the pockets of the producer.” *Id.* Similarly, Representative William E. Mason rejected the notion of cost savings as antitrust absolution: “Some say that the trusts have made products cheaper, have reduced prices; but if the price of oil, for instance, were reduced to 1 cent a barrel it would not right the wrong done to the people of this country by the ‘trusts’ which have destroyed legitimate competition and driven honest men from legitimate business enterprises.” *Id.* at 4100. Indeed, Senator Sherman was not impressed with the notion that the merged firm could lower prices. See *id.* at 2457. In fact, he contemplated that a firm might do so for a time only in an effort to control the market: “It can control the market, raise or lower prices, as will best promote its selfish interests . . .” *Id.* (emphasis added).

No one, it appears, has even attempted to argue that Congress had “efficiency” in mind when it passed the Robinson-Patman Act in 1936, or the Celler-Kefauver amendments to Section 7 of the Clayton Act in 1950. . . . Likewise, no compelling case has been made that efficiency considerations dominated in the passage of the Clayton Act itself.¹⁸³

In one example from the Congressional debates around the Celler-Kefauver Act, New York Representative Emanuel Celler, an amendment sponsor, stated:

I deprecate the idea that efficiency and lower prices only come with bigness. We now know that in many lines the middle-sized concerns are either more efficient than the big ones, or else they are of no positive difference. And lower prices do not always accompany bigness, nor should it be essential for colossal concerns to grow bigger for purposes of research.¹⁸⁴

At least three Supreme Court opinions have clearly stated that efficiencies are not a defense to a merger that substantially harms competition under Section 7 of the Clayton Act.¹⁸⁵

In passing the amendment to Section 7, Congress was not concerned with efficiency. Instead it stated plainly that it sought to prevent aggregation of economic and political power in order to preserve democracy, promote small businesses and local control, and avoid the impact of adverse income redistribution.¹⁸⁶

A. Congress Wanted To Prevent Concentrated Markets To Preserve Democracy

During the Celler-Kefauver Act debates, Congress made clear that it was concerned with economic concentration because of its impact on political democracy, among other reasons.¹⁸⁷ Probably one of the clearest statements of this traditional

183. Herbert Hovenkamp, *Antitrust Policy After Chicago*, 84 MICH. L. REV. 213, 250 (1985).

184. *Corporate Mergers and Acquisitions: Hearing on H.R. 2734 Before the Subcomm. of the Comm. on the Judiciary*, 81st Cong. 64 (1950) [hereinafter *Corporate Mergers and Acquisitions Hearing*] (statement of Rep. Emanuel Celler). Representative Celler continues, “Du Pont, with all of its efficient research, did not have to grow even bigger by acquiring controlling interest in General Motors and United States Rubber, and as a result eliminate many independents and horribly weakened those that survived. But the Du Ponts did that by the loophole in section 7 and section 12 of the Clayton Act.” *Id.*

185. *Brown Shoe Co. v. United States*, 370 U.S. 294, 344 (1962) (“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.”); *United States v. Phila. Nat’l Bank*, 374 U.S. 321, 370–71 (1963) (“[I]t is surely the case that competition is our fundamental national economic policy, offering as it does the only alternative to the cartelization or governmental regimentation of large portions of the economy.”); *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 580 (1967) (“Possible economies [from a merger] cannot be used as a defense to illegality. Congress was aware that some mergers which lessen competition may also result in economies but it struck the balance in favor of protecting competition.”).

186. Congressional support for these goals was expressed during the debates leading to the passage of the Sherman Act, the Clayton Act, and the Federal Trade Commission Act. See Mark Glick & Darren Bush, *Breaking Up Consumer Welfare’s Antitrust Policy Monopoly*, 56 SUFFOLK U. L. REV. 201, 208–09 (2023); Zephyr Teachout & Lina Khan, *Market Structure and Political Law: A Taxonomy of Power*, 9 DUKE J. CONST. LAW & PUB. POL’Y 37, 62–63 (2014); Robert H. Lande & Sandeep Vaheesan, *Preventing the Curse of Bigness Through Conglomerate Merger Legislation*, 52 ARIZ. ST. L.J. 75, 82–85 (2020); see also *Corporate Mergers and Acquisitions Hearing*, *supra* note 184.

187. Robert Pitofsky, *The Political Content of Antitrust*, 127 U. PA. L. REV. 1051, 1064 (1979) (“A striking feature of the legislative history of amended section 7 was the widely-shared perception of danger to the political well-being of the country and its citizens stemming from the merger movement.”); Daniel A.

antitrust goal was Justice Douglas's dissent in the 1948 Columbia Steel merger case, a case brought by the government under the Sherman Act:

Power that controls the economy should be in the hands of elected representatives of the people, not in the hands of an industrial oligarchy. Industrial power should be decentralized. It should be scattered into many hands so that the fortunes of the people will not be dependent on the whim or caprice, the political prejudices, the emotional stability of a few self-appointed men. . . . [The Sherman Act] is founded on a theory of hostility to the concentration in private hands of power so great that only a government of the people should have it.¹⁸⁸

Only a few years later, Congress debated the amendments to Section 7 of the Clayton Act (the Celler-Kefauver Act). At the end of World War II, it was widely held that concentration of industry in Germany and Italy had led to the rise of fascism and the undermining of democracy, and this was one of the main motivations for limiting concentration in the United States. In this vein Tennessee Senator Carey Estes Kefauver stated:

I am not an alarmist, but the history of what has taken place in other nations where mergers and concentrations have placed economic control in the hands of very few people is too clear to pass over easily. A point is eventually reached, and we are rapidly reaching that point in this country, where the public steps in to take over when concentration and monopoly gain too much power. The taking over by the public through its government always follows one or two methods and has one or two political results. It either results in a Fascist state or the nationalization of industries and thereafter a Socialist or Communist state.¹⁸⁹

Wyoming Senator Joseph O'Mahoney likewise argued that such imbalance in ownership and wealth creates conditions for a totalitarian state:

Unless we attempt to stop it, unless we will succeed in stopping it, the inevitable result will be a terrific drive toward a totalitarian government. I can see no other alternative. Either we maintain a free economy by preventing monopolistic mergers and by creating incentives for the investment of private capital in competitive enterprises, or the system of competition is bound to fail. It has failed everywhere else.¹⁹⁰

Preserving democracy was a key objective of Congress's efforts to limit concentration through merger regulation.

Crane, *Antitrust and Democracy: A Case Study from German Fascism* 4–5 (U. Mich. L. & Econ. Research Paper, No. 18-009, 2018), https://repository.law.umich.edu/cgi/viewcontent.cgi?article=1266&context=law_econ_current [<https://perma.cc/EU2W-X2JH>] (“‘Celler and Kefauver’s floor speeches reflected a broader concern of the U.S. Congress that industrial concentration facilitated the incubation of totalitarianism and threatened democracy.’”).

188. *United States v. Columbia Steel Co.*, 334 U.S. 495, 536 (1948).

189. Lande & Vaheesan, *supra* note 186, at 84 (quoting 96 CONG. REC. 16452 (1950) (statement of Sen. Carey Estes Kefauver)). Lande and Sandeep Vaheesan assemble numerous statements made during the 1950 amendment’s congressional debate with similar import. *See id.* at 84 n.37.

190. *Corporate Mergers and Acquisitions Hearing*, *supra* note 184, at 8–9 (statement of Sen. Joseph O'Mahoney).

