The Unsound Theory Behind the Consumer (and Total) Welfare Goal in Antitrust

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Abstract

This is the first installment of a two-part commentary on the New Brandeis School (the "New Brandeisians") in Antitrust. In this first part, I examine why the New Brandeisians are correct to reject the consumer welfare standard. Instead of arguing, as the New Brandeisians do, that the consumer welfare standard leads to unacceptable outcomes, I argue that the consumer or total welfare standard was theoretically flawed and unrigorous from the start. My basic argument is that antitrust law addresses the impact of business strategies in markets where there are winners and losers. For example, in the classical exclusionary monopolist case, the monopolist's conduct is enjoined to increase competition in the affected market or markets. As a result of the intervention, consumers benefit, but the monopolist is worse off. One hundred years of analysis by the welfare economists themselves shows that in such situations "welfare" or "consumer welfare" cannot be used as a reliable guide to assess the results of antitrust policy. Pareto Optimality does not apply in these situations because there are losers. Absent an ability to divine "cardinal utility" from observations of market behavior, other approaches such as consumer surplus, and compensating and equivalent variation cannot be coherently extended from the individual level to markets. The Kaldor-Hicks compensation principle which is in standard use in law and economics was created to address problems of interpersonal comparisons of utility and the existence of winners and losers. However, the Kaldor-Hicks compensation principle is also inconsistent. In light of this literature, the New Brandeisians are correct to reject Judge Bork's original argument for adoption of the consumer welfare standard, but for deeper reasons than they have not expressed thus far.

Keywords: Goals of antitrust; New Brandeis School; Consumer Welfare Standard; Welfare Economics and the Law.

Introduction

Barry Lynn's 2010 book, *Cornered: The New Monopoly Capitalism and the Economics of Destruction*, was one of the first to challenge the current antitrust

orthodoxy. According to Lynn, there are two competing antitrust traditions, one personified by Judge Bork that embraced the "Chicago School" of economics, and a second tradition that is encapsulated in the work of Louis Brandeis. Since publication of Lynn's book, there has been an avalanche of literature critical of the Chicago School and advocating more active antitrust enforcement.[1] This movement has come to be known as the New Brandeis School or the New Brandeisians.[2] The New Brandeisians has emphasized two major themes. First, Robert Bork's goal of consumer welfare has led antitrust jurisprudence astray and has resulted in misguided policy that has done economic damage to the American economy.[3] Second, the New Brandeisians believe that the kind of aggressive antitrust enforcement reminiscent of the 1960s could be a potent remedy to many of these problems. I address the New Brandeisians' rejection of Judge Bork's consumer welfare goal in this paper, and reserve my discussion of the New Brandeisian views of policy and history for a comparison paper. Below, I argue that Judge Bork's introduction of his version of welfare economics into antitrust was theoretically flawed and never should have received the uncritical acceptance by antitrust lawyers and economists. I contend that the consumer welfare standard was never rigorous, and this provides an additional foundation for jettisoning the Bork consumer welfare standard.

In 1966, Robert Bork introduced the consumer welfare standard for antitrust article in the Journal of Law and Economics. There he argued the United States Congress in 1890 "intended the courts to implement (that is, to take into account in the decision of cases) only that value we would today call consumer welfare."[4] Judge Bork's article and subsequent writings on the topic transformed the contemporaneous and subsequent long running debate concerning the goals of the antitrust laws. At the time of Judge Bork's paper there were several accepted

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[1] Several authors have summarized this recent literature. For example, Lina Khan, *The Ideological Roots of America's Market Power Problem,* 127 YALE LAW J. 960 *(2018);* Carl Shapiro, *Antitrust in a Time of Populism,* Working Paper, October 24, 2017), forthcoming, INT. J. OF IND. ORG; Daniel Crane, *Antitrust's Unconventional Politics,* Michigan Law Working Paper, March 2018, forthcoming *in* VIRGINIA LAW REVIEW ONLINE.

[2] Lina Khan, *The New Brandeis Movement: America's Antimonopoly Debate,* 9 J. OF EURO. COMPETITION LAW & POLICY 131 (2018).

[3] This argument is made most clearly by Lina Khan, *Ideological Roots of America's Market Power Problem,* 127 YALE LAW J. (2018); *see also,* Marshall Steinbaum, Eric Harris Bernstein and John Sturm, *Powerless: How Lax Antitrust and Concentrated Market Power Rig the Economy Against American Workers, Consumers, and Communities,* ROOSEVELT INSTITUTE, February 2018;Marc Jarsulic, Ethan Burwitz, Kate Bahn and Andy Green, *Reviving Antitrust: Why our Economy Needs a Progressive Competition Policy,* CENTER FOR AMERICAN PROGRESS, June 2016, Jay Shamburg, Ryan Nunn, Audrey Breitwieser and Patrick Liu, "The State of Competition and Dynamism: Facts about Concentration, Start-ups, and Related Policies, The Hamilton Project, Brookings, Inst., June 2018.

[4] Robert Bork, "*Legislative Intent and the Policy of the Sherman Act,*" 9 J. L. & ECON 7 (1966).

competing goals for antitrust. These goals included defense of democracy by dispersion of economic power,[5] protection of small business,[6] wealth transfers,[7] and productivity.[8] Judge Bork's suggestion was unique in a critical respect.[9] For many of these non-consumer welfare goals one can pose the further question why is the goal itself important. For example, why is small business important? Why does consumer wealth transfer matter?[10] Since consumer welfare is built on the foundations of normative welfare economics, it incorporates its own ethical justification. The other goals do not. This difference added persuasiveness and a veneer of science to the consumer welfare standard. Welfare refers to the quality of individual lives as subjectively experienced by the individuals themselves. Increasing the quality of human life is inherently ethically desirable. This advantage alone doesn't explain the legal and political success of the consumer welfare standard. Its success has many causes.[11] However, it is possible that the perception that Judge Bork's suggestion is rooted in a deeper theory of welfare economics backed by the economics profession helped to crowd out the other potential goals of antitrust enforcement.[12] As early as 1979, Robert Pitofsky wrote that:

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[5] Harlan Blake and William Jones, "*In Defense of Antitrust*," 65 COL L.R. 377 (1965); Robert Pitofsky, "*The Political Content of Antitrust*," 127 U. OF PENN. L. R. 1051 (1979); Lawrence Sullivan, "*Economics and More Humanistic Disciplines: What are the Sources of Wisdom for Antitrust?*" 125 U. OF PENN. L.R. 1214 (1977).

[6] Kenneth Elzinga, "*The Goals of Antitrust Other than Competition and Efficiency, What Else Counts*?" 125 U. OF PENN. L. R. 1191, 1196 (1977) (offering limited support for the goal of protecting small business).

[7] Robert Lande, "*Wealth Transfers as the Original and Primary Concern of Antitrust: The Efficiency Interpretation Challenged*," 34 HASTINGS L. J. 65 (1982-1983).

[8] Michael Porter, "*Competition and Antitrust: A Productivity-Based Approach*," HARVARD BUS. SCHOOL (May 30, 2002). Michael Porter's focuses on the importance of competition to productivity growth has been surprisingly ignored by the literature on the goals of antitrust. Indeed, there is a developing literature in development economics which recognizes the importance of competition to development and growth. Joe Studwell, for example, paints a persuasive case that one of the essential ingredients of the success growth of Japan, Korea, Taiwan and China has government efforts to expose leading firms to both domestic and international competition. JOE STUDWELL, HOW ASIA WORKS SUCCESS AND FAILURE IN THE WORLD'S MOST DYNAMIC REGION, Grove Press (2013). *See also* Joe Brodley, "*The Economic Goals of Antitrust: Efficiency, Consumer Welfare and Technological Progress*," 62 N.Y.U.L.R. 1020 (1987) ("antitrust policy should give priority to innovation and production efficiency").

[9] Judge Bork uses the term consumer welfare and economic efficiency interchangeable.

[10] Although democracy may be defended as an end in itself, using antitrust as a means to that end has been criticized. Carl Shapiro, *Antitrust in a Time of Populism*, (24 October 2017) at 29 ("I do not see that antitrust can do a great deal to solve the deep problems we face relating to the political power of large corporations and corruption of our political system.").

[11] I plan to argue in a subsequent paper that Judge Bork's approach received such acceptance because of its compatibility with the general rise of "neo-liberal" economic policies in the United States.

[12] William Curran, "*Commitment and Betrayal: Contradictions in American Democracy, Capitalism, and Antitrust Laws*," 61 ANTITRUST BULL. 236, 244 ("Bork emerged victorious").

> There probably has never been a period comparable to the last decade, however, when antitrust economics and lawyers had such success in persuading the courts to adopt an exclusively economic approach to antitrust questions.[13]

There is nearly a one hundred year history of economic literature and debate in welfare economics, including work by many of the giants of the economics field: Alfred Marshall, Arthur Pigou, Vilfredo Pareto, John Hicks, Nicholas Kaldor, Paul Samuelson, Kenneth Arrow and many others. What emerged from this literature, among other things, was the recognition of the limitations and assumptions necessary in order to sustain a plausible theory of welfare economics. I call this recognition the "wisdom" of the founders of welfare economics. It is this wisdom that Judge Bork jettisoned when he imported into antitrust law his concept of "consumer welfare." Indeed, Judge Bork's explanation consumer welfare is only an ideological caricature of the original theory.[14] My hypothesis is that in light of this "wisdom," consumer welfare must be rejected as a viable goal for antitrust enforcement.[15]

In this paper, I do not advance any new theoretical results. Instead, I present the welfare economics literature, and other social science literature on welfare economics, in an historical context, without mathematics and with a minimum tables and figures. My goal is to illustrate to antitrust lawyers how defective and inappropriate consumer welfare is as an antitrust policy goal. To be clear, this paper is not criticizing, or even addressing, positive economic analysis.[16] Economic theory

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[13] Robert Pitofsky, "*The Political Content of Antitrust*," 127 U. OF PENN. L.R. 1051 (1979); *See Reiter v. Sonotone Corp.*, 422 U.S. 330, 343 ("Congress designed the Sherman Act as a 'consumer welfare prescription'") (quoting Bork); *Nat'l Collegiate Athletic Ass'n v. Bd. of Regents of Univ. of Okla.*, 468 U.S. 85, 107-108 ("Congress designed the Sherman Act as a 'consumer welfare prescription'...Restrictions on price and output are the paradigmatic examples of restraints of trade that the Sherman Act was intended to prohibit"); *Reazin v. Blue Cross & Blue Shield of Kan.*, 899 F.2d 951, 960 (10th Cir. 1990) (purpose of the antitrust law is the promotion of consumer welfare); *Ginzburg v. Mem'l Healthcare Sys., Inc.*, 993 F. Supp. 998 (S.D. Tex. 1997) (Same).

[14] This is an example of Frank Ackerman's observation that "there is a growing disconnect between advanced academic and pedestrian policy-oriented styles of economics. Understanding public policy debates therefore requires looking back into the origins of the field. FRANK ACKERMAN, WORST CASE ECONOMICS, Anthem Press (2017) at 5.

[15] Others are in agreement with this assessment. John Chipman and James Moore, "*The New Welfare Economics 1939-1974*," 19 INT. ECON. REV. 547, 548 (1978) ("the New Welfare Economics must be considered a failure"); Antoinette Baujard, "*A utility reading for the history of welfare economics*," UNIVERSITE DE LYON (December 3, 2014), at 2 ("welfare economics has evolved towards an inability or difficulty to provide sound prescriptions").

[16] T. De Scitovsky, "*A Note on Welfare Propositions in Economics*," 9 REV. OF ECON. STU. 77 (1941) ("Modern Economic theory draws a sharp distinction between positive economics, which explains the working of the economics system, and welfare economics, which prescribes policy.").

in the industrial organization field has led to enormous advances in our understanding and measurement of antitrust issues that are important for the antitrust bar. But the opposite is true of the antitrust profession's acceptance of the consumer welfare goal. Consumer welfare has been damaging to antitrust analysis and has unduly circumscribed how advances in our understanding of the economy can be translated into competition policy.[17] Thus, in what follows it is important to separate the theory of welfare economics from microeconomics generally.[18]

I. A Short History of Welfare Economics for Antitrust Lawyers

According to Judge Bork, "one of the uses of history is to free us of a falsely imagined past. The less we know of how ideas actually took root and grew, the more apt we are to accept them unquestionably, as inevitable features of the world in which we move."[19] These words were written by Judge Bork in his introduction to the history of antitrust cases and the legislative history of the Sherman Act. Despite his advocacy of history, Judge Bork appears unaware of the theoretical history of the concept that he introduces as the sole goal of the Sherman Act, consumer welfare. In this section I briefly trace the milestone events and debates in the field of welfare economics. This history shows that, far from being a settled area of theory, welfare

[17] Jason Furman, "*Beyond Antitrust: The Role of Competition Policy in Promoting Inclusive Growth*," SEARLE CENTER CONFERENCE ON ANTITRUST ECONOMICS AND COMPETITION POLICY, September 16, 2016; Marshall Steinbaum, Eric Harris Bernstein, and John Sturm, *Powerless: How Lax Antitrust and Concentrated Market Power Rig the Economy Against American Workers, Consumers, and Communities*, ROOSEVELT INSTITUTE, (2018).

[18] Consumer welfare is a part of the general economic theory of Welfare Economics. The theory contains its own normative or ethical theory for why one ordering of economic outcomes is superior to another. In their recent book FAIRNESS VERSUS WELFARE, Louis Kaplow and Steven Shavell (Harvard U.P. 2002) explain that when evaluating social policy economists undertake a two-step analysis. The first step is to determine the effects of the policy. Because economists have a theory that can guide analysis of the various indirect impacts of policy and the eventual equilibrium it can make tremendous contributions to the analysis of market behavior. We refer to this type of analysis as "positive" economic analysis. The second step, for Kaplow and Shavell is to evaluate the effects of the policy to determine "social desirability." In contrast to positive economic analysis, this inquiry is a normative analysis. The economic framework for normative analysis is called "welfare economics." Welfare economics attempts to compare different economic outcomes according to their impact on the total well-being of all individuals. Economists generally use the term "utility" to refer to human well-being or welfare. Welfare economics thus takes on a task of comprehensive proportions. It must advance an acceptable definition of human welfare, it must identify a scientific measure of individual welfare, and it must find a way to aggregate individual welfare among individuals to the social level.

[19] ROBERT BORK, THE ANTITRUST PARADOX A POLICY AT WAR WITH ITSELF, Basic Books (1978) at 15.

economics is, and always has been, a domain of serious debate and disagreement. As such, it should never have been characterized as an accepted and validated theory appropriate to serve as the sole policy goal of the antitrust laws.

A. The Classical Economists

No welfare economics was possible in the framework of the classical economics of Adam Smith, David Ricardo, and Karl Marx. The classical economists were focused on long-run prices, or prices that give rise to an equalized rate of profit between markets. The mechanism by which this equalization occurred was entry and exit of firms. If one market yielded an above average return on investment (or rate of profit) firms would enter, which would increase supply in that market (with less impact on demand) which in turn would lower prices. These lower prices, in turn, reduce the return from investment in this market moving the profit rate toward the average. Thus, the classical theory of price determination was based on entry and exit of firms responding to differential profit rates, and the cost of production, which determined profits. The classical economists also adhered to a labor theory of value, because they assumed that labor cost ultimately governed changes in the cost of production. However, absent from the classical economists was any explicit normative theory. Although the classical sometimes spoke as if people could be made better off in some sense through voluntarily trade, this was not a core concept in classical theory. For the classical economists, normative theory needed to be imported from outside of economic theory.

