The Antitrust Bulletin

VOL. XLVI, NO. 4/WINTER 2001

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Special Issue: Reviewing History, Concepts, and Antitrust Fundamentals

Harmonizing antitrust worldwide by evolving to Michael Porter's dynamic productivity growth analysis

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I. Introduction

This article argues that there is an unprecedented opportunity, and need, for antitrust to evolve beyond the static efficiency economics that has dominated antitrust analysis for about 20 years to the next level, a dynamic economics focused on productivity and productivity growth that has just been published by Harvard economist and business school professor Michael Porter in *Competition and Antitrust: Toward a Productivity-Based Approach to Evaluating Mergers and Joint Ventures*.[1]

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[1] In this issue of the *Antitrust Bulletin* [hereinafter Porter article; quoted without page citations]. An earlier version of Porter's article and my *An Evolution of Merger-JV Analysis: The Productivity Paradigm as a Positive Antitrust Policy for Competitiveness and Prosperity,* appears *in* AMERICAN BAR ASSOCIATION, PERSPECTIVES OF THE TASK FORCE ON FUNDAMENTAL THEORY (2001), available on the Web at <www.abanet.org/antitrust>) (the author was a member of the ABA Task Force). This article is an extension of my paper in this ABA book, and my articles *Can Japan Compete?: Empirical Findings Just in Time for International Antitrust Policy*, 46 ANTITRUST BULL. 569 (2001); *A "New" Rule of Reason from Justice Bran-*

Static efficiency economics alone is "dangerously incomplete," Porter and his co-authors demonstrate in a recently published 8-year empirical study of Japan.[2] In its place, Professor Porter has applied the "rigorous and useful frameworks for understanding competition"[3] that he has developed over the last 25 years (largely unknown in detail to antitrust practitioners), and proposes both a dynamic economic theory (referred to here as the productivity paradigm)[4] that is fully consistent with the basic goal of antitrust policy, and a new method of antitrust analysis for mergers and the rule of reason.[5]

Professors Sullivan and Grimes recently described the specialized world of antitrust as having almost "universal agreement" that the goal of antitrust should be to "strive for the *efficient allocation of society's available goods and services.*"[6] Porter turns this world upside down. "My view is that we must turn this ranking of the goals of antitrust on its head."[7] Not because antitrust is irrelevant to today's new economy, but, to the contrary, it is Porter's view that antitrust is "more crucial than ever in an economy characterized by dynamic competition," but that current antitrust policy's adoption of static efficiency economic theory is insufficient. In his words, the "current approach to antitrust is

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deis' "Concentric Circles" and Other Changes in Law, 44 ANTITRUST BULL. 881 (1999) (ATB Symposium).

[2] M. PORTER, H. TAKEUCHI & M. SAKAKIBARA, CAN JAPAN COMPETE? xv (2000).

[3] PORTER, ON COMPETITION 1–2 (1998).

[4] The term "productivity paradigm" is mine. *See* section III for more detail.

[5] Its application to the rule of reason is beyond the scope of this article. For an incisive summary of current rule of reason law, *see* Kolasky, *California Dental Association v. FTC: The New Antitrust Empiricism*, ANTITRUST, 1999, at 68.

[6] L. SULLIVAN & W. GRIMES, THE LAW OF ANTITRUST 12 (2000).

[7] *Innovation, Rivalry, and Competitive Advantage: Interview With Professor Michael E. Porter*, ANTITRUST, Spring 1991 at 5. *Accord* Porter article, *supra* note 1.

based on questionable foundations," with the "dubious goal" of "[l]imiting price/cost margins or profitability," so that, for example, current merger analysis is "hamstrung" in two ways, first, "by an unclear and questionable central goal" of "limiting elevation of price over cost," and second, by a "process built on [Herfindahl-Hirschman index] HHI, a questionable measure of competition."

In theory, Porter's views that dynamic competition and innovation are far more important than static efficiency are widely shared and not controversial. The problem is that in practice there has not been a credible dynamic theory of economics to use, there has only been static efficiency economics.

With Porter's article, it is suggested, this is no longer the case. Porter's article presents a robust dynamic economic theory of competition based on 25 years of empirical and theoretical work. As the goal of antitrust, it substitutes productivity growth for static allocative and technical efficiency, reasoning from first principles that "the role of competition is to increase a nation's standard of living via rising productivity," and therefore "*the new standard for antitrust should be productivity growth*, rather than limiting price/cost margins or profitability."

As to antitrust analysis itself, Porter's article reasons that we "should not be debating the size of the company, the market definition, nor what the 'correct' HHI should be," but, instead, "should be debating the merger or joint venture's impact on productivity growth and on the health of competition, using tools that capture the reality faced by firms." To do this, his new antitrust analysis uses two core components.

First, an analysis of competition directly, using two tools widely-used outside antitrust, five forces analysis of all relevant markets and diamond analysis of "clusters" of local competition. (Remarkably, and as an indication of how different this analysis is, it does not require the determination of a relevant market.)

Second, if a substantial adverse effect on competition is so demonstrated, a risk/reward analysis of productivity growth versus the threat to competition.

Porter's new antitrust analysis also includes a 50% safe harbor for mergers and other combinations in any hypothesized relevant market, so that combinations equal to or under 50% in any plausible market require no further analysis.

His new analysis also includes two baseline measures, first, a productivity growth baseline, and second, an historical measure of the intensity of competition using the Market Share Instability index (MSI). These two measures are applied to both the relevant markets involved, and to the parties to the merger or other combination.

Significantly, Porter's new antitrust analysis builds on existing microeconomic, macroeconomic and other ideas. But make no mistake, Porter's antitrust analysis is fundamentally different from current antitrust analysis. No relevant markets. No HHIs. No concentration theory. No focus on static price increases or profitability. No efficiency theory assumptions that raising prices 5%, increased market power or profitability are the same as the legal issue of substantially lessening competition. In short, it is best understood by realizing at the outset that it is as different as starting from the sun, not the Earth, to understand the motion of the planets.[8]

Finally as a litigation matter, Porter's five forces, diamond analysis and other new tools of antitrust analysis are well-suited to improving antitrust litigation through, for example, special verdicts and interrogatories under Federal Rule of Civil Procedure 49 and new jury instructions and jury verdict forms, as well as to

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[8] Porter's analysis exemplifies the shift from an analysis of parts to an analysis of the whole. As a method of analysis, Peter Drucker has identified a modern sea change in methods of thinking from parts to wholes, from the "Cartesian view of the universe, in which the accent has been on parts," to a "configuration view, with the emphasis on wholes." P. DRUCKER, THE AGE OF DISCONTINUITY 350 (1968). Porter's antitrust analysis is analysis of the competitive process as a whole, and thus advances antitrust analysis from a microanalysis of each word in Clayton Act § 7, for example, to an analysis of the statute as whole, "whether a combination substantially lessens competition in any line of commerce in any section of the country."

meeting the new requirements for expert evidence under the *Daubert* quartet.[9]

This article first reviews the special importance of antitrust internationally today, describes Porter's dynamic economic theory, the productivity paradigm, sets forth a trial lawyer and antitrust practitioner's rendering of Porter's new antitrust analysis, and concludes with a discussion of selected issues.

In summary, it is suggested that antitrust for the first time in the 100+ year history of the federal antitrust laws has a rigorous, empirical, disciplined, practical and understandable method of analyzing real world competition, including innovation, itself.