B. Congress Wanted To Protect Small Business

Protection of small business was another traditional goal of antitrust enforcement,¹⁹¹ and Section 7 of the Clayton Act is no exception. In *Brown Shoe Co. v. United States*, the Supreme Court examined the legislative history of the amendment to Section 7 of the Clayton Act:

It is competition, not competitors, which the [Clayton] 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.¹⁹²

As the Court made clear, values other than cost savings and even lower prices were important goals of the amended Section 7 of the Clayton Act.¹⁹³

C. Congress Was Also Concerned About Distribution of Income and Labor

The case that Congress was concerned about distribution of income has already been made by Bob Lande. In his 1982 article, Lande assembled the evidence that Congress has been concerned about higher prices because they transfer wealth from consumers to corporations.¹⁹⁴ There are also numerous explicit statements of Congress's concern that concentration adversely redistributes wealth. Ohio Senator John Sherman was concerned about "the inequality of condition, of wealth, and opportunity that has grown within a single generation out of the concentration of capital into vast combinations to control production and trade and break down competition."¹⁹⁵ Similarly, Mississippi Senator James George stated that trusts "have extorted their ill-gotten gains from the poor and then used the money thus obtained to complete the ruin of the people."¹⁹⁶

191. Wesley A. Cann, Jr., *Section 7 of the Clayton Act and the Pursuit of Economic "Objectivity": Is There Any Role for Social and Political Values in Merger Policy?*, 60 NOTRE DAME L. REV. 273, 273 (1985) ("Congress [when passing the Celler-Kefauver Act] expressed concern for small businesses and for local communities in which these businesses had played such an important role."). See generally STACY MITCHELL & RON KNOX, INST. FOR LOC. SELF-RELIANCE, ROLLING BACK CORPORATE CONCENTRATION: HOW NEW FEDERAL ANTIMERGER GUIDELINES CAN RESTORE COMPETITION AND BUILD LOCAL POWER (2022) (discussing the legislative history of the Clayton Act and the economic benefits of small business). Two of the authors have documented the numerous congressional and judicial statements demonstrating that a primary goal of all of the antitrust statutes has been the protection of small business. See Glick & Bush, *supra* note 186, at 216–18.

192. 370 U.S. 294, 344 (1962).

193. AMY KLOBUCHAR, ANTITRUST: TAKING ON MONOPOLY POWER FROM THE GILDED AGE TO THE DIGITAL AGE 342–43 (2021) ("For decades (indeed, since the country's founding), small businesses have been the engine of America's economy and of job growth. We need to make sure that small businesses continue to power economic growth. . . . In what I see as a warning sign, however, a December 2018 report measuring the contribution of small businesses to the American economy determined that the small-business share of GDP declined from 48 percent in 1998 to 43.5 percent in 2014.").

194. See generally Lande, *supra* note 176.

195. David Millon, *The Sherman Act and the Balance of Power*, 61 S. CAL. L. REV. 1219, 1277 (1988) (quoting 21 CONG. REC. 2460 (1890) (statement of Sen. John Sherman)).

196. 21 CONG. REC. 1768 (1890) (statement of Sen. James George).

The congressional debates preceding passage of the Federal Trade Commission Act and the Clayton Act voiced concerns about distribution of income. Oklahoma Representative Dick Morgan identified among the purposes for creation of the FTC, “[t]o minimize the power of the large industrial corporation to concentrate wealth, . . . to maximize its power as an agency for the equitable distribution of wealth,” “[t]o allay public suspicion and distrust, remove prejudice and secure the people from unjust tribute levied by monopolistic corporations.”¹⁹⁷ He further specifically justified the introduction of the Federal Trade Commission Act to “make these corporations better instruments for the equitable distribution of wealth.”¹⁹⁸

Importantly, during the Celler-Kefauver Act debates, Senator O’Mahoney linked together the concerns regarding income distribution, labor, and democracy:

We have been creating a proletariat in the United States. We have a collectivist business organization. That is why it comes about that 113 manufacturing concerns own 46 percent of the manufacturing assets. It also comes about that eight-tenths of 1 percent of the employers of the United States employ 52 percent of the workers. If this concentration continues, it will be utterly impossible to prevent the continued expansion of the powers of the Federal Government.¹⁹⁹

Congress and the Supreme Court, in their roles in our democratic decision-making process, have determined that preservation of democracy, protection of small business, and prevention of adverse income redistribution by concentration are social welfare goals of the antitrust acts. We believe these values can be incorporated into judicial analysis of mergers and the New Merger Guidelines that direct agency merger analysis. The next Section explains how this can be accomplished.

VIII. HOW WELFARE CONSIDERATIONS CAN BE INTEGRATED INTO THE MERGER GUIDELINES

This Section describes how congressional values can be integrated into the Merger Guidelines. The first step is to do away with the Merger Guidelines’ use of a concentration screen to exempt mergers from agency review based on the dubious presumption that mergers below a certain concentration level do not harm competition. That screen is premised on the presumed existence of ubiquitous cost savings resulting from all mergers. However, as shown in the Appendix, there is no evidence or support for such an assumption. This approach should be replaced with an evidence-based sliding scale of concentration thresholds that is grounded in a determination of whether the merger at issue presents a danger of harm to the congressional objectives of preservation of democracy, prevention of harm to small business, or causation of adverse distributional effects.

Second, the efficiency rebuttal section in the New Merger Guidelines should be dropped. This rebuttal section is flawed for four reasons: (1) the rebuttal can only establish that cost savings counteract price increases when the dangers of high

197. 51 CONG. REC. 8854 (1914) (statement of Rep. Dick Morgan).

198. *Id.* at 8855.

199. *Corporate Mergers and Acquisitions Hearing*, *supra* note 184, at 8–9 (statement of Sen. O’Mahoney).

concentration are broader than higher prices; (2) there is no evidence in case law or the empirical economic research that mergers reduce prices through cost savings; (3) few, if any, cost savings are merger-specific; and (4) most future cost savings are speculative.

A. Congressional Goals Can Be Integrated into Merger Analysis by Replacing the Current Fixed Concentration Screen with a Variable Concentration Screen

Exempting mergers below a certain concentration threshold would be justified only if it were true that all mergers generate significant efficiencies. Yet, economists agree that such a presumption simply does not hold.²⁰⁰ To the contrary, even small increases in concentration are known to raise prices to consumers, and therefore cause competitive harm. Accordingly, if we are to allow any merger, the decision must be based on proven, not presumed, offsetting benefits.²⁰¹

The unfounded assumption that all mergers generate cost saving benefits has been a staple of the Merger Guidelines for some time. The 1984 Merger Guidelines express this assumption: “The primary benefit of mergers to the economy is their efficiency-enhancing potential, which can increase the competitiveness of firms and result in lower prices to consumers.”²⁰² And, under the New Merger Guidelines, mergers in markets where concentration is below 1000 on the Herfindahl–Hirschman Index (HHI) and the change is less than 100 HHI,²⁰³ escape antitrust scrutiny. The reason for this approach, which has been part of every version of the Merger Guidelines, is that mergers are presumed to lower costs and, as a result, provide some benefit to consumers.

Frederick Warren-Boulton, an economist in the Antitrust Division of the DOJ, made this presumption clear as far back as 1985:

I should preface this discussion by saying that the very existence of “safe harbor” Herfindahls in the *Guidelines* already implies a “standard deduction” for efficiencies. Such a standard deduction is implicit in a policy that allows mergers that increase concentration to some extent, even without a showing of any efficiency gains. Alternatively, the parties can choose to itemize efficiencies, rather than just take the standard deduction, by presenting an explicit efficiency defense.²⁰⁴

200. Nancy L. Rose & Jonathan Sallet, *The Dichotomous Treatment of Efficiencies in Horizontal Mergers: Too Much? Too Little? Getting It Right*, 168 U. PA. L. REV. 1941, 1953–55 (2020) (making this point and identifying the many others who have made a similar point).

201. Joseph Farrell & Carl Shapiro, *Horizontal Mergers: An Equilibrium Analysis*, 80 AM. ECON. REV. 107, 122 (1990) (“[A]ny merger that generates no synergies . . . raises price.”).

202. 1984 MERGER GUIDELINES, *supra* note 16, § 3.5, at 23.