At the same time that the classical economists were developing their economics, Jeremy Bentham introduced the "utilitarian revolution" in the philosophy of ethics. Bentham's fundamental axiom was called the "greatest happiness principle" or the "principle of utility." Bentham reduced utility to net happiness defined as total pleasure minus total pain, and his conception of utility is often referred to as the "hedonic" view of utility. Moreover, utility as conceived by Bentham was measurable on a real number scale. Utility that can be measured this way is referred to as "cardinal" utility. Using cardinal utility, Bentham thought that individual utilities could be summed to obtain the total social utility. Bentham then hypothesized that the policy that yielded the greatest total social utility was normatively superior.[20]

John Stuart Mill's work illustrates how the classical economics separated normative theory from positive economic theory. John Stuart Mill's Principles of

[20] According to Bentham, "it is the greatest happiness of the greatest number that is the measure of right and wrong", quoted in ALESSANDRO RONCAGLIA, THE WEALTH OF IDEAS, A HISTORY OF ECONOMIC THOUGHT, Cambridge U.P (2005) at 175.

Political Economy (the "Principles"), published in 1848, was considered the leading textbook in economics at the time. In the Principles, Mill advanced a theory of prices based on the classical theory of cost of production. But Mill was also a devoted utilitarian and follower of Bentham, and he was a potent advocate for public policy based on utilitarian principles. Thus, Mill used separate theories for his normative policy judgments and those he used for analyzing economic phenomena.

The Neoclassical Revolution in Economics

It was the neoclassical revolution in economics begun by William Jevons, Leon Walras and Carl Menger in the 1870s that placed utility at the center of microeconomic theory.[21] The neoclassicals represented a major theoretical break from the classical tradition. At the heart of the theory of price determination they replaced the concept of cost of production with the concept of utility. The neoclassical object of analysis also shifted from analysis of long-run prices with equalized rates of profit, to short-run equilibrium prices where supply is equal to demand and markets clear.[22] For the neoclassicals, demand and supply were determined by individuals making utility maximizing choices about what to purchase and how much labor to supply. For example, demand was conceived of as the money representation of marginal utility, or the utility the consumer receives for the last unit consumed (what Jevons called the "final degree of utility").[23] Supply depended on producers comparing the disutility of work with the utility gained by the remuneration from such work.

The early neoclassicals treated "utility" as an unproblematic concept. But they were equivocal about whether utility should be understood in the hedonic sense of Bentham, or whether utility was simply a measurement of satisfaction linked to the consumption of goods and services.[24] What is clear is that Jevons believed that utility was comparable across individuals.[25] But on cardinal measurability he was

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[21] In 1871, WILLIAM STANLEY JEVONS published THE THEORY OF POLITICAL ECONOMY AND CARL MENGER published PRINCIPLES OF PURE ECONOMICS. LEON WALRAS published ELEMENTS OF PURE ECONOMICS in 1874. Menger introduced the subjective theory of value in Germany, and Walras introduced a similar theory of utility to French speaking audiences.

[22] Another way to put this is that the labor theory of value was replaced with the utility theory of value.

[23] ALESSANDRO RONCAGLIA, THE WEALTH OF IDEAS: A HISTORY OF ECONOMIC THOUGHT, Cambridge U.P. (2005) at 289.

[24] WILLIAM STANLEY JEVONS, POLITICAL ECONOMY, Forgotten Books, 2012, originally published 1880, at 13; ALESSANDRO RONCAGLIA, WEALTH OF IDEAS A HISTORY OF ECONOMIC THOUGHT, Cambridge U.P. (2005) at 289.

[25] MARK BLAUG, ECONOMIC THEORY IN RETROSPECT, 3rd ed. Cambridge U.P. (1978) at 343. MICHAEL MANDLER, DILEMMAS IN ECONOMIC THEORY, PERSISTING FOUNDATIONAL PROBLEMS OF MICROECONOMICS, Oxford U.P. (1999) at 114 ("Jevons routinely assumed that utility functions were additively separable . . .").

ambiguous. Jevons seemed to suggest that utility was measurable through observation of human decisions but he never explained how such measurement could be undertaken.[26]

B. Alfred Marshall and Consumer Surplus

In 1890 Alfred Marshall introduced English speaking audiences to the concept of consumer's surplus, which is what today most antitrust scholars mean by "consumer welfare." The year 1890 is the same year that the Sherman Act was signed into law and after the conclusion of the debates in Congress from which Judge Bork gleans congressional intent to adopt consumer welfare as the goal of the Sherman Act.[27] Marshall held the prestigious chair of political Economy at Cambridge University. His *Principles of Economics* ("Marshall's Principles") published in 1890 replaced Mill's Principles as the leading textbook on economics, and it remained so for many subsequent decades. In the Marshall's Principles, Marshall sought to couple the neoclassical theory of demand with a theory of cost that determined supply. While, he recognized the complexity and interrelationships between markets he advocated consideration of each market separately, a technique referred to as "partial equilibrium." In the Marshall's Principles, Marshall also introduced the important concept of consumer's surplus that Judge Bork later equates with consumer welfare in the *Antitrust Paradox*. Marshall defined consumer's surplus as follows:

> 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.[28]

For Marshall, the "economic measure" of "satisfaction" is expressed in monetary units of utility. Like Jevons, Marshall assumed that the amount of money that a consumer is willing to pay for a particular quantity of a good directly expressed the marginal utility the consumer obtains from consuming the good. The difference between the marginal utility of each unit of a good expressed in dollars and the

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[26] MICHAEL MANDLER, DILEMMAS IN ECONOMIC THEORY, PERSISTING FOUNDATIONAL PROBLEMS OF MICROECONOMICS, Oxford U.P. (1999) at 115 ("The early neoclassical position appears complex because it combines assumptions on preferences with purely psychological hypotheses").

[27] An earlier description of the concept of consumer surplus can be found in J. Dupuit, "*On the Measurement of the Utility of Public Works*," ANNALES DES PONTS ET CHAUSSEES, Second Series, Vol. 8, 1844.

[28] ALFRED MARSHALL, PRINCIPLES OF ECONOMICS, Eighth Ed., Cosimo Press (2009) at 103.

amount the consumer had to pay in money to purchase the good was the consumer's surplus gained by the consumer from the purchase. The units of the consumer's surplus are units of utility expressed in money.

Michael Mandler describes Marshall's objective of introducing Consumer Surplus as follows:

> Consider Marshall's famous use of consumer surplus as a monetary measure of utility. Marshall supposed that an agent's willing to pay for goods was an approximate gauge of changes to utility. Given this (nonordinal) psychological premise, coupled with restrictions on the size of the potential impact of price changes on the marginal utility of income, consumer surplus (the area under an agent's demand curve) can provide a rough estimate of changes in welfare.[29]

A commendable aspect of Marshall's work was his effort to make explicit all of the assumptions necessary for a workable conception of consumer's surplus. These assumptions include (1) that utility can be measured cardinally and individual utility is additive;[30] (2) that the marginal utility of money for all consumers is constant, so a unit of utility can be associated with a unit of money;[31] and (3) a single market can be usefully investigated independently of other interrelated markets, or the principle of "partial equilibrium."[32]

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[29] MICHAEL MANDLER, DILEMMAS IN ECONOMIC THEORY, PERSISTING FOUNDATIONAL PROBLEMS OF MICROECONOMICS, Oxford U.P. (1999) at 113.

[30] "Marshall proceeded to sum different agents' surpluses, which extinguish any doubt he implicitly took a cardinal view of individual well-being," MICHAEL MANDLER, DILEMMAS IN ECONOMIC THEORY, PERSISTING FOUNDATIONAL PROBLEMS OF MICROECONOMICS, Oxford U.P. (1999) at 113.

[31] Marshall writes, for example, "a pound's worth of satisfaction to an ordinary poor man is a much greater thing than a pound's worth of satisfaction to an ordinary rich man...on the whole however it happens that by far the greater number of events with which economics deals, affect in about equal proportions all the different classes of society...And it is on account of this fact that the exact measurement of the consumers' surplus in a market has already much theoretical interest, and may become of high practical importance." *Id.* at 108. MICHAEL MANDLER, DILEMMAS IN ECONOMIC THEORY, PERSISTING FOUNDATIONAL PROBLEMS OF MICROECONOMICS, Oxford U.P (1999) at 131 ("Consumer surplus is an unweighted sum of monetary valuations, and, as Marshall well understood, it ignores differences in agents' marginal utilities of money.").

[32] Marshall thought that his assumptions lead logically to progressive policy prescriptions. If all individuals have equal capacities for utility and the marginal utility of income rises, then it follows that distributing income equally leads to a welfare optimum. Roy Harrod, "*Scope and Method of Economics*," 48 ECON. J. 383, 395 (1938) ("Marshall says in the Principles that the marginal utility of two pence is greater in the case of a poorer man than in that of a richer. If such comparisons are allowed, recommendations for a more even distribution of income seem to follow logically."); Peter Hammond, "*Welfare Economics*," *in* ISSUES IN CONTEMPORARY MICROECONOMICS & WELFARE,

Understanding Marshall's assumptions is critical for evaluating whether consumer's surplus is a reliable basis for antitrust law. It is also important for understanding why most economists after Marshall did not adopt consumer surplus as a guiding principle and instead migrated to the theory of Pareto Optimality. For these reasons, we consider Marshall's assumptions in more detail.

1. What is utility?

Early on in the *Principles*, Marshall signaled his break with the hedonic conception of utility by stating that "utility is taken to be correlative to Desire or Want."[33] While Marshall was an earlier advocate of this view, it was not until Jacob Viner's 1925 article on the topic, "*The Utility Concept in Value Theory and its Critics,*" that hedonism was fully abandoned by the economics profession.[34] Attempting to ground welfare economics in hedonism simply presented intractable problems. Among those problems was that Bentham's concept of happiness and pain were purely subjective, making it hopelessly unamenable to empirical observation. In contrast, the desire approach appeared to link desire or preference to actual goods and services that provided anticipated satisfaction. This gave the theory of welfare a potential empirical grounding because consumer choices were observable in the market. In addition, early economists recognized that a purely hedonic conception of utility can lead to perverse policy implications.[35] Most troubling was the fact that the notions of happiness and pain are not well-defined concepts. Human sensations of happiness can include such diverse feelings as awe, dignity, pride, admiration, adventure, meaning, accomplishment, and other dimensions of human emotion. To measure happiness on a number scale as Bentham advocated requires that all of

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George Feiwel ed., N.Y U.P. (1985) at 406; MARK BLAUG, ECONOMIC THEORY IN RETROSPECT, Cambridge U.P. (1978) at 618 ("By the time of Marshall, it was recognized that the 'felicific calculus' rested on the assumption that all individuals have identical income-utility functions. In which case it followed, of course, that an optimum allocation of resources is achieved only when the distribution of income is perfectly equal."). MICHAEL MANDLER, DILEMMAS IN ECONOMIC THEORY, PERSISTING FOUNDATIONAL PROBLEMS OF MICROECONOMICS, Oxford U.P. (1999) at 126 ("Diminishing marginal utility implies that at a utilitarian maximum all individuals of the same type should have the same income.").

[33] ALFRED MARSHALL, THE PRINCIPLES OF ECONOMICS, Eighth Ed. Cosimo Press (2009) at 78. Marshall believed that it was reasonable to assume that people have similar capacities for utility. As a result, if incomes of two individuals where the same, the same marginal purchases should result in the same amount of additional utility.

[34] Jacob Viner, "*The Utility Concept in Value Theory and its Critics,*" 33 J. OF POL. ECON. 369 (1925).

[35] The typical philosophical objection to hedonism runs something like this. Suppose a pleasure machine can produce more pleasure than any other activity. Connecting to the machine and disconnecting from the world would be an efficient policy prescription if utility measures happiness.

these aspects of human experience be condensed to a single dimension of experience. The same problem arises for the antithesis of happiness, the concept of "pain." Feelings of boredom, fear, dismay, nausea, burning, shock, contempt and other generally recognized negative feelings must be reduced to a single scale. Again, this can only occur via a superficial and unrealistic understanding of human affectation. As a result, in what follows, when I refer to utility it should be understood, as all welfare economists do today, that we are talking about satisfaction of preferences or desires.

Cardinal v. Ordinal Utility

In economic theory, utility is fundamentally a number that represents the amount of satisfaction obtained by an economic agent. It is important to distinguish between two types of number scales that have been used in economics to represent utility. Our usual notion of the natural numbers or counting numbers, which includes a zero starting point, are the "cardinal numbers." Cardinal utility is utility that can be represented on the cardinal number scale. In contrast, "ordinal numbers" are numbers that only embody information about the position of something. When utility is measured in ordinal numbers all we can infer from market choices is whether someone prefers one good to another, but not by how much.[36] The utility numbers themselves do inform concerning the size of the difference in preferences between good.

To illustrate the difference between cardinal and ordinal utility consider the utility numbers displayed in Table 1.

Table 1

Consumption	Consumer A	Consumer B
Unit 1	5	50
Unit 2	9	90
Unit 3	12	120

Table 1 presents total cumulative utility numbers for consumers A and B. Notice that both consumers receive less additional utility as they consume more of the product. This is referred to by Marshall as "diminishing marginal utility" and is the result of the fact that people have a hierarchy of needs or wants. Cardinality is not required for diminishing marginal utility, but pure ordinality is not compatible with the assumption. The assumption arises because people are assumed to satisfy

[36] MARK BLAUG, ECONOMIC THEORY IN RETROSPECT, Cambridge U.P. (1978) at 618.

the most pressing want first. Addressing these pressing wants results in greater satisfaction than addressing lower level wants. Now compare ordinal utility across individuals in Table 1. For individual A, unit 1 produces 5 units of utility, for individual B, unit 1 provides 50 units of utility. If we have a cardinal scale then we can conclude that individual B gets ten times as much utility as individual A for unit 1. As a consequence, it makes sense to add the two numbers. By adding them we obtain the market utility, *i.e.*, participants obtain utility of 55 units for unit 1, 99 units of utility for unit 2, etc. If the numbers are only ordinal, then we cannot construct the market utility. This is because we cannot assume that that individual A's 5 units of utility are one tenth as much satisfaction as individual B's 50 units of utility for the first unit. All we can discern from ordinal utility is that individual A gets more utility from the first unit, then from the second, but not how much. In addition, since ordinal numbers only represent order, we cannot sum individual A's utility and individual B's utility. If we try to do so, say for unit 1, and obtain 55 units of utility, we get a meaningless number because a 50 for individual B could mean very little satisfaction while 5 units for individual A could represent massive satisfaction. We simply lack the information to compare the two individuals. Adding ordinal utilities together therefore yields no information about human satisfaction or welfare. This is why economists recognize that interpersonal comparisons of utility are not possible using ordinal utility.[37]

Utility is only a useful concept for antitrust analysis if it can extended to markets. This requires adding together individual utilities of market participants. Thus, antitrust analysis requires either cardinal utility or another method to sum individual utilities. Since no such method exists, utility is a hollow concept for antitrust purposes. Indeed, the economics profession is virtually unanimous that there is no scientific way to observe cardinal utility from market behavior.[38] Even Jevons, in a moment of candor, recognized this problem:

> The reader will find...that there is never, in any single instance, an attempt made to compare the amount of

[37] Ruth Weinstein, "*Do Utility Comparisons Pose a Problem*," 92 PHIL. STU. 307, 318 (1998) ("the structure that preferences have does not lend itself to non-arbitrary comparisons between individuals. They are genuinely incommensurable, as are (perhaps) the beauty of Westminster Cathedral and that of a Bach Mass."). MICHAEL MANDLER, DILEMMAS IN ECONOMIC THEORY, PERSISTING FOUNDATIONAL PROBLEMS OF MICROECONOMICS, Oxford U.P. (1999) ("The inability to go beyond non-controversial interpersonal comparisons of welfare has remained a constant of neoclassical welfare economics.").