II. The special importance of antitrust internationally today

Since 1980, antitrust has changed dramatically from being essentially an American phenomenon to the law in more than 100 countries.[10] However, there is no uniformity in either the substance or procedure of antitrust in all these countries around the world. As a substantive policy matter, economic efficiency theory has been adopted as policy in the United States and in a number of countries over the last 20 years, but price theory is only one of at least seven antitrust policies in use around the world.[11] The

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[9] As a litigation matter, I have shown elsewhere that the merger presumption, concentration theory and unilateral effects theory in the current merger and collaboration guidelines and case law is likely to lose in court if effectively challenged. *See* Weller, *An Evolution of Merger-JV Analysis*, *supra* note 2; Weller, *The Litigator's Guide to the* Daubert *Quartet*, 1 BNA EXPERT EVIDENCE REPORT 62 (Sept. 10, 2001). Further, it seems likely that the FTC's recent *Baby Foods* merger case victory based on concentration theory and the merger presumption is likely to accelerate these challenges in court. FTC v. Heinz, 116 F. Supp. 2d 190 (D.D.C. 2000), *rev'd*, 246 F.3d 708 (D.C. Cir. 2001).

[10] There are "over 80 antitrust regimes in the world and another two dozen in the making." Cowell, *Seeking a Common Rule Book for International Mergers*, N.Y. TIMES, Jan. 1, 2001, at BU-4.

[11] C.F. Rule & D.L. Meyer, *An Antitrust Enforcement Policy to Maximize the Economic Wealth of All Consumers*, 33 ANTITRUST BULL. 677,

powerful siren's call of a numerical antitrust is very much alive in the U.S., as the *Heinz Baby Foods* merger decision poignantly underscores,[12] and the fact that currently a number of other countries are actively considering a simple numerical test of 35% or so to define "market dominance,"[13] even though it now seems clear there is no reliable basis for it.[14] Numbers are especially tempting when there is no credible alternative method of analyzing competition. As a result, even though the need to harmonize antitrust policy worldwide is widely recognized, convergence remains illusive.

At the same time, coincidentally, over the same 20-year period, there has been a change in the economy unprecedented in human history. "[K]nowledge," Peter Drucker explains, has become "*the* primary resource for individuals and for the economy overall."[15]

"Since a babe was born in a manger, it may be doubted whether so great a thing has happened with so little stir," borrowing Alfred North Whitehead's wonderful description of the birth of modern reasoning in the 1600s.[16] People and ideas, not plants, equipment

679 (1988); ABA SECTIONS OF ANTITRUST LAW & INTERNATIONAL LAW AND PRACTICE, THE INTERNATIONALIZATION OF COMPETITION LAW RULES: COORDINATION AND CONVERGENCE (Dec. 1999); INTERNATIONAL COMPETITION POLICY ADVISORY COMMITTEE (ICPAC), FINAL REPORT (Feb. 2000) (seven models described at 22–35); *International Merger Control*, ANTITRUST 2001, at 2.

12 *See* note 9, *supra*.

13 Based on personal observation.

14 Harris & Smith, *The Merger Guidelines v. Economics: A Survey of Economic Studies*, ANTITRUST REP., Sept. 1999, at 23.

15 P. DRUCKER, MANAGING IN A TIME OF GREAT CHANGE 75 (1995). *See also* P. DRUCKER, THE AGE OF DISCONTINUITY (1968); *Talking About Tomorrow: Peter Drucker*, WALL ST. J., Jan. 1, 2000, at E1 ("economics makes three assumptions that are no longer tenable . . . One is that the national economy is a unit of activity in which monetary and tax policy determines the behavior of both individuals and businesses. Secondly is the scarcity axiom. The third one is that if you sell something you alienate it, you have lost it. None of these is valid anymore.").

16 A. WHITEHEAD, SCIENCE AND THE MODERN WORLD 3 (1925; Free Press 1967).

and natural resources, have become the primary resource for the economy. The implications of a knowledge economy for antitrust and generally are difficult to overstate. Among them, "the potential for wealth is limitless," because wealth "is based on ideas and insights, not fixed because of scarce resources."[17]

Thus, harmonizing antitrust worldwide in a way that is consistent with a new global knowledge economy, and, in a task made more urgent and important by the terrorist attacks in the U.S. in September 2001, in a way that celebrates the world's unique civilizations rather than promotes a Clash of Civilizations,[18] requires the next level of economic and antitrust analysis. Professor Huntington in *The Clash of Civilizations* recently warned that we stand at a crossroads, with one road involving "clashes of civilizations" as the "greatest threat to world peace," and the other road involving the recognition and celebration of various unique civilizations, including Islamic, Western and others, as "the surest safeguard against world war."[19]

Fortuitously, Michael Porter's dynamic productivity growth analysis, it is submitted, provides the new model needed. It involves "a radical shift from previous conceptions of the sources of wealth," where it is commonly thought that a *comparative advantage* of natural resources and cheap labor was determinative, but under this new dynamic theory it is *competitive advan-*

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[17] M. Porter, *Attitudes, Values, Beliefs, and the Microeconomics of Prosperity*, *in* CULTURE MATTERS 14, 21 (L. Harrison & S. Huntington eds., 2000).

[18] *See, e.g.*, S. HUNTINGTON, THE CLASH OF CIVILIZATIONS AND THE REMAKING OF WORLD ORDER (1996).

[19] *Id.*, at 321. He also identifies two special problems for the U.S. and Western civilization, multiculturalism and universalism. Multiculturalism is a problem because it rejects Western civilization as a unique civilization as if it does not exist or have distinct value, which "means the end of the United States of America as we have known it" and "effectively the end of Western civilization." The second problem is universalism, defined as the "belief in the universality of Western culture," which in a world of unique civilizations is "dangerous," "immoral," "false," and thus unnecessary. *Id.* at 306–07, 310.

the market's "capacity to stimulate and take advantage of advancing technology":

> Had the triumph of the market meant only a more efficient use of the technologies and resources then available, the gains in living standards would have been minuscule by comparison. What made the difference was the stimulation and harnessing of new technologies and resources.[22]

There is, indeed, a rich economic literature on productivity and innovation, recently summarized by Porter and Stern:

> Bush (1945) provided an early and eloquent rationale for sustained public investment in the nation's science and technology base. The centrality of innovation in economic growth has been appreciated since the seminal contributions of Schumpeter (1943), Solow (1956) and Abramovitz (1956). Rosenberg, however, was the first to identify how innovative activity of the macroeconomy was inherently the result of more microeconomic processes and their interaction with the environment and national institutions (Rosenberg, 1963; 1982). Building on such early work Nelson (1993), among others, focuses on the elements of the national innovation system (most closely resembling our concept of the common innovation infrastructure described below) while Porter (1990; 1998) conceptualizes the critical importance and workings of clusters and their role in innovation and competitiveness. This work also links these more microeconomic-oriented approaches to the macroeconomic approach employed by Romer (1990; 1996), who focuses on the relationship between the "ideas" sector of the economy and the overall process of productivity growth in the economy. For a more detailed discussion of the motivation for this work and its relationship to prior studies in the economics of technological change, see Stern, Porter, and Furman (1999) and Porter and Stern (1999).[23]

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[22] C. SCHULTZE, THE PUBLIC USE OF PRIVATE INTEREST 25 (1977). Peter Drucker has identified the same fundamental limitation of economic theory: "Historically, economic theory has started out with the present arrangement of forces and projected from it. This assumes that the structure of the future is identical with the structure of the present. There is no room in such a projection for true change such as genuine innovation brings about." DRUCKER, AGE OF DISCONTINUITY, *supra* note 15, at 145. *See generally* P. DRUCKER, INNOVATION AND ENTREPRENEURSHIP (1985).