203. The HHI “is defined as the sum of the squares of the market shares; it is small when there are many small firms and grows larger as the market becomes more concentrated, reaching 10,000 in a market with a single firm.” 2023 MERGER GUIDELINES, *supra* note 32, § 2.1, at 6.

204. Frederick R. Warren-Boulton, *Merger Policy and Enforcement at the Antitrust Division: The Economist’s View*, 54 ANTITRUST L.J. 109, 112 (1985); Louis Kaplow, *Efficiencies in Merger Analysis*, 83 ANTITRUST L.J. 557, 608 (2021) (“Efficiencies are ever-present but difficult and costly to analyze in merger investigations. Therefore, it makes sense to impute some degree of efficiencies—the efficiency credit—automatically Moreover, this credit is fairly large, so that most cases are resolved in this manner

Yet, as we have demonstrated above, Congress never contemplated a safe harbor for mergers that result in cost savings.²⁰⁵ Quite to the contrary, Congress dismissed cost savings as a proper goal of merger control and instead premised Section 7 of the Clayton Act on preventing a rise in concentration to further the goals of preserving democracy, protecting small business, and avoiding adverse income redistribution. To implement congressional intent requires that the concentration screen be tied to an assessment of the dangers a particular proposed merger poses to these three central objectives. In the case of a merger that could impact democracy, this would likely require that the concentration threshold for challenge be lowered or raised based on two factors: (1) the size of the parties, and (2) the market at issue.

The size of a corporation is not a factor in the Merger Guidelines except to the extent that there is an increase in concentration in a particular market. There is nothing to prevent a merger between Exxon and Walmart, for example, if there are no product overlaps. However, such a company would wield enormous political clout. In general, as analyzed by Lande and Vaheesan, the size of the parties will have a marked impact on the danger posed to democracy by a merger. As Lande and Vaheesan show, mergers could continue with a screen of 1000 HHI until only ten firms remained in the United States, centralizing enormous political power.²⁰⁶ It makes sense, therefore, to apply lower concentration thresholds for large firms than for smaller firms.

Different markets also present unique dangers to congressional goals. Media markets, for example, can have important implications for the democratic process, and there are good reasons to maintain deconcentrated markets in television, radio, newspapers, and social media.

Other factors would determine when markets are more susceptible to causing adverse effects on income distribution. For example, perhaps markets providing goods and services disproportionately frequented by lower-income Americans should require greater scrutiny and lower concentration triggers than, for example, luxury markets. On the other hand, markets for harmful substances, like cigarettes, might justifiably receive a higher concentration threshold because higher prices will reduce use by the public. Markets traditionally dominated by small business, or markets where local control is important or where a trend toward destruction of small business is evident, should also receive heightened antitrust scrutiny.

While we do not offer a comprehensive concentration approach here, we do believe that the suggested mechanism is a workable method for integrating congressional goals into merger enforcement.

B. The Present Efficiency Rebuttal Section of the Merger Guidelines Should Be Abandoned

Independent of our proposal in Part A, we believe that there are persuasive reasons why the rebuttal efficiency section in the New Merger Guidelines should be jettisoned. There are at least four reasons why cost savings should not be considered as

[by the safe harbor].”); Herbert Hovenkamp, *Antitrust Balancing*, 12 N.Y.U. J.L. & BUS. 369, 379–80 (2016) (providing citations); Farrell & Shapiro, *supra* note 201, at 122.

205. See *supra* Section VII.

206. Lande & Vaheesan, *supra* note 186, at 76.

rebuttal evidence to a merger that increases concentration beyond the Merger Guidelines' thresholds.²⁰⁷ First, the efficiency rebuttal applies when the merging parties demonstrate that the merger will result in merger-specific and verifiable cost savings that are passed on to consumers in the form of a lower price. Lowering prices should not be a rebuttal to an increase in concentration above the allowable limits, because the adverse impact of concentration is not limited to price. Increases in concentration can reduce quality and innovation and, thus, still adversely impact congressional goals. Compare the efficiency rebuttal with the Merger Guidelines' entry rebuttal.²⁰⁸ If the merger parties can demonstrate timely, likely, and sufficient entry, they may successfully rebut an increase in concentration. But this is because new entry actually lowers concentration. A merger's claimed cost savings provides no comparable assurance; rather, it leaves the high levels of concentration in place and does not mitigate any other effect of concentration.

Second, we have been unable to identify any empirical study in which a merger led to cost savings that were sufficient to offset a predicted anticompetitive price increase. Moreover, defendants have rarely demonstrated that merger cost savings are actually passed on to consumers.²⁰⁹ As one district court recently stated, "The Court is

207. BORK, *supra* note 7, at 127 ("Passably accurate measurement of the actual situation [including an estimate of so-called efficiencies and deadweight loss] is not even a theoretical possibility; much less is there any hope of arriving at a correct estimate of the hypothetical situation."); *see also* RICHARD POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE, 112-13 (1976) ("I would not allow a generalized defense of efficiency. Not only is the measurement of efficiency (whether based on economics of scale, superior management, or whatever) an intractable subject for litigation; but an estimate of a challenged merger's cost savings could not be utilized in determining the total economic effect of the merger unless an estimate was also made of the monopoly costs of the merger . . ."); Fisher & Lande, *supra* note 14, at 1656. ("Merger policy must recognize the limited ability of courts and the Commission to assess efficiencies accurately.").

208. "To evaluate this rebuttal evidence, the Agencies assess whether entry induced by the merger would be 'timely, likely, and sufficient in its magnitude, character, and scope to deter or counteract the competitive effects of concern.'" 2023 MERGER GUIDELINES, *supra* note 32, § 3.2 (quoting *FTC v. Sanford Health*, 926 F.3d 959, 965 (8th Cir. 2019)).

209. In *New York v. Deutsche Telekom AG*, the court considered evidence of merger efficiencies. However, the court cautioned:

[T]he Court concludes that Defendants' proposed efficiencies are cognizable and increase the likelihood that the Proposed Merger would enhance competition in the relevant markets to the benefit of all consumers. However, mindful of the uncertainty in the state of the law regarding efficiencies and Plaintiff States' pertinent criticisms, the Court stresses that the Proposed Merger efficiencies it has recognized constitute just one of many factors that it considers and do not alone possess dispositive weight in this inquiry.

439 F. Supp. 3d 179, 217 (S.D.N.Y. 2020).

In *FTC v. Butterworth Health Corp.*, the court considered the efficiencies claim as being passed on to consumers:

[T]he Court is persuaded that the proposed merger would result in significant efficiencies, in the form of capital expenditure avoidance and operating efficiencies, totaling in excess of \$ 100 million. This is, by any account, a substantial amount, and represents savings that would, in view of defendants' nonprofit status and the Community Commitment, invariably be passed on to consumers.

946 F. Supp. 1285, 1301 (W.D. Mich. 1996), *aff'd per curiam*, 121 F.3d 708 (6th Cir. 1997).

However, the Court's reasoning also rested on unlikely anticompetitive effects because the Community Board, the judge concluded, would not harm the community. *Id.* at 1297.

not aware of any case, and Defendants have cited none, where the merging parties have successfully rebutted the government's prima facie case on the strength of the efficiencies."²¹⁰ In the Appendix, we have identified empirical economic studies measuring either cost savings, productivity gains, or profitability from mergers, spanning industries including health insurance, banking, utility, manufacturing, beer, cotton spinning, and concrete industries.²¹¹ For reasons we detail in the appendix, there does not seem to be any evidence that mergers result in cost savings that are passed on to consumers in lower prices.