[38] Gregory Werden, "*Antitrust's Rule of Reason: Only Competition Matters*," DOJ Working Paper, at 2 ("To formalize such ideas, economists struggled in vain to sum utilities of all individuals in the economy. Economists then turned to the concept of Pareto optimality.").

> feeling in one mind with that in another. I see no means by which such comparison can be accomplished.[39]

Interpersonal comparability is therefore a major challenge for welfare economics, and a realistic solution is required for welfare to be applicable to antitrust analysis. Several attempts to retain only ordinal utility but achieve interpersonal comparability are considered below in their historical context. All these attempts have had disappointing results.

2. The Marginal Utility of Money

When we observe someone's willingness to pay for a good or service, that payment is in units of money, *e.g.*, dollars. We do not directly observe how many units of utility an individual expects to receive. Since money is the intermediary between the observed choices and the measurement of utility, we need to know how many units of utility is represented by a dollar for each consumer. If this relationship is a constant, and is the same for all consumers, the fact that there is a monetary intermediary does not pose any problems. However, Marshall's intuition (and common sense) was that a rich person will value a dollar less than a poor person because the rich have more dollars, and, like other commodities, there is marginal diminishing marginal utility. Indeed, if this were not the case, then financial economics would be upended. A declining marginal utility from additions in wealth is a necessary condition for the phenomenon of risk aversion. Risk aversion means that people experience more disutility when their wealth declines in value than they gain in utility when their wealth rises by an equal amount. That is the reason why people demand a higher average return to hold assets that have a high variance in return, which is a measure of asset risk.[40] Thus if you purchase bonds, you unconsciously must reject the assumption of a constant marginal utility of money. Marshall skirted this problem by arguing that consumer's surplus only applies to a product that is sold equally across income classes. But this is not the case with most goods, and is a severely limiting assumption for antitrust analysis. In the alternative, economists often assume that the marginal utility of money is constant. With this

[39] Quoted in E.K. HUNT & MARK LAUTZENHEISER, HISTORY OF ECONOMIC THOUGHT: A CRITICAL PERSPECTIVE, 3rd Ed. M.E. Sharpe (2011) at 253; E. MISHAN, INTRODUCTION TO NORMATIVE ECONOMICS, Oxford (1981) at 308 ("It is a fact that there is no acceptable way of measuring utility or comparing one person's utility with another."); for a review of failed attempts to measure cardinal utility *see*, MARK BLAUG, ECONOMIC THEORY IN RETROSPECT, 3rd Ed. Cambridge U.P. (1978) at 344 – 347.

[40] However, a declining marginal utility of money may not be fully able to explain the risk premium of stocks over bonds. This is called the "equity premium puzzle," and several other theories of the risk premium have been proposed. FRANK ACKERMAN, WORST-CASE ECONOMICS, Anthem Press (2017) at 134-137 (describing various proposed solutions to the equity premium puzzle).

simplification, if a rich person is willing to pay more than a poor person, we are forced to conclude that more total utility is obtained when the good or service accrues to the high income person. Peter Hammond offers an example meant to surface the lack of realism of such a conclusion:

> Yet it hardly requires a very strong sense of moral compassion to regard the dollar a destitute mother needs for medicine to save her dying child as definitely more valuable than the extra dollar an opulent man wants to spend on a better quality cigar.[41]

Again, no economists that I am aware of would contend that a constant marginal utility of money is a realistic assumption.[42] But antitrust practitioners regularly implicitly accept the assumption. Although Marshall made the assumption of a constant marginal utility of money, he did so openly and acknowledged its lack of realism. In contrast, Judge Bork buried the problem.

3. **Partial Equilibrium**

Marshall believed that because of the complexity of economic reality, the correct scientific approach was to consider each market independent of the influence of other markets. It is likely the case that many of the advances in positive economic theory, such as oligopoly theory, information economics, monopolistic competition, and many other areas would not have been possible if economists were restricted to general equilibrium approaches. However, Marshall was also aware that when prices go up in one market, it impacts the demand for complements and substitutes in other markets.[43] For example, if a market is monopolized and prices are increased, some consumers will switch between substitutes and purchase fewer complements. The problem posed by the assumption of partial equilibrium for antitrust is the problem

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[41] Peter Hammond, "*Welfare Economics: in* ISSUES IN CONTEMPORARY MICROECONOMICS & WELFARE, George Feiwel ed., State University of New York, (1985) at 408.

[42] Joe Farrell & Michael Katz, "*The Economics of Welfare Standards in Antitrust*," COMPETITION POLICY CENTER, U.C. 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.")

[43] Yoon-Ho Alex Lee, "*Competition, Consumer Welfare, and the Social Cost of Monopoly*," YALE LAW SCHOOL LEGAL SCHOLARSHIP REPOSITORY (2006) at 7 ("An economic analysis which focuses on the social surplus of one sector without considering possible implications for other sectors is called partial equilibrium analysis. Partial equilibrium analysis remains a powerful methodology for analyzing the behavior of firms in an isolate market where the impact on prices in other markets is negligible. And yet this is hardly the case with interesting instances of monopoly power, e.g., AT&T, IBM and Microsoft. In all these cases, prices were affected well beyond the immediate markets, and the static one-sector model cannot correctly estimate the social cost of monopoly.").

of the second best. The second best theory states that if there are deviations from competition in several markets, then restoring competition in one market, may not increase total welfare. This is because the monopoly price in one market may be preventing additional dead weight losses in other markets. For example, consider the situation depicted in Table 2:

Table 2

	Butter Monopoly	Margarine Monopoly	Competitive Margarine
Price	10¢	12¢	7¢
Cost	6¢	7¢	7¢

In this example, the cost of butter is less than the cost of margarine. When both products are monopolized, more consumers will be driven by the lower price of butter to choose butter, which has a lower cost. This would also be true if both products were competitive and price was equal to cost. But when only the margarine market is rendered competitive, and the butter market remains monopolized, people are driven by relative prices to buy the higher cost product. This is inefficient. Notice it was the monopolization of the margarine market that prevented this distortion. To eliminate the distortion altogether both markets must be made competitive.[44] Because we never have a full informational model of the economy, the theory of second best eliminates any ability to evaluate policy in the presence of market distortions. This exposes a serious dilemma for antitrust policy.

C. Pigou and Wealth Maximization

Marshall's assumptions were met with strong skepticism by the economics profession when Marshall's Principles was published. In reaction to Marshall, Vilferdo Pareto sought to develop welfare economics in the direction of a general equilibrium model strictly limited to ordinal utility and with no interpersonal comparability of utility. In 1906, Pareto published his *Manual of Political Economy* in which he developed welfare economics on the basis of what later was denoted the

[44] This example is adapted from RICHARD POSNER, ECONOMIC ANALYSIS OF LAW, 4th Ed. Little Brown, (1992) at 277, n. 1; A clear graphic explanation of the second best problem can be found in RICHARD ZERBE AND DWIGHT DIVELY, BENEFIT-COST ANALYSIS IN THEORY AND PRACTICE, Harper Collins, (1994) at 149-152. ("The second-best theory says that when there is a distortion in one market so that the first-best welfare conditions are not met, and given that this distortion may not be removed, the welfare maximum requires an optimal distortion in other markets rather than the first-best conditions in these markets").

"Pareto principle." While the economics profession was turning its attention to Pareto's work (discussed below), Marshall's student Arthur Pigou, who later succeeded to the chair of the Cambridge Economics Department, published *The Economics of Welfare* in 1920. Pigou's book retained cardinal utility but its analysis foreshadowed many of the debates about welfare economics that were to occur in future decades. Pigou was specifically interested in what practically could be done to increase social welfare. He began by defining economic welfare as only that part of total human welfare that "can be brought directly or indirectly into relation with the measuring rod of money. This part of welfare may be called economic welfare."[45]

Pigou next considered whether increases in the national dividend (Marshall's name for GDP or wealth in Judge Bork's parlance) necessarily increase welfare, and if so, under what conditions. This is a question of current relevance, since Judge Bork, and others in the law and economics tradition, equate increases in total wealth (that is the total quantities of goods and services multiplied by current prices) with increases in total welfare.[46] Pigou demonstrated that changes in wealth and changes in welfare can move in opposite directions. To understand Pigou's argument, consider an economy composed of only one commodity, potatoes. If the economy consists of only one homogeneous good than an increase in wealth will be coextensive with an increase in welfare. In this case, greater wealth means more potatoes, and if no adverse distributional changes are imposed, there will be unambiguously greater total welfare. Things get more complex when the economy consists of numerous products, some of which increase and some decrease each year.[47] Pigou showed that with many goods, GDP and welfare can move in different directions, because changes in prices impact real distribution which, in turn, can impact welfare. For example, suppose there are rich consumers and poor consumers in an economy. The rich buy primarily wine and the poor buy primarily bread. Assume further that a change in productivity increases the amount of wine and reduces the quantity of bread. Because of these supply changes, wine prices will

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[45] Following Marshall, Pigou conceived of utility as satisfaction of desire and the intensity of the desire is measured by "the money which a person is prepared to offer for a thing," ARTHUR PIGOU, THE ECONOMICS OF WELFARE, 4th Ed., Palgrave Macmillan, (1932) at 11. Later in this paper we discuss his assumption for limiting welfare to economic welfare as he defines it.

[46] *Id.* at 51 ("In actual life, however, the national dividend consists of a number of different sorts of things, the quantities of some of which are liable to increase at the same time that the quantities of others are decreasing. In these circumstances there is no direct means of determining by a physical reference whether the dividend of one period is greater or less than that of another.")

[47] Establishing an increase in wealth requires that we weight the goods and services that increased and the goods and services that decreased and then compare them. Pigou shows that using prices in the base year and the subsequent year can lead to contradictory conclusions. MAURICE DOBB, WELFARE ECONOMICS AND THE ECONOMICS OF SOCIALISM: TOWARDS A COMMON SENSE CRITIQUE, Cambridge U.P. (1969) at 34-41 (showing that the Paasche index and the Laspeyres index can move in different directions).

decrease and bread prices will increase. In this example, the total prices multiplied by quantities can increase or stays constant. Nonetheless, the real income of the poor has decreased and this could lead to a major decline in welfare.[48] This possibility caused Pigou to conclude that "the national dividend will change in one way from the point of view of a period in which tastes and distribution are of one sort, and in a different way from that of a period in which they are of another sort."[49] Put differently, because GDP growth requires measurement of GDP at two periods of time, the comparison involves two sets of prices, and the resulting measures can give conflicting results.[50] To take account of these issues Pigou advanced the following definition of economic welfare:

> It is evident that, provided the dividend accruing to the poor is not diminished, increases in the size of the

[48] A similar example can be found in Jules Coleman, "*Efficiency, Utility, and Wealth Maximization,*" 8 HOFSTRA L. R. 509, 525-526 ((1980) ("The system of wealth maximization assumes at any given time a set of fixed prices for all commodities. On the basis of the prices at t_1 imagine that the principle recommends a shift in legal rules from strict liability to negligence. At t_2 the negligence rule is therefore instituted. The changeover in liability rules causes a change in relative prices. At t_3 suppose we reevaluate from the wealth maximization point of view the efficiency of strict liability and negligence. It is perfectly plausible to suppose that, in at least some cases, the principle of wealth maximization, given the prices of goods at t_3, will recommend a change from negligence to strict liability. The problem is straightforward. Wealth maximization requires and affects prices. Prices must be fixed to employ the principle but employing the principle to recommend structural changes in the law affects prices."); MICHAEL MANDLER, DILEMMAS IN ECONOMIC THEORY, PERSISTING FOUNDATIONAL PROBLEMS OF MICROECONOMICS, Oxford U.P. (1999) ("But when output consists of many goods, which allocation is the egalitarian optimum? A system for weighting individual preferences is indispensable."); John Chipman and James Moore, "*Why an Increase in GNP Need Not Imply an Improvement in Potential Welfare,*" 29 KYKLOS 391, 392-393 ("In short, if an index of welfare is what we want, we cannot rely on GNP alone..."); STEVEN KEEN, DEBUNKING ECONOMICS: THE NAKED EMPEROR DETHRONED?, Zed Books (2011) at 65 – 66 ("Since a change in relative prices will change the distribution of income, it therefore changes who consumes what, and hence the 'sum' of the subjective utilities of all individuals. Since utility is subjective, there is no way to determine whether one distribution of income generates more or less aggregate utility than any other."); MARK BLAUG, ECONOMIC THEORY IN RETROSPECT, Cambridge U.P. (1978) ("Unless all goods increase equiproportionately, an increase in real output accompanied by differential price changes alters expenditure patterns and hence alters the community's valuation of income. If the double criterion for an increase in welfare is to be satisfied [at the old prices and at the new prices] we require that general welfare be invariant to changes in expenditure patterns and hence to changes in the distribution of income. Clearly, this is the strongest of all interpersonal comparisons of utility. Thus, the long discussion on welfare criteria – from Pareto through Barone to Hicks, Kaldor, Scitovsky and more recently, Little – have brought us no further in evaluating policy changes which benefit some people but harm others on purely 'positive' grounds. Efficiency cannot be separated from equity.").

[49] ARTHUR PIGOU, THE ECONOMICS OF WELFARE, 4th Ed. Palgrave Macmillan (1932) at 58.

[50] MICHAEL MANDLER, DILEMMAS IN ECONOMIC THEORY, PERSISTING FOUNDATIONAL PROBLEMS OF MICROECONOMICS, Oxford U.P. (1999) ("Pigou recognized that since different points in time are analytically symmetrical, index number comparisons can be conducted with two sets of prices and that these measures need not agree.").

> aggregate national dividend, if they occur in isolation without anything else whatever happening, must involve increases in economic welfare.[51]

Essentially Pigou thought that distribution has to be accounted for before one can conclude that increases in GDP will result in increased welfare. If distribution is allowed to vary, then changes in distribution due to relative price changes (when quantities change in different directions) can reduce welfare, even if wealth measured in existing prices increases.

