

The Horizontal Merger Efficiency Fallacy

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ABSTRACT

The Department of Justice and Federal Trade Commission Merger Guidelines (the “Merger Guidelines”), including the much improved latest revision in 2023 (the “New Merger Guidelines”), have continued to perpetrate what we call in this paper 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

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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 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 work force or externalization of costs, like pollution, resulting from relaxed regulation, to the net detriment of welfare.

In contrast, economics views efficiencies globally. As an example, a cost savings to a business resulting from a decrease in labor costs may have a detrimental impact on the economy as a whole resulting from the reduced purchasing power of its workers. We maintain 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, what is relevant is economic efficiencies, not 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.

We detail the disjunction between antitrust notions of efficiency and economic notions of efficiency and its effects in eight parts.

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

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

¹ Oliver Williamson, “Economies as an Antitrust Defense,” 58 *American Economic Rev.* 18 (1968).

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. We explain 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. We maintain 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. This definition is not the economic definition, but 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.² Here, we only point out the inconsistency in the economic treatment of efficiency in antitrust and in other areas of 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? We shouldn’t.

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 data from surveys, psychological and experimental studies, philosophical intuition and argument, and other sources. We compare 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 policy making requires identifying the welfare-affecting policy factors that should be taken into account. We maintain that, in the case of antitrust, that 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, hence justifying 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 efficiencies that undergird 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

² Mark Glick, Gabriel A. Lozada and Darren Bush, “Why Economists Should Support Populist Antitrust Goals,” 2023 Utah L. Rev 769.

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 lack of initial definition of what efficiency means. 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.”³ Actually, Williamson never explicitly defines “efficiency” but refers to the concepts of “economies” and “economies of scale.”⁴ In the analytical part of his paper, efficiencies are explicitly modelled as reductions in average costs, and these reductions are referred to by Williamson as “cost savings.”⁵

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, labelled it “efficiency” in the *Antitrust Paradox*, and repackaged the concept as the impact of a merger on “consumer welfare.”⁶ But Bork was explicit that efficiencies are *not* just cost savings: “cost savings are but one element or form of increased efficiency.”⁷ 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 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)”⁸ 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.

³ *Supra* note 1.

⁴ *Id.* at 18–19.

⁵ *Id.* at 21, Figure 1.

⁶ Robert Bork, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF*, Bork Pub. (2021) at 107.

⁷ *Id.* at 109

⁸ 1968 Department of Justice Merger Guidelines, Section 10.

Timothy Muris' 1980 article advocated for an explicit efficiency merger defense.⁹ He wrote that "the efficiency defense, as that term is used in this article, refers to a cost defense."¹⁰ According to Muris, "in merger litigation, an increase in efficiency should be defined as a decrease in costs."¹¹ In defining efficiencies broadly, Muris reaches beyond Williamson. For Muris, cost reductions are not limited to scale economies, but include the reduction of transactions costs, the cost of financing, and improvements in management as well.¹²

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.¹³ In a paper exceeding one hundred pages, Fisher and Lande paradoxically devote only a single paragraph to defining efficiencies. They write 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."¹⁴ All of these items can be understood as types of cost reductions.

A year after the Fisher and Lande article, the Department of Justice issued the 1984 Merger Guidelines. Section 3.5 of the new guidelines defined efficiencies as "economies of scale, integration of production facilities, plant specialization, [and] lower transportation costs.... The Department may also consider claimed efficiencies resulting from reduction in general selling, administration, and overhead expenses...."¹⁵ Again, efficiencies were understood as cost reductions. The Department of Justice and the Federal Trade Commission issued revised Merger Guidelines in 1992 that carried the same efficiency description as the 1984 Merger Guidelines.¹⁶

Gregory Werden's 1996 *Antitrust Magazine* article on Merger Efficiencies defined an efficiency resulting from a merger as "lower cost, higher quality or greater facility for innovation."¹⁷ Werden uses the concept of asset utilization to classify efficiencies. By this, he means 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."¹⁸ Physical assets and human resources can also be used by the merging parties to lower costs. Werden thus understands 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

⁹ Timothy Muris, "The Efficiency Defense Under Section 7 of the Clayton Act," 3 Case Western Res. L. Rev. 381 (1980).

¹⁰ Id. at 385.

¹¹ Id. at 417.

¹² Id. at 418–419. In 1982, the Department of Justice issued new Merger Guidelines. The Merger Guidelines never define efficiencies, but they state that efficiencies can be a defense to a merger challenge.

¹³ Alan Fisher and Robert Lande, "Efficiency Considerations in Merger Enforcement," 6 Cal. L. Rev. 1580 (1983).

¹⁴ Id. at 1599. Daniel Crane adopts this definition of efficiencies in his paper, "Rethinking Merger Efficiencies," 110 Mich. L. Rev. 347, 355 (2011).

¹⁵ 1984 Merger Guidelines, Section 3.5.

¹⁶ 1992 Department of Justice and Federal Trade Commission Horizontal Merger Guidelines, Section 4.

¹⁷ Gregory Werden, "An Economic Perspective on the Analysis of Merger Efficiencies," 11 *Antitrust Magazine* 12, 1996.

¹⁸ Id. at 12.

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 Department of Justice and the Federal Trade Commission 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 quantity and quality than either firm could have achieved without the proposed transaction."¹⁹ 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 2003.²⁰ In an Appendix titled "A Taxonomy of Efficiencies," the authors classify efficiencies into four types: allocative, productive, dynamic, and transactional. At bottom, these categories are merely versions of cost savings. The authors use the term allocative efficiencies as coextensive with a situation where price equals marginal cost for a single firm.²¹ Production efficiency is described as "economies of scale, economies of scope and synergies," which again is merely cost savings. Dynamic efficiencies involve "innovation to lower costs and develop new and improved products."²² 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 transactions costs, including costs of using the market for transactions in the face of market failures that make contracting costly.²³

In 2009, Malcolm Coate and Andrew Heimert reported on an internal study of merger efficiencies conducted at the Federal Trade Commission.²⁴ 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 transactions 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.

John Kwoka's 2015 paper describes the changing nature of efficiencies claimed by merging parties.²⁵ Kwoka identifies three new recent types of efficiencies being asserted by merging

¹⁹ 1997 Department of Justice and Federal Trade Commission Horizontal Merger Guidelines, Section 4. The 2010 Department of Justice and Federal Trade Commission Horizontal Merger Guidelines track the efficiency definition in the 1997 Merger Guidelines.

²⁰ William Kolasky and Andrew Dick, "The Merger Guidelines and the Integration of Efficiencies into Antitrust Review of Horizontal Mergers," 71 *Antitrust L. J.* 207 (2003).

²¹ Yet, the authors provide no examples of horizontal mergers that move price toward marginal cost. Instead, they describe vertical integration as eliminating the double marginalization problem. *Id.* at 243.

²² *Id.* at 247.

²³ *Id.* at 249.

²⁴ Malcolm Coate and Andrew Heimert, "Merger Efficiencies at the Federal Trade Commission 1997–2007," Bureau of Economics, Federal Trade Commission, February 2009; Malcolm Coate, "Efficiencies in Merger Analysis: An Institutionalist View," 13 *Supreme Court Econ. Rev.* 189 (2005).

²⁵ John Kwoka, "The Changing Nature of Efficiencies in Mergers and in Merger Analysis," 60 *Antitrust Bull.* 321 (2015).

parties: “dynamic considerations, quality benefits, and vertical economies.”²⁶ Dynamic considerations involve “lowering of the total cost of achieving the same extent of technological output,” or “more innovation output per dollar of input.”²⁷ Quality improvements involve the transfer of best practices or benefits from integrating services.²⁸ 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.”²⁹

The New Merger Guidelines begin with a recognition that under controlling Supreme Court precedent, the Clayton Act does not allow for an efficiency defense. Instead, the New Merger Guidelines incorporate an efficiency rebuttal. 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. 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 on what they mean by “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.” (See Section V.) In economics, efficiency means Pareto efficiency (as we define and discuss in Section III). Where “efficiency” does mean “cost savings” is in the language of business owners. Indeed, the only even 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 (as we describe in Section II).

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 semantics poses a conundrum—because we need to seriously engage with past authors, who have accepted this confusing terminology. Accordingly, for clarity, in this paper 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.

²⁶ Id. at 236.

²⁷ Id.

²⁸ Id. at 238.

²⁹ Id. at 242.

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. But this definition is not identical to how economists use the term.

In social sciences, “efficiency” is heavily ethics-laden. It appears to connote 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.³⁰ 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 Judge Bork as the Consumer Welfare Standard.³¹

Alfred Marshall and Arthur Pigou were the first to introduce the surplus approach to welfare to English-speaking economists. In 1890—the same year that Congress passed the Sherman Act—Alfred Marshall introduced the concept of consumer surplus in the first edition of his *Principles of Economics*.³² Marshall defined consumer surplus in the following passage:

The excess of price which he [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.³³

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’s 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?

³⁰ Louis Kaplow and 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”).

³¹ For a discussion of Judge Bork’s adoption of Marshall’s theory of welfare, see Mark Glick, Gabriel A. Lozada and Darren Bush, *supra* note 2.

³² Alfred Marshall, PRINCIPLES OF ECONOMICS, (8TH ED.) (2009). An earlier description of the concept of consumer surplus was advanced by J. Dupuit, ON THE MEASUREMENT OF THE UTILITY OF PUBLIC WORKS, *Annales des Ponts et Chaussees*, Second Series, Vol. 8 (1844).

³³ Alfred Marshall, *supra* note 33 at 103.

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

The systems analysts and I/O 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.³⁴

The theory of welfare referred to by Professor 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.³⁵ Law professor and leading antitrust scholar Joe Brodley's paper on merger efficiencies is emblematic of the incorporation of this theory into antitrust law. Brodley writes that: "As 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."³⁶ 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.