Third, even if there were cost savings that are passed on following a merger, it is unlikely that such savings are merger-specific, as required by the Merger Guidelines.²¹² As the 1968 Merger Guidelines acknowledged, economies of scale and scope "can normally be realized through internal expansion."²¹³ Indeed, firms that have existed in a market for some time are unlikely to continue to have unexploited economies of scale or scope. Professor of law and economics, Louis Kaplow agreed in a recent paper:

Yet another alternative to merger is internal growth by the prospective acquirer. Instead of purchasing the target's assets, it could replicate them, expand on its own, and, if it is indeed more efficient, ultimately displace the target. Many firms such as Walmart have primarily grown (in this instance, at the retail level) through internal expansion rather than acquisition.²¹⁴

Often, other types of cost savings also cannot be shown to be merger-specific. The 1997 Merger Guidelines explicitly stated that so-called efficiencies "relating to procurement, management, or capital cost are less likely to be merger-specific."²¹⁵ Transactions cost savings may be achievable through contracting or licensing, but, to show that these savings are merger-specific, the merging party should be required to

Though reversed on appeal, the district court in *FTC v. H.J. Heinz, Co.* found efficiencies outweighed anticompetitive effects. 116 F. Supp. 2d 190, 198–99 (D.D.C. 2000), *rev'd*, 246 F.3d 708 (D.C. Cir. 2001). The D.C. Circuit held that "the district court failed to make the kind of factual determinations necessary to render the appellees' efficiency defense sufficiently concrete to offset the FTC's prima facie showing." *H.J. Heinz Co.*, 246 F.3d at 722.

Of particular note is then-Judge Kavanaugh's dissent in *United States v. Anthem, Inc.*: "The case law of the Supreme Court and this Court, as well as the Government's own Merger Guidelines, establish that we must consider the efficiencies and consumer benefits of a merger together with its anti-competitive effects." 855 F.3d 345, 431 (D.C. Cir. 2017) (Kavanaugh, J., dissenting) (first citing *United States v. Gen. Dynamics Corp.*, 415 U.S. 486, 498–500 (1974); then citing *H.J. Heinz Co.*, 246 F.3d at 720; then citing *United States v. Baker Hughes, Inc.*, 908 F.2d 981, 990–91 (D.C. Cir. 1990); and then citing 2010 HORIZONTAL MERGER GUIDELINES, *supra* note 10, § 10, at 29–31 (2010)).

It may very well be that the efficiency section of the Merger Guidelines will increasingly help defendants. In a recent example, *United States v. JetBlue Airways Corp.*, the court was satisfied that that merging parties' efficiency arguments rebutted the government's prima facie case. No. CV 23-10511-WGY, 2024 WL 162876, at *26–27 (D. Mass. Jan. 16, 2024). The court stated the defendants "met their relatively low burden," but nonetheless blocked the merger due to additional anticompetitive effects. *Id.* at *36–37.

210. *FTC v. Peabody Energy*, 492 F. Supp. 3d 865, 913 (E.D. Mo. 2020).

211. We review these studies in the Appendix.

212. 2023 MERGER GUIDELINES, *supra* note 32, at § 3.3.

213. 1968 MERGER GUIDELINES, *supra* note 9, § I; Fisher & Lande, *supra* note 14, at 1585 n.21, 1664 ("[I]t would be extremely difficult for merging firms to prove that they could not attain the anticipated [so-called] efficiencies or quality improvements through internal expansion . . .").

214. Louis Kaplow, *Efficiencies in Merger Analysis*, 83 ANTITRUST L.J. 557, 583 & n.63 (2021).

215. 1997 HORIZONTAL MERGER GUIDELINES, *supra* note 20, § 4.

show that there are institutional barriers to contracting, such as inability to control opportunism or hold up concerns.²¹⁶ Since the transaction is *ex ante*, this might be difficult to show with any degree of certainty.

Fourth, verifying predicted post-merger cost savings, as required by the Merger Guidelines,²¹⁷ is likely even more challenging than demonstrating the lack of alternatives to their achievement absent the merger. Claims of dynamic cost savings are notoriously subject to difficulties of proof. The 1997 Horizontal Merger Guidelines state that claimed efficiencies “relating to research and development, are potentially substantial but are generally less susceptible to verification.”²¹⁸ Joseph Brodley made a similar claim in his 1987 paper: “[I]nnovation efficiency appears resistant to measurement because it is difficult to assess the efficiency consequences of alternative innovation decisions. Thus, if a particular transaction is foreclosed by antitrust law, the firm presumably would not abandon all research effort, but instead would take a different innovation path.”²¹⁹ Likewise, transactional cost savings are difficult to verify. According to John Kwoka, vertical so-called “efficiencies” “pose substantial problems of identification and measurement.”²²⁰

The Merger Guidelines rebuttal section should be abandoned based on the combination of the four factors discussed above: lower prices do not reduce concentration, unlike entry; horizontal merger efficiencies are mythical creatures; even if such creatures existed, they do not necessarily arise from the merger; and verification of the mythical proves improbable, if not impossible.

CONCLUSION

Since the 1968 Merger Guidelines were issued, they have incorporated, to one extent or another, what we refer to as the “Merger Efficiency Fallacy.” The Fallacy begins by adopting the businessman’s definition of efficiency as cost savings. This definition can be justified only by acceptance of the consumer welfare standard introduced by Robert Bork in the 1970s. But that theory of welfare has proven to be ethically inappropriate and potentially inconsistent and has been rejected by modern welfare economists. The few attempts to justify the cost savings definition of efficiency—by linking it to Pareto efficiency—have proven to rely on untenable assumptions, and economists who study other areas of the law have not claimed that efficiencies are cost savings as have antitrust economists. But we are not doomed to repeat or continue past mistakes. Efficiency was never the predominant goal of the

216. “Holdup occurs when one contracting party threatens another with economic harm unless concessions are granted by the threatened party.” D. Gordon Smith & Brayden G. King, *Contracts as Organizations*, 51 ARIZ. L. REV. 1, 17–18 (2009).

217. 2023 MERGER GUIDELINES, *supra* note 32, § 3.3.

218. 1997 HORIZONTAL MERGER GUIDELINES, *supra* note 20, § 4, at 29.

219. Joseph Brodley, *The Economic Goals of Antitrust: Efficiency, Consumer Welfare, and Technological Progress*, 62 N.Y.U. L. REV. 1020, 1029 (1987); *see also* Kwoka, *supra* note 27, at 238 (“[Dynamic efficiencies] require[] an analysis not just of economies of scale in R&D but also the specific research capabilities of the merging firms, the nature of their intellectual property, the impediments that might be surmounted by merger, the prospects for integrating operations, and the competitors who may be working on the same matters.”).

220. Kwoka, *supra* note 27, at 242.

antitrust laws. Rather, the laws' framers were concerned with preventing adverse income transfers, protecting political democracy, and protecting small businesses and opportunities for entrepreneurship from the threats arising from the concentration of too much economic power in the hands of a few. Pursuit of these original congressional goals of antitrust fit nicely into the modern welfare framework, and we have offered herein an approach for incorporating these congressional values into the Merger Guidelines. Finally, we have provided several reasons why the New Merger Guidelines rebuttal efficiency approach is both inconsistent and of little practical value and should be abandoned.²²¹

APPENDIX: EFFECT OF HORIZONTAL MERGERS ON COST SAVINGS

This Appendix reviews empirical literature on the effect of horizontal mergers on cost savings and other economic outcomes including price, quality, quantity, and investment in the research and development (R&D) of relevant products to further test whether there is any substantial basis to preserve what we have termed the "Merger Efficiency Fallacy."

We include studies touted by Maureen Ohlhausen and Taylor Owings' article,²²² commissioned by the U.S. Chamber of Commerce. Ohlhausen and Owings contended that "there is evidence of mergers leading to efficiencies in a wide range of industries," using a plethora of studies as support. Strictly speaking, their evidence has nothing to do with "efficiency" as understood by the general economics profession, it only has to do with cost reductions. Since firms' costs are input suppliers' incomes or revenues, they are not necessarily welfare-increasing from a social point of view.

Setting aside this fundamental point, we critically evaluate the cost reductions claimed by most of the papers cited by Ohlhausen and Owings in this appendix.²²³ We

221. Further, we do not find the claim that large firms with market power are needed to compete with large foreign firms. There is no evidence that market power improves ability to compete internationally. See generally MICHAEL E. PORTER, HIROTAKA TAKEUCHI & MARIKO SAKAKIBARA, CAN JAPAN COMPETE? (1998).