Pigou also recognized that economic welfare is not restricted to welfare from consumption. Work and leisure are also critical parts of economic decision making that impacts welfare. Pigou included labor and leisure among the factors included in "without anything else whatever happening" in the above quoted definition of welfare. Pigou explained this requirement as follows:

> The economic welfare of a community consists in the balance of satisfactions derived from the use of the national dividend over the dissatisfactions involved in the making of it. Consequently, when an increase in the national dividend comes about in association with an increase in the quantity of work done to produce it, the question may be raised whether the increase in work done may not involve dissatisfaction in excess of the satisfaction which its product yields.[52]

Indeed, Pigou assumed full employment so that workers trade off leisure and work. Absent this assumption, we would have to account for the welfare impact of involuntary unemployment in addition to the labor/leisure tradeoff.[53]

Finally, Pigou was also explicit that welfare can increase as a result of a distributional change alone, independent of the size of the national dividend:

> Nevertheless, it is evident that any transference of income from a relatively rich man to a relatively poor

[51] *Id.* at 82.
[52] *Id.* at 85.
[53] BRUNO FREY AND ALOIS STUTZER, HAPPINESS & ECONOMICS, Princeton U.P. (2002) at 107 ("Happiness research comes up with clear results with respect to the effects of unemployment on well-being. The findings are in marked contrast with the notion cherished by some economists that unemployment is voluntary so no utility loss is to be expected from being unemployed. All studies using happiness data find that unemployment causes major unhappiness for the persons affected.").

> man of similar temperament, since it enables more intense wants to be satisfied at the expense of less intense wants, must increase the aggregate sum of satisfaction. The old 'law of diminishing utility' thus leads securely to the proposition: Any cause which increases the absolute share of real income in the hands of the poor, provided that it does not lead to a contraction in the size of the national dividend from any point of view, will, in general, increase economic welfare.[54]

Pigou's concluded that welfare can be increased in two ways, (1) if real distribution and tastes are held constant, and work is not adversely effect, an increase in wealth measured in prices will increase welfare, and (2) If income redistribution from rich to poor occurs without impacting total wealth, welfare will also increase. As discussed below Pigou's conclusions cannot be squared with Judge Bork's remarks about welfare and wealth in the *Antitrust Paradox*. Judge Bork asserts that an increase in wealth increases welfare and regardless of distribution, work effort, or changing tastes.

D. Pareto Optimality

As stated above, Pareto rejected Marshall's assumptions of partial equilibrium and cardinal utility. Instead, Pareto advanced the notion of a "Pareto optimum" which denotes a situation where improvements to some economic agents cannot be accomplished without harming other agents. An equivalent way to say this is that all voluntary trades that benefit both trading parties have been exhausted. If a voluntary trade that is mutually beneficial is still possible then at least one person can still be made better off without harming any other individual. Only when these trades are depleted can the economy be at a Pareto optimum. The Pareto criteria is essentially a criteria of unanimous consent.[55]

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[54] *Id.* at 88.

[55] Pareto optimality is not value free. To give one example of a value judgment underlying the Pareto criteria, is the assumption of no envy on the part of those left unchanged when another group of individuals benefit from a Pareto improving policy. S.K. NATH, A REAPPRAISAL OF WELFARE ECONOMICS, Routledge (1969) at 8 – 10; MARK BLAUG, ECONOMIC THEORY IN RETROSPECT, Cambridge U.P., (1978) at 626; MAURICE DOBB, WELFARE ECONOMICS AND THE ECONOMICS OF SOCIALISM: TOWARDS A COMMONSENSE CRITIQUE, Cambridge U.P. (1969) at 20-21.

Economists have identified three necessary conditions for a Pareto optimum.[56] These conditions define what most economists mean by the term "efficiency" as well as the various types of efficiencies. The first condition of a Pareto optimal point is called "allocative efficiency" or "exchange efficiency." An exchange efficiency holds when no voluntary trades among consumers exist that could make some individuals better off with our harming at least one other person.[57] The assumption is that given the distribution of goods and services or ("endowments"), that all mutually beneficial trade is accomplished. The technical condition for an allocative efficient optimum to hold is that all individuals share the same marginal rates of substitution. The marginal rate of substitution is a measure of the rate at which an individual is willing to exchange one good for another, given the amounts each person possesses. Pareto reasoned that if each consumer values each good and service compared to other goods and services in the same way, there would be no incentive for further voluntary trade.[58] The second condition for a Pareto optimum is called "production efficiency." Production efficiency occurs when firms have exhausted all voluntary mutually beneficial trades of inputs. The exhaustion of voluntary trades implies that for one firm to increase output requires that another firm must decrease output. Again the assumption is that factors of production are given and firms exchange from their given endowment of factors. This second condition holds when the "marginal rate of technical substitution" is equal across firms. The marginal rate of technical substitution is the rate at which a firm must replace a unit of one input for another input, given the inputs the firm has already employed and keeping output constant. If all firms have the same marginal rates of technical substitution, then there is no room for further voluntary trade of inputs, and production is efficient. Finally, the third condition for a Pareto optimum is called the "top level efficiency" or "output efficiency." This condition holds when the marginal rate of substitution for individuals equals the marginal rate of technical substitution among firms. This is normally presented to economics students using a production possibility frontier. The production possibility frontier graphs all the

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[56] The classic and one of the best explanations of these conditions can be found in Francis Bator, "*The Simple Analytics of Welfare Maximization*," 47 AMER. ECON. REV. 22 (1957).

[57] Peter Hammond, "*Welfare Economics*" *in* ISSUES IN CONTEMPORARY MICROECONOMICS & WELFARE, George Feiwel Ed., State U. of N.Y. (1985) at 422 ("In economic parlance, a state of affairs is 'efficient' when it is impossible to get more of one desirable thing without giving up something else that is also desirable...And an allocation is Pareto efficient really is 'efficient' in this sense-it is impossible to increase one person's utility without decreasing somebody else's"); J. Farrell and M. Katz, "*The Economics of Welfare Standards in Antitrust*," U. C. 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.").

[58] Helpful examples can be found in ABBA LERNER, THE ECONOMICS OF CONTROL, Augustus Kelly (1970), Chapter 2.

points where the marginal rates of technical substitution are equal, in other words it displays all of the different combinations of output where production is efficient. When the "top level efficiency" holds, the slope of the production possibility frontier at a point (called the "marginal rate of transformation") is equal to the marginal rate of substitution for individuals. The notion is that if this condition holds society cannot pick a different level of output of each good which would make consumers be better off. Put another way, it means that we cannot increase the production of one good and decrease the production of another good, and then use these amounts as the new endowments and thereby make some individuals better off without harming some other individual or through trade.[59] As Mark Blaug summarizes:

> All these conditions may be summed up in the one grand criterion: Between any two goods (products and factors), the subjective and objective marginal rates of substitution must be equal for all households and all production units, respectively, and these subjective and objective ratios must be equal to each other.[60]

In any economy there is an unlimited number of possible Pareto optimal positions, one for each point on the production possibilities frontier. This is a problem because it means that there are numerous situations where the Pareto criteria can't be used for comparison purposes, because we cannot make judgments between two points that are both Pareto optimal. This limitation motivated subsequent attempts were by Bergson and Samuelson to develop a "social welfare function" that could theoretically rank Pareto optimum positions. Unfortunately, work in this area has not led to any acceptable or realistic solutions.[61]

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[59] MARK BLAUG, ECONOMIC THEORY IN RETROSPECT, Cambridge U.P. (1978) at 627; PER-OLOV JOHANSSON, AN INTRODUCTION TO MODERN WELFARE ECONOMICS, Cambridge U.P. (1991) at 15-20.

[60] *Id.* at 628.

[61] Abram Bergson, "*A reformulation of certain aspects of welfare economics,*" 52 Q.J. ECON. 310 (1938); PAUL SAMUELSON, FOUNDATIONS OF ECONOMIC ANALYSIS, Harvard U.P., (1947), (Chapter 8). The problem with the Bergson-Samuelson approach is that it cannot adjudicate among rival social welfare functions. Indeed, Kenneth Arrow's famous "impossibility theorem" showed that a social welfare function could not be constructed that satisfied a requirement of democracy and basic assumptions of rational choice. K. ARROW, SOCIAL CHOICE AND INDIVIDUAL VALUES, Yale U.P. (1971). E.J. Mishan summarized the state of the research as follows: "To assert that society's SWF is difficult to discover would be a masterpiece of understatement." E.J. MISHAN, INTRODUCTION TO NORMATIVE ECONOMICS, Oxford U.P. (1981) at 129. Antoinette Baujard, "*A utility reading for the history of Welfare Economics,*" UNIVERSITE DE LYON (December 3, 2014) at 20 ("The Arrovian result may be considered as the death knell of social choice"). BRUNO FREY, HAPPINESS A REVOLUTION IN ECONOMICS at 162-163 (Since Arrow (1951), it is has been widely accepted that, under a number of "reasonable" conditions, no social-welfare function exists that generally and consistently ranks outcome, except a dictatorship. This result derived from the assumption of impossibility spawned

Thus, the two critical limitations of the Pareto approach are that: (1) it cannot distinguish between situations where one person gains at the expense of another. It allows us only to evaluate situations where one person's utility can be improved without decreasing any other individual utility.[62] Critically, without a fully specified model of the economy, there is no way to know when a potential policy change could conceivably harm some agent. (2) the Pareto approach results in a potentially infinite number of incomparable Pareto optimal positions. These two weaknesses drew sharp criticism from many prominent economists. For example, Knut Wicksell concluded that "Pareto's doctrine contributes nothing."[63] Michael Mandler likewise concludes that "Pareto improvements may be achievable in principle but not in the real world."[64] Indeed, these problems make the Pareto approach especially inapplicable for use in antitrust analysis, because there are always losers in antitrust cases. Thus, while Pareto optimality and its associated concepts are sometimes mentioned by Judge Bork, no actual application of the theory to antitrust analysis is feasible.

E. The Fundamental Theorems of Welfare Economics

The economics profession has significantly advanced the analysis of general equilibrium begun by Walras and Pareto. None of this mathematical modeling has rendered welfare economics useful or relevant to the work of antitrust lawyers. By way of background, Leon Walras developed the first general equilibrium model of exchange and production in the 1870s. In Walras' model, the known variables included the number of consumers, the number of firms, the initial endowments, consumer preferences, and available production techniques. Consumers were assumed to maximize utility and firms to maximize profits. All prices and outputs were then determined simultaneously in the model by supply and demand taking

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a large literature (categorized by the term "social choice") that analyzed the robustness of this impossibility result when assumptions are modified. Theorem after theorem demonstrated that nearly all changes in the axiomatic structure left unchanged the result pertaining to dictatorship."); ROBIN HAHNEL AND MICHAEL ALBERT, QUIET REVOLUTION IN WELFARE ECONOMICS, Princeton U.P. (1990) at 21 ("However, attempts to specify a social welfare function or even establish the possibility of a reasonably desirable social welfare function have ended in frustration. All attempts to date to make neoclassical welfare theory a complete theory of social choice have failed to do so despite painstaking work and, in some cases, brilliant insight.").

[62] Kotaro Suzumura, "*Paretian Welfare Judgements and Bergsonian Social Choice,*" 109 ECON. J. 204 (1999) ("since almost every economic policy cannot but favour some individuals at the cost of disfavouring others, there will be almost no situation of real importance where the Pareto principle can claim direct relevance.").

[63] Quoted in MAURICE DOBB, WELFARE ECONOMICS AND THE ECONOMICS OF SOCIALISM TOWARDS A COMMONSENSE CRITIQUE, Cambridge U.P. (1969) at 13.

[64] MICHAEL MANDLER, DILEMMAS IN ECONOMIC THEORY, PERSISTING FOUNDATIONAL PROBLEMS OF MICROECONOMICS, Oxford U.P. (1999) at 9.

account of all the interactions between the markets.[65] While a work of brilliance, Walras' approach had an important limitation; it did not contain any dynamics. By this I mean that Walras could not show that if you start at a point out of equilibrium, market forces would lead the economy in the direction of the equilibrium position. This is often called the problem of "stability." Instead of a realistic dynamic process leading to equilibrium, Walras postulated that equilibrium would be established by an auctioneer in a process he called "tatonnement." Tatonnement was not a decentralized market adjustment process as in a capitalist economy. Instead it posits that a centralized auctioneer would calculate equilibrium prices before any trading takes place. For Walras, equilibrium was calculated in advance by a central planner. There was also another problem. Walras' model could not be extended to include produced capital goods.[66] This second problem was eventually overcome in the more sophisticated "Arrow-Debreu" intertemporal general equilibrium model.[67] However, the problem of stability was never solved. Thus, economists have been able to prove the existence of an equilibrium in their microeconomic general equilibrium models, but have not been able to show that there is either a unique equilibrium, or that the equilibrium is stable.[68] Lack of stability is a particularly telling limitation because it

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[65] Walras inferred that an equilibrium existed by counting the number of equations and unknowns.

[66] Pierangelo Garengnani, "*On Walras's Theory of Capital* (PROVISIONAL DRAFT 1962)," 30 J. OF HIST. OF ECON. THOUGHT 367 (2008); GERARD DUMENIL AND DOMINIQUE LEVY, THE ECONOMICS OF THE PROFIT RATE, Edward Elgar (1993) at 55-56 ("Walras' analysis is not formally consistent, however, because the prices of produced capital goods are determined twice. They are assumed to simultaneously satisfy equations that account for the clearing of markets by prices and equations similar to those of production prices. Walras' mistake originates from his desire to include in his new framework of short-term equilibrium by prices a property which actually belongs to long-term equilibrium [equal profit rates]"); Arrow also made this point in his 1986 article, "Walras claimed to treat a progressive state with net capital accumulation, but he wound up unwittingly in a contradiction, as John Eatwell has observed in an unpublished dissertation. Walras' arguments can only be rescued by assuming a stationary state", Kenneth Arrow, "*Rationality of Self and Others in an Economic System*," 59 J. OF BUS. S385, S393 (1986).

[67] In particular, Arrow and Debreu's 1954 paper proving the existence of a competitive general equilibrium was very influential. Kenneth Arrow and Gerard Debreu, "*Existence of an Equilibrium for a Competitive Economy*," 22 ECONOMETRICA 265 (1954). A review of several intertemporal general equilibrium models can be found in Gerard Dumenil and Dominique Levy, "*The Dynamics of Competition: A Restoration of the Classical Analysis*," 11 CAMBRIDGE J. OF ECON. 133 (1987); STEVE KEEN, DEBUNKING ECONOMICS, Zed (2011) ("In this model [Debreu], there is only one market – if indeed there is a market at all – at which all commodities are exchanged, for all times from now to eternity. Everyone in this market makes all their sales and purchases for all time in one instant. Initially everything from now till eternity is known with certainty, and when uncertainty is introduced, it is swiftly made formally equivalent to certainty."). However, the equilibrium may be known to exist but may not be computable. K. Vela Velupillai, "*The Foundations of Computable General Equilibrium Theory*," Universita Degli Studi Di Trento, Discussion Paper No. 13 (2005).

[68] Alan Kirman, "*The Intrinsic Limits of Modern Economic Theory: The Emperor has No Clothes*," 99 ECON. J. 126, 127 (1989) ("A second point is that general equilibrium lacks any result as to the stability or uniqueness of equilibrium that can be derived from the standard assumptions on the endowments, production possibilities and preferences of individuals...Introducing more

means that there is no proof that a competitive process, even if it exists, would ever lead to an equilibrium. In these models, if trading is performed at disequilibrium prices (as in real economies) there is no economic theory that guarantees that the economy will reach an equilibrium.