[23] M. PORTER & S. STERN, THE NEW CHALLENGE TO AMERICA'S PROSPERITY: FINDINGS FROM THE INNOVATION INDEX 12 n.1 (1999). The full citations are: Moses Ambramowitz, *Resource and Output Trends in the United States since 1870*, 46 AM. ECON. REV., 5 (1956); Vannevar Bush,

Yet, to date, there has been no dynamic economic theory that can be applied to antitrust law and litigation, or generally. Similar to the problem Galileo and Newton faced 400 years before, there is no rigorous and practical economic theory of change. There is an impressive *static* economic theory, but, in MIT economist Franklin Fisher's blunt words, "fascination with [static] equilibrium is, I believe, a central failing of modern economic theory," as the theory is "so powerful and so aesthetically appealing" that economics has "lost sight of the fact that we typically have no satisfactorily rigorous theory of how, or even if equilibrium is attained," with an "unfortunate, if understandable, mindset that stops at equilibrium" that "pervades all of economics."[24]

The problem is that there is no similarly powerful and "aesthetically appealing" economic theory of change.

It is suggested here, however, that Michael Porter has actually developed an economic theory of change, referred to here as the productivity paradigm,[25] that is a superior alternative to static

SCIENCE: THE ENDLESS FRONTIER (1945); Richard Nelson, ed. NATIONAL INNOVATION SYSTEMS: A COMPARATIVE ANALYSIS (1993); M.E. PORTER, THE COMPETITIVE ADVANTAGE OF NATIONS (1990); Porter & Stern, *Measuring the 'Ideas' Production Function: Evidence from International Patent Output*, mimeo, MIT Sloan School (1999); Romer, *Endogenous Technological Change*, 98 J. POL. ECON., S71 (1990); Romer, *Why, Indeed, in America? Theory, History, and the Origins of Modern Economic Growth*, 86 AM. ECON. REV., 202 (1996); Rosenberg, *Technological Change in the Machine Tool Industry, 1840–1910*, 23 J. ECON. HISTORY, 414 (1963); ROSENBERG, INSIDE THE BLACK BOX: TECHNOLOGY AND ECONOMICS (1982); JOSEPH SCHUMPETER, CAPITALISM, SOCIALISM, AND DEMOCRACY (2d ed. 1943); Solow, *A Contribution to the Theory of Economic Growth*, 70 Q. J. ECON., 65 (1956); Solow, *Technical Change and the Aggregate Production Function*, 39 REV. ECON. & STATISTICS, 312 (1957); Stern, Porter & Furman, Why Do Some Countries Produce So Much More Innovative Output than Others? Determinants of International Patent Production, mimeo, MIT Sloan School (1999).

[24] F. FISHER, INDUSTRIAL ORGANIZATION, ECONOMICS AND THE LAW xiii (1991).

[25] There is a vast empirical and theoretical literature on the productivity paradigm, including Porter's 16 books and nearly 100 articles. The Institute for Strategy and Competitiveness was established at Harvard

efficiency economics for antitrust. It can be described with nine elements:

Standard of living

Productivity

Innovation

Political and macroeconomic context

Two types of productivity

Two types of competition

Five forces analysis of competition

Diamond analysis of the business environment

The individual firm.

A. *Standard of living*

Standard of living, used here synonymously with prosperity,[26] includes wages, reducing income inequality, environmental qual-

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Business School in June 2001, and has extensive information available at <http://www.isc.hbs.edu>. Two recent publications that are useful are PORTER ET AL., *supra* note 2 and Porter, *supra* note 17. Key works in chronological order include Porter, *How Competitive Forces Shape Strategy*, HARV. BUS. REV., 1979 at 137; COMPETITIVE STRATEGY (1980); COMPETITIVE ADVANTAGE (1985); THE COMPETITIVE ADVANTAGE OF NATIONS (1990); ON COMPETITION (1998); articles reprinted in *Michael Porter on Competition, ATB Symposium, supra* note 1, at 841; *The Microeconomic Foundations of Economic Development*, and *Measuring The Microeconomic Foundations of Economic Development*, 1998 GLOBAL COMPETITIVENESS REPORT 38, 50 (1998 GCR); *Microeconomic Competitiveness: Findings from the 1999 Survey*, 30 (1999 GCR); Porter & Bond, *Innovative Capacity and Prosperity: The Next Competitiveness Challenge*, 54 (1999 GCR); 2000 GCR (various articles); M. PORTER & S. STERN, THE NEW CHALLENGE TO AMERICA'S PROSPERITY: FINDINGS FROM THE INNOVATION INDEX (1999); M. PORTER & D. VAN OPSTAL, U.S. COMPETITIVENESS 2001 (2001); Sakakibara & Porter, *Competing at Home to Win Abroad: Evidence from Japanese Industry*, 83 REV. ECON. & STATISTICS 310 (2001). On antitrust; *see Innovation, Rivalry, and Competitive Advantage: Interview With Professor Michael E. Porter*, ANTITRUST, Spring 1991, at 5.

[26] "Prosperity" is defined broadly to mean standard of living, including GDP per capita, wages, return on income, income inequality, health

ity, health care and returns to capital, and is determined by the productivity of a nation's economy:[27]

Adjusted GDP per person

Returns to capital

Income inequality

Environment

Health care, etc.

B. Productivity and innovation more important to antitrust and the public than efficiency alone

As noted, there is wide consensus that "innovativeness is by far the most important source of economic growth and welfare, greatly outweighing price/cost margins (allocative efficiency), or even static efficiency."[28] The difficulties for antitrust arid economics has not been at the goal level, it has been at the theory and operational level. To date, the best theory known to antitrust is probably the economic efficiency model (price theory) currently in use in the U.S., generally recognized as a great improvement over its predecessors.[29] Nonetheless, it is static and does not include an adequate dynamic theory of innovation. The productivity paradigm departs from the efficiency model and other antitrust analytical models in use worldwide by providing a theory of innovation, grounded on productivity and productivity growth.

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care and environmental quality. It is not to be confused with the technical terms of economic theory like "consumer welfare" and "consumer surplus." *See generally* the GLOBAL COMPETITIVENESS REPORTS, 1998, 1999 and 2000 for specific definitions and data.

27 Porter, GCR 1998, at 39. *See also* PORTER ET AL., *supra* note 2, at 100–01.

28 Porter ABA Interview, *supra* note 25, at 5.

29 *See, e.g.*, Ewing, *The Soft Underbelly of Antitrust*, ANTITRUST REP., Sept. 1999, at 2.

C. *Political and macroeconomic context*

Macroeconomics and political stability traditionally have been treated separately from microeconomics and other economic issues. It also has been assumed, traditionally, that sound macroeconomics is sufficient by itself to produce good economic results, innovation and increased productivity. Empirical evidence from the U.S. and worldwide demonstrates, however, that

> [A] stable political context and sound macroeconomic policies are necessary but not sufficient to ensure a prosperous economy. As important—or even more so—are the microeconomic foundations of economic development, rooted in firm operating practices and strategies as well as in the business inputs, infrastructure, institutions and policies that constitute the environment in which a nation's firms compete. Unless there is appropriate improvement at the microeconomic level, political and macroeconomic reform will not bear full fruit.
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> * * *
>
> Our results highlight the pressing need to better integrate microeconomic and competitive thinking into the economic reform process. If reform efforts in developing countries remain limited to IMF-style macroeconomic adjustments, we will face a continued succession of disappointments.[30]

This empirical data and analysis thus confirms what many intuitively sense. Macroeconomics is only part of an integrated analysis for sound economic, and antitrust, policy making.