222. See generally MAUREEN K. OHLHAUSEN & TAYLOR M. OWINGS, U.S. CHAMBER OF COM., EVIDENCE OF EFFICIENCIES IN CONSUMMATED MERGERS (2023), <https://www.uschamber.com/assets/documents/20230601-Merger-Efficiencies-White-Paper.pdf> [<https://perma.cc/3WU9-6TRY>]. It is regrettable that this paper cited a critique of Kwoka's book on mergers, *Mergers, Merger Control, and Remedies*, but not Kwoka's very effective reply to that critique. See *id.* at 8 n.28 (citing Michael Vita & F. David Osinski, *John Kwoka's Mergers, Merger Control, and Remedies: A Critical Review*, 82 ANTITRUST L.J. 361, 377–81 (2018) (critiquing Kwoka's book)); see also John Kwoka, *Mergers, Merger Control, and Remedies: A Response to the Vita-Osinski Critique*, 82 ANTITRUST L. J. 741 (2019) (responding to the critique). See generally JOHN KWOKA, MERGERS, MERGER CONTROL, AND REMEDIES: A RETROSPECTIVE ANALYSIS OF U.S. POLICY (2015).

223. In the interest of brevity, if a paper cited by Ohlhausen and Owings is the sole paper covering a given industry, we cover it in this note. See OHLHAUSEN & OWINGS, *supra* note 222, at 14, 15, 21, 22, 26. Siebert, studying the DRAM market, did not even observe costs. Ralph B. Siebert, *Estimating Differential Dynamic Merger Effects on Market Structure and Entry in Related Markets*, 55 REV. INDUS. ORG. 431, 440 (2019) ("[P]re- and post-merger marginal costs are unobserved"). Zhang, studying bottled water, set up a simulation model in which the firm chooses product variety and quantity of advertising based on the cost of product variety and of advertising; observed that post-merger, product variety and quantity of advertising increase; and then inferred that the merger must have decreased the cost of product variety and the cost of advertising—because what else in his model could have been responsible? In the real world, however, something else—e.g., loosening the "financial impediments" noted by Siebert, *supra* at 455, as affecting small firms—could well have been responsible instead. Jun Zhang, *What Makes a Good Merger? An Analysis of*

include additional published peer-reviewed empirical papers treating the effect of horizontal mergers on cost. We also include some papers studying other economic outcomes such as price, quality, quantity, or investment in R&D. However, in choosing these additional studies, we have excluded ones based on market structure, merger simulation, and stock-market event studies, for the reasons explained by Kwoka.²²⁴

A. Mergers and Cost Savings

Our review of the papers examining cost savings attributable to mergers suggests that the evidence is slim to none. The cost savings either do not materialize or are not merger-specific.

Stavros Peristani studied the post-merger efficiencies of bank mergers in 1980–1990 and, rather than finding any evidence of persisting cost savings, Peristani found a small but significant decrease in “X-efficiency” (efficiency of producing a given output mix), two to four years after the merger.²²⁵ He concluded that there was “no evidence to support the theory that in-market mergers lead to significant improvements in efficiency.”²²⁶ Ohlhausen and Owings cited several other banking studies. However, like Peristani,²²⁷ they all modeled banks using the “intermediation theory of banking,” which posits that banks lend out money which depositors deposit in the bank.²²⁸ This theory of banking is completely obsolete, as the Bank of England has

Merger Efficiencies in the U.S. Bottled Water Industry, SSRN (Nov. 8, 2018), <https://ssrn.com/abstract=3284249> [<https://perma.cc/FEV7-ECS9>]. Sullivan, studying accounting firms, found that merging gave them an advantage in obtaining the business of large firms, but gave them a *disadvantage* in gaining the business of small firms. Mary W. Sullivan, *The Effect of the Big Eight Accounting Firm Mergers on the Market for Audit Services*, 45 J.L. & ECON. 375, 396 (2002) (“Figures 2–5 show that the merged firms were more successful in winning large clients after the mergers than before the mergers. . . . At the same time, the share of small clients won by the merged firms decreased after the merger . . .”). Hensel studied “costs” in the defense industry, but these “costs” were not actually input costs to the firm, they were the firms’ output prices, i.e., they were the “costs” of the *purchaser*, the U.S. Department of Defense, whose perspective would be quite natural for Hensel to take because it was her employer at the time. Nayantara Hensel, *Can Industry Consolidation Lead to Greater Efficiencies? Evidence from the U.S. Defense Industry*, 45 BUS. ECON. 187, 188 (2010) (“[T]his analysis is the first to examine in detail whether the costs faced by DoD for specific weapons systems . . . increased or decreased following a merger . . .”). Kendix and Walls also studied price not costs. Michael Kendix & W.D. Walls, *Oil Industry Consolidation and Refined Product Prices: Evidence from US Wholesale Gasoline Terminals*, 38 ENERGY POL’Y 3498, 3506 (2010) (“Our objective in this paper was to quantify the impact of petroleum industry consolidation on refined product prices.”). Ueda used simulation, but as we observed with Zhang’s paper, this technique is very sensitive to an author’s modeling assumptions, and is therefore one which has not proven to be very reliable, as explained further by Kwoka. Masahiro Ueda, *The Success or Failure of Mergers in Japan’s Paper Industry: Evaluation of Merger Effects using DEA and Simulation Data*, 14 INT’L J. ECON. POL’Y STUD. 179, 180 (2020) (“This article creates simulations of data on hypothetical mergers . . .”); see also KWOKA, *supra* note 222.

224. KWOKA, *supra* note 222, § 3.2, at 40–47.

225. Stavros Peristiani, *Do Mergers Improve the X-Efficiency and Scale Efficiency of U.S. Banks? Evidence from the 1980s*, 29 J. MONEY CREDIT & BANKING 326, 336 (1997).

226. *Id.* at 326.

227. *Id.* at 328.

228. Jalal D. Akhavein, Allen N. Berger & David B. Humphrey, *The Effects of Megamergers on Efficiency and Prices: Evidence from a Bank Profit Function*, 12 REV. INDUS. ORG. 95, 107 (1997); Adel A. Al-Sharkas, M. Kabir Hassan & Shari Lawrence, *The Impact of Mergers and Acquisitions on the Efficiency of the U.S. Banking Industry: Further Evidence*, 35 J. BUS. FIN. & ACCT. 50, 55 (2007). Dimitris K.

explained: banks in the modern world actually create out of thin air the money they lend out.²²⁹ This makes banking completely different from industries that produce physical outputs, and makes it unclear what the costs of making a loan really are. Studies that do not reflect this do not engender confidence.

J. David Cummins, Sharon Tennyson, and Mary Weiss examined the cost and revenue efficiency of the U.S. life insurance industry in 1988–1995 and found that acquired firms had more efficiency gains than firms that had not been involved in mergers or acquisitions.²³⁰ However, unlike in most other industries, acquisitions in the life insurance industry are usually not “mergers” as commonly understood; instead, “many transactions involve groups buying and selling companies that remain in existence after the transaction,” and a company may be “purchased by one group and then later sold to another.”²³¹ So these conclusions are not applicable to mergers of the more typical type, in which the merged entities do not remain distinct.