I raise this limitation because the Arrow-Debreu proof of the existence of equilibrium has led to the two fundamental theorems of welfare economics. The first fundamental theorem states that, assuming no externalities, public goods, imperfect information, and other market failures, every competitive equilibrium is Pareto optimal. The second fundamental theorem states that any Pareto efficient allocation can be attained through the market system using lump sum transfers (transfers the magnitude of which do not depend on variables that the individual can alter).[69] Neither of these fundamental theorems appear to be helpful for antitrust analysis. The first theorem merely says that if we attained a perfectly competitive equilibrium (which requires unobtainable conditions) it would be Pareto optimal (which has the two limitations described above). The second fundamental theorem has sometimes been considered more relevant. One interpretation of the second theorem is that it means that any Pareto efficient allocation of resources can be attained by the market.[70] It follows that government policy can be reduced to lump sum transfers, as long as the market is competitive.[71] This reading of the second fundamental theorem

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sophisticated adjustment processes does not, unfortunately, help"); Frank Ackerman, "*Still Dead After all these Years: Interpreting the Failure of General Equilibrium*," 9 J OF ECON METH. 119, 120 (2002) ("The equilibrium in a general equilibrium is model is not necessarily either unique or stable, and there are apparently no grounds for dismissing such ill-behaved outcomes as implausible special cases."); Arrow seems to concede this in 1986 when he says, "In the aggregate, the hypothesis of rational behavior has in general no implications," Kenneth Arrow "*Rationality of Self and Others in an Economic System*," 59 J. OF BUS S85, S388 (1986); Duncan Foley, "*What's wrong with the fundamental existence and Welfare Theorems*," 75 J. OF ECON. BEH. & ORG. 115, 119 (2010) ("no robust account of stability of an exchange economy toward the set of Walrasian allocations exists").

[69] Mark Blaug, "*The Fundamental Theorems of Modern Welfare Economics, Historically Contemplated*," 39 HIST. OF POL. ECON. 185 (2007).

[70] Joseph Stiglitz, "*The Invisible Hand and Modern Welfare Economics*," NBER Working Paper No. 3641 (1991), at 4. Michael Mandler makes the opposite point. "If policymakers know agents characteristics as the second welfare theorem seems to suppose, markets would be superfluous for allocating resources; government could simply dictate the desired allocations. On the other hand, when policymakers do not know agents characteristics, the information needed to devise the appropriate income transfers is missing. The policy recommendations implied by the second welfare theorem are either dispensable or unobtainable." MICHAEL MANDLER, DILEMMAS IN ECONOMIC THEORY, PERSISTING FOUNDATIONAL PROBLEMS OF MICROECONOMICS, Oxford U.P. (1999) at 154.

[71] Louis Putterman, John Roemer and Joaquim Silvestre, "*Does Egalitarianism Have a Future*," 36 J. OF ECON LIT. 861, 862 (1998) ("To what extent is there an inescapable trade-off between equality and efficiency? The Second Fundamental Theorem of Welfare Economics offers a clear-cut answer. It states that no such trade-off exists if several conditions are met, notably: (a) markets

overlooks the fact that stability of a general equilibrium cannot be established. In other words, after altering distribution, the market may never move to a competitive equilibrium. As Frank Ackerman explains the problem:

> Consider the process of redistributing initial resources and then letting the market achieve a new equilibrium. Implicitly, this image assumes that the desired new equilibrium is both unique and stable. If the equilibrium is not unique, one of the possible equilibrium points might be more socially desirable than another, and the market might converge toward the wrong one. If the equilibrium is unstable, the market might never reach it, or might not stay there when shaken by small, random events.[72]

There is no actual theoretical basis for assuming that by establishing free markets and altering distribution one could obtain a desired Pareto optimal situation. In sum, the significant work and advancement in the modeling of general equilibrium and Pareto optimality, has led to a dead end as far as relevance for antitrust analysis. While the Pareto criteria has the advantage of dispensing with cardinal utility and the need for interpersonal utility comparisons, it is basically unworkable for antitrust purposes because it cannot distinguish between an unlimited number of Pareto optimal points and it can't make judgments between situations that involve a loss to any individual. It follows that antitrust decisions about corporate business strategy and market power virtually always involve situations where the Pareto criteria will not apply.

F. John Hicks' Revival of Consumer Surplus

As most of the economics profession gravitated to the Pareto principle, Marshall's concept of consumer surplus was largely forgotten until it was resurrected

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are complete and perfectly competitive; and (b) it is possible to transfer wealth among consumers in an incentive-neutral or 'lump sum' manner").

[72] Frank Ackerman, "*Still Dead After all These Years: Interpreting the Failure of General Equilibrium*," 9 J. OF ECON. METH. 119, 121 (2002); Duncan Foley, "*What's wrong with the Fundamental Existence and Welfare Theorems*," 75 J. OF ECON. BEH. & ORG. 115, 129 (2010) ("The second welfare theorem is often presented as demonstrating that competitive market allocation can achieve any allocation of economic surpluses and economic welfare achievable with available preferences, technology and resources. Once we acknowledge the possibility of transactions at disequilibrium prices, however, this conclusion is no longer sustainable.").

by John Hicks in 1940.[73] Hick's reformulation of consumer's surplus was a response to the criticism leveled by Lionel Robbins, who sought to nail the coffin shut on the old welfare economics based on interpersonal comparability of cardinal utility.[74] Robbins argued that "it is [not] helpful to speak as if interpersonal comparisons of utility rest upon scientific foundations."[75] For Robbins, cardinal utility was unobservable, and therefore unscientific. He considered only observed transactions as a proper foundation for welfare economics, and at best, such observations result in only ordinal utility.[76] As Michael Mandler comments: "Robbins brought the limited ability of economists to make interpersonal comparisons into the open. Robbins' Essay revealed that the emperor had no clothes."[77]

In 1943, in response to Robbins, John Hicks was able to reformulate the concept of consumer's surplus on an ordinal basis. To do so he defined the concepts of "compensating variation" (CV") and "equivalent variation" ("EV"). Both concepts are built on purely ordinal utility assumptions.[78] Hicks then showed that consumer's surplus is bounded above and below by these two ordinal concepts.

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[73] John Hicks, "*The Rehabilitation of Consumers' Surplus*," 8 REV. OF ECON STUDIES 108 (1940-1941); R.W. Pfouts, "*A Critique of Some Recent Contributions to the Theory of Consumers' Surplus*," 19 SOUTHERN ECON. J. 315 (1953).

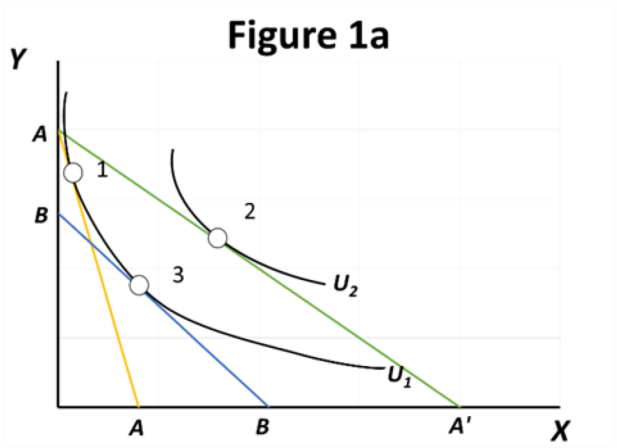
[74] Lionel Robbins, "*Interpersonal Comparisons of Utility: A Comment*," 48 ECON. J. 635 (1938). In part, Robbins wanted to purge from economics the policy prescription of redistribution of income which he advocated should be removed from welfare economics.

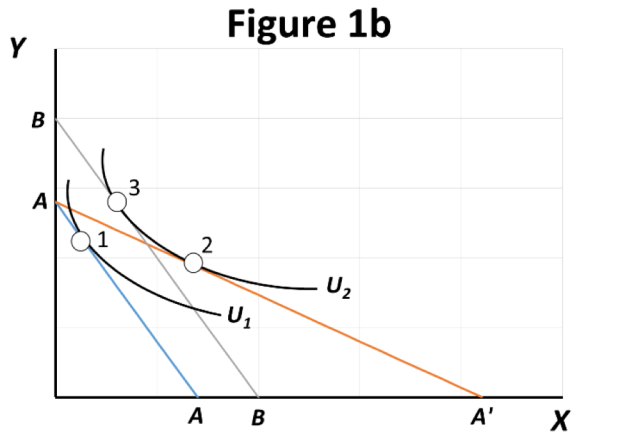
[75] *Id.* at 640; Nicholas Kaldor, "*Welfare Propositions of Economics and Interpersonal Comparisons of Utility*," 49 ECON. J. 549 (1939) ("If the incomparability of utility to different individuals is strictly pressed, not only are the prescriptions of the welfare school ruled out, but all prescriptions whatever. The economist as an advisor is completely stultified, and unless his speculations be regarded as of paramount aesthetic value, he had better be suppressed completely. This view is endorsed by Professor Robbins.").

[76] Robert Cooter, "*Were the Ordinalists Wrong about Welfare Economics?*, 22 J. OF ECON. LIT. 507, 522-524 (1984).

[77] MICHAEL MANDLER, DILEMMAS IN ECONOMIC THEORY, PERSISTING FOUNDATIONAL PROBLEMS OF MICROECONOMICS, Oxford U.P. (1999) at 135.

[78] Compensating variation is the maximum amount of money that can be taken from someone and just leave them as well of (on the same indifference curve) as before a price fall, and vice versa for a price rise. Equivalent variation is the minimum amount of money that must be given to someone to make them as well off as before a price fall, and vice versa for a price rise. The consumer surplus will fall somewhere between these two ordinal measures.





Hick's concepts of compensating and equivalent variation can be illustrated using the above graphs.[79] On Figure 1a the consumer begins at point 1 on the indifference curve.[80] Budget line AA, represents the original set of prices. Suppose now that the price of product X decreases. This rotates the budget line to AA' (since X is cheaper the consumer can buy more of X with the same income). At AA' the consumer can reach a higher indifference curve representing more utility and then moves to point 2. BB is the parallel budget line that results when we decrease income just enough so that the consumer is placed back on the original indifference curve. The difference between BB and AA' is AB on the Y axis. AB is the compensating variation defined as the amount of money (assuming Y is money) that the consumer

[79] These figures are taken from RICHARD ZERBE AND DWIGHT DIVELY, BENEFIT-COST ANALYSIS IN THEORY AND PRACTICE, Harper Collins, (1994) at 78-79. An indifference curve graphs all the combination of the amounts of product X and product Y for which the consumer is indifferent. Along the indifference curve there is constant total utility.

[80] Readers should consult any intermediate microeconomics text for the definitions of the terms used in this explanation, as well as many explanations of the concepts themselves which may be more detailed and understandable than the brief description here.

would pay to obtain the price change. Notice that by using CV we evaluate the distance between the indifference curves using the final prices.

Figure 1b illustrates the calculation of the equivalent variation. The consumer begins again at point 1. Again, the price of X falls and the budget line rotates from AA to AA'. The consumer moves from point 1 on U_1 to point 2 on U_2. But now the distance between the indifference curves, or the change in utility, is measured using the original prices. We do this by drawing budget line BB parallel to budget line AA. This gives us BA, which is the utility change but measured at the original prices. This amount can be thought of as the amount of money that the consumer would accept to forego the price reduction.

The consumer surplus must fall somewhere between CV and EV. Consumer surplus must be larger or equal to CV but smaller or equal to EV. Thus, Hicks was able to put an upper and lower boundary on the measurement of consumer surplus, but using only concepts that reply on ordinal utility. In a much quoted article in the antitrust literature, Bobby Willig showed that, in general, consumer surplus is, in fact, a good approximation of either CV or EV.[81]

In order to conduct antitrust analysis, one must be able to aggregate EV or CV across individuals to obtain market level numbers. Unfortunately, it turns out that we cannot add CVs or EVs in a way that is meaningful. Suppose the Y variable on Figures 1a and 1b represents money. This money cannot be our normal conception of money because money is a cardinal measure. The money that Y represents can only be ordinal money. If Y consists of ordinal dollars, it means we may have different monetary scales for each consumer. For example, one consumer might have a scale based on ten dollar bills, while another consumer uses scale of hundred dollar bills, even though both represent the same amounts of utility. The different money scales also need not have the same starting point. Therefore, EV and CV cannot be aggregated, just as ordinal utility can be aggregated. As such, the concepts that Hicks defined cannot be added to obtain boundaries for the market consumer surplus

[81] Robert Willig, "*Consumer's Surplus Without Apology*," 66 AM. ECON. REV. 589 (1976). For examples of how Willig's estimates are performed *see* RICHARD ZERBE & DWIGHT DIVELY, BENEFIT-COST ANALYSIS, Harper (1994) at 111-120; PER-OLOV JOHANSSON, AN INTRODUCTION TO MODERN WELFARE ECONOMICS, Cambridge U.P. (1991) at 52. Note that with multiple price changes CV and EV can become path dependent on the order of the price changes. YEW-KWANG NG, WELFARE ECONOMICS INTRODUCTION AND DEVELOPMENT OF BASIC CONCEPTS, MacMilian (1979) at 94.

which is required in antitrust analysis.[82] This limitation saps the relevance of CV and EV for policy analysis in Antitrust.[83]

Even assuming we can find a way to combine CV's or EV's, a further the problem with adding CVs and EVs across consumers is that we have losers and winners. In these situations, there is no way to weight the loss of welfare for the losers against the gain for the winners because we cannot compare the welfare implications of a loss of CV or EV to one consumer against the gain of CV or EV of another individual. It could happen that all the losses from a policy impact the poor while the gains only impact the rich. Obviously, these gains and losses can represent different amounts of utility. Economists sometimes side-step this problem by assuming that "increases in income as equally socially valuable no matter who receives them."[84] Another possible way out of the problem might be to use the compensation principle, discussed below, to say something meaningful about aggregate CVs or EVs. This would require a direct relationship between EV, CV, and the compensation principle. Unfortunately, Robin Boadway demonstrated that no such relationship exists. As he concludes:

> All of these discussions neglect the distributional effects of the policy change. That is, changes in aggregate consumer and producer surpluses are simply summed up in monetary units regardless of to whom they accrue (either positively or negatively). The justification usually given for this is that a positive value for the aggregate surplus change indicates that the gainers could compensate the losers for the policy change and still be better off. The analysis of this paper has shown that this

[82] One might think that you can simply add compensating variations between individuals. However, this is not the case, because the money metrics means different amounts of utility for different people. The assumptions needed to aggregate compensating variation are explained in detail in Charles Blackorby and David Donaldson, "*The Case Against the Use of the Sum of Compensating Variations in Cost Benefit Analysis*," 23 CANADIAN J. OF ECON. 471 (1990).

[83] Textbooks are often equivocal on this point. Textbooks often label one of the goods being considered as money, and because people are used to money on a cardinal scale, the reader unconsciously switches to cardinal utility. In fact, Willig's result may or may not hold if we remain consistent using ordinal measures. If consumers have a big jump in the ordinal money measures, such as when, a loss of income leads to a tipping point to starvation, then Willig's result does not hold. But if we make the reasonable assumption that each individual consumer of no big jumps in the ordinal measure of money his result remains true.