D. *Two types of productivity: buyer value and efficiency*

Porter defines two distinct types of productivity, Type I (the author's term), *efficiency or cost productivity* and Type II, *value productivity*, one based on the efficiency and cost, and the second based on buyer value, measured by prices, products or services command in the marketplace:

> Volume [efficiency] productivity is "the units produced per unit of labor or capital," which, unlike "value productivity," improvements in volume productivity do not necessarily improve "wages and profits"

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[30] Porter, 1998 GCR, at 38. *See also* W. EASTERLY, THE ELUSIVE QUEST FOR GROWTH (2001).

> because producing more units per day of products or services that command lower prices may not support rising wages.
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> Value productivity is "the revenue produced per unit of labor or capital, [which] sets the wages that can be sustained, the returns to invested capital, and the surplus (after costs) generated by a nation's physical resources."[31]

A "nation's productivity is the sum of the productivity of its companies."[32] Thus national productivity is ultimately determined at the company level. Companies are the "focus of competitiveness [productivity] in an economy," and "wealth is actually created at the microeconomic level—in the ability of firms to create valuable goods and services productively to support high wages and high returns to capital."[33]

E. Two types of competition: efficiency and buyer value

Another key concept of innovation economics and the productivity paradigm is the most novel and perhaps the most controversial. Under the productivity paradigm, there are two types of competition that must be pursued to maximize prosperity; not one: Type I (the author's term), operational effectiveness (efficiency) and Type II, buyer value:

> Operational effectiveness is just one of two ways a company pursues superior performance. The other is through strategy, or competing on the basis of a unique positioning involving a distinctive product or service offering. . . . Operational effectiveness is concerned with performing the same or similar activities better than competitors. The essence of strategy is to perform the activities involved in competing in the business differently from rivals.[34]

The finding in *Can Japan Compete?* that the Japanese economic dilemma today is significantly the result of only competing

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31 Porter, 1998 GCR, at 38.

32 *Id.* at 41.

33 *Id.*

34 PORTER ET AL., *supra* note 2, at 89.

over operational effectiveness—efficiencies—is both stunning, and compelling:

> Japan's style of competing on total quality and continuous improvement—on doing the same thing as rivals but doing it better—did lead to success in the 1970s and the first part of the 1980s. However, this success came at the price of chronically low profitability. Western companies then adopted the same practices and later surged ahead, capitalizing on Japanese weaknesses in white collar productivity and information technology. Developments in the 1990s have underscored the flaw inherent in best-practice competition: It results in competitive convergence, which means that all the competitors in an industry imitate each other in a zero-sum competition that erodes price and destroys profitability. The missing link in Japanese management is strategy. Strategy rests on choosing a unique position by offering a different mix of value than competitors.[35]

The implication for antitrust policy in the U.S. and worldwide is unmistakable, and perhaps unimaginable to an antitrust and economic world that assumes that efficiency is the ultimate goal. *Can Japan Compete?* demonstrates that antitrust and economic policy that only focuses on Type I competition over efficiency—operational effectiveness—is likely to repeat Japan's current economic failure, what Porter terms "zero-sum competition" rather than a "positive-sum competition":

> Productivity, rightly understood, encompasses both the value (prices) that a nation's products command in the marketplace and the efficiency with which they are produced. Improving efficiency alone, or producing more units per unit of labor or capital, does not necessarily elevate wages and profits unless the prices of the products or services are stable or rising. As global competition places greater pressure on the prices of standard goods, efficiency alone is insufficient. Advanced nations improve their standard of living more by driving up the value of their products and services (because of better technology, marketing, and associated services, for example) and moving into new fields through innovation than by producing standardized products at lower cost.[36]

Both types of competition, Type I and Type II, not just competition over efficiency, are necessary to maximize prosperity.

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[35] *Id.* at xv.

[36] *Id.* at 100–01.

F. Five forces analysis of competition

Five forces analysis was first developed by Porter in the 1970s from industrial organization (IO) economics when Porter decided to "challenge" three assumptions underlying IO economics at the time, the "highly formal focus of economists' training" that "tended to minimize their exposure to the richness of detail in actual firm policies, marketing behavior, retailing, and so on" and blocked "important possibilities for integrating knowledge gained from the large body of research on the management of individual firms with the structural-performance paradigm."[37] The three assumptions (1) focused on supply and ignored demand; (2) focused on manufacturing and ignored vertical relations; and (3) assumed firms within an industry were homogeneous and acted the same.[38]

As a result, Porter "part[ed] company with the principal line of research development in industrial organization" a quarter century ago and refined "the basic structure-performance paradigm" by relaxing its three assumptions and by expanding "its scope both within the traditionally defined industry and outside of it."[39] Five forces analysis was the natural result of this process, published in *Competitive Strategy* in 1980.

Five forces analysis is a dynamic and focused structural analysis. It is based on "the fact that competition in an industry goes well beyond the established players," and includes five forces: "[c]ustomers, suppliers, substitutes, and potential entrants" as well as current competitors to firms in the industry.[40]

The five forces also are not designed nor defined to be mutually exclusive (as indicated by the dotted line in figure 1). Thus a fact can be analyzed under more than one of the five forces' categories without changing or undermining the overall analysis.

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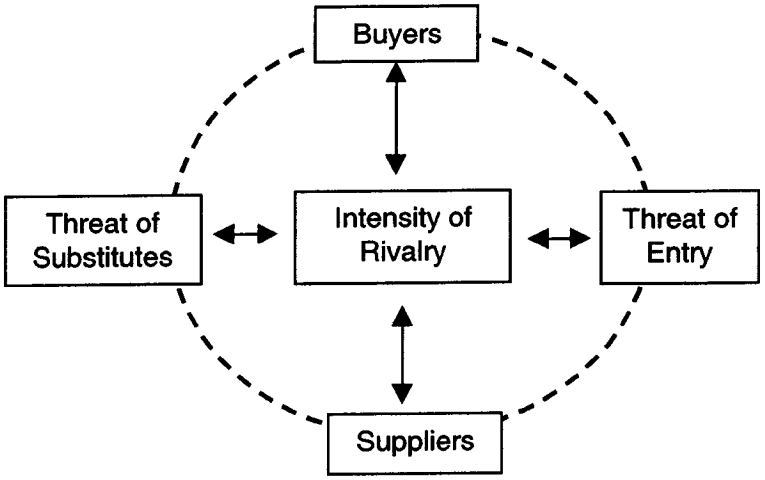
37 *Id.* at 4.

38 *Id.* at 3.

39 *Id.* at 5.

40 PORTER, COMPETITIVE STRATEGY, *supra* note 25, at 6.

Figure 1
Five Forces



G. Diamond analysis of the local business environment "cluster"

Diamond analysis of the quality of the local business environment for competition is another key concept of the dynamic productivity paradigm.[41] Productivity growth and innovation are best achieved by private firms, but the quality of the business environment can help or hinder and must be analyzed as well:

> History teaches us that the private sector is the engine for innovation. The transformation of knowledge and new ideas into wealth-creating technologies, products, and services is the province of firms, not governments or universities. Nonetheless, national policy and public institutions create an environment that can encourage or detract from firms' innovative activity.[42]

The quality of the business environment is analyzed under Porter's theory using four factors referred to as the "diamond."[43]

41 *See* PORTER, THE COMPETITIVE ADVANTAGE OF NATIONS, *supra* note 25.

42 *Id.*

43 *See generally, id.* and ON COMPETITION, *supra* note 25.

Factor conditions

Context

Demand conditions

Suppliers, related industries and clusters.

1. FACTOR CONDITIONS Factor conditions refer to inputs ranging from traditional production inputs to the physical infrastructure, access to information, the legal system, and university research that all firms can draw on. To increase productivity, factor inputs must improve in efficiency, quality, and relevant specialization. Specialized factors are necessary to attain high levels of innovation and productivity, and often must be available locally, not from elsewhere, to maximize innovation.