John Becker-Blease, Lawrence Goldberg, and Fred Kaen studied mergers in the electric power industry after deregulation and found little evidence that the mergers and acquisitions created long-term value. Indeed, the stock price and business performance of the acquirers underperformed those of nonmerging firms.²³² The authors inferred from this data that, even if efficiencies and synergies are created as a result of deregulation, utilities do not have to grow through merger to capture them.²³³ This points out an issue often ignored in merger studies: cost savings due to a merger cannot be used to support the merger unless the cost savings could not have come about in any other way but a merger. The cost savings must be merger-specific, must be “cognizable.” The same concern appears in an electric power study cited by Ohlhausen and Owings, finding that that mergers result in cost savings because of management

Chronopoulos, Claudia Girardone & John C. Nankervis, *Post-Merger Bank Efficiency and Stock Market Reaction: The Case of the US Versus Europe*, in NEW ISSUES IN FINANCIAL INSTITUTIONS MANAGEMENT 122, 128 (Franco Fiordelisi, Philip Molyneux & Daniele Previati eds., 2010); Dimitris K. Chronopoulos, Claudia Girardone, & John C. Nankervis, *How Do Stock Markets in the US and Europe Price Efficiency Gains from Bank M&As?*, 43 J. FIN. SERVS. RSCH. 243, 249 (2013); Jamal Ali Al-Khasawneh, *Pairwise X-Efficiency Combinations of Merging Banks: Analysis of the Fifth Merger Wave*, 41 REV. QUANTITATIVE FIN. & ACCT. 1, 10 (2013). It is not clear what theory of banking the Galariotis paper is using because it is not clear what that paper is taking as the inputs and outputs of the banking industry. Emiliós Galariotis, Kriaki Kosmidou, Dimitrios Kousenidis, Eirini Lazaridou & Trifon Papapanagiotou, *Measuring the Effects of M&A on Eurozone Bank Efficiency: An Innovative Approach on Concentration and Credibility Impacts*, 306 ANNALS OPERATIONS RSCH. 343 (2021).

229. Michael McLeay, Amar Radia & Ryland Thomas, *Money Creation in the Modern Economy*, 54 BANK ENG. Q. BULL. 14, 15–16 (2014), <https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2014/quarterly-bulletin-2014-q1.pdf> [https://perma.cc/6VW7-6FC5].

230. J. David Cummins, Sharon Tennyson & Mary A. Weiss, *Consolidation and Efficiency in the US Life Insurance Industry*, 23 J. BANKING & FIN. 325, 355 (1999).

231. *Id.* at 330, 333.

232. John R. Becker-Blease, Lawrence G. Goldberg & Fred R. Kaen, *Mergers and Acquisitions as a Response to the Deregulation of the Electric Power Industry: Value Creation or Value Destruction?*, 33 J. REGUL. ECON. 21, 22 (2008).

233. *Id.* at 52.

changes (there were no new large capital investments).²³⁴ This means that the cost savings could have been achieved just by replacing a few managers, instead of by merging. These cost reductions were not merger-specific.

Exactly the same objection applies to a paper cited by Ohlhausen and Owings studying mergers in the concrete industry. Robert Kulick analyzed horizontal mergers in the ready-mix concrete industry from 1977 to 1992.²³⁵ He found evidence of significant price increases associated with horizontal mergers. He did find substantial productivity gains using a revenue-based measure of total factor productivity, which can be seen as a potential benefit of these mergers, but he states, “Thus, the fundamental mechanism driving productivity increases appears to be one where more productive managers take less productive assets and raise them to a level of productivity commensurate with their own.”²³⁶ This is not a cognizable cost saving: some managers could have been hired away from one firm by another, instead of having the two firms merge. Moreover, it shows that the technology was mis-specified—management of different qualities should have been included as inputs, and firms were irrationally using too much of the low-quality managerial input and too little of the high-quality managerial input, challenging the methodology of papers like this which assume cost-minimizing firms.²³⁷

Going back to electricity generation, Kwoka and Michael Pollitt found results similar to those of Becker-Blease, Goldberg, and Kaen.²³⁸ They studied the performance impact of mergers that occurred in the U.S. electricity industry from 1994 to 2003 and examined the impact on operating and total costs in electricity distribution.²³⁹ They found that mergers do not lead to lower costs for acquiring companies.²⁴⁰ Instead, buyers tended to be less cost-efficient performers before the merger, and sellers, who were more cost efficient, saw their efficiency decline after the merger.²⁴¹ As the authors put it, this paper had “some of the strongest evidence against the theory of efficient mergers and the market for corporate control.”²⁴²

Serguey Braguinsky, Atsushi Ohyama, Tetsuji Okazaki, and Chad Syverson studied acquisitions in the Japanese cotton spinning industry in the late nineteenth and the early twentieth century (1896–1920).²⁴³ They found that the acquired firms’

234. Mert Demirer & Ömer Karaduman, *Do Mergers and Acquisitions Improve Efficiency: Evidence From Power Plants* § 7.3, at 38–40 (FTC Microeconomics Conf., Nov. 4, 2022), https://www.ftc.gov/system/files/ftc_gov/pdf/demirerkaraduman.pdf [<https://perma.cc/9DPV-V38S>].

235. Robert Kulick, *Ready-to-Mix: Horizontal Mergers, Prices, and Productivity* 35 (U.S. Census Bureau, Working Paper No. CES 17-38, 2017), <https://www2.census.gov/ces/wp/2017/CES-WP-17-38.pdf> [<https://perma.cc/HGH9-RLNJ>].

236. *Id.* at 28.

237. *Id.* at 8 (assuming cost-minimizing firms).

238. See John Kwoka & Michael Pollitt, *Do Mergers Improve Efficiency? Evidence from Restructuring the US Electric Power Sector*, 28 INT’L J. INDUS. ORG. 645, 654 (2010).

239. *Id.*

240. *Id.*

241. *Id.*

242. *Id.*

243. Serguey Braguinsky, Atsushi Ohyama, Tetsuji Okazaki & Chad Syverson, *Acquisitions, Productivity, and Profitability: Evidence from the Japanese Cotton Spinning Industry*, 105 AM. ECON. REV. 2086, 2086, 2092 (2015).

production facilities saw drops in inventory and gains in capacity utilization post-acquisition, leading to increased productivity and profitability.²⁴⁴ However, they did not find any reduction in price as a result of the increased productivity.²⁴⁵ Also, this is a managerial improvement story, so, like our above discussion of power plants and concrete, these cost savings were probably not merger-specific.

Orley Ashenfelter, Daniel Hosken, and Matthew Weinberg studied the Miller and Coors merger and the U.S. beer industry overall, and they concluded that “there is little evidence that efficiencies can offset incentives to raise prices following mergers.”²⁴⁶ They found that even when there are moderate cost savings efficiencies, the savings are not passed to consumers, as the increase in concentration leads to an increase in market power and, therefore, an ability to sustain price increases. In a later study, Miller and Weinberg examined the Miller-Coors joint venture and reported a significant increase in the prices of beer after the merger. They estimated a moderate reduction in marginal cost of only 14%.²⁴⁷ Furthermore, the cost savings highlighted by Ashenfelter et al. were transportation costs, but these savings could have been achieved short of a merger, by one firm licensing its beer to be produced in some of the other firm’s plants. In other words, the cost savings were not merger specific.

Bruce Blonigen and Justin Pierce studied the U.S. manufacturing industry by comparing the productivity gains and the increase in market power resulting from mergers and acquisitions.²⁴⁸ They found that market power usually increases following a merger or acquisition, while plant-level productivity usually remains unchanged, at best. Specifically, they found little evidence of beneficial plant- or firm-level productivity effects from merger and acquisition activity, on average, and found little evidence for other efficiency gains often cited as possible from merger and acquisition activity, including reallocation of activity across plants or scale efficiencies in non-productive units of the firm.

Another horizontal-merger paper in Ohlhausen and Owings’s list is a study of a Hawaiian cement merger. It found that the price of cement fell after a merger; however, pre-merger Hawaiian capacity utilization was 37.5%, well below the U.S. industry average of 64.6%, so falling price might have been caused by further deterioration of demand, rather than falling costs.²⁴⁹

Yet another group of studies cited by Ohlhausen and Owings concern hospital mergers. These are fundamentally flawed because they do not hold quality of care

244. *Id.* at 2117.

245. *Id.* at 2100.