[84] Charles Blackorby and David Donaldson, "*A Review Article: The Case against the Use of the Sum of Compensating Variations in Cost-Benefit Analysis*," 23 CAN. J. OF ECON. 471, 472 (2001); Chris Jones, "*The 'Boadway Paradox' Revisited*", Australian Nat. U. Working Paper No. 421 (August 2002).

> rationale for ignoring distributional effects is not generally valid. That is, obtaining a positive change in aggregate consumers' and producers' surplus is neither a necessary nor a sufficient condition for the satisfaction of a compensation test which involves the hypothetical payment of monetary compensation from the gains to the losers.[85]

Thus, absent unrealistic assumptions (addressed in the next section) compensating variation and equivalent variation do not provide a solution to the problem of inter-comparability of welfare using ordinal utility.

G. The Compensation Principle

Nicolas Kaldor advanced the "compensation" principle to escape the limitations of Pareto's principle. Recall, Pigou had shown that changes in wealth alone cannot measure welfare without accounting for the welfare impact of changes in distribution. The compensation principle is an effort to separate the issues of production and distribution, and thereby advance something like Pigou's first principle without the distribution qualification. If successful, the criteria could be applied when there are losers. Kaldor's principle was simple, a policy change is welfare improving if the potential gainers can compensate the potential losers and still have some of the gain leftover. The compensation principle was a kin to the Pareto principle, except that actual compensation was not necessary.[86] Kaldor's principle was quickly lauded by John Hicks as a principle that is "universally valid, being applicable to every conceivable type of society."[87] Two years after these words were written, Tibor Scitovsky showed that Kaldor's principle can lead to contradictions, or reversals, where the change from situation A to situation B could satisfy the compensation principle, but then at the new prices in situation B, a move

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[85] Robin Boadway, "*The Welfare Foundations of Cost-Benefit Analysis*," 84 ECON. J. 926, 938 (1974); Another way to see this result is that "a move from one Walrasian equilibrium to another Walrasian equilibrium typically yields a positive sum of compensating variations (the Boadway Paradox) even though no 'efficiency gain' has occurred (there is no Potential Pareto Improvement)" Charles Blackorby and David Donalson, "*A Review Article: The Case against the Use of the Sum of Compensating Variations in Cost-Benefit Analysis*," 23 CAN. J. OF ECON. 471, 472 (2001). MICHAEL MANDLER, DILEMMAS IN ECONOMIC THEORY, PERSISTING FOUNDATIONAL PROBLEMS OF MICROECONOMICS, Oxford U.P. (1999) at 124 ("despite initial appearances, sums of variations do not in fact test for potential Pareto improvements").

[86] It was the lack of compensation, and therefore a distributional change that is not taken account of that was one of the fundamental criticisms of the compensation principle by I.M.D. LITTLE, A CRITIQUE OF WELFARE ECONOMICS, Oxford, U.P., (1050).

[87] J. Hicks, "*The Foundations of Welfare Economics*," 49 ECON J. 696 (1939).

back to situation A also satisfies the compensation principle.[88] Scitovsky suggested that Kaldor's principle be limited to cases where no reversals can occur. Scitovsky's repair work seemed to resolve the issue, until Samuelson showed that even the Kaldor-Scitovsky condition also results in contradictions.[89] To see the problem, consider Figures 2a and 2b below.[90] Both graphs present two sets of utility possibility curves, in a hypothetical two commodity, two person model. The goods are X and Y, and the consumers are A and B. Each utility possibility curve represents situations where both allocative efficiency and productive efficiency hold.[91] For example, U_1 in Figure 2a represents all the utility combinations for individuals A and B given amounts of commodities X and Y produced for a particular point on the production possibility frontier. Along U_1, individual A can only gain utility if individual B's utility is reduced and vice versa.

[88] Tibor Scitovsky, "*A Note on Welfare Propositions in Economics,*" 9 REV. OF ECON. STUD. 77 (1941).

[89] Paul Samuelson, "*Evaluation of Real Income,*" 2 OXFORD ECON. PAPERS 1 (1950); Katano Suzumura, "*Paretian Welfare Judgements and Bergsonian Social Choice,*" 109 ECONOMIC JOURNAL 204, 218 (1999) ("the Samuelson compensation principle may generate a test relation which cannot be compatible with the Pareto principle.").

[90] These figures are reproduced from E. J. MISHAN, INTRODUCTION TO NORMATIVE ECONOMICS, Oxford U.P. (1981) at 310 and 312.

[91] For each point on the production possibilities frontier we have a certain distribution of X and Y that is productively efficient (in the sense described above). For each such point of production we have a utility possibility frontier which represents all of the points where the marginal rate of substitution are equal for consumers A and B. Thus, for each distribution of X and Y, there is a utility possibility curve for A and B.

Figure 2a

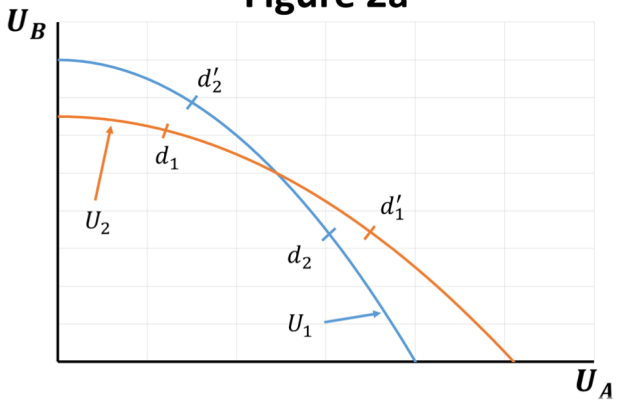
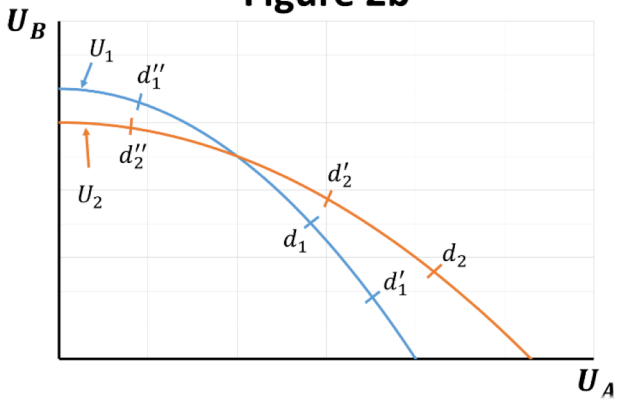


Figure 2b



To illustrate Samuelson's concern consider point d_1 on Figure 2a. Consider next a move from d_1 to d_2. This move meets the Kaldor-Hicks test because through changes in distribution alone we can move to d'_2 which is also on U_1. Now compare d'_2 and d_1. Both A and B can increase utility by moving to d'_2 from d_1. It follows that a move from d_1 to d_2 on efficiency grounds alone is an improvement. However, notice the same argument can be made for a move from d_2 to d_1. At d_1 we can move along U_1 to d'_1 where it is clear that A and B can both increase utility over d_2, so the compensation test is also satisfied for the reverse move. Samuelson pointed out that there is always a potential inconsistency whenever there is an intersecting utility possibility curve even if both points that are considered by a policy change are all on one side of the intersection. Consider Figure 2b. A move from d_1 to d_2 satisfies the Kaldor-Hicks test and no reversal is possible. However, Samuelson pointed out that both A and B could be made better off by simply moving along U_1 to point d''_1 rather than moving to point d_2. Samuelson argued that a consistent compensation test required that U_2 be entirely outside of U_1, meaning there can't be any intersection anywhere along the utility possibility curves. One utility curve must be above the other along its entire length.

In sum, Samuelson showed that the compensation principle is inconsistent whenever it is possible that utility possibility curves can intersect.[92] This was in 1950. Three years later, in a ground breaking article in 1953, W. M. Gorman proved the necessary conditions in order to ensure that utility curves do not intersect. In his article, he set out the problem as follows:

> This is made clear following the discussion of Nicholas Kaldor's attempt to distinguish between problems of efficiency and problems of distribution, and to erect a separate criterion of efficiency. If the utility possibility surfaces cut, this distinction breaks down. The criterion of efficiency comes to depend on distribution. If they do not cut, the distinction can be maintained.[93]

Gorman then demonstrated that the condition necessary to ensure that the utility curves do not intersect is that "the Engel curves for different individuals at the same prices are parallel straight lines" which means that "an extra unit of purchasing power should be spent in the same way no matter to whom it is given."[94] Gorman

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[92] Paul Samuelson, "*Evaluation of Real National Income*," 2 OXFORD ECON. PAP. 1, 10 (1950) ("Instead of a two-point test we need an infinitely large number of tests-that is to say, we must be sure that one of the utility possibility functions everywhere lies outside the other"); For an interesting discussion of Samuelson's paper *see* STANLEY WONG, THE FOUNDATIONS OF PAUL SAMUELSON'S REVEALED PREFERENCE THEORY, Routledge (1978). W.M. Gorman, "*The Intransitivity of Certain Criteria Used in Welfare Economics*," 7 OXFORD ECON. PAP. 25, 28 (1955) ("It will be shown that such contradictions [intransitivities] are always possible if any pair of utility possibility loci cut"). J. Chipman and J. Moore, "*The New Welfare Economics 1939-1974*," 19 INT. J. OF ECON. REV. 547, 578 (1978) ("the welfare criteria suggested by Kaldor and Hicks...could not escape the possibility of giving rise to an inconsistent sequence of policy recommendations, unless either the distribution of income and wealth or the forms and degree of dissimilarity of consumers' preferences were assumed to be suitably restricted.").

[93] W. M. Gorman, "*Community Preference Fields*," 21 ECONOMETRICA 63 (1953). Gorman's finding has been reproduced by many other economists but in the context of deriving a market demand curve. STEVE KEEN, DEBUNKING ECONOMICS, Zed (2011) at 56 ("Gorman's original result, though published in a leading journal, was not noticed by economists in general-possibly because he was a precursor of the extremely mathematical economist who became commonplace after the 1970s but was a rarity in the 1950s. Only a handful of economists would have been capable of reading his paper back then. Consequently, the result was later rediscovered by a number of economists-hence its convoluted name as the 'Sonnenschein-Mantel-Debreu conditions'"). Mas-Colell's textbook provides a summary of the Sonnenschein-Mantel-Debreu Theorem. MAS-COLELL, WHINSTON AND GREEN, MICROECONOMIC THEORY, Oxford U.P. (1995) at Section 17E.

[94] W.M. Gorman, "*Community Preference Fields*," 21 ECONOMETRICA 63, 64 (1953); Peter Hammond, "*Welfare Economics*" *in* G. Feiwel, *ISSUES IN CONTEMPORARY MICROECONOMICS & WELFARE*, State U. of N.Y., (1985) at 407 ("Even this Scitovsky test only happens to be logically consistent in the very special case identified by Gorman in which at any set of relative prices for all commodities, all consumers have parallel linear income consumption curves and so parallel linear Engel curves."). Charles Blackorby and David Donaldson, "*A Review Article: The Case against the Use of the Sum of*

must have understood that this is a highly unrealistic assumption. A straight line Engel curves implies that "your ratios in which you consume different goods would have to remain fixed regardless of your income: if on an income of $100 a week, you spent $10 on pizza, then on an income of $100,000 a week you would have to spend $10,000 on pizza."[95] Moreover, for each consumer to have a parallel Engel curve, all consumers must have identical tastes.[96] This is an extreme assumption that has led economists to generally conclude that the compensation principle is a failure.[97] The underlying problem remained the one identified by Pigou, distribution and production (efficiency) cannot be separated.[98] Under one distribution of commodities we obtain one utility possibility curve, but under a different distribution we obtain another utility possibility curve that could intersect the first.

Compensating Variations in Cost-Benefit Analysis," 23 CAN. J. OF ECON. 471, 473 (2001) ("Neither the sum of compensating variations nor the Potential Pareto Principle [the Compensation Principle] ranks social alternatives in a reasonable way. In order to eliminate intransitivity over consumption efficient allocations, all households must be assumed to have quasi-homothetic preferences that are identical at the margin. Even then, distorted equilibria are not ranked sensibly."). John Muellbauer introduced a class of expenditure functions that can be used for aggregation but have slightly more relaxed assumptions. John Muellbauer, "*Aggregation, Income Distribution and Consumer Demand*," 42 REV. OF ECON. STU. 525, 541 (1975); Angus Deaton and John Muellbauer, "*An Almost Ideal Demand System*," 70 AMER. ECON. REV. 312, 323-324 (1980).

[95] STEVEN KEEN, DEBUNKING ECONOMICS, Zed (2011) at 55.

[96] *id.*

[97] John Chipman and J. Donald Moore, "*The New Welfare Economics 1939 to 1974*," 19 INT. ECON. J. 547, 578 (1978) ("Unfortunately, as we have seen, the welfare criteria suggested by Kaldor and Hicks, even with the qualifications added by Scitovsky and Kuznets, could not escape the possibility of giving rise to an inconsistent sequence of policy recommendations..."). As summarized by John Gowdy, "undermining this separation argument [efficiency and distribution are more than fifty years of theoretical work demonstrating that PPIs [Potential Pareto Improvement another name for the compensation principle] cannot be identified by comparing individual welfare changes." John Gowdy, "*The Revolution in Welfare Economics and its Implications for Environmental Valuation and Policy*," 1 LAND ECON. 239, 242 (2004); Mishan's comprehensive textbook on welfare economics concludes that "Criteria based on compensation tests have turned out to be untrustworthy, indeed misleading" E.J. MISHAN, INTRODUCTION TO NORMATIVE ECONOMICS, at 368.

[98] David Ellerman offers a unique critique of the attempt to separate efficiency and equity, David Ellerman, "*Numeraire Illusions: The Final Demise of the Kaldor-Hicks Principle*," *in* MARK WHITE ED., *THEORETICAL FOUNDATIONS OF LAW AND ECONOMICS*, Cambridge U.P. (2009) at 100-101 ("The key step in going from Paretian reasoning to the MPKH [the Compensation Principle] reasoning was the parsing of the total Pareto improvement into efficiency and equity parts using the criterion that equity compensations (paid in the numeraire) did not change the size of the social pie (measured using the same numeraire). But this is only what we have called the numeraire illusion: changes in the size of a yardstick cannot be revealed by using that same yardstick. The illusion is that attributes a description based on one numeraire (usually money, or abstractly, 'purchasing power') are misinterpreted as if they were numeraire-invariant attributes of the underlying situation being described").