"In the area of inputs, the underpinnings of innovation include: high-quality human resources, especially in science and technology; frontier research programs relevant to industry issues; and an effective system for communicating best practices and transferring knowledge."[44]

2. CONTEXT The context for firm strategy and rivalry refers to the rules, incentives, and norms applicable to, and the type and intensity of, local rivalry and competition. The character of rivalry in a location is strongly influenced by many aspects of the business environment, including factors and local demand conditions, but the investment climate and policies toward competition set the context. Macroeconomic and political stability, the tax system, labor market policies affecting the incentives for workforce development, and intellectual property rules and their enforcement contribute to the willingness of companies to invest in capital equipment, skills, and technology. Antitrust policy; government ownership and licensing rules; and policies toward trade, foreign investment and corruption play a key role in setting the context for local rivalry and competition.

Empirical studies applying diamond theory also show that economies with little local rivalry have low productivity growth.

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[44] Porter & Bond, *supra* note 25, at 55.

The competition, if present at all, comes from imports. Local rivalry, if present at all, involves imitation with price the sole competitive variable, so that firms keep wages low to compete in local and foreign markets. Competition tends to involve minimal investment. To raise the standard of living and move to an advanced economy, it is empirically demonstrable that it is necessary, for one, to establish vigorous local rivalry and competition, and, for another, to have the rivalry shift from low wages and imitation to low total cost. This shift requires upgrading the efficiency of manufacturing and service delivery, and to evolve from cost to include differentiation. Competition must shift from imitation to innovation and from low investment to high investment in not only physical assets but also intangibles like skills and technology.

"In the area of the context for firm strategy and rivalry, intellectual property protection, international openness to competition, and strong antitrust laws are important," as "[i]ntellectual property protection motivates investment in innovation," "openness to international competition facilitates the flow of ideas as well as raising competitive pressures to improve," and "[v]igorous antitrust policy encourages innovation by stimulating and preserving local competition."[45]

3. DEMAND CONDITIONS Demand conditions at home have much to do with whether firms can and will move from imitative, low-quality products and services to competing on buyer value and differentiation. In low-productivity economies, the focus is demand in foreign markets. Advanced economies require demanding local markets, as the presence of demanding customers at home drives and informs firms to improve and also provides information on existing and future needs that is difficult to learn in a timely manner, if at all, in foreign markets. Thus the quality of local demand matters far more than does its size in a global economy.

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[45] *Id.*

"Even with high-quality inputs and intense competition," then, "innovative activity will suffer unless local demand conditions also provide early insights into existing and future needs, and demanding customers press firms to improve," with "demanding customers driv[ing] domestic commercialization activities toward best-in-the-world technologies and creat[ing] a strong market pull for innovation," and the "presence of a technologically sophisticated workforce in a country contribut[ing] to creating demanding customers," as "does a regulatory environment that stimulates and facilitates innovation rather than discourages it."[46]

4. SUPPLIERS, RELATED INDUSTRIES AND CLUSTERS Similarly, suppliers and related industries are vital to dynamic competition, innovation and the search for buyer value and strategic differences. Close linkages with buyers, suppliers, and other institutions are important not only to both Type I and II productivity (efficiency and buyer value), but to the rate of productivity growth as well. Thus suppliers and related industries also "foster the flow of ideas and provide skills and enabling technologies to put innovations into practice."[47]

Clusters "Clusters" are Porter's theory analyzing the local business environment that has reached a critical mass in all four facets of the diamond.[48] Specifically, "clusters" are "critical masses of unusual competitive success in particular business areas,"[49] "geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g., universities, standards agencies, trade associations) in a particular field that compete but

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[46] *Id.*

[47] *Id.*

[48] Two separate disciplines that deal with related issues that may help advance cluster theory are First Amendment free speech and what has been called emergence theory. *See, e.g.*, S. JOHNSON, EMERGENCE (2001).

[49] M. Porter, *Location, Competition, and Economic Development: Local Clusters in a Global Economy*, 14 ECON. DEVELOPMENT Q. 15 (Feb. 2000); *see generally* PORTER, *supra* note 3, at ch. 7, 197.

also cooperate."[50] In clusters, "there are powerful complementarities and externalities that tie together the rate of innovation and the competitiveness" of all businesses in the cluster as a whole.[51] Silicon Valley is perhaps the best known cluster.

Thus clusters are "broader than industries," and "capture important linkages, complementarities, and spillovers of technology, skills, information, marketing, and customer needs that cut across firms and industries," with the "connections" being "fundamental" to "productivity" and, "especially," to the "direction and pace of . . . innovation."[52]

Porter refers to the geographic scope of a cluster as "local," which is not the antitrust practitioner's geography of relevant markets and sales but the practical geography of cluster externalities, "the distance over which informational, transactional, incentive, and other efficiencies occur."[53]

Finally, cluster theory is empirically robust and practical, as illustrated by recent findings that "changes in the degree of clustering within an economy have large impacts on improving both patenting and CAP [the capacity for innovation]."[54]

In summary, the four facets of diamond analysis include:

Factor (input) conditions

factor (input) quantity and cost

factor quality

factor specialization

Context for firm strategy and rivalry

a local context that encourages investment and sustained upgrading

vigorous competition among locally-based rivals

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50 Porter, *supra* note 49, at 15.

51 Porter & Bond, *supra* note 25, at 57.

52 PORTER, *supra* note 3, at 205.

53 Porter, *supra* note 49, at 16.

54 Porter & Bond, 1999 GCR, *supra* note 25, at 61.

Demand conditions

sophisticated and demanding local customer(s)

unusual local demand in specialized segments that can be served globally

customer needs that anticipate those elsewhere

Suppliers, related industries and clusters

presence of capable, locally-based suppliers and firms in related fields

presence of clusters instead of isolated industries

H. The individual firm

Finally, it is important to note that antitrust policy based on innovation economics and the productivity paradigm encourages and supports individual company action to maximize productivity and prosperity.

FIRM PERFORMANCE VERSUS THE INDUSTRY AVERAGE There is an important distinction between *industry profitability* and an *individual firm's* profitability:

> The performance of any company in a business can be divided into two parts: the first attributable to the average performance of all competitors in its industry and the second to whether the company is an above- or below-average performer in its industry.[55]

PRICE AND COST PERFORMANCE For the individual firm, "profitability differences among competitors" result from (1) "higher prices" or (2) "lower costs than rivals."[56]

OPERATIONAL EFFECTIVENESS AND STRATEGIC POSITIONING In turn, there are two sources of price and cost advantage: operational effectiveness and strategic positioning:

> The sources of these price or cost differences among competitors can in turn be divided into two types: those due to differences in opera-

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55 Porter, *supra* note 3, at 3.

56 *Id.* at 3–4.

> tional effectiveness, or attainment of best practice, and those due to differences in strategic positioning.[57]

ACTIVITIES AND THE VALUE CHAIN Operational effectiveness and positioning are then jointly analyzed using "activities" and the "value chain:"

> All companies must continually improve operational effectiveness in their activities, but sustainable performance differences will most often depend on having a distinctive strategic position. Strategy differences rest on differences in activities, such as the way companies go about order processing, assembly, product design, training, and so on. Strategies are sustainable because of tradeoffs, or choices that firms make to offer certain types of value but sacrifice others. Both competitive advantage and tradeoffs depend not only on individual activities but on the fit among numerous activities.[58]

The "value chain" is the framework for putting it all together:

> Both operational effectiveness and strategy can best be understood by dividing the firms into activities, the discrete economic processes firms perform in competing in any business. Activities are defined more narrowly than are traditional functions. [The "value chain" is] a framework for systematically examining activities and their connection to competitive advantage. . . . Thus, the five-forces framework provides the structure for analyzing the industry effect, while activities and the value chain provide the structure for examining the competitive advantage effect.[59]

To an antitrust audience, Porter's reference to an individual firm's "competitive advantage" and profitability at first blush may cause antitrust concern. Profitability, like bigness at one time, has long been assumed to be bad in antitrust, although the generally highly competitive, and often highly profitable, computer and other high-tech fields have recently undermined this simplistic connection.