246. Orley C. Ashenfelter, Daniel S. Hosken & Matthew C. Weinberg, *Efficiencies Brewed: Pricing and Consolidation in the US Beer Industry*, 46 RAND J. ECON. 328, 328 (2015).

247. Nathan H. Miller & Matthew C. Weinberg, *Understanding the Price Effects of the MillerCoors Joint Venture*, 85 ECONOMETRICA 1763, 1782 (2017).

248. Bruce A. Blonigen & Justin R. Pierce, *Evidence for the Effects of Mergers on Market Power and Efficiency* 2 (Bd. Governors Fed. Rsrv. Sys., Fin. & Econ. Discussion Series Working Paper No. 82, 2016), <https://www.federalreserve.gov/econresdata/feds/2016/files/2016082pap.pdf> [<https://perma.cc/F4M2-7E9C>].

249. LAURENCE SCHUMANN, ROBERT P. ROGERS & JAMES D. REITZES, FTC, CASE STUDIES OF THE PRICE EFFECTS OF HORIZONTAL MERGERS pt. IV, at 35–50, 36 & n.32 (1992), <https://www.ftc.gov/sites/default/files/documents/reports/case-studies-price-effects-horizontal-mergers/232213.pdf> [<https://perma.cc/HDW6-QPQW>]. Note that their demand equation had no time trend. *Id.* at 6, fig.II.1.

constant. In most of these studies, the output (or one of the outputs) is time spent in a hospital, yet Groff et al. point out that “inpatient days can be viewed as either an input or an output depending on the perspective of the researcher.”²⁵⁰ The output of a hospital should be quality medical care; being unable to hold quality constant means these papers’ “efficiency” calculations are meaningless.

Most of these papers do not even acknowledge this problem,²⁵¹ but two of them do.²⁵² Moreover, one study admits it cannot measure the deleterious effect hospital mergers might have on care for the uninsured, while it noted, qualitatively, the bad effect of a merger on a hospital “where the doctors paid attention to their patients.”²⁵³ Another admits it cannot measure the deleterious effect of hospital mergers on local healthcare employment and on “inconvenience costs resulting from service consolidations.”²⁵⁴ (All of these shortcomings are common to all of these studies—the others did not even mention them.)

Another group of studies cited by Ohlhausen and Owings concern airlines. One study showed that airfares decreased and number of flights increased following formation of an airline alliance.²⁵⁵ However, that study had no data on costs or quality (flight delays and cancellations). Additionally, an alliance is not a merger, and could actually serve as a substitute for a merger. Another paper studied an actual merger and found price decreases for non-overlapping routes and price increases for overlapping routes.²⁵⁶ It did not have data on costs or quality either. Another paper on an actual merger, yet again with no direct data on costs, found mixed effects on prices (price

250. James E. Groff, Donald Lien & Jiwei Su, *Measuring Efficiency Gains from Hospital Mergers*, 11 RSCH. HEALTHCARE FIN. MGMT. 77, 82–83 (2007).

251. See, e.g., Jeffrey A. Alexander, Michael T. Halpern & Shouu-Yih D. Lee, *The Short-Term Effects of Merger on Hospital Operations*, 30 HEALTH SERVS. RSCH. 827 (1996); Jason R. Barro & David M. Cutler, *Consolidation in the Medical Care Marketplace: A Case Study from Massachusetts*, in MERGERS AND PRODUCTIVITY 9 (Steven N. Kaplan ed., 2000); Heather Radach Spang, Gloria J. Bazzoli & Richard J. Arnould, *Hospital Merger and Savings for Consumers: Exploring New Evidence*, 20 HEALTH AFFS. 150 (2001); David Dranove & Richard Lindrooth, *Hospital Consolidation and Costs: Another Look at the Evidence*, 22 J. HEALTH ECON. 983, 987 (2003) (unclear output measure); G.D. Ferrier & V.G. Valdmanis, *Do Mergers Improve Hospital Productivity?*, 55 J. OPERATIONAL RSCH. SOC’Y 1071 (2004). For confirmation that hospital quality after mergers is a valid concern, though not easy to definitively study, see Vivian Ho & Barton H. Hamilton, *Hospital Mergers and Acquisitions: Does Market Consolidation Harm Patients?*, 19 J. HEALTH ECON. 767 (2000). Mixed quality of care outcomes are reported by Nancy D. Beaulieu, Leemore S. Dafny, Bruce E. Landon, Jesse B. Dalton, Ifedayo Kuye & J. Michael McWilliams, *Changes in Quality of Care After Hospital Mergers and Acquisitions*, 382 NEW ENG. J. MED. 51 (2020), <https://www.nejm.org/doi/full/10.1056/NEJMsa1901383> [<https://perma.cc/JM6Q-8YK9>].

252. Robert A. Connor, Roger D. Feldman & Bryan E. Dowd, *The Effects of Market Concentration and Horizontal Mergers on Hospital Costs and Prices*, 5 INT’L J. ECON. BUS. 159, 160 (1998); Heather Radach Spang, Richard J. Arnould & Gloria J. Bazzoli, *The Effect of Non-Rural Hospital Mergers and Acquisitions: An Examination of Cost and Price Outcomes*, 49 Q. REV. ECON. & FIN. 323, 341 (2009).

253. Jason R. Barro & David M. Cutler, *Consolidation in the Medical Care Marketplace: A Case Study from Massachusetts*, in MERGERS AND PRODUCTIVITY 9, 33–41 (Steven N. Kaplan ed., 2000).

254. Groff et al., *supra* note 250, at 88.

255. Gustavo E. Bamberger, Dennis W. Carlton & Lynette R. Neumann, *An Empirical Investigation of the Competitive Effects of Domestic Airline Alliances*, 47 J.L. & ECON. 195, 195 (2004).

256. Kai Hüschelrath & Kathrin Müller, *Airline Networks, Mergers, and Consumer Welfare*, 48 J. TRANSP. ECON. & POL’Y 385, 386 (2014).

decreases in larger markets and price increases in smaller market) and mixed effects on quality (cancellations fell but delays rose).²⁵⁷

Ohlhausen and Owings also list Yonghong An and Wei Zhao's study of the 1997 merger of airplane manufacturers Boeing and McDonnell-Douglas.²⁵⁸ This was a simulation study, thus subject to the criticisms referred to in *supra* note 223, so we leave detailed critique to a footnote.²⁵⁹ However, we should raise the topic of quality and safety. Since the 2018 crash of a Boeing 737 Max 8, Boeing has compiled a troubling safety record, and concerned observers in the U.S. probably wish there were a U.S. alternative to Boeing for safety's sake—but there is none. If Boeing whistleblower Ed Pierson is to be believed, Boeing did achieve financial cost reductions under visionary new management techniques in the 2010s,²⁶⁰ but quality was not held constant—quality fell by 346 lives²⁶¹ and counting. As with hospitals, airplane merger studies not holding quality constant are deeply problematic, highlighting easily-measured cost reductions while ignoring quality deteriorations foisted onto unsuspecting consumers.

257. Somnath Das, *Effect of Merger on Market Price and Product Quality: American and US Airways*, 55 REV. INDUS. ORG. 339, 342 (2019).

258. Yonghong An & Wei Zhao, *Dynamic Efficiencies of the 1997 Boeing-McDonnell Douglas Merger*, 50 RAND J. ECON. 666 (2019).