³⁴ Elizabeth Popp Berman, *THINKING LIKE AN ECONOMIST: HOW EFFICIENCY REPLACED EQUALITY IN U.S. PUBLIC POLICY* (2022) at 98. See also Binyamin Appelbaum, *THE ECONOMISTS' HOUR: FALSE PROPHETS, FREE MARKETS, AND THE FRACTURE OF SOCIETY* (2019).

³⁵ Lynne Pepall, Dan Richards and George Norman, *CONTEMPORARY INDUSTRIAL ORGANIZATION: A QUANTITATIVE APPROACH*, Wiley 22-23 (2011); Paul Belleflamme and Martin Peitz; Don Waldman and Elizabeth Jensen, *INDUSTRIAL ORGANIZATION THEORY AND PRACTICE* 70-71(2014); Frederick Scherer and David Ross, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 27-28 (1990); Roger Blair and David Kaserman, *ANTITRUST ECONOMICS* 22-24 (2009); Dennis Carlton and Jeffrey Perloff, *MODERN INDUSTRIAL ORGANIZATION*, 102-107 (1994); Stephen Martin, *INDUSTRIAL ECONOMICS ECONOMIC ANALYSIS AND PUBLIC POLICY* 27-31 (1994); William Shughart II, *THE ORGANIZATION OF INDUSTRY* 25-26 (1990); Jean Tirole, *THE THEORY OF INDUSTRIAL ORGANIZATION* 6-12 (1989).

³⁶ Joseph Brodley, "The Economic Goals of Antitrust: Efficiency, Consumer Welfare, and Technological Progress," 62 *NYU L. Rev.* 1020, 1025 (1987).

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 principles of 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 this national dividend over the dissatisfactions involved in the making of it.³⁷

Yet, paradoxically, labor rents, and other input-supplier rents, are ignored by merger analyses of efficiencies. This is a clear error. Every output has inputs. Studying input markets is no less important than studying output markets, and 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.”³⁸ 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.³⁹ Marshall recognized that human quality of life

³⁷ Arthur Pigou, *THE ECONOMICS OF WELFARE* (4TH ED) (1932) at 85.

³⁸ *Id.* at 54.

³⁹ *Id.* 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.”). On this point see Robert Cooter and Peter Rappoport, “Were the Ordinalists Wrong About Welfare Economics?” 22

can be impacted by many factors. He believed that surplus in markets only pertained to a part of welfare, which he labelled “economic welfare.”

Pigou explained that this part of total welfare cannot be separated “in any rigid way” from other parts.⁴⁰ 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 non-economic 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.⁴¹ As explained by Layard and 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 policymakers around the world are turning towards measures of success that go ‘beyond GDP’.⁴²

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.

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 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

J. of Econ. Lit. 507 (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).

⁴⁰ Maurice Dobb, WELFARE ECONOMICS AND THE ECONOMICS OF SOCIALISM: TOWARDS A COMMONSENSE CRITIQUE 30 (1969).

⁴¹ Sam Bowles extensively reviews this evidence in Samuel Bowles, THE MORAL ECONOMY: WHY GOOD INCENTIVES ARE NO SUBSTITUTE FOR GOOD CITIZENS (2016). See also Duncan Foley, ADAM’S FALLACY: A GUIDE TO ECONOMIC THEOLOGY (2006)

⁴² Richard Layard and Jan-Emmanuel De Neve, WELLBEING SCIENCE AND POLICY 1 (2023).

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, admits that “extending the single-consumer case to multiple consumers creates new difficulties [...] the issue [being] that aggregate equivalent variation [a modern improvement on surplus, see Section II.B.5] is not, in general, insensitive to redistributions of income between consumers. Only under strong assumptions can one ignore the distribution of income.”⁴³ Yet, two sentences later, he writes that he will ignore the distribution of income: “In this book, I will treat income distribution as irrelevant.”⁴⁴

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.”⁴⁵

Pigou considered whether output or GDP alone could be a measure of welfare since it increased output-market surplus in his book “The Economics of Welfare.”⁴⁶ He argued that it 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.⁴⁷

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.⁴⁸ There are several ways to prove this proposition. 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

⁴³ Jean Tirole, *THE THEORY OF INDUSTRIAL ORGANIZATION* 31 (1989). See also *supra* note 35.

⁴⁴ For defense, he cites the redistributing central authority that we refute in Section IV.B.3, and the Compensation Principle that we refute in Section V.

⁴⁵ *Id.* at 95.

⁴⁶ Arthur Pigou, *THE ECONOMICS OF WELFARE* (4TH ED) (1932).

⁴⁷ *Id.* at 82.

⁴⁸ Joe Farrell & Michael Katz, “The Economics of Welfare Standards in Antitrust” (Competition Policy Center, Berkeley, 2006) at 9 (“It is however, a widely held view that a dollar is worth more to society in the hands of a poor person than those of a rich one.”).

wealth rises by an equal amount.⁴⁹ 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 behaviorist 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.⁵⁰

Once one accepts that the marginal utility of money is not constant, or constant but not equal to that of every other consumer, then total utility depends on distribution even 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.⁵¹

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.⁵² 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. Recent research in 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,"⁵³ presumably because "social

⁴⁹ Andreu Mas-Colell, Michael Whinston and Jerry Green, *MICROECONOMIC THEORY*, Oxford (1995), at 186 ("[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.")

⁵⁰ *Supra* note 42 at 204.

⁵¹ John Hicks reformulated the surplus theory on the basis of ordinal utility. See John Hicks, "The Rehabilitation of Consumers' Surplus," 8 *Rev. Econ. Stud.* 108 (1940-1941). However, to avoid the problem of distribution he relies on Kaldor's compensation principle.

⁵² 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).

⁵³ Katherine Jane McAuliffe, *THE EVOLUTION AND DEVELOPMENT OF INEQUITY AVERSION*, Ph.D. dissertation in Human Biology, Harvard University, 2013, at iii. Available at https://dash.harvard.edu/bitstream/handle/1/11156679/McAuliffe_gsas.harvard_0084L_10757.pdf?sequence=3&isAllowed=y.

groups with more altruists will, for various reasons, outcompete other groups,”⁵⁴ or for other reasons such as collaboration being necessary 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.”⁵⁵ 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 puts 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.⁵⁶

But experience tells us that people regularly act in ways that are not purely self-interested. Robert Frank summarizes 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.⁵⁷

Experimental economics also finds that people do not behave in accordance with the self-interest model. Commenting on the totality of the experimental literature, Ernst Fehr and Urs Fischbacher state:

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 that the deviations from self-interest have a fundamental impact on core issues in economics.⁵⁸

⁵⁴ Michael Tomasello, Alicia P. Melis, Claudio Tennie, Emily Wyman, and Esther Herrmann, "Two Key Steps in the Evolution of Human Cooperation: The Interdependence Hypothesis," 53 *Current Anthropology* 673 at 673. Available at <https://www.journals.uchicago.edu/doi/10.1086/668207>.

⁵⁵ Quoted in Samuel Bowles & Herbert Gintis, "A Cooperative Species: Human Reciprocity and its Evolution," Princeton (2011) at 9.

⁵⁶ John Broome, "Choice and Value in Economics," 30 *Oxford Econ. Papers* 313, 333 (1978).

⁵⁷ Robert Frank, "Passions within Reason: The Strategic Role of the Emotions," Norton (1988) at 256.

⁵⁸ Ernst Fehr and Urs Fischbacher, "Why Social Preferences Matter: The Impact of Non-Selfish Motives on Competition, Cooperation and Incentives," 112 *Econ. J.* c1 (2002). Bowles and Gintis summarize the results of the

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.⁵⁹ Altruism by parents and within families is common and explained by the fact that family members carry the altruist's genes.⁶⁰ And economists, such as Bowles and Gintis, have compiled significant evidence of non-kin-based altruism.⁶¹

But other-regarding preferences can also be negative. Humans can harbor racial or ethnic bias, can be revengeful, and can at times be sadistic. Adler and Posner offer 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.⁶²

Modern welfare economists consider negative other-regarding preferences as a serious problem for a willingness to pay approach to measuring welfare.⁶³ For example, John Harsanyi, a Nobel Prize winning welfare economist, believes that “we must exclude all clearly antisocial preferences, such as sadism, envy, resentment, and malice.”⁶⁴ 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.⁶⁵

Another necessary assumption in order to equate preference with improved well-being involves the cognitive competence of human decisionmakers. The connection between choice and well-being requires that agents are “rational” in the nontechnical sense that their “beliefs are [not]

literature on eight types of experimental games, including the prisoner's dilemma, the dictator game, the ultimatum game and various public goods games. See Chapter 3 of Samuel Bowles and Herbert Gintis, *supra* note 55.

⁵⁹ The material welfare economists, such as Pigou and Marshall, focused only on measurable outcomes like number of calories, not freezing, 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.

⁶⁰ *Id.* at Chapter 6. See also William Hamilton, “The Genetical Evolution of Social Behavior, I & II,” 7 *J. of Theoretical Bio.* 1 (1964).

⁶¹ *Supra* note 55 at 53.

⁶² Matthew Adler & Eric Posner, “New Foundations of Cost-Benefit Analysis,” Harvard U.P. (2006) at 33–34.

⁶³ Charles Blackorby, Walter Bossert and David Donaldson, “Multi-profile welfarism: A generalization,” 24 *Social Choice and 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.”).

⁶⁴ John Harsanyi, “Morality and the Theory of Rational Behavior,” in “Utilitarianism and Beyond,” edited by Amartya Sen & Bernard Williams, Cambridge (1977) at 56.