Porter's precise definition of "competitive advantage" is not a source of competitive concern but, in fact, a celebration of the

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[57] *Id.* at 4.

[58] *Id.*

[59] *Id.* at 4.

competitive process. Competitive advantage, he explains, grows fundamentally out of the value a firm is able to create for its buyers, where value is defined by what buyers are willing to pay, and is the result of either offering lower prices than competitors for equivalent benefits or providing unique benefits that offset the higher price.

> Competitive advantage grows fundamentally out of value a firm is able to create for its buyers that exceeds the firm's cost of creating it. Value is what buyers are willing to pay, and superior value stems from offering lower prices than competitors for equivalent benefits or providing unique benefits that more than offset a higher price.[60]

Thus the productivity paradigm transforms the focus of analysis from proxies like HHIs to a rich understanding of competition and productivity themselves. It also ends the analytical confusion and internal contradiction of focusing on profitability. Productivity and productivity growth, not profitability, is the issue.

Applying dynamic Productivity Paradigm economics to the antitrust analysis of mergers, joint ventures and other arrangements is covered next.

IV. Antitrust analysis using Porter's dynamic productivity growth analysis

A. Summary

I. Five Forces– Diamond Analysis of Competition Itself	II. Risk/Reward Analysis of Productivity Growth

Over the last 20 years, static economic efficiency theory has been applied to antitrust policy with the result that static efficiencies are ranked high and, because it has no comparable theory of innovation, dynamic competition and innovation ranked low.

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[60] PORTER, COMPETITIVE ADVANTAGE, *supra* note 25, at 3.

Porter's dynamic competition model turns this ranking upside down, because defining antitrust goals using a dynamic productivity growth standard "it becomes clear" that the current "hierarchy of goals should be reversed":

> The current explicit and implicit goals of U.S. antitrust policy fall roughly into the following hierarchy[:] . . . . Drawing on Welfare theory, the primary focus in U.S. antitrust for the last twenty years has been on limiting price/cost margins or firm profitability (*allocative inefficiency*) as the most important outcome for consumers. Market power is seen as giving firms the ability to elevate prices and sustain high margins. Hence, limiting market power is the major focus of attention.
>
> Second in importance in antitrust evaluations has been cost or *technical efficiency*. The efficiency justification can be used to offset a finding of market power to elevate margins. At the bottom of the current hierarchy is innovativeness, or the rate of dynamic improvement. The effect of mergers or competitive practices on the overall rate of innovation is usually only paid lip service.

Operationally, there are two core components of Porter's dynamic productivity growth antitrust analysis:[61]

First, determining the effects of a merger or other combination on "the health of competition" itself, using five forces and diamond analysis, with "five forces analysis . . . used to measure the health of industry competition in all relevant markets and submarkets," and diamond analysis used to measure its likely effect on the health of "clusters" of local competition and clusters in particular. Five forces analysis is used to measure the likely effect on the health of industry competition in all relevant markets and submarkets, thus eliminating the need to determine *the* relevant market and providing a major advance for antitrust analysis. Diamond analysis is used to measure the likely effect on the health of "clusters" of local competition.

If this analysis shows there is no substantial adverse effect on competition, the merger or joint venture would be approved. If not, the analysis proceeds to the second key component.

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[61] *See* Porter article, *supra* note 1, at section IV.

Second, a risk/reward analysis of the direct effects of the merger or other combination on productivity growth compared to the adverse effects on competition that were identified. Importantly, productivity benefits are evaluated along the two dimensions of the productivity paradigm, giving equal weight efficiency and buyer value. "Productivity enhancement," Porter explains, "consists of both product value (which is often reflected in price), and efficiency (or cost)," with both important. Further, productivity growth analysis focuses on the long-term "trajectory" of both product value and efficiency, with "priority . . . given to dynamic improvements over static ones," little weight given to one-shot benefits to productivity, and greater weight given to reducing operating costs than to other efficiencies.

B. Example: offshore oil drilling merger

The following example of merger analysis illustrates the profound differences between current and Porter's proposed antitrust analysis.

Consider the merger of the only two offshore oil drilling companies to serve the ultra deepwater segment of the market.[62] Under current merger analysis, much time, money and argument would be spent on defining the relevant market, since under the ultra deepwater definition of the market this is a merger to monopoly, with an HHI of 10,000.[63] Applying Porter's proposed analysis is both entirely different, and refreshingly understandable.

FIRST: FIVE FORCES ANALYSIS Applying five forces analysis of competition in all relevant markets quickly shows that under any market definition, powerful customers, rapid entry and structural incentives for intense rivalry make it unlikely there will be a substantial lessening of competition—whether the market is defined

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[62] *See* Porter article, *supra* note 1, at section V.

[63] HHIs are very much a brooding omnipresence in litigation, however much antitrust regulators may downplay their role, as poignantly illustrated by FTC v. Heinz, 246 F.3d 708 (D.C. Cir. 2001) (FTC blocked the merger of two baby food companies relying extensively on HHIs, concentration theory and the 1960's-era merger presumption.

as the ultra deepwater drilling market (a 2-to-1 merger to monopoly), or the many other market definitions antitrust practitioners would creatively develop and litigate.

For one, the customers, the major oil companies, are powerful. For another, analyzing entry at first blush may seem problematic because the high cost of drilling rigs seem to create formidable barriers to entry. Drilling rigs cost up to $500 million each. However, since the oil company customers can use long-term contracts to put companies into business, since oil rig technology is widely available, and since drilling rigs can be easily moved from one geographic area to another, actual entry barriers are modest. Further, the drilling rigs are essentially undifferentiated, have high fixed costs and low marginal costs, so that the business is prone to deep price discounting, and rivalry is intense. Finally, this five forces analysis holds for the ultra deepwater segment, the assumed relevant market in which the merger would yield a monopoly share.

SECOND: DIAMOND ANALYSIS Diamond analysis of local "cluster" externalities shows the merger raises no competitive concerns in this dimension either. Houston is the "cluster" location relevant to analyzing the health of the local business environment, since there is no other location in the world with even close to the same critical mass of rivals. Numerous U.S.-based offshore drillers will still be present. New entry is still feasible. There is little likely effect on suppliers or other Houston-based institutions.

Current merger analysis of the relevant market, HHIs, unilateral effects and other factors uses different tools that require much effort and focuses on many unproductive issues like the relevant market, concentration theory and HHIs that, by comparison to Porter's new analysis, is far removed from the relevant legal issue, competition itself.

C. Elaboration of dynamic productivity growth antitrust analysis

1. THE FIRST CORE ISSUE: FIVE FORCES-DIAMOND ANALYSIS OF COMPETITION This step of the analysis in Porter's article is used to predict the effects of the merger or other combination on long-term

productivity growth by determining its effects on the health of competition, using two tools, five forces and diamond analysis:

> Five forces analysis is used to measure the health of industry competition in all relevant markets and submarkets, while diamond analysis is used to measure its likely effect on the health of local competition. If this leads to the conclusion that there is no material negative effect on competition, the merger or joint venture would be approved. If not, the analysis would move to the next level of risk/reward analysis.