The basic problem Kaldor set out to solve, to find a measure of efficiency that was independent of distribution, has no satisfactory remedy.[99]

H. Summary of the "Wisdom" of Welfare Economics for Antitrust Law

Before reviewing Judge Bork's arguments for adoption of consumer welfare as the sole goal of antitrust law, it is useful to summarize the "wisdom" that can be discerned from the giants in the economics field that are responsible for developing the field of welfare economics:

a. Consumer's surplus is a viable measure of consumer welfare if economists could actually measure utility in a cardinal manner. If cardinal utility is observed through money transactions, we also have to know the marginal utility of money for each individual. If we assume partial equilibrium, we further have to know if there are any important effects in interrelated markets.
b. Increased wealth, defined as GDP in market prices, is not necessarily coextensive with increased welfare. When some goods increase and others decrease, it impacts real distribution which then can have an independent impact on welfare.
c. Pareto Optimality has the advantage that it does not rely on cardinal utility and assumes that interpersonal comparison of utility is impossible. Unfortunately, it cannot evaluate situations where there are winners and losers. This renders it inapplicable to Antitrust Law.
d. Consumer's surplus can be measured using only ordinal utility. However, in this case, we lose the ability to add utility functions. Since antitrust law is concerned with markets, this drawback makes consumer surplus

[99] This problem certainly cannot be avoided by simply assuming that antitrust law is concerned with efficiency and distributional issues must be delegated to enforcement of other statutes. As A.K. Sen has commented, "if compensations are not paid, it is not at all clear in what sense it can be said that this is a social improvement. (Don't worry my dear loser, we can compensate you fully, and the fact that we don't have the slightest intention of actually paying this compensation makes no difference; it is merely a difference in distribution"). A.K. Sen, "*The Discipline of Cost-Benefit Analysis,*" 29 J. OF LEG. STU. 931, 947 (2000); Russell Pittman, "*Consumer Surplus as the Appropriate Standard for Antitrust Enforcement,*" Economic Analysis Group Discussion Paper (2007) at 5 ("I would argue, however, that it does not seem very satisfying or comforting to note that whenever total welfare increases, income redistribution policies *could* make everyone better off as a result – if in fact they do not. The 'compensation principle" does not pay the rent."). Indeed, people who make this claim never identify what other statutes are supposed to remedy the harm to distribution that Antitrust decisions cause. One reading of the current statutory laws by a prominent economist is that they are dominated by the interests of upper income individuals. PETER TEMIN, THE VANISHING MIDDLE CLASS PREJUDICE AND POWER IN A DUAL ECONOMY, MIT Press, (2017) at Chap. 7.

measured using compensating and equivalent variation inappropriate for antitrust law.

e. The Kaldor-Hicks compensation principle has been shown to be unreliable except in situations where utility possibility curves do not intersect. We can be sure that no such intersections exist only under highly unrealistic assumptions. The basic underlying problem is that efficiency and distribution (equity) cannot be separated in neoclassical welfare theory.

It is readily apparent that the history of welfare economics should have given antitrust lawyers pause before accepting Judge Bork's rendition of "consumer welfare" that has been his legacy. The consumer welfare standard was accepted for its conservative implications, not for its rigor.

II. Judge Bork on Consumer Welfare

We are now in a position to apply the wisdom of the welfare economists to Judge Bork's original claim that "consumer welfare" is, and should be, the sole goal of the antitrust laws. The most extensive discussion by Judge Bork on this topic is contained in Chapters 4 and 5 of the *Antitrust Paradox*.[100] It is therefore important to examine these two chapters carefully.

I. Judge Bork's Introduction to the Concept of Consumer Welfare

In Chapter 4, Judge Bork introduces the concept of consumer welfare. I quote from his chapter at length because it highlights the jumble of welfare concepts Judge Bork presents. In the opening paragraph Judge Bork says, "An understanding of the relationship of that behavior [business behavior] to consumer well-being can be gained only through basic economic theory." What follows is the definition of "consumer welfare" Judge Bork claims originates from his understanding of economics:

> Consumer welfare is greatest when society's economic resources are allocated so that consumers are able to satisfy their wants as fully as technological constraints permit. Consumer welfare, in this sense, is merely

[100] ROBERT BORK, THE ANTITRUST PARADOX A POLICY AT WAR WITH ITSELF, Basic Books, (1978).

> another term for the wealth of the nation. Antitrust thus, has a built-in preference for material prosperity, but it has nothing to say about the ways prosperity is distributed or used. Those are matters for other laws. Consumer welfare, as the term is used in antitrust, has no sumptuary or ethical component, but permits consumers to define by their expression of wants in the marketplace what things they regard as wealth.[101]

In the passage above, Judge Bork avers that "consumer welfare is greatest when society's economic resources are allocated so that consumers are able to satisfy their wants as fully as technological constraints permit." How should we understand this sentence? On its face it appears to say that economic resources are distributed so to maximize utility. Such an interpretation requires that we assume the existence of cardinal utility, and that the marginal utility of money is constant. If these assumptions were made explicit, lawyers and judges would likely reject Judge Bork's consumer welfare as unreliable. In the alternative, Judge Bork may mean simply that consumer welfare is greatest at a Pareto optimum where all voluntary trades are exhausted. In this case, consumer welfare would have such limited applicability it would lack relevance. It is hard to know which interpretation is correct because we are not told what Judge Bork intends by the words "maximize utility." Regardless of the interpretation, consumer welfare isn't maximized, utility is, implying that individual utility derived from producer activities and other life activities are relevant. Thus, this first sentence has no obvious consistent meaning.

In the next sentence, Judge Bork explains that "consumer welfare, in this sense, is merely another term for the wealth of the nation." This statement directly contradicts Pigou's analysis and the attendant literature.[102] Judge Bork follows with "Antitrust thus, has a built-in preference for material prosperity, but it has nothing to say about the ways prosperity is distributed or used." This is again contrary the findings of welfare economists. Judge Bork simply asserts, without evidence, that such a separation has been shown to be possible and consistent. Indeed, he concedes this a few pages later when he says, "Efficiency is at bottom a value concept not a description of mechanical or engineering operation."[103] By "value" one must assume he means "utility" which depends on ability to purchase goods and services, which in

[101] THE ANTITRUST PARADOX at 90.
[102] John Chipman and James Moore, "*Why an Increase in GNP Need Not Imply an Improvement in Potential Welfare*," 29 KYKLOS at 391-392 (1976).
[103] THE ANTITRUST PARADOX at 105

turn depends on distribution and prices. Again, Judge Bork's claims contradict what has been established by welfare economists.

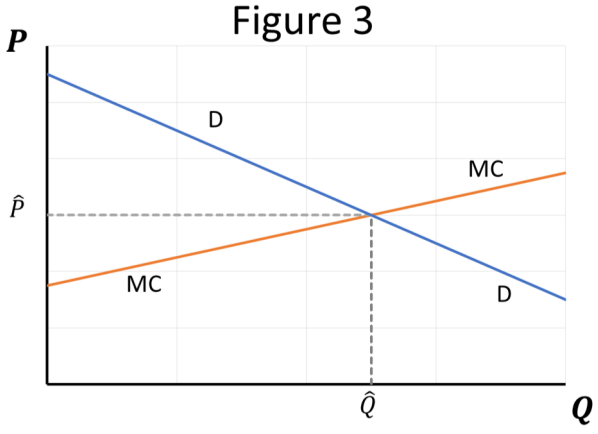
Finally, Judge Bork claims consumer surplus does not have "an ethical component." This is a strange pronouncement, since Judge Bork is relying on normative economic theory. Judge Bork concedes this point later in the chapter when he says, "Productive efficiency, like allocative efficiency, is a normative concept and is defined and measured in terms of consumer welfare."[104]

Judge Bork rhetorically asks the reader to consider how efficiency relates to antitrust enforcement. He answers that "The whole task of antitrust can be summed up as the effort to improve allocative efficiency without impairing productive efficiency so greatly as to produce either no gain or a net loss in consumer welfare." The words "allocative efficiency" and "productive efficiency" are evocative of Pareto's theory. In this context, improving allocative efficiency would not impact issues like market power, because trades are limited to those that do not harm the monopolist, which undermines the usefulness of this interpretation for Judge Bork. Instead, he may have in mind a description of the Williamson model that he addresses in Chapter 5. If this is the case he is seamlessly moving between Pareto and Marshall with no understanding of the profound theoretical differences between the two approaches.

J. Judge Bork's Description of Consumer's Surplus

Despite the introductory confusion, as chapter 4 unfolds Judge Bork begins to track Marshall's analysis, introducing readers to the concept of consumer's surplus. Figure 3 below reproduces Judge Bork's graph.

Figure 3



[104] *Id.*

The consumer's surplus is the area below the demand curve but above the price. The area is expressed in units of dollars, which assumes cardinal utility and a constant marginal utility of money. While Marshall makes his assumptions explicit, Judge Bork is silent in this regard. The chapter further explains that the area between the MC (supply curve) and the prevailing price is the measure of producer surplus. The supply curve represents how much a producer would be willing to produce at each price. The standard explanation for a rising supply curve is that as prices rise producers increase their profit margins, which in turn causes a movement of resources within the firm to production of the higher margin product.[105] Judge Bork doesn't recognize here that Marshall's supply curve is based on costs and are not a part of welfare analysis.[106]

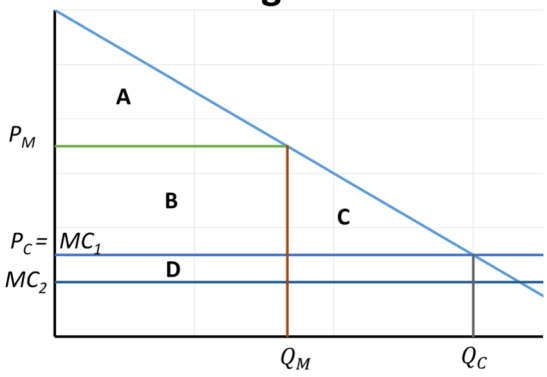
K. Judge Bork's Analysis of the Williamson Diagram

In Chapter 5 of the Antitrust Paradox, Judge Bork endorses the well-known Williamson diagram of the static impact of a merger. Interestingly, Judge Bork refers to this figure as the "consumer welfare diagram." This has been a source of confusion because the diagram introduced in chapter 5 clearly contains both consumer's surplus and producer's surplus, collectively, referred to by Judge Bork as consumer welfare.

[105] It is hard to square this story with the assumptions of perfect competition. If all markets consist of numerous small price taking firms, why are input prices rising? Judge Bork's explanation is as follows: "We infer a rising cost curve from the existence of more than one firm, since if marginal costs were level or declining, the firm would continually increase its rate of output until it occupied the entire industry." This is not a satisfying explanation. It merely means that "facts" have to be adjusted to maintain the consistency of a theory that we favor. There has been a long controversy concerning the theoretical consistency of Marshall's use of a rising supply curve. Marshall argued that supply must increase because of the existence of a fixed factor of production. Piero Sraffa argued that this raised several inconsistencies for perfect competition. Piero Sraffa, "*The Laws of Returns under Competitive Conditions,*" 36 ECON. J. 535 (1926); Avi Cohen, "*The Laws of Returns under Competitive Conditions: Progress in Microeconomics Since Sraffa (1926),*" 9 EAST. ECON. J. 213 (1983).

[106] According to Marshall: "We may then arrange the things that are required for making a commodity into whatever expenses of production when any given amount of it is produced are thus the supply prices of the corresponding quantities of its factors of production. And the sum of these is the supply price of that amount of the commodity." ALFRED MARSHALL, PRINCIPLES OF ECONOMICS, 8th Ed., Cosimo Press (2009) at 283.

Figure 4



The first thing to notice is that the Williamson model is a model of a market, not an individual. The demand curve is the market demand curve. The average cost curves are representative of the market, but only the merging parties' costs are assumed to be impacted. Prior to the merger the market is competitive and the consumer's surplus in the market is the area below the demand curve but above Pc. Once the merger occurs, the new entity raises price to Pm and reduces output from Qc to Qm. However, the merger also results in a cost savings because the marginal or average cost falls from MC_1 to MC_2. Thus, mergers involve a tradeoff.[107] As Judge Bork describes, the model "compares the 'dead-weight loss' (the amount above costs that consumers would be willing to pay for the lost output) to the gains to all consumers of cost reduction resulting from the merger. Cost reductions mean that the saved resources are freed to produce elsewhere in the economy."[108]

Judge Bork does not seem to notice that the Williamson model combines incompatible units of analysis. To see why, notice that the illustrated merger results in a loss of consumer surplus because the price increases from Pc to Pm. This implies that some utility has been lost to individuals participating in this market. To get this result Bork must again employ the Marshallian assumptions that (1) cardinal utility is measurable because we aggregate individual demand curve to obtain the market demand curve, (2) utility is measured in money and a constant marginal utility of money prevails, and (3) we assume no other market is impacted by the merger. Now

[107] Notice that the move back from the monopoly situation to the competitive situation would not be a Pareto optimal move. While consumers gain consumer surplus, the monopolist losses profit. There is no voluntary trade between these parties. The Kaldor-Hick compensation would justify a move from the monopoly market to the competitive market, because the gain in consumer surplus to the consumers in the competitive position is large enough (because it is equal to the monopoly profits and the dead weight loss) to compensate the monopolist for any losses (the monopoly profit) and still have a benefit left over (the dead weight loss transformed back into consumer surplus).

[108] THE ANTITRUST PARADOX at 108. Judge Bork's ascribed destination for the cost savings is conjecture.

consider the cost side of the merger. Costs decrease from MC_1 to MC_2 resulting in an increase in profits. These units are dollars that can be found on the income statement of the firm. They are not a direct monetary expression of utility as was assumed on the consumer side. However, for welfare analysis only utility counts. Marshall was aware of this problem, but Judge Bork is not. When introducing the supply price Marshall wrote:

> The simplest case of balance or equilibrium between desire and effort is found when a person satisfies one of his wants by his own direct work. When a boy picks blackberries for his own eating, the action of picking is probably itself pleasurable for a while; and for some time longer the pleasure of eating is more than enough to repay the trouble of picking. But after he has eaten a good deal, the desire for more diminishes; while the task of picking begins to cause weariness, which may indeed be a feel of monotony rather than of fatigue. Equilibrium is reached when at last his eagerness to play and his disinclination for the work of picking counterbalance the desire for eating. The satisfaction which he can get from picking fruit has arrived at its maximum: for up to that time every fresh picking has added more to his pleasure than it has taken away; and after that time any further picking would take away from his pleasure more than it would add.[109]

If the Williamson model was a measure of the utility from consumption plus the corresponding additional utility gained in production from the merger, the model would be consistent. But this is not the case. A lower average cost is not coextensive with producer utility. When merging parties' lower costs it is often the result of greater effort by labor or the result of cost saving layoffs. Both cases create disutility, not utility. One is hard pressed to credibly contend that increased labor hours, or greater unemployment improves welfare. The Williamson model assumes without any basis that the private profits of the monopolist are welfare increasing if they are not a result of a price increase.[110] This assumption favors the interests of big business over employee interests for no good reason.

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[109] MARSHALL, PRINCIPLES OF ECONOMICS, at 276.

[110] Steven Salop makes a similar point in *"Question: What is the Real and Proper Antitrust Welfare Standard? Answer: The True Consumer Welfare Standard,"* 22 LOYOLA CONS. L. REV. 336, 337

L. Area B in Figure 4: The Income Transfer between the Consumers and the Monopolist

Judge Bork next contends that the income distribution effect, or the transfer of income from the consumers who do not switch to other substitutes, which is area B in Figure 4, is not important for antitrust purposes. Judge Bork's reasoning is that the monopolist and the end consumers should be collectively considered as part of the consumer class. As he says, "Those who continue to buy after a monopoly is formed pay more for the same output, and that shifts income from them to the monopoly and its owners, who are also consumers."[111] Robert Lande has been most outspoken in challenging Judge Bork conclusion. He has argued that the reason Congress did not want monopolists to raise prices is precisely because of this income transfer. According to Lande, Congress wanted to establish a property right in the competitive price. Thus, he distinguishes between consumers who purchase goods and services and the firms with market power that produce and sell them. His argument is simply that Congress wanted to prevent the transfer of income from one group to the other. Professor Lande's analysis is open to the question why society should care about income transfers between monopolists and others? What overall social goal is being advanced? One such goal is simply to prevent the negative social consequences from income inequality.[112] In 1890, the "trusts" represented a small group of large advanced firms while over 90% of the population was agricultural workers, blue-collar workers and service workers.[113] It makes sense that a Congressman or Senator in 1890, representing one of these groups would view the issue of higher prices as one of distribution between classes or segments of classes.[114]

(2010) ("the merger to monopoly would pass muster under the aggregate economic welfare standard if costs were reduced sufficiently to raise the selling firm's profits by more than the total aggregate harm to consumers."); Jonathan Baker and Steven Salop, "*Antitrust, Competition Policy, and Inequality*," (2015) American Univ. Washington College of Law Working Paper 41.