⁶⁵ In *Taking Rights Seriously*, Ronald Dworkin argues that it is impossible to avoid counting other-regarding preferences. 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 makes the interesting proposal that the foundation of legitimate inherent rights involves the protection of liberties that are threatened by large external preferences in a community. Ronald Dworkin, “Taking Rights Seriously,” Harvard (1977), Chapter 12.

grossly out of kilter with available evidence.”⁶⁶ Unfortunately, choices are influenced by the context of the choice and how the choice is framed.⁶⁷

A further problem pointed out by Nobel Prize winner 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.⁶⁸ Bruno Frey, summarizing the experimental literature on forecasting utility, concludes 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.⁶⁹

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.⁷⁰ 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 multi-dimensional body of evidence concerning the factors that influence welfare. Yet, antitrust economists paradoxically seem to remain willfully ignorant of this work. We discuss this literature later in Section VI, and argue that it 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 the marginal purchases. Kaldor and Hicks reformulated Marshall’s consumer surplus model in a way that is consistent with ordinal utility,

⁶⁶ Paul Rozin and Edward Royzman, “Negativity Bias, Negative Dominance, and Contagion,” 5 *Personality and Soc. Psych. Rev.* 269 (2001).

⁶⁷ Daniel Kahneman, Jack Knetsch and Richard Thaler, “The Endowment Effect, Loss Aversion, and Status Quo Bias,” 5 *J. Econ. Persp.* 193, 194 (1991).

⁶⁸ Daniel Kahneman & Carol Varey, “Notes on the Psychology of Utility,” IN *INTERPERSONAL COMPARISONS OF WELL-BEING* (Jon Elster and John Roemer ed.) 131 (1991).

⁶⁹ Bruno Frey & Alois Stutzer, *HAPPINESS & ECONOMICS* 130 n. 62 (2002).

⁷⁰ Daniel Hausman, Michael McPherson, and Debra Satz, *ECONOMIC ANALYSIS, MORAL PHILOSOPHY, AND PUBLIC POLICY* 130 (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.”).

an improvement over Marshall, and Hicks's contribution 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 Scitovsky.⁷¹ These problems are incurable.⁷² To ensure consistency, all individuals must have preferences that are quasi-homothetic and identical at the margin.⁷³ This means, for example, that if you make \$100 a week and spend \$10 on pizza, then when your income increases to \$100,000 a week you must spend \$10,000 on pizza. We have summarized this problem and several others in a previous work.⁷⁴

The accumulation of such problems has led welfare economists to reject the surplus approach. As Baujard, a prominent welfare economist, describes, "extremely serious... criticisms of this approach have been raised by leading experts in the field."⁷⁵ 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).⁷⁶

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 our discussion in section III now establishes, that also is a false hope.

III. THE PARETO EFFICIENCY 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.

⁷¹ Tibor Scitovsky, "A Note on Welfare Propositions in Economics," 9 *The Review of Economic Studies* 77–88 (1941). The author's last name is also spelled "de Scitovszky."

⁷² Charles Blackorby and David Donaldson, "The Case Against the Use of the Sum of Compensating Variations in Cost-Benefit Analysis," 23 *The Canadian J. of Economics* 471–494 (1990); Kjell Arne Brekke, "The Numéraire Matters in Cost-Benefit Analysis," 64 *Journal of Public Economics* 117 (1997).

⁷³ Blackorby and Donaldson, *supra* note 72 at 473. Also W. M. Gorman, "The Intransitivity of Certain Criteria Used in Welfare Economics," 7 *Oxford Econ. Pap.* 25, 28 (1955)

⁷⁴ *Supra* note 2.

⁷⁵ Antoinette Baujard, "Welfare Economics," HAL Open Science, (2013) at 8 (listing prominent the prominent welfare economists that criticize this approach and describing the main problems).

⁷⁶ Marco Becht, "The Theory and Estimation of Individual and Social Welfare Measures," 9 *J. of Economic Surveys* 53, 77 (1995) (Quoting Angus Deaton).

In 1906, Pareto published his *Manual of Political Economy*, in which he developed the Pareto Principle.⁷⁷ “Pareto Improvements” are defined 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—i.e., there is no possible change that would benefit one agent without making another worse off.

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 Varian⁷⁸ and of Jehle and Reny,⁷⁹ the word “efficiency” is exclusively used as a synonym for Pareto Efficiency. In Mas-Colell, Whinston and Green (MCWG),⁸⁰ although “efficient *production*” means “it is impossible to produce more of one output and no less than any output while simultaneously using no more of any input” (p. 150), every other use of the word “efficiency” in that book’s main text refers to Pareto Efficiency.⁸¹

So, 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.

⁷⁷ Vilfredo Pareto, *MANUAL OF POLITICAL ECONOMY* (2014).

⁷⁸ Varian neither defines nor uses 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 Hal R. Varian, *MICROECONOMIC ANALYSIS* 3rd ed. 226, 227 (1992).

⁷⁹ See for example Geoffrey A. Jehle and Philip J. Reny, *ADVANCED MICROECONOMIC THEORY* 3rd ed. 186 (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).

⁸⁰ *Supra* note 49.

⁸¹ See for example *id.* at 307, 308: “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.”

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: footnote 18 on page 330 reads, “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.”

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.⁸² 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 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 equality of the MRTS’s 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.⁸³

⁸² 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 3 and Smith’s MRS is 2. 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 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.

⁸³ 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” 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 4, the MRS of bananas for apples of Jones and Smith is 5. Create two more apples, one each for Jones and Smith, by using as inputs 8 bananas, 4 each from Jones and Smith. Each person

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.⁸⁴

On the other hand, Pareto's approach is not value-free. 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 (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, in economics, Pareto's principle has been adopted 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 we address these attempts, we must first define two more concepts in economics: 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 that we surface 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. In this section we address 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.⁸⁵

The first fundamental theorem deals with perfectly competitive economies. "Perfect competition" is defined as a situation in which all economic agents are price takers: that is, 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

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. This contradicts our premise that the original situation was Pareto Optimal and establishes the proof. The case in which the MRT is greater than the joint MRS is proven similarly.

⁸⁴ *Supra* note 70 at 150.

⁸⁵ *Supra* note 75 at 6.

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.⁸⁶ 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.

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,⁸⁷ 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. 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.

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

To evaluate the efforts to link cost savings with Pareto Efficiency we must also introduce the theory of the second best. Lipsey and Lancaster's Theory of the Second Best⁸⁸ 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.⁸⁹ The Theory of the Second Best emphasizes how pitifully little can be said about how to improve an economy which finds itself outside of "perfect competition everywhere" (that is, short of attaining "perfect competition everywhere").

⁸⁶ Id. at 7 (Baujard notes that preferences must also be monotonic and markets must be complete).

⁸⁷ Frank Ackerman, "Still Dead After All These Years: Interpreting the Failure of General Equilibrium," 9 J Econ. Meth. 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 Foley, "What's Wrong with the Fundamental Existence and Welfare Theorems?" 75 J. Econ. Behav. & Org. 115, 119 (2010) ("no robust account of stability of an exchange economy toward the set of Walrasian allocations exists").

⁸⁸ R.G. Lipsey and Kelvin Lancaster, "The General Theory of the Second Best," 24 Review of Economic Studies (1956).

⁸⁹ According to 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 Chicago-Kent Law Review 3 (1998), 3, 7, 8.

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 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, then allowing the workers to unionize might increase welfare, because it might raise wages back towards their competitive level.⁹⁰ 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.

In this section we describe 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 that we have 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 which 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

⁹⁰ Eugene K. Kim, “Labor’s Antitrust Problem: A Case for Worker Welfare,” 130 *The Yale Law Journal* 428, 436–438. 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; so, in the real world, determining the theoretically desirable wage level would be difficult.

by Viscusi, Vernon, and Harrington,⁹¹ and Giles Burgess.⁹² It reappears in the merger efficiency paper by William Kolasky and Andrew Dick,⁹³ and in the Ph.D. microeconomics textbooks by Varian⁹⁴ and by Jehle and Reny.⁹⁵

In our view the argument is both misleading and of, 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 caveats at best 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.

Gregory Werden, in his paper “Essays on Consumer Welfare and Competition Policy,” sets forth the correct relation between Pareto Optimality and total surplus.⁹⁶

Following the formal analysis of Mas-Colell, Whinston and Green (1995, pp. 316–34), 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 study. Third, a redistributive mechanism allocates the numeraire in the socially optimal manner.

⁹¹ W. Kip Viscusi, John Vernon and Joseph Harrington, Jr., *ECONOMICS OF REGULATION AND ANTITRUST*, 3rd ed., 75-76 (2001) at 75–76. However, in the footnotes 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 as 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 on¹ [Fn. 1 is “See R.G. Lipsey and K. Lancaster...1956...for an analysis.”]. Hence, we now turn to welfare economics concepts in the context of a single market...” Id.

⁹² Giles Burgess, *ECONOMICS OF REGULATION AND ANTITRUST* (1997).

⁹³ William Kolasky and Andrew Dick, “The Merger Guidelines and the Integration of Efficiencies into Antitrust Review of Horizontal Mergers,” 71 *Antitrust L. J.* 207, 242–243 (2003).

⁹⁴ *Supra* note 78 at 222–225.

⁹⁵ *Supra* note 79 at 186–187 (Section 4.3.3).

⁹⁶ Gregory Werden, “Essays on Consumer Welfare and Competition Policy,” SSRN, March 2, 2009.

Werden is correct that, under these three assumptions made by MCWG, a relationship between Pareto efficiency and consumer and producer surplus could be established.⁹⁷ What is remarkable is that Werden offers no comment on the nonsensical and fanciful nature of these assumptions. This is the case even though MCWG themselves call out their assumptions for lack of realism.

Indeed, 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.⁹⁸ The third assumption is only required 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 says that the market of concern must be so small that “prices in the rest of the economy are unaffected, so all other goods are treated as a single composite good—a ‘numeraire.’” Because MCWG recognize this as a very strong assumption, they note that it can be replaced by instead assuming that the Nonsubstitution Theorem applies. This roughly means that the numeraire must be the only non-produced 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.⁹⁹ But, the Nonsubstitution Theorem assumptions seem even less realistic than the “tiny market” assumption.¹⁰⁰

What Werden does 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 in a warning:

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

⁹⁷ *Supra* note 49 at Chapter 10.