This analysis is fundamentally different from current antitrust analysis in important ways, including the fact it does not use HHIs, concentration theory, or creating or enhancing market power as a surrogate for analyzing the legal issue of a substantial lessening of competition, and the elimination of the relevant market as a distinct issue.

Five forces analysis Porter's article describes how five forces analysis applies as follows:

> Here the effect of the merger or joint venture on barriers to entry, rivalry, customer power, substitution, and the power of the suppliers would be explored. The analysis should be conducted for *all* relevant segments and submarkets.

Specifically, the antitrust issue is the effect, if any, the combination has on the five forces. The five competitive forces determine the intensity of competition, with the strongest force or forces governing:[64]

> For example, even a company with a very strong market position in an industry where potential entrants are no threat will earn low returns if it faces a superior, lower-cost substitute. Even with no substitutes and blocked entry, intense rivalry among existing competitors will limit potential returns. The extreme case of competitive intensity is the economist's perfectly competitive industry, where entry is free, existing firms have no bargaining power against suppliers and customers, and rivalry is unbridled because the numerous firms and products are all alike.
>
> Different forces take on prominence, of course, in shaping competition in each industry. In the ocean-going tanker industry the key

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[64] PORTER, COMPETITIVE STRATEGY, *supra* note 25, at 6.

force is probably the buyers (the major oil companies), whereas in tires it is powerful original equipment (OEM) buyers coupled with tough competitors. In the steel industry the key forces are foreign competitors and substitute materials.

Significantly, five forces analysis is highly structured by a specific set of "drivers":

> Each of the five forces is affected by a series of drivers . . . . Every one of these factors must be assessed in turn. The starting point is to establish the direction in which each of these drivers is moving before the merger (i.e. increasing, decreasing, or stable), and then determine whether and how the merger will affect the direction. Often the effect of the merger on a particular driver can be quantified precisely. At the very least it is possible to ascertain whether the effect is positive, negative, or neutral.

The "drivers" for each of the five forces are:

1. *Threat of substitute products or services*: The relative price performance of substitutes; switching costs; buyer propensity to substitute.
2. *Bargaining power of suppliers*: The cost relative to total purchases in the industry; differentiation of inputs; impact of inputs on cost or differentiation; switching to a new supplier; presence of substitute inputs; supplier concentration; importance of volume to supplier; threat of forward integration relative to threat of backward integration by firms in the industry.
3. *Bargaining power of buyers* is determined by two issues: bargaining leverage, buyer concentration vs. firm concentration, buyer volume, buyer switching costs relative to firm switching costs, buyer information, ability to backward integrate, substitute products, pull-through, and price sensitivity: price/total purchases, product differences, brand identity, impact on quality/performance, buyer profits, decisionmakers' incentives.
4. *Rivalry among existing competitors*: concentration and balance, industry growth, fixed (or storage costs/value added), intermittent overcapacity, product differences, brand identity, switching costs, informational complexity, diversity of competitors, corporate stakes, exit barriers.
5. *Threat of new entrants*: economies of scale, proprietary product differences, brand identity, switching costs, capital requirements, access to distribution, proprietary learning curve, access to neces-

> sary inputs, proprietary low-cost product design, government policy, expected retaliation.

Diamond analysis The second dimension of analyzing the impact, if any, of a merger or other combination on competition directly is diamond analysis of the effect of the merger or other combination on local competition "clusters," because the "state of the diamond and the extent of the cluster can raise or lower barriers to entry into an industry, the power of customers and suppliers, and the *Threat* mix and threat of substitutes."[65]

"Why view economies through the lens of clusters rather than of more traditional groupings such as companies, industries, or sectors, such as manufacturing or services?," Porter asks, then answers. "Foremost because clusters align better with the nature of competition."[66]

In the dynamic competition that is a focus of cluster theory, innovation and the search for strategic differences and buyer value are key, with "[c]lose linkages with buyers, suppliers, and other institutions . . . important, not only to efficiency but also to the rate of improvement and innovation."[67] A national or other local cluster facilitates innovation horizontally, vertically and otherwise:

> Innovations in related industries tend to feed on each other. Firms within a cluster are often able to more clearly and rapidly perceive new buyer needs than can isolated competitors. For example, Silicon Valley and Austin-based computer companies plug into customer needs and trends quickly and effectively, with an ease nearly impossible to match elsewhere. Firms within a cluster can also often commercialize innovations more rapidly and efficiently through their ability to easily source needed components, machinery, and services. Small entrepreneurial firms grow within clusters to meet newly emerging needs overlooked or too small for established players. Reinforcing these other innovation advantages of clusters is the sheer pressure—

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65 PORTER, *supra* note 3, at 14.

66 *Id.* at 205.

67 *Id.* at 19.

> competitive pressure, peer pressure, and constant comparison—occurring in geographically concentrated clusters.[68]

Specifically, clusters "affect competition in three broad ways that both reflect and amplify the parts of the diamond: (a) increasing the current (static) productivity of constituent firms or industries, (b) increasing the capacity of cluster participants for innovation and productivity growth, and (c) stimulating new business formation that supports innovation and expands the cluster."[69] For antitrust purposes, relevant issues include:

> How does the combination affect locally-based rivals?
>
> How is the combination likely to affect the quantity and quality of specialized inputs available to firms locally (human resources, specialized capital providers, physical infrastructure, administrative infrastructure, information infrastructure, and scientific and technological infrastructure)?
>
> How will the combination affect the competitiveness and innovative ability of local customers?
>
> How will the combination affect the vitality of locally-based supplier industries?

2. 50% "SAFE HARBOR" THRESHOLD Porter's article also proposes that any relevant market where the combined market share of the parties involved is 50% or less is too small to merit further analysis:

> To invest the resources required to investigate a particular merger or joint venture, some significance threshold is inevitable. We advocate a relatively low minimum market share threshold of, say, 50% combined share in any submarket. . . . Such a threshold will conserve resources and screen out transactions where the probability of material impact on competition is small.[70]

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[68] Porter & Bond, *supra* note 25, at 55.

[69] Porter, *supra* note 49, at 21.

[70] Under current law in most circuits, if the market share of a merger, joint venture or other combination under any theory of the "relevant market" is less than 30% in most circuits, then no antitrust rule of reason and similarly, Clayton § 7, violation is possible. *See, e.g.*, E. Gellhorn & W.T. Miller, *Competitor Collaboration Guidelines—A Recommendation*, 42 ANTITRUST BULL. 851, 867–68 (1997).

Again, relevant markets are assumed and not litigated.

If five forces-diamond analysis and the 50% safe harbor analysis shows there is no significant threat to competition in one or more of the relevant markets and clusters analyzed, no further analysis is necessary for them.

For those that remain, a risk/reward analysis is the next step.

3. THE SECOND CORE ISSUE: A RISK/REWARD ANALYSIS OF PRODUCTIVITY GROWTH At this stage, the issue is whether the long-term productivity benefits of the merger or other combination to productivity growth are real and substantial enough under a risk/reward analysis to justify the adverse effects on competition. Porter's analysis uses a two, not one, dimensional analysis of productivity improvements, with a weighting system.

Type I efficiency/cost productivity Type I cost or efficiency improvements to productivity are ranked in descending order of value to long-term productivity as follows:

1. Reduce operating costs
2. Amortize fixed/semi-fixed costs (e.g., advertising, service locations)
3. Eliminate redundant corporate overhead.

Type II buyer value productivity The second dimension of productivity, buyer value improvements to productivity, also are ranked in descending order of value to long-term productivity:

1. Improve product/service quality and features
2. Increase marketing and distribution strength
3. Enhance brand identity.