259. An and Zhao find that the price of medium-sized aircraft fell after this merger. Their paper is based on a “but for” model simulation, which itself was based on assuming that the cost-reducing experiences of “learning-by-doing” and “spillovers” of constructing more than one airplane by a completely different firm (Lockheed) in a completely different time period (1968–1984) could be applied to post-1997 Boeing. *See id.* at 669–71 (basing cost information on production data for the Lockheed L-1011 and noting that Lockheed exited the market in 1984). In addition, they made the dubious assumption that “within-firm spillover[s]” could be captured by spillovers between two different firms, Lockheed and McDonnell-Douglas, “because both the L-1011 and the DC-10 plants were in the Los Angeles area, so possible workforce shifts and experience sharing between the two products may be similar to those within-firm products.” *Id.* at 680 n.4. Based on that set of assumptions, An and Zhao ascribe the post-merger fall in price to more effectively shared work experiences; accelerated learning-by-doing; or experience transfer to Boeing. *Id.* at 674. Such conclusions, while certainly suggestive of a possibility, ultimately have to be considered largely speculative, because they depend on the simulation's specific functional forms used (not just for McDonnell-Douglas and Boeing but also for Airbus and airplane purchasers), the particular discount rate assumed, and possibly the particular Markov-Perfect Nash Equilibrium which the algorithm happened to find (since uniqueness of the equilibrium is not guaranteed). *Id.* at 683. In this particular case, the merger simulation results are especially dubious because one of us (Glick) worked on this merger, and heard high-ranking employees of both Boeing and McDonnell-Douglas uniformly report that McDonnell-Douglas actually had no valuable technology nor experience in the production of civilian aircraft to give to Boeing, calling into question An and Zhao's learning-by-doing and experience spillover assumptions.

260. Jonathan Chang & Meghna Chakrabarti, *A Boeing Whistleblower Speaks Out*, WBUR (Feb. 15, 2024), <https://www.wbur.org/onpoint/2024/02/15/boeing-whistleblower-speaks-alaska-airlines> [https://perma.cc/9MYB-27Y3] (“It was called QA Transformation Plan. Then it became what's called Verification Optimization. They removed thousands of quality control inspections” (interviewing Ed Pierson, former aviation manager, Boeing)).

261. David Schaper, *Boeing Pleads Not Guilty to Fraud in Criminal Case over Deadly 737 Max Crashes*, NPR (Jan. 26, 2023), <https://www.npr.org/2023/01/26/1151565489/boeing-criminal-fraud-charge-737-max-crashes> [https://perma.cc/8L2Q-QHK8].

Ohlhausen and Owings also mention the railroad industry, an industry which has seen large consolidation (thirty-six Class I railroads in 1978 to seven in 2010)²⁶² and (again) an industry which has seen serious safety problems.²⁶³ As in airplanes and hospitals, economists studying railroads have not held safety constant, or even mentioned safety in their “efficiency” studies. One study, after claiming merger benefits, reports that:

[Union Pacific (UP)] itself is now on record asserting that many claimed benefits of recent end-to-end mergers (e.g., [Burlington Northern/Santa Fe, UP/Missouri Pacific]) might well have been achieved through means short of merger. UP gives as an example “long-term alliances to coordinate interline operations,” made possible by rapid advances in information technology “to achieve benefits traditionally attributed to end-to-end mergers.”²⁶⁴

In other words, any merger benefits were not merger-specific: interline operations and “trackage rights” (to run a train on another company’s tracks) could have generated the same benefits. Another paper reports that, as of 2010, economic surplus of shippers was below its 1978 level, and total economic surplus fell after 1981, not surpassing the 1981 level until 2005 (so that a perfect-foresight analysis in 1980 would show the net present value of merger benefits being negative, certainly up to 2005, and perhaps even with an infinite time horizon).²⁶⁵

Based on these studies, we can conclude that the promise of significant cost savings or productivity gains post-merger simply do not materialize in most cases. Even in the studies that found cost savings or productivity gains post-merger, these gains were often not merger-specific.

Next, we look at the effect of mergers on price and quantity in the product market.

B. *Merger Impact on Prices*

Among the literature that discusses the price effects of horizontal mergers, Kwoka has performed a comprehensive meta-analysis comparing different findings.²⁶⁶ Using studies that analyze one or more specific mergers and consider each one separately, he found that the post-merger price at the product-level increased by 7.22%, on average.²⁶⁷ More than 80% of product prices showed increases, and those increases averaged 10.08%.²⁶⁸ The largest post-merger price increases occurred in the hospital, journals,

262. Marc Ivaldi & Gerard McCullough, *Welfare Tradeoffs in U.S. Rail Mergers* 3 (Toulouse Sch. of Econ., Working Paper No. 10-96, 2010).

263. *Factsheet on Rail Safety*, U.S. DEP’T OF TRANSP. (Apr. 2, 2024), <https://www.transportation.gov/briefing-room/factsheet-rail-safety> [<https://perma.cc/JQM8-CCL8>] (“In the early 2010s, we saw a number of high-profile freight rail incidents across the U.S. and Canada, including one that left nearly 50 people dead. . . . [A]s last year’s Norfolk Southern derailment in East Palestine demonstrated, we can and must do more.”).

264. Denis A. Breen, *The Union Pacific/Southern Pacific Rail Merger: A Retrospective on Merger Benefits*, 3 REV. NETWORK ECON. 283, 311 (2004) (footnote omitted) (quoting Union Pac. Corp., Comment on Proposed Rule for Major Rail Consolidation Procedures, 65 Fed. Reg. 58,974 (proposed Oct. 3, 2000) (codified as 49 C.F.R. § 1180 (2001))).

265. Ivaldi & McCullough, *supra* note 262, at 24–25.

266. See generally KWOKA, *supra* note 222.

267. *Id.* at 110, 155.

268. *Id.* at 110–11.

and airline industries, where the product-level price increased by 15%, on average, and as high as 30%, in some cases.²⁶⁹ A smaller subset of these studies found that both the quantity and quality of output was reduced post-merger, though it should be noted that the total number of observations across these studies is small.²⁷⁰

Using a meta-analysis of retrospective studies of groups of mergers, Kwoka reported a product-level price increase of 5.42%.²⁷¹ Estimates of efficiency essentially average a zero change.²⁷² Efficiency is either a measure of overall efficiency, technical efficiency, or scale efficiency. Estimates of quality show a decrease of 4%, and estimates of R&D show a decrease of 9.73%.²⁷³

Kwoka's findings are based on exhaustive research of studies on horizontal mergers available up through 2011.²⁷⁴ We supplement his findings by including more recent studies of price effects of horizontal mergers. Most of these studies found net harm in horizontal mergers, as prices usually increase for consumers.

Nine recent papers study the price effects of horizontal mergers at the industry level, with eight using the U.S. product markets and one using Japanese market data. Of these nine papers, seven found net harm in the form of increased prices. Price increases can result from the change in market concentration and market power.²⁷⁵

Thus, the literature suggests that most studied mergers result in competitive harm, usually in the form of higher prices or reductions in quantity, quality, and R&D.

Our conclusions are aligned with the assertions of Nancy Rose and Jonathan Sallet: "[C]onsummated horizontal mergers, particularly in concentrated markets, frequently are associated with consumer losses, and infrequently associated with consumer benefits. This is consistent with market power effects dominating any potential efficiency gains, or no efficiencies at all."²⁷⁶

269. *Id.* at 98–99, 155.

270. *Id.* at 99–100.

271. *Id.* at 147–48.

272. *Id.* at 148.

273. *Id.*

274. *See id.* App. II, at 219–39.

275. *See, e.g.,* Ashenfelter et al., *supra* note 246, at 328; Volker Nocke & Michael D. Whinston, *Concentration Thresholds for Horizontal Mergers*, 112 AM. ECON. REV. 1915 (2022); Kulick, *supra* note 235; Leemore Dafny, Kate Ho & Robin S. Lee, *The Price Effects of Cross-Market Mergers: Theory and Evidence from the Hospital Industry*, 50 RAND J. ECON. 286 (2019); Blonigen & Pierce, *supra* note 248; Ralph Siebert, *The Impact of Horizontal Mergers on Market Structure: Evidence from the Semiconductor Industry* (Ctr. Econ. Stud. & ifo Inst., Working Paper No. 5911, 2016); Miller & Weinberg, *supra* note 247, at 1764.

276. Rose & Sallet, *supra* note 200, at 1963.