⁹⁸ This is MCWG's Proposition 10.D.1.

⁹⁹ To be precise, MCWG (*supra* note 49 at 342) write: “...the nonsubstitution theorem (see Appendix A of Chapter 5) 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.”

¹⁰⁰ MCWG suggest another way out of the tiny market assumption, but it does not help much either. They write: “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.” *Supra* note 49 at 342. However, these two “if” clauses are only slightly weaker than the conditions laid out in the body of our discussion above.

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. Exercise 10.G.3 provides an illustration of this problem.¹⁰¹

The actual assumption is that *all the other markets must be perfectly competitive*, and there must be *no distortionary taxes anywhere, nor any externalities*.¹⁰² 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. 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 one 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, this is remarkably 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.” 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.¹⁰³ The practical implication of this mathematics is stated clearly: “Recall that with quasilinear utility functions, wealth effects for non-numeraire commodities are null.”¹⁰⁴ 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.¹⁰⁵ This is complete fiction, not serious social science.

¹⁰¹ *Supra* note 49 at 334.

¹⁰² 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?

¹⁰³ *Id.* at 317.

¹⁰⁴ *Id.*

¹⁰⁵ 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.*

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, as we shall see in Part IV, Pareto optimality cannot be determined independently from the particular distribution of welfare sought, and we already know from Section 3.1 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).¹⁰⁶

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.¹⁰⁷

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, requires a truly bizarre assumption. It requires that there is an omniscient and omnipotent social planner who “allocates the numeraire in the socially optimal manner.” As MCWG describe:

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) (see Chapters 4, 16, and 22 for more on this concept). In addition, we suppose that (as in the theory of the normative representative consumer discussed in Section 4.D) there is some central authority who redistributes wealth by means of [lump sum] transfers of the numeraire commodity in order to maximize social welfare.[footnote] 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* (introduced in Section 10.D) *for any social welfare function that society may have.*¹⁰⁸

¹⁰⁶ Id. at 343.

¹⁰⁷ 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 *Amer. 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%. See *supra* note 2. See also MCWG note on p. 90 regarding consumer surplus that “the approximation error may be quite large as a fraction of the deadweight loss.”

¹⁰⁸ *Supra* note 49 at 328.

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 Tirole’s textbook, where one reads (emphasis added):¹⁰⁹

Market intervention does have desirable or undesirable income-redistribution effects. But I will [...be...] using Musgrave’s (1959) framework in which the distribution branch of government worries about distribution and the allocation branch (the one considered in this book) deals with efficiency.... The classic drawback of this approach is that the distribution branch may not function, and compensation need not occur ([Paul A.] Samuelson 1947). *This caveat should be borne in mind in all our welfare conclusions.* For instance, the conclusion in Chapter 3 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.

Positing the existence of this nonexistent benevolent central authority is pernicious beyond the fact that no such entity exists.¹¹⁰ To the extent this assumption leads to the approval of more mergers, there are increased resources that will be spent to influence government to establish rules that favor big business, not distribute welfare.¹¹¹

The conclusion is inescapable. Cost savings cannot be justified as efficiencies by deriving the surplus theory from Pareto efficiency.¹¹² So, why does the notion that cost savings inherently

¹⁰⁹ *Supra* note 43 at 32.

¹¹⁰ Consider Carl Shapiro, “Antitrust: What Went Wrong and How to Fix It,” 35/3 *Antitrust* 42, 33–45 (2021): “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 objects, using the UK and France as counterexamples; but are they?

¹¹¹ Mordecai Kurtz, *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, and Tommaso Vallenti, “Political Power and Market Power,” available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4390776 (2022) (finding “a positive association between mergers and lobbying” and “some evidence for a positive association [of mergers] with [campaign] contributions.”) González, Juan Pablo, and Hye Young You. 2022. “Money and Cooperative Federalism: Evidence from the EPA Civil Litigation.” Research Group on Political Institutions and Economic Policy (PIEP). Harvard University, Cambridge, MA. available at <http://www.tinyurl.com/2yow657r> (finding a positive correlation between campaign contributions to Republicans (not Democrats) and lenient decisions on prosecutorial strategies by U.S. state attorneys general for environmental enforcement.).

¹¹² However, this third assumption is not the only way to link the surplus theory of welfare to a social optimum. On page 334 of their text, *supra* note 49, 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*.” As we will see in the next subsection, 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. 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. The question to be answered is how desirable the potential Pareto criterion is.

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 literature on law and economics. Economists have analyzed and debated legal doctrines in virtually every area of law. Yet, efficiencies are defined as cost savings only in antitrust. In other areas of law, 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 Richard Posner's classic book *Economic Analysis of Law*, Posner writes:

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.¹¹³

The leading case book on law and economics follows closely Posner's assertion: "In this book, an efficient allocation of resources is one that cannot be improved in either the Paretian or Kaldor-Hicks sense."¹¹⁴ 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 (as we demonstrated above) is completely different. Why the difference? Because, in antitrust, business interests have successfully supplanted their notion of "efficiency" with that generally accepted in economics.

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

¹¹³ Richard Posner, *ECONOMIC ANALYSIS OF LAW* 14 (1992).

¹¹⁴ David Barnes and 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 Cole and Peter 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 Miceli, *THE ECONOMIC APPROACH TO LAW*, 4, 5 (2008) ("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.").

ignore distribution by assuming the marginal utility of money is constant and equal, like the surplus approach.¹¹⁵ Moreover, 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.¹¹⁶

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.¹¹⁷ If a policy is Kaldor-Hicks efficient, the “winners” could *potentially* 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.”¹¹⁸

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 Coleman¹¹⁹ put it, what sense does it make to support a policy “in virtue of its potential to be something other than it is”? In

¹¹⁵ Marc Fleurbaey and Peter J. Hammond, “Interpersonally Comparable Utility,” in Salvador Barberà, Peter J. Hammond, and Christian Seidl, eds, *HANDBOOK OF UTILITY THEORY*, Volume 2 Extensions 15 (Kluwer Academic 2010) (“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.”)

¹¹⁶ An exception is Richard Zerbe, *ECONOMIC EFFICIENCY IN LAW AND ECONOMICS* (2001).

¹¹⁷ Viscusi, Vernon, and Harrington, *supra* note 91 at 76 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.”

¹¹⁸ 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 Chapter 9 of Robin Boadway and Neil Bruce, *WELFARE ECONOMICS*, (1984).

¹¹⁹ Jules L. Coleman, “Efficiency, Utility, and Wealth Maximization,” 8 *Hofstra Law Review* 509 n. 62. (1980).

1978, welfare economist John Chipman¹²⁰ 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.”¹²¹

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 (SWF) approach to measuring welfare. The SWF approach was first formulated more than three quarters of a century ago by Bergson and Samuelson.¹²² The framework is now widely used by economists in many specific fields. Using SWF, policies can be ranked by their ability to increase human welfare. Like Pareto efficiency, SWF 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 incorporation of some aspects of the SWF approach, even though we do not believe that a full SWF analysis is feasible for an individual antitrust case. We will explain our vision more fully in Section VIII.

A social welfare function has at least three components (and a fourth if uncertainty is factored into the analysis).¹²³ 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 SWF analyses require that the welfare of all individuals affected by a policy change are taken into account.

Second, 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

¹²⁰ Fellow of the Econometric Society, of the American Academy of Arts and Sciences, and of the Guggenheim Foundation, Distinguished Fellow of the American Economic Association, and elected member of the National Academy of Science: <https://sites.google.com/umn.edu/chipmantimeline>.

¹²¹ John S. Chipman and James C. Moore, “The New Welfare Economics 1939–1974,” 19 *International Economic Review* 547 at 580.

¹²² A. Bergson, “A Reformulation of Certain Aspects of Welfare Economics,” 52 *Q. J. of Econ.* 310 (1938); Paul Samuelson, *FOUNDATIONS OF ECONOMIC ANALYSIS*, Harvard (1947).

¹²³ Matthew Adler, *MEASURING SOCIAL WELFARE: AN INTRODUCTION* (2019)(see generally Chapter 1).

of money) so that a shift in income distribution produces no change in welfare. A pure, unweighted sum of utility or welfare is called a utilitarian aggregation because only the total counts. The utilitarian approach is defended by John Harsanyi.¹²⁴ Yet, 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. 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.¹²⁵ This approach is referred to as prioritarian.¹²⁶ The standard assumption adopted by economists to capture sensitivity to the distribution of well-being is the Pigou-Dalton axiom. It 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.”¹²⁷ We note that the surplus approach violates Pigou-Dalton and as a result is in tension with modern welfare scholarship.¹²⁸

Third, we need a utility function, a method to convert measures of well-being into numbers for an individual. Economists often conceive of welfare as preference realization. Its measurement can be dollars derived from information concerning individual’s willingness to pay. In the section on the surplus approach, we have already pointed out the numerous defects in relying on measuring welfare by observation of willingness to pay. Modern welfare economics now offers an alternative.¹²⁹ For the last fifty years, scholars have been developing the subjective well-being approach, in which massive comprehensive surveys are conducted asking subjects some variation of the question, “overall, how satisfied are you with your life nowadays?”¹³⁰

Individuals answer the question on a scale from 0 to 10. Bruno Frey reports that subjective happiness studies have been performed in eighty countries, comprising over 80% of the world’s

¹²⁴ *Supra* note 64 at 39.

¹²⁵ Rasper Lippert-Rasmussen, *LUCK EGALITARIANISM* (2016).

¹²⁶ Ronald Dworkin, *SOVEREIGN VIRTUE: THE THEORY AND PRACTICE OF EQUALITY* (2000); James Griffin, *WELL BEING: ITS MEANING, MEASUREMENT, AND MORAL IMPORTANCE* (1986); Will Kymlicka, *CONTEMPORARY POLITICAL PHILOSOPHY: AN INTRODUCTION* (2002); G.A. Cohen, *ON THE CURRENCY OF EGALITARIAN JUSTICE AND OTHER ESSAYS IN POLITICAL PHILOSOPHY* (2011); Amartya Sen, “Utilitarianism and Welfarism,” 76 *J. of Phil.* 463 (1979).