[111] THE ANTITRUST PARADOX at 110.

[112] This would be consistent with Sherman's March 21, 1890 statement in the Senate debate that: "The popular mind is agitated with problems that may disturb social order, and among them all none is more threatening than 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 to break down competition." HANS THORELLI, THE FEDERAL ANTITRUST POLICY, Johns Hopkins Press (1955) at 180.

[113] ROBERT GORDON, THE RISE AND FALL OF AMERICAN GROWTH, Princeton U.P. (2016) at 53; Barak Orbach, "*The Antitrust Consumer Welfare Paradox*," Arizona Legal Studies Discussion Paper (2011) at 163 ("The term 'consumer' is conceptually confusing in various contexts. In many transactions, the identity of the parties as 'consumers' is arbitrary and subject to social traditions and marketing strategies.").

[114] Gerard Dumenil, Mark Glick, and Dominique Levy, "*The History of Competition Policy as Economic History*," 1997 ANTITRUST BULLETIN 373 (describing the political rivalry of classes that shaped early

Judge Bork next takes up the argument raised by Judge Posner that the income transfer or monopoly profits are deadweight losses because they are spent unproductively trying to achieve the monopoly in the first place.[115] Judge Bork correctly rejects this view, but for the wrong reason.[116] Judge Bork argues that any costs of achieving a monopoly are "wasted and may be added to the dead-weight loss."[117] This is not true. There is no basis in welfare economics for treating an income transfer as a cost. Suppose a firm achieves monopoly power through extensive use of advertising. We cannot transform the revenues of the advertising industry into a cost. The reason is that the "value" of the advertising revenue is based on consumer demand, like any other market. Put another way, the advertising contracts were the result of voluntary exchange, which by their nature are Pareto improving. The same logic would apply to lobbyists, the legal profession, or any other services that aid in achieving monopoly power. There are no coherent grounds to label goods and services that are demanded (and thereby satisfy preferences) as "wasted." Neoclassical economics does not allow one to look behind preferences and classify some goods and services "waste" and others as "value" based on the purpose of the preferences.[118] As Michael Mandler observes "contemporary economics relinquishes any attempt to specify the motives underlying choice. Preference itself is now the primitive element of consumer theory; there is no need to peer into agents' psyches."[119]

M. Judge Bork's Legislative History Argument for the Consumer Welfare Standard

Even if one were to accept Judge Bork's conclusion that in 1890 Congress intended to adopt consumer welfare as its legislative goal, it is unlikely that Congress would have adopted Judge Bork's unsupportable interpretation of welfare

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competition policy). Lena Khan, "*Amazon's Antitrust Paradox*," 126 YALE L.J. 710, 737 (2017) ("It betrays legislative history, which reveals that Congress passed antitrust laws to promote a host of political economic ends-including our interests as workers, producers, entrepreneurs, and citizens.").

[115] Richard Posner, "*The Social Costs of Monopoly and Regulation*," 83 J. POL. ECON. 807 (1975); Herbert Hovenkamp, "*Antitrust Policy and the Social Cost of Monopoly*," 78 IOWA L. REV. 371 (1993); William Page, "*Optimal Antitrust Penalties and Competitors' Injury*," 88 MICH. L. REV. 2151 (1990).

[116] Judge Bork says that labelling the income transfer as dead weight loss does not change any rules.

[117] THE ANTITRUST PARADOX at 113.

[118] ROBERT COOTER & THOMAS ULEN, LAW AND ECONOMICS, 23 (1988) ("Economists leave to other disciplines, such as psychology and sociology the study of whence these preferences came. We take them as given"). Mark Glick "*Is Monopoly Rent Seeking Compatible with Wealth Maximization?*" 3 B.Y.U. L. R. 499 (1994).

[119] MICHAEL MANDLER, DILEMMAS IN ECONOMIC THEORY, PERSISTING FOUNDATIONAL PROBLEMS OF MICROECONOMICS, Oxford U.P. (1999) at 78.

economics. It is more likely that Congress did not intend to rely on welfare economics at all. Indeed, 1890 the year the Sherman Act was signed into law was also the year that Alfred Marshall first introduced the concept of consumer's surplus to English speaking audiences. In the United States, at the turn of the century, American economists were largely institutional economists that rejected neoclassical welfare economics. The American institutionalists focused on empirical factual analysis and for the most part opposed abstract theoretical constructs like consumer's surplus or utility.[120] Most American economists also opposed the Sherman Act on the grounds that large firms were subject to "ruinous competition" and cartels were a rational market response to this phenomena.[121] The views of the American economists at the time had empirical support. Large firms in the 1880s had broken down traditional geographic market barriers, but produced largely homogeneous products that competed exclusively on price.[122] Throughout the late 19th century in the United States, the corporate profit rate fell and there were declining industrial prices.[123] It was not until the 1920s that the advertising revolution led to the prevalence of branding of heterogeneous products that the "ruinous competition" problem was put to rest.

Judge Bork's legislative arguments assume that when Congressman used the words "free competition," or sought to "prevent higher prices," they meant to import the theory of welfare economics.[124] Judge Bork is correct that the legislative history reveals concern about rising prices, but he goes too far when he suggests:

> Though the economist of our day would describe the problem of concern to Sherman differently, as a misallocation of resources brought about by a restriction of output rather than one of high prices, there is no

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[120] ALESSANDRO RONCAGLIA, THE WEALTH OF IDEAS: A HISTORY OF ECONOMIC THOUGHT, Cambridge U.P. (2016) at 303-306.

[121] Herbert Hovenkamp, "*The Antitrust Movement and the Rise of Industrial Organization*," 68 TEX. L. R. 105 (1989) (reviewing the views of American economists on antitrust issues at the turn of the century); James May, "*Antitrust in the Formative Era: Political and Economic Theory in Constitutional and Antitrust Analysis*, 1880-1918", 50 OHIO STATE L.J. 257, 284-286 (1989); Thomas Hazlett, "*The Legislative History of the Sherman Act Re-examined*," 30 ECON. INQUIRY 263 (1992).

[122] In other words, there was Betrand Competition with homogeneous products where firms competed until price was equal to marginal cost. In the presence of high fixed costs this can mean price falls below average cost.

[123] Gerard Dumenil, Mark Glick and Dominique Levy, "*The History of Competition Policy as Economic History*," 1997 ANTITRUST BULLETIN 373, 375-377.

[124] Judge Bork argues that the fact that no statements in the legislative record suggest that any values were advanced that contradicted the concept of consumer welfare, this confirms the case that "consumer welfare" must be the sole objective of the Sherman Act.

> doubt that Sherman and he would be talking about the same thing.[125]

Several scholars have forcefully challenged Judge's Bork's reading of the legislative history of the Sherman Act. Since there is no direct evidence that "any legislator understood that monopoly pricing causes allocative inefficiency", Robert Lande makes the case that the motivation behind statements about lower prices are better understood as a concern about income transfer.[126] Lande points out that Senator Sherman and others made several statements to the effect that lower costs are also an important goal of the Sherman Act.[127] In his review of the debate between Judge Bork and Professor Lande, Herb Hovenkamp concludes that "Lande clearly appears to have the better supported argument. Senator Sherman's own view was that a combination that resulted in higher prices to consumers would not be exempt even though it reduced production costs as well."[128]

Judge Bork is aware that Congress adopted the language of the common law. The statute itself prohibits "restraints of trade," which is language lifted from the common law that was imported from England at the time of the American Revolution. However, unlike the common law, Judge Bork interpreted the phrase "restraint of trade" as equivalent to "output restriction." Among others, Christopher Grandy criticizes this move. According to Professor Grandy, "The overwhelming number of cases involved contracts or combinations of individuals to prevent someone from practicing his trade or business. The doctrine almost always focused on the producer, not the consumer. Thus, a common-law interpretation undermined Bork's position."[129] Andrew Kleit supports Judge Bork by arguing that because the common law is "efficient," therefore use of the words of the common law shows endorsement of an efficiency goal.[130] However, not all of the common law of

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[125] *Id.* at 16.

[126] Robert Lande, "*Wealth Transfers as the Original and Primary Concern of Antirust: The Efficiency Interpretation Challenged*," 34 HASTINGS L.J. 65, 88 (1982-1983); Jonathan Baker and Steven Salop, "*Antitrust, Competition Policy, and Inequality*," (2015), Working Papers, Paper 41, at 9 (describing how market power can increase income inequality.).

[127] *Id.* at 91 ("As Senator Sherman pointed out in qualification of his praise for efficiency, '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 cast goes to the pocket of the producer'"); *Id.* at 94 ("during the debates Senator Sherman termed monopolistic overcharges 'extortion which makes the people poor' and 'extorted wealth'"). Further, Lande cites evidence that "Congress also expressed concern for preserving business opportunities for small firms." *Id.* at 101.

[128] Herbert Hovenkamp, "*Antitrust's Protected Classes*," 88 MICH. L. R. 1, 23-24 (1989);

[129] Christopher Grandy, "*Original Intent and the Sherman Antitrust Act: A Re-examination of the Consumer-Welfare Hypothesis*," https://www.cambridge.org/core at 362.

[130] Andrew Kleit, "*Common Law, Statute Law, and the Theory of Legislative Choice: An Inquiry into the Goal of the Sherman Act*," 31 ECON. INQUIRY 647 (1993).

monopolies can be given an efficiency interpretation. For example, the common law prohibition on monopolies in the production of the necessities of life prevents market power in goods with low elasticity where dead weight loss would be low, but no prohibition on monopolization of goods with higher elasticities where dead weight loss would be larger.[131] An efficiency rule would have prohibited the monopolization of goods with the higher elasticities, not the lower.

Thomas Hazlett has also challenged Judge Bork's assertion that the 51st Congress that passed the Sherman Act was concerned with consumer welfare, and dead-weight loss by examining other bills passed by the same Congressional individuals:

> It is at this point that we should seek out some evidence to separate these competing interpretations of the Sherman Act [*Bork v. Learned Hand*]. Fortuitously, Sherman and the 51st Congress provide just such an issue to serve as a test: 'The most important measure adopted during this Congress' wrote Sherman in his autobiography, 'was what was popularly known as the McKinley Tariff Law'. Passed on October 1, 1890, the tariff was 'a matter of constant debate in both houses' between 1883 and 1890, as opposed to the monopoly law, which came and went with little discussion. Whatever cross-currents were evidenced in the analysis of the trust question, the tariff was then well understood as a restriction of output resulting from dead-weight loss.[132]

Hazlett's point is simply that it would make little sense to pass the Sherman Act if its aim was to reduce dead weight loss, and then pass the McKinley Tariff in the same year which would increase dead weight loss by raising import prices. In sum, Judge Bork's case for congressional intent to pass a statute based on consumer welfare is unavailing. He presents a contradictory discourse to explain consumer welfare and his legislative evidence is thin at best. Nonetheless, he is probably the most highly cited scholar in antitrust. The reasons for this disconnect are clearly political not academic.

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[131] HANS THORELLI, THE FEDERAL ANTITRUST POLICY, The Johns Hopkins Press, (1955) at 46-47; RUDOLPH PERITZ, COMPETITION POLICY IN AMERICA 1888-1992, Oxford U.P. (1996) at 21. Although this doctrine appears to have had limited influence in the United States.

[132] Thomas Hazlett, "*The Legislative History of the Sherman Act Re-Examined,*" 30 ECON. INQUIRY 263 (1992).

Conclusions

There is evidence of a sea change in antitrust scholarship. As Daniel Crane demonstrates in a recent paper, both liberal and conservative scholars have begun to reject the narrow goals ushered in by Judge Bork in the late 1970s.[133] The New Brandeisian criticism focuses on how enforcement driven by the consumer welfare standard has been inadequate and has resulted in serious economic concerns.[134] These concerns were recently summarized in a Council of Economic Advisor's report in 2016 authored by Jason Furman. Furman shows that if one compares the economic situation in the United States before 1980 when antitrust enforcement was strong, with the weaker enforcement period dominated by the consumer welfare goal after 1980, one finds several significant changes. Furman shows that in the later period concentration was higher, there was less entry, job creation declined, wages declined, and real investment declined among other changes.[135] While I would argue that these changes are part of a broader evolution of the U.S. economy after 1980, the correlation between these economic problems and Judge Bork's consumer welfare policy is stark. What the consumer welfare standard plausibly did was to make it more difficult for plaintiffs to raise, and judges to consider, the broader economic implications of changes in business practices.[136] The goal of consumer welfare narrowed the inquiry that courts thought permissible when evaluating antitrust cases. If one follows Judge Bork, a court should consider only the impact of the challenged conduct on immediate prices to consumers, but even in this case, the court can consider the offsetting impact of raising corporate profits (Judge Bork's efficiency).

This paper has not considered the effects of Judge Bork's influence on antitrust policy. That will be addressed in Part II of this project. Instead, the goal of this paper was to show that Judge Bork never offered a coherent goal for antitrust in the first place. Judge Bork's actual explanation of what he means by "consumer welfare" is unclear and contradictory. In particular, Judge Bork seems unaware that

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[133] Daniel Crane, "*Antitrust's Unconventional Politics*" forthcoming, VIRGINIA LAW REVIEW ONLINE.

[134] Lina Kahn, "*The New Brandeis Movement: America's Antimonopoly Debate,*" 9 J. OF EUR. COMP. LAW & PRAC. 131 (2018); "*Powerless: How Law Antitrust and Concentrated Market Power Exacerbate and Reinscribe Racial Inequality,*" RooseveltInstitute.Org (2018); H.R. 4686: 21st Century Competition Commission Act of 2017.

[135] A similar prognosis can be found in Marc Jarsulic, Ethan Gurwitz, Kate Bahn, and Andy Green, "*Reviving Antitrust: Why Our Economy Needs a Progressive Competition Policy,*" CENTER FOR AMERICAN PROGRESS, June 2016.

[136] William Curran, recognizing this effects states that "certainly, a repudiation of Bork's theory would begin a democratically restorative process," William Curran, "*Commitment and Betrayal: Contradictions in American Democracy, Capitalism, and Antitrust Laws*," 61 ANTITRUST BULL. 236, 247 (2016).

he raises issues that have been studied by welfare economists for more than one hundred years prior to the publication of the *Antitrust Paradox*. He therefore ignores or is ignorant of the analysis that these economic pioneers have left us. Instead, Judge Bork cloaks himself in a vision of economic theory that doesn't exist, and never existed. My point is that on the merits alone, independent of its economic impact, Judge Bork's consumer welfare standard should be rejected.