Critically, under this productivity growth model, both types of productivity in their most valuable form are valued equally. Improving buyer value through improved quality and features (Type II No. 1 above) is scored equal to improving efficiencies by reducing operating costs (Type I No. 1 above). This second dimension of productivity, buyer value, is a formal part of Porter's

dynamic economic theory, and one of its most important contributions.

In conclusion, substituting productivity growth for static efficiency as the fundamental goal and standard for antitrust profoundly changes the issues, and the weights given, in a risk/reward analysis of whether the risks to the competitive process that a combination poses identified in a five forces-diamond analysis are worth the rewards to productivity growth.

4. BASELINE PRODUCTIVITY AND COMPETITIVE BENCHMARKS Porter sharpens his proposed analysis with two new empirical tools, first, productivity benchmarks, a measure of productivity growth over time, and second, the market share instability index (MSI), which measures the intensity of competition over time.[71]

Porter's reasons that past industry productivity performance (the "productivity benchmark"), and the vitality of rivalry measured by the fluctuations of market shares (the MSI), provide a baseline that may be useful in evaluating whether a merger or other combination is likely to substantially lessen competition:

> If the markets analyzed show weak productivity growth in the past, or have had limited rivalry historically, or both, the likelihood a combination will substantially lessen competition is higher than if the data shows high productivity growth, vigorous rivalry or both.

V. Discussion

A. Support in existing Supreme Court precedent

Porter's proposed antitrust analysis is consistent with and supported by existing Supreme Court precedent in a number of ways.

First, it is analytically similar to the analysis used by the Supreme Court in its most recent merger decision, *General Dynamics*, which focused on the issue of competition itself without determining a relevant market:

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[71] The MSI was recently applied in great detail to 77 Japanese markets over an 18-year period in Sakakibara & Porter, *Competing at Home to Win Abroad: Evidence from Japanese Industry*, 83 REV. ECON. & STATISTICS 310 (2001), available at <http://www.people.hbs.edu/mporter/>.

> Irrespective of the markets within which the acquiring and the acquired company might be viewed as competitors for purposes of this § 7 suit, the Government's statistical presentation simply did not establish that a substantial lessening of competition was likely to occur in any market.[72]

Porter's antitrust analysis is also analytically similar to Justice Brandeis' last, and never overruled, rule of reason analysis in *Cracking Oil* in 1931, which Milton Handler has referred to as "concentric circle" analysis.[73] Thirteen years after *Chicago Board*, Justice Brandeis had refined his rule of reason analysis to a remarkably simple but enormously powerful formulation. The "fact that a combination eliminates competition *inter sese* is not controlling" under Mr. Brandeis' rule of reason as summarized by Handler, "if the quality of competition in the market as a whole remains unimpaired."[74]

In *Cracking Oil* specifically, the Supreme Court reversed a government victory against four major producers of gasoline that was made using a new method called the "cracking" process. Justice Brandeis held their horizontal price agreement on royalties for pooled patent sublicenses lawful under the rule of reason by using a multidimensional analysis of the combination's likely effects on competition itself. In sharp contrast to current antitrust analysis, Mr. Brandeis' multidimensional approach did not require the determination of a "relevant market," did not focus on the type of restraint in the abstract (a horizontal price agreement among four major oil companies), nor legal form (the case involved a contractual joint venture, not a merger). His focus instead was on the competitive process, on whether "the quality of competition in the market as a whole remains unimpaired."

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72 U.S. v. General Dynamics Corp., 415 U.S. 486, 511 (1974).

73 Standard Oil of Indiana v. U.S., 283 U.S. 163 (1931) (*Cracking Oil*). Handler, *The Judicial Architects of the Rule of Reason, in* M. HANDLER, TWENTY-FIVE YEARS OF ANTITRUST 1, 27–31 (1973). *Id.* at 26–35. *See generally* Weller, *A New Rule of Reason*, ATB Symposium, *supra* note 1, at 916–57.

74 Handler, *supra* note 73, at 30.

Further, the facts in this 1931 case are stunningly similar to today's high technology, knowledge economy.[75] Justice Brandeis explained that the "interchange of patent rights and a division of royalties according to the value attributed by the parties to their respective patent claims" was "frequently necessary if technical advancement is not to be blocked by threatened litigation."[76]

Finally, Porter's focus on competition, not competitors, resonates with and is directly supported by the requirement imposed in *Brunswick*[77] to focus on competition, not competitors.[78]

B. No relevant market litigation

The relevant market issue dramatically highlights the fundamental differences between current antitrust analysis and Porter's dynamic productivity growth antitrust analysis. Today the relevant market, rather than whether there is a substantial lessening of competition, is, as a practical matter, often the decisive antitrust issue. "Market definition" is of "overwhelming importance in antitrust cases," MIT economics professor Franklin Fisher correctly observes, even though it is an "artificial construction created by antitrust litigation."[79] Another prominent economist, Edward Chamberlin, used even more colorful terms to criticize the relevant market concept, stating that " '[i]ndustry' or 'commodity' boundaries are a snare and a delusion," "establishing at once wholly false implications both as to competition of substitutes within their limits, which supposedly stops at their boarders, and as to the possibility of ruling on the presence or absence of

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[75] *See* Richards, *Baxter Beat CellPro in Court; Some Say Dying Patients Are the Case's Big Losers*, WALL ST. J., Aug. 6, 1999, at A-1, for a dramatic illustration of how vibrant his 70-year-old insight remains.

[76] *Cracking Oil*, 283 U.S. at 171.

[77] Brunswick v. Pueblo Bowl-O-Mat, 429 U.S. 277 (1977).

[78] As noted, it can also be applied to the rule of reason. For a recent analysis of the rule of reason, *see* Kolasky, *supra* note 5.

[79] FISHER, *supra* note 24, at 37.

oligopolistic forces by the simple device of counting the number of producers included."[80]

Porter's five forces analysis solved the relevant market problem in another discipline, Porter's field of business management, 20 years ago by eliminating it as a distinct issue. "[F]ocusing broadly on competition well beyond existing rivals, should reduce the need for debates on where to draw industry boundaries," because if "these broad sources of competition are recognized" and "their relative impact assessed, then where the lines are actually drawn becomes more or less irrelevant."[81]

Porter's proposed analysis does the same for antitrust. It avoids the need to determine a relevant market by analyzing competition directly in each affected hypothesized market.

C. Refinement of antitrust jury trials and litigation generally

As noted at the outset, Porter's dynamic productivity growth antitrust analysis, including five forces analysis using its widely used drivers and other techniques, diamond analysis and weighted two-dimensional productivity growth analysis, provide a new theoretical and practical basis for refining antitrust litigation, including refining the current patchwork of jury instructions and verdict forms pieced together over decades without benefit of a dynamic theory of competition, and updating current merger and collaboration policy and/or guidelines that are built upon a static theory of competition. A jury, for example, under rule 49 of the Federal Rules of Civil Procedure regarding special verdicts and special interrogatories could be asked to determine disputed facts as to the drivers of the five forces, the four facets of the diamond, and the types of productivity and their hierarchy, and then the legal consequences of these factual findings could be decided by the courts.

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80 Edward H. Chamberlin, *Product Heterogeneity and Public Policy*, 40 AM. ECON. REV. (PAPERS & PROC.) 85, 86–87 (1950), *quoted in* Werden, *Merger Policy for the 21st Century: Charles D. Weller's Guidelines Are Not Up to the Task*, AM. BAR ASSN., PERSPECTIVES OF THE FUNDAMENTAL THEORY TASK FORCE 353 (2001).

81 PORTER, COMPETITIVE STRATEGY, *supra