¹²⁷ *Supra* note 123 at 95.

¹²⁸ 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 Rawls focus on the distribution of objective goods or resources. The problem with these approaches is that people can derive different amounts of welfare from the same resources. G.A. Cohen argues in favor of a type of equality of opportunity to achieve welfare. Sen’s capability approach is a middle ground. Sen focuses 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.

¹²⁹ Joseph Stiglitz, Amartya Sen, and Jean-Paul Fitoussi, *MISMEASURING OUR LIVES: WHY GDP DOESN’T ADD UP* (2010); Bruno Frey, *HAPPINESS: A REVOLUTION IN ECONOMICS* (2008); Marc Fleurbaey and Didier Blanchet, *BEYOND GDP MEASURING WELFARE AND ASSESSING SUSTAINABILITY*, (2013); *supra* note 42; Mark Anielski, *THE ECONOMICS OF HAPPINESS* (2007); Jachim Weimann, Andreas Knabe, and Ronnie Schob, *MEASURING HAPPINESS: THE ECONOMICS OF WELL-BEING* (2015); Daniel Kahneman, Ed Diener, and Norbert Schwarz, *WELL-BEING: THE FOUNDATIONS OF HEDONIC PSYCHOLOGY* (1999).

¹³⁰ 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?” John Helliwell, Richard Layard, Jeffrey Sachs, Jan-Emmanuel De Neve, Lara Aknin, and Shun Wang, *WORLD HAPPINESS REPORT* (2023).

population, at various periods of time.¹³¹ The results of these numerous surveys have been verified by high correlations of the answers between question formulations (i.e., the same questions over time). Scholars have used a variety of other comparisons to verify survey answers. Survey responses have been compared with objective measures of brain activity using fMRI studies, with reports by third parties familiar with the survey subjects, with the predictive power of subject's answers, and with other factors.¹³² Scholars then use objective and subjective data as well as social science research to determine the factors that explain well-being.¹³³

To take one example (using a Congressional antitrust goal), living in a democratic country has a positive impact on well-being.¹³⁴ Objective data from the World Bank, the Economist Intelligence Unit, and the Varieties of Democracy project, which rate countries on democracy and voice, can be used to study this relationship. Moreover, the relationship can be confirmed by other economic research. For example, Daron Acemoglu and James Robinson conclude that inclusive economic and political institutions are the key common element in successful economies and are essential to prosperity and development.¹³⁵ Similarly, income inequality lowers well-being.¹³⁶ Again, epidemiological evidence supports this conclusion as income inequality correlates with greater drug use, violence, mental illness, and other problems.¹³⁷

An enormous amount of research has focused on the determinants of well-being. Large-scale analyses by international organizations, including the EU, the United Nations, the World Bank, the OECD, and many governments have assembled similar sets of indicators that materially impact well-being either positively or negatively.¹³⁸ For example, the EUROSTAT expert group converged on nine critical well-being factors:¹³⁹ (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

¹³¹ Bruno Frey, *HAPPINESS: A REVOLUTION IN ECONOMICS* 20 (2010).

¹³² *Supra* note 42 at Chapter 1.

¹³³ Des Gasper, "Subjective and Objective Well-Being in Relation to Economic Inputs: Puzzles and Responses," Institute of Social Studies (2005); Filomena Maggino, "Methodologies to Integrate Subjective and Objective Information to Build Well-Being Indicators," *Universita Degli Studi Firenze* (2009).

¹³⁴ For example, David Dorn, Justina Fischer, Gehhard Kirchgassner, and Alfonso Sousa-Poza, "Is it Culture or Democracy? The Impact of Democracy and Culture on Happiness," 82 *Soc. Indic. Res.* 505, 512 (2007) ("a significant positive relationship between democracy and happiness [exists] even when controlling for income and culture measured by language and religion"); *supra* note 131 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 Allen, Kenneth Scheve, and David Stasavage, "Democracy, Inequality and Antitrust," *SSNR* (2021).

¹³⁵ Daron Acemoglu and James Robinson, *WHY NATIONS FAIL: THE ORIGINS OF POWER, PROSPERITY AND POVERTY* (2012).

¹³⁶ Shigehiro Oishi, Selin Kesebir, and Ed Diener, "Income Inequality and Happiness," 22 *Psch. Sci.* 1095 (2012) (showing that U.S. happiness levels are negatively related to inequality).

¹³⁷ Richard Wilkinson and Kate Pickett, *THE SPIRIT LEVEL: WHY GREATER EQUALITY MAKES SOCIETY STRONGER* (2010) (showing income inequality undermines community and creates status anxiety, mental illness, greater drug use, more violence, and lower life expectancy).

¹³⁸ EUROSTAT, *FINAL REPORT OF THE EXPERT GROUP ON QUALITY OF LIFE INDICATORS*, 2017 Edition; United Nations, *WORLD HAPPINESS REPORT* (2023); World Bank, *THE CHANGING WEALTH OF NATIONS: MEASURING SUSTAINABLE DEVELOPMENT IN THE NEW MILLENNIUM*, (2011); OECD, *GUIDELINES ON MEASURING SUBJECTIVE WELL-BEING* (2013).

¹³⁹ These factors are multidimensional. We added in parentheses illustrative examples.

and basic rights (democracy and good government), (8) natural and living environment (pollution), and (9) overall life experience. Stiglitz, Sen, and Fitoussi and the World Happiness Report have formulated similar factors.¹⁴⁰ Psychologists similarly report results consistent with the economic studies.¹⁴¹

Finally, moral philosophers have offered consistent lists of well-being constituents. For example, Martha Nussbaum, George Sher, James Griffin, and Richard Kraut have discussed factors that are important components of well-being.¹⁴² Critically, these quality-of-life factors are related to many of the New-Brandeisian alternative goals for antitrust: inequality,¹⁴³ unemployment and quality of work,¹⁴⁴ democracy,¹⁴⁵ protection of small business,¹⁴⁶ macroeconomic growth,¹⁴⁷ and sustainability.¹⁴⁸

¹⁴⁰ 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. The UN 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.

¹⁴¹ Michael Argle, “Causes and Correlates of Happiness,” in *WELL-BEING: THE FOUNDATIONS OF HEDONIC PSYCHOLOGY* (Daniel Kahneman, Ed diener and Norbert Schwarz, ed.) Sage, (1999).

¹⁴² Matthew Adler, *WELL-BEING AND FAIR DISTRIBUTION BEYOND COST-BENEFIT ANALYSIS*, Oxford (2012) at 166–167 (“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.’”).

¹⁴³ Lina Kahn and Sandeep Vaheesan, “Market Power and Inequality: The Antitrust Counterrevolution and Its Discontents,” 11 *Harv. L. & Pol. Rev.* 235 (2017); Jonathan Baker and Steven Salop, “Antitrust, Competition Policy and Inequality,” 104 *Geo. L. J.* 1 (2015).

¹⁴⁴ Eric Posner, *HOW ANTITRUST FAILED WORKERS* (2021); Maurice Stucke, “Looking at the Monopsony in the Mirror,” 62 *Emery L.J.* 1509 (2013).

¹⁴⁵ Stephen Martin, “Dispersion of Power as an Economic Goal of Antitrust Policy,” Purdue Working Paper No. 1285 (2016); Harlan Blake and William Jones, “Towards a Three-Dimensional Antitrust Policy,” 65 *Col. L. Rev.* 422 (1965); Sanjukta Paul, “Recovering the Moral Economy Foundations of the Sherman Act,” 131 *Yale L. J.* 175 (2021).

¹⁴⁶ See Sandeep Vaheesan, *The Evolving Populisms of Antitrust*, 93 *Neb. L. Rev.* 370 (2014)(noting antitrust laws purpose was about protecting nonelite groups like small business and consumers from powerful corporations); Robert Lande, “*Wealth Transfers as the Original and Primary Concern of Antitrust: The Efficiency Interpretation Challenged*,” 34 *HASTINGS L. J.* 65 (1982–83)(stating that “the congressional intent to assist small businesses can be interpreted as promoting distributive, rather than efficiency, considerations.”). See also John J. Flynn, “*Reaganomics*” and *Antitrust Enforcement: A Jurisprudential Critique*, 1983 *Utah L. Rev.* 269, 269-312 (1983)

Economic research shows that self-employed persons typically are more satisfied with their jobs than employees at large corporations. See generally Matthias Benz & Bruno 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). Cf., Sana El Harbi & Giles Grolleau, *Does Self-Employment Contribute to National Happiness?* 41 *J. SOCIO. ECON.* 670 (2012).

¹⁴⁷ Michael Porter, “Competition and Antitrust: A Productivity Based Approach,” 46 *Antitrust Bull.* 919 (2002).

¹⁴⁸ Simon Homes and Michelle Meagher, “A Sustainable Future: How Can Control of Monopoly Power Play a Part”, available at <https://www.balancedeconomy.net/wp-content/uploads/2023/06/A-sustainable-future-Parts-I-to-III-1.pdf> (2022).

In contrast, the antitrust “efficiency” narrative is premised on cost savings contributing to welfare mediated by the surplus theory of welfare. That approach is both outdated and morally bankrupt. In its place, we propose antitrust policy driven by considering factors that research has shown 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. He has stated that just how the selection is made and who participates should be a collective decision.¹⁴⁹ 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 goals of the law.¹⁵⁰ Courts interpret the statutes “to give effect to the intent of Congress.”¹⁵¹ In this section we show that: (1) Congress never mandated that efficiencies, let alone cost savings, would be a defense to an otherwise anticompetitive merger; and (2) Congress made clear that its goals for limiting the concentration of economic power included (a) preventing adverse income transfers, (b) protecting political democracy, and (c) protecting small businesses and opportunities for entrepreneurship.

There is a virtual consensus among antitrust scholars that efficiency is not a stated Congressional goal of merger regulation.¹⁵² As Herbert Hovenkamp summarizes:

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.¹⁵³

In one example from the Congressional debates around the Celler-Kefauver Act, Congressman Celler, an amendment sponsor, stated:

¹⁴⁹ Antoinette Baujard and Muriel Gilardone, “Sen is not a Capability Theorist,” *Hal Open Science* (2019) at 9–10.

¹⁵⁰ Moreover, efficiencies are not mentioned in the statutory language of any of the antitrust statutes.

¹⁵¹ *United States v. Am. Trucking Ass’ns, Inc.*, 310 U.S. 534, 542 (1940). See generally, Congressional Research Service, *STATUTORY INTERPRETATION: THEORIES, GOALS, AND TRENDS*, CRS Report (2022).

¹⁵² Nor were efficiencies a Congressional goal in passage of the Sherman Act. Senator Sherman himself recognized that the benefits of cost savings are rarely, if ever, passed on to consumers. 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.”¹⁵² Similarly, Representative Mason rejected the notion of costs savings as antitrust absolutism. “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.”¹⁵² Indeed, Senator Sherman was not impressed with the notion that the merged firm could lower prices. 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 to selfish interests...” 21 Cong. Rec. 2462 (1890).

¹⁵³ Herbert Hovenkamp, “Antitrust Policy After Chicago,” 84 *Mich. L. Rev.* 213, 250 (1985).

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. DuPont, 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 weaken those that survived. But DuPont did that by the loophole in section 7 and section 12 of the Clayton Act.¹⁵⁴

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.¹⁵⁵

Congress in passing the amendment to Section 7 was not concerned with efficiency, instead they stated plainly that they sought to prevent aggregation of economic and political power in order to preserve democracy in the United States, they sought to promote small business and local control, and they wanted to avoid the impact of adverse income redistribution.¹⁵⁶

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, among other reasons, of its impact on political democracy.¹⁵⁷ Probably one of the clearest statements of this traditional antitrust goal was the statement of Justice Douglas in the 1948 Columbia Steel merger case, a case brought by the government under the Sherman Act. In his dissent, Justice Douglas said the following:

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,

¹⁵⁴ Corporate Mergers and Acquisitions, Subcomm. of the Comm. on the Judiciary 64 (Sept. 19, 21, 23, 26, 28, 30, 1949, Feb. 13, 1950) (statement of Congr. Celler).

¹⁵⁵ *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) (“possible economies [from a merger] cannot be used as a defense to illegality.”); *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 580 (1967) (“Congress was aware that some mergers which lessen competition may also result in economies but it struck the balance in favor of protecting competition.”).

¹⁵⁶ Congressional support for these goals were expressed during the debates leading to the passage of the Sherman Act, The Clayton Act, and the FTC Act. See Mark Glick and Darren Bush, *Breaking up Consumer Welfare’s Antitrust Policy Monopoly*, 56 *Suffolk L. Rev.* 203 (2023); Zephyr Teachout & Lina Khan, “*Market Structure and Political Law: A Taxonomy of Power*,” 9 *Duke J. of Const. Law & Pub. Pol.* 1, 62 (2014); Robert Lande & Sandeep Vaheesan, “*Preventing the Curse of Bigness Through Conglomerate Merger Legislation*,” 52 *Ariz. St. L.J.* 75, 82–85 (2020).

¹⁵⁷ Robert Pitofsky, “*The Political Content of Antitrust*,” 127 *UNIV. OF PENN. 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 Crane, “*Antitrust and Democracy: A Case Study from German Fascism*,” *Univ. of Mich. Law & Economics Working Paper*, April 17, 2018 at 3 (“*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.*”)

the emotional stability of a few self-appointed men. The fact that they are not vicious men but respectable and social-minded is irrelevant. That is the philosophy and the command of the Sherman Act. It 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.¹⁵⁸

Only a few years later, Congress debated the amendments to Section 7 of the Clayton Act (the Celler-Kefauver Act). It was widely held by many at the end of World War II 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 Senator 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.¹⁵⁹

Senator 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.¹⁶⁰

Thus, one of the objectives Congress had for limiting concentration through merger regulation was the preservation of democracy.

B. Congress Wanted to Protect Small Business.

Protection of small business was another traditional goal of antitrust enforcement.¹⁶¹ Two of the authors have documented the numerous Congressional and Judicial statements demonstrating that

¹⁵⁸ *United States v. Columbia Steel*, 334 U.S. 495, 536 (1948).

¹⁵⁹ Quoted in Robert Lande and Sandeep Vaheesan, “*Preventing the Curse of Bigness Through Conglomerate Merger Legislation*,” 52 ARIZ. STATE L. J. 75, 84–86 (2020) (see also *supra* note 156). Lande and Vaheesan assemble numerous statements made during the 1950 Amendment’s Congressional debate with similar import.

¹⁶⁰ Corporate Mergers and Acquisitions, Subcomm. of the Comm. on the Judiciary 8 (Sept. 19, 21, 23, 26, 28, 30, 1949, Feb. 13, 1950) (statement of Sen. O’Mahoney).

¹⁶¹ Wesley Cann, “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 (1985) (“Congress [when passing the Celler-Kefauver Act] expressed concern for small businesses and for local communities in which these businesses had

a primary goal of all of the antitrust statutes has been the protection of small business.¹⁶² Section 7 of the Clayton regulating mergers is no exception. In *Brown Shoe v. United States*, the Supreme Court examined the legislative history of the amendment to Section 7 of the Clayton Act, and found that:

It is competition, not competitors, which the Act [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.¹⁶³

As the quotation makes clear, values other than cost savings and even lower prices were important goals of the amended Section 7 of the Clayton Act.¹⁶⁴

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.¹⁶⁵ In his article, Lande assembled the evidence that Congress has been concerned about higher prices because they transfer wealth from consumers to corporations. There are also numerous explicit statements of the concern by Congress that concentration adversely redistributes wealth. Senator Sherman was concerned about the “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.”¹⁶⁶ Similarly, Senator 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.”¹⁶⁷

The Congressional debates preceding passage of the FTC Act and the Clayton Act voiced concerns about distribution of income. Representative Morgan identified among the purposes for creation of the FTC, “[t]o minimize the power of the large industrial corporation to concentrate wealth, and to maximize its power as an agency for the equitable distribution of wealth [and] allay public suspicion and distrust, remove prejudice and secure the people from unjust tribute levied by

played such an important role.”); Stacy Mitchell and Ron Knox, *ROLLING BACK CORPORATE CONCENTRATION: HOW NEW FEDERAL ANTIMERGER GUIDELINES CAN RESTORE COMPETITION AND BUILD LOCAL POWER*, Institute for Local Self-Reliance, June 2022 (discussing the legislative history of the Clayton Act and the economic benefits of small business).

¹⁶² See Bush and Glick, *supra* note 156 at 216-218.

¹⁶³ *Brown Shoe Co. v. United States*, 370 U.S. 294, 344 (1962).

¹⁶⁴ Amy Klobuchar, *ANTITRUST TAKING ON MONOPOLY POWER FROM THE GILDED AGE TO THE DIGITAL AGE* 342–343 (2022) (“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.”).

¹⁶⁵ Robert Lande, “*Wealth Transfers as the Original and Primary Concern of Antitrust: The Efficiency Interpretation Challenged*,” 34 *HASTINGS L. J.* 65 (1982–83).

¹⁶⁶ Quoted in David Millon, “*The Sherman Act and the Balance of Power*,” 61 *S. Cal. L. Rev.* 1219, 1277–1278 (1988) (quoting 21 *Cong. Rec.* 2457 (1890)).

¹⁶⁷ 21 *Cong. Rec.* 1768 (1890).

monopolistic corporations.”¹⁶⁸ He further specifically justified introduction of the FTC Act to “make these corporations better instruments for the equitable distribution of wealth.”¹⁶⁹

Importantly, during the Cellar-Kefauver Act debates, Senator Joseph 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.¹⁷⁰

Congress and the Supreme Court as part of 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. In the next section we explain how this can be accomplished.

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

In this section we describe 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 constructed on 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 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.

We detail each of these points below.

¹⁶⁸ 51 Cong.Rec. 8854 (1914).

¹⁶⁹ Id. at 8855.

¹⁷⁰ Corporate Mergers and Acquisitions, Subcomm. of the Comm. on the Judiciary 8 (Sept. 19, 21, 23, 26, 28, 30, 1949, Feb. 13, 1950)(statement of Sen. O’Mahoney).

A. Congressional Goals Can be Integrated into Merger Analysis Through 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.¹⁷¹ 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, it must be because there are proven, not presumed, offsetting benefits.¹⁷²

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 contain a footnote expressing this assumption as follows: “[t]he 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.”¹⁷³ And, under the New Merger Guidelines, mergers in markets where concentration is below 1000 HHI and the change is less than 100 HHI 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 provide some benefit to consumers as a result.

Frederick Warren-Boulton, an economist in the Antitrust Division of 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.¹⁷⁴

Yet, as we have demonstrated above, Congress never contemplated a safe harbor for mergers that result in cost savings. Quite the contrary, Congress dismissed cost savings as a proper goal of the merger control and instead premised Section 7 of the Clayton Act on preventing a rise in concentration because of concerns to preserve democracy, protect small business, and avoid 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

¹⁷¹ Nancy Rose and Jonathan Sallet, “The Dichotomous Treatment of Efficiencies in Horizontal Mergers: Too Much? Too Little? Getting it Right,” 168 *Univ. of Penn. L. Rev.*, 1941, 1953–1955 (2020) (making this point and identifying the many others who have made a similar point).

¹⁷² 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.”).

¹⁷³ 1984 Merger Guidelines at 23.

¹⁷⁴ 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...[;] this credit is fairly large, so that most cases are resolved in this manner [by the safe harbor]”); Herbert Hovenkamp, “Antitrust Balancing,” 12 *J. of L. and Bus.* 369, 379–380 (2016) (providing citations), Joseph Farrell & Carl Shapiro, “Horizontal Mergers: An Equilibrium Analysis,” 80 *Am. Econ. Rev.* 107, 122 (1990)

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 marked impact on the danger posed to democracy by a merger. As they show, mergers could continue with a screen of 1000 HHI until only ten firms remained in the United States, centralizing enormous political power.¹⁷⁵ It makes sense, therefore, to apply lower concentration thresholds for challenging large firms than are applied to smaller firms.

Different markets also present unique dangers to Congressional goals. Media markets, for example, can have important implications for the democratic process. 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 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 Section 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 rebuttal evidence to a merger that increases concentration beyond the merger guidelines' thresholds.¹⁷⁶ 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 price should not be a rebuttal to an increase in concentration above the allowable limits because

¹⁷⁵ *Supra* notes 156 and 159.

¹⁷⁶ Robert Bork, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF*, Bork (2021) at 127 (“Passable 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*, 112-113 (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....”); Alan Fisher and Robert Lande, *supra* note 13 (“Merger policy must recognize the limited ability of courts and the Commission to assess efficiencies accurately.”).

the adverse impact of concentration is not limited to price. Increases in concentration can reduce quality and innovation and adversely impact Congressional goals. Compare the efficiency rebuttal with the Merger Guidelines' entry rebuttal. 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 merger cost savings passed on to consumers.¹⁷⁷ As one district court recently stated, "The Court is 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."¹⁷⁸ We have identified ten empirical economic studies measuring either cost savings or productivity gains or profitability from mergers spanning industries like health insurance, banking, utility, manufacturing, beer, cotton spinning, and concrete industries.¹⁷⁹ Five of these studies find no evidence of productivity gains or cost reductions. Of the other five studies that find productivity gains in terms of cost savings; three report a significant increase in prices to

¹⁷⁷ In *New York v. Deutsche Telecom*, 439 F.Supp. 3d 179 (N.D.N.Y. 2019), the court considered evidence of merger efficiencies. However, the court cautioned:

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.

In 946 F. Supp. 1285 (W.D. Mich. 1996), *aff'd per curiam without published opinion*, 121 F.3d 708 (6th Cir. 1997) 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.

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

While reversed, the district court in *F.T.C. v. H.J. Heinz, Co.* found efficiencies outweighed anticompetitive effects. The D.C. Circuit held that the "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." *F.T.C. v. H.J. Heinz, Co.*, 246 F.3d 708, 722 (D.C. Cir. 2001).

Of particular note is Justice (then Judge) Kavanaugh's dissent in *U.S. v. Anthem, Inc.*, 855 F.3d 345, 431 (D.C. Cir. 2017):

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. See *United States v. General Dynamics Corp.*, 415 U.S. 486, 498-500, 94 S.Ct. 1186, 39 L.Ed.2d 530 (1974); *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 720 (D.C. Cir. 2001); *United States v. Baker Hughes Inc.*, 908 F.2d 981, 990-91 (D.C. Cir. 1990); U.S. Department of Justice & Federal Trade Commission, *Horizontal Merger Guidelines* § 10, at 29-31 (2010).

It may very well be that the efficiency section of the Merger Guidelines will increasingly help defendants.

¹⁷⁸ *FTC v. Peabody Energy, et. al*, Case No. 4:20-cv-00317-SEP, E.D. Missouri, March 23, 2020.

¹⁷⁹ We review these studies in the appendix.

the consumers post-merger, one of them report no change in prices post-merger, and the remaining one study does not report price effects post-merger. Accordingly, there does not seem to be any evidence that mergers result in cost savings that are passed on in lower prices to consumers.

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. Economies of scale and scope can generally be achieved through internal expansion. The 1968 Merger Guidelines, for example, stated that “where substantial economies are potentially available to a firm, they can normally be realized through internal expansion.” In 1983, Fisher and Lande wrote that “it 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....”¹⁸⁰ Indeed, firms that have existed in a market for some time are unlikely to continue to have unexploited economies of scale or scope. In a recent paper, Louis Kaplow agrees, stating:

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.¹⁸¹

Other types of cost savings also often cannot be shown to be merger-specific. The 1997 Merger Guidelines specifically state that so-called efficiencies “relating to procurement, management, or capital cost are less likely to be merger-specific”¹⁸² Transactions cost savings may be achievable through contracting or licensing. These are difficult questions of merger specificity. Accordingly, to rely on such a defense, the merging party should have to show that there are institutional barriers to contracting, such as inability to control opportunism or hold up concerns. 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) 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.”¹⁸³ Joe Brodley made a similar claim in his 1987 paper: “innovation efficiency appears resistant to measurement because it is difficult to assess the efficiency consequences of alternative innovation decisions. Indeed, 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.”¹⁸⁴

¹⁸⁰ *Supra* note 13.

¹⁸¹ Louis Kaplow, “Efficiencies in Merger Analysis,” discussion Paper No. 1056, Harvard Law School (2021) at 20.

¹⁸² 1997 Horizontal Merger Guidelines, Section 4.

¹⁸³ *Id.*

¹⁸⁴ Joseph Brodley, “The Economic Goals of Antitrust: Efficiency, Consumer Welfare, and Technological Progress,” 62 NYU L. Rev. 1020, 1029 (1987). John Kwoka, *supra* note 25 (dynamic efficiencies “requires 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.”).

Likewise, transactional cost savings are difficult to verify. According to John Kwoka, vertical so-called efficiencies “pose substantial problems of identification and measurement.”¹⁸⁵

The combination of these four reasons justify abandonment of the Merger Guidelines rebuttal section.

IX. Conclusion

Since the 1968 Merger Guidelines were issued, the Guidelines have incorporated to one extent or another what we refer to as the Merger Efficiency Fallacy. The fallacy begins by adoption of the businessman’s definition of efficiency as cost savings. This definition can be justified only by acceptance of the Consumer Welfare Standard introduced by Judge 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 predominate goal of the 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.¹⁸⁶

X. APPENDIX: EFFECT OF HORIZONTAL MERGERS ON COST SAVINGS

In this appendix, we review empirical literature on the effect of horizontal mergers on cost savings and other economic outcomes including price, quality, quantity, and investment in the R&D of relevant products to further test whether there is any substantial basis to preserve what we have termed the Merger Efficiency Fallacy.

A. Mergers and Cost Savings.

As stated above in section VII.B, we have identified ten studies measuring either cost savings or productivity gains or profitability from mergers spanning industries such as health insurance, banking, utility, manufacturing, beer, cotton spinning, and concrete industries. We briefly discuss each of them in chronological order.

¹⁸⁵ Id. at 242.

¹⁸⁶ We further 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. Market power reduces investment and R&D. Michael Porter shows that the strongest Japanese competitors were those firm subject to domestic competition. See Michael Porter, *CAN JAPAN COMPETE*, Basic Books (2000).

Peristiani¹⁸⁷ studied the post-merger efficiencies of bank mergers in 1980–90 and, rather than finding any evidence of persisting cost savings, finds a small but significant increase in the total costs two to four years after the merger. He concludes that there is “no evidence to support the theory that in-market mergers lead to significant improvements in efficiency.”¹⁸⁸

Cummins, Tennyson, and 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.¹⁸⁹ However, the study fails to consider any changes in social benefits and insurance coverage offered by those entities after the mergers.

Becker-Blease, Goldberg, and Kahn 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 non-merging firms.¹⁹⁰ 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.

Kwoka and Pollitt also found similar results as Becker-Blease, Goldberg, and Kahn.¹⁹¹ They studied the performance impact of mergers that occurred in the US electricity industry from 1994 to 2003, and examined the impact on operating and total costs in electricity distribution. They found that mergers do not lead to lower costs for acquiring companies. Instead, buyers tend to be less cost-efficient performers before the merger, and sellers, who are more cost-efficient, see their efficiency decline after the merger. As the authors put it, this paper has “some of the strongest evidence against the theory of efficient mergers and the market for corporate control.”

Braguinsky, Ohyama, Okazaki, and Syverson studied acquisitions in the Japanese cotton spinning industry in the late nineteenth and the early twentieth century (1896–1920).¹⁹² They found that the acquired firms' production facilities saw drops in inventory and gains in capacity utilization post-acquisition, leading to increased productivity and profitability. However, they did not find any reduction in price as a result of the increased productivity.

Ashenfelter, Hosken, and Weinberg studied the Miller and Coors merger and the U.S. beer industry overall, and concluded that “there is little evidence that efficiencies can offset incentives to raise prices following mergers.”¹⁹³ 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, ability to sustain price increases. In a later study, Miller and Weinberg studied the Miller-Coors joint venture and reported a significant increase in the

¹⁸⁷ Stavros Peristiani, “Do Mergers Improve the X-Efficiency and Scale Efficiency of U.S. Banks: Evidence from the 1980s” 29 *Journal of Money, Credit and Banking* 326 (1997).

¹⁸⁸ *Id.* at 326.

¹⁸⁹ J. David Cummins, Sharon Tennyson and Mary A. Weiss, “Consolidation and Efficiency in the US Life Insurance Industry” 23, *Journal of Banking & Finance* 2–4 (1999).

¹⁹⁰ John R. Becker-Blease, Lawrence G. Goldberg, and Fred R. Kaen, “Mergers and Acquisitions as a Response to the Deregulation of the Electric Power Industry: Value Creation or Value Destruction?” 33, *Journal of Regulatory Economics* 1 (2008).

¹⁹¹ John Kwoka & Michael Pollit, “Do Mergers Improve Efficiency? Evidence from Restructuring the US Electric Power Sector” 28 *International Journal of Industrial Organization* 6 (2010).

¹⁹² Serguey Braguinsky, Atsushi Ohyama, Tetsuji Okazaki, and Chad Syverson, “Acquisitions, Productivity, and Profitability: Evidence from the Japanese Cotton Spinning Industry” 105 *American Economic Review* 7 (2015).

¹⁹³ Orley C. Ashenfelter, Daniel S. Hosken, and Matthew C. Weinberg. “Efficiencies Brewed: Pricing and Consolidation in the US Beer Industry” 46 *The RAND Journal of Economics* 2 (2015) at 328.

prices of beer after the merger. They estimated a moderate reduction in marginal cost of only 14%.¹⁹⁴

Blonigen and Pierce studied the U.S. manufacturing industry by comparing and contrasting the productivity gains and the increase in market power resulting from mergers and acquisitions.¹⁹⁵ They found that market power usually increases following an M&A, while plant-level productivity usually at best remains unchanged. Specifically, they found little evidence of beneficial plant- or firm-level productivity effects from M&A activity on average, nor for other efficiency gains often cited as possible from M&A activity, including reallocation of activity across plants or scale efficiencies in non-productive units of the firm.

Kulick analyzed horizontal mergers in the ready-mix concrete industry from 1977 to 1992.¹⁹⁶ He found evidence of significant price increases associated with horizontal mergers and highlights substantial productivity gains using a revenue-based measure of total factor productivity, which can be seen as a potential benefit of these mergers. However, these productivity gains may be overstated when using a revenue-based measure of total factor productivity.

Entezarkheir and Sen examined the impact of mergers on firm-specific market value, market share, market concentration, stock market prices, and profit margins among publicly traded U.S. manufacturing firms from 1980 to 2003.¹⁹⁷ Their study provides evidence of benefits resulting from mergers, such as increased firm-specific stock market value, market share, and stock market prices. However, it does not find statistically significant impacts on overall market concentration or profit margins.

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 find cost savings or productivity gains post-merger, these gains are not sufficient enough, in our view, to offset competitive harm resulting from increased prices. Our conclusions are aligned with the discussion in Rose and Sallet, who say that “...consummated 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.”¹⁹⁸

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

¹⁹⁴ Nathan H. Miller and Matthew C. Weinberg, “Understanding the Price Effects of the Miller-Coors Joint Venture” 85 *Econometrica*, 6 (2017).

¹⁹⁵ Bruce A. Blonigen and Justin R. Pierce, “Evidence for the Effects of Mergers on Market Power and Efficiency,” Finance and Economics Discussion Series 2016-082 Washington: Board of Governors of the Federal Reserve System (2016).

¹⁹⁶ Robert Kulick, “Ready-to-Mix: Horizontal Mergers, Prices, and Productivity,” Working Papers 17–38, Center for Economic Studies, U.S. Census Bureau (2017).

¹⁹⁷ Mahdiyeh Entezarkheir and Anindya Sen, “Market Value, Market Share, and Mergers: Evidence from a Panel of U.S. Firms” 39 *Managerial and Decision Economics* 4 (2018).

¹⁹⁸ 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 (2020) at 1963.

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.¹⁹⁹ Using studies that analyze one or more specific mergers but each one separately, he finds that the post-merger price at the product-level increases by 7.22 percent on average, holding all other influences constant. More than 80 percent of product prices show increases, and those increases average 10.08 percent. The largest post-merger price increases occur in the hospital, journals, and airline industries, where the product-level price increases by 15 percent on average and can reach 30 percent in some cases. A smaller subset of these studies find that both the quantity and quality of output is reduced post-merger, although the total number of observations across these studies is small.

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

Kwoka's findings are based on exhaustive research of studies on horizontal mergers available up to 2013. We supplement his findings by including more recent studies of price-effects of horizontal mergers. Most of these studies find net harm in horizontal mergers as the price usually increases 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 find net harm of the merger in the form of increased price. The price increase can result from the change in market concentration and market power (see for example, Ashenfelter, Hosken, and Weinberg 2015,²⁰⁰ Nocke and Whinston 2017,²⁰¹ Kulick 2017,²⁰² Dafny, Ho, and Lee 2019²⁰³), reallocation of activity across plants (Blonigen and Pierce 2016²⁰⁴), or long-run impact on the industry equilibrium (Siebert 2016,²⁰⁵ Miller and Weinberg 2017²⁰⁶).

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.

¹⁹⁹ John E. Kwoka, *Mergers, Merger Control, and Remedies: A Retrospective Analysis of U.S. Policy*. The MIT Press (2015).

²⁰⁰ Orley C. Ashenfelter, Daniel S. Hosken, and Matthew C. Weinberg, "Efficiencies Brewed: Pricing and Consolidation in the US Beer Industry," 46 *The RAND Journal of Economics* 2 (2015) at 328.

²⁰¹ Volker Nocke and Michael D. Whinston, "Concentration Thresholds for Horizontal Mergers," 112 *American Economic Review* 6 (2022)

²⁰² Robert Kulick, "Ready-to-Mix: Horizontal Mergers, Prices, and Productivity," Working Papers 17–38, Center for Economic Studies, U.S. Census Bureau (2017)

²⁰³ Leemore Dafny, Kate Ho, and Robin S. Lee, "The Price Effects of Cross-Market Mergers: Theory and Evidence from the Hospital Industry," 50 *Rand Journal of Economics* 2 (2019)

²⁰⁴ Bruce A. Blonigen and Justin R. Pierce, "Evidence for the Effects of Mergers on Market Power and Efficiency," Finance and Economics Discussion Series 2016-082, Washington: Board of Governors of the Federal Reserve System (2016)

²⁰⁵ Siebert, Ralph (2016): *The Impact of Horizontal Mergers on Market Structure: Evidence from the Semiconductor Industry*, CESifo Working Paper, No. 5911, Center for Economic Studies and ifo Institute (CESifo), Munich.

²⁰⁶ Nathan H. Miller, and Matthew C. Weinberg, "Understanding the Price Effects of the MillerCoors Joint Venture" 85 *Econometrica*, 6 (2017).

C. Excluded Studies from Review.

In our review, we have excluded studies based on market structure, merger simulation, and stock-market event studies (similar to Kwoka) because these studies predict merger outcomes but are not based on actual post-merger outcomes.

Market structure studies are further suspect because they are based on the *theory* (without substantial supporting data) that increasing share and concentration in a market through mergers would result in higher profits, prices, and margins. The excluded models were criticized on several grounds, including weak predictive power in specific cases, concerns about causation and endogeneity, and lack of reliability of accounting data on profit.

Merger simulation studies typically use the economic model of pricing in differentiated-product Bertrand price competition. The problem with merger simulation models is that the models always predict a price increase from a merger and thus do not necessarily predict what actually happens. The magnitude of the price effect depends on assumptions about the demand system, including shapes of demand curves and “nesting” of consumer choices. Since these assumptions do not necessarily hold in real markets, the results from these studies are not very reliable in predicting actual effects of mergers, and, consequently, we have excluded them from our review.

In contrast, stock market event studies are based on the proposition that companies’ stock prices reflect all available information about the future profitability of the companies. While these event studies are not good at predicting post-merger price or cost-savings, they are a major method used in the study of effectiveness of horizontal mergers and we summarize the results of these studies next.

D. Stock Market Event Studies

The use of stock market events studies to assess post-merger bidder performance gained significant traction during the 1980s and 1990s. The fundamental premise of these studies was the belief that a company's stock price serves as a reflection of its perceived value and future performance expectations. In order to evaluate the short-term economic impacts of takeovers, the initial studies used the estimates of abnormal stock price fluctuations around the time of the merger (see for example, Fama et al, 1969²⁰⁷; Mandelker, 1974²⁰⁸; Langetieg, 1978²⁰⁹). An influential paper by Jensen and Ruback aimed to consolidate the existing literature on the variations in stock prices for successful and unsuccessful takeovers.²¹⁰ Their research indicated that successful takeovers, on average, were linked to 20% abnormal stock price increases for the target company, while the bidder experienced a 0% change. Conversely, unsuccessful merger takeovers correlated with a decrease of 3% in the stock prices for the target companies, and a drop of 5% for the bidding firms.

²⁰⁷ Eugene F. Fama, Lawrence Fisher, Michael C. Jensen, and Richard Roll, “The Adjustment of Stock Prices to New Information,” 10 *International Economic Review* 10, 1 (1969).

²⁰⁸ Gershon Mandelker, “Risk and Return: The Case of Merging Firms,” 1 *Journal of Financial Economics* (1974).

²⁰⁹ Terence C. Langetieg, “An Application of a Three-Factor Performance Index to Measure Stockholder Gains from Merger,” 6 *Journal of Financial Economics* 4 (1978).

²¹⁰ Richard S. Ruback & Michael C. Jensen, “The Market for Corporate Control: The Scientific Evidence,” 11 *Journal of Financial Economics* (1983).

In their comprehensive literature review, Rau and Vermaelen found a tendency for acquirers in mergers to underperform by 4% over the subsequent three years following the merger.²¹¹ Acquirers in tender offers, in contrast, were found to outperform by 9%. Furthermore, Agrawal, Jaffe, and Mandelker found that acquiring firms experienced a significant 10% decrease in the five-year period following the merger.²¹² More recent research from Malmendier, Moretti, and Peters also suggested an underperformance by winners relative to losers by approximately 24 percent over the three subsequent years in their U.S. sample.²¹³ Most of the extant literature around stock market events concurs that a consistent pattern of stock underperformance is observed for acquiring companies.

²¹¹ Raghavendra Rau & Theo Vermaelen, "Glamour, Value and the Post-Acquisition Performance of Acquiring Firms," 49 *Journal of Financial Economics* 2 (1998).

²¹² Anup Agrawal, Jeffrey F. Jaffe, and Gershon N. Mandelker, "The Post-Merger Performance of Acquiring Firms: A Re-Examination of an Anomaly," 47 *The Journal of Finance* 4 (1992).

²¹³ Ulrike Malmendier, Enrico Moretti, & Florian S Peters, "Winning by Losing: Evidence on the Long-Run Effects of Mergers," *Review of Financial Studies*, 31 *Society for Financial Studies* 8 (2018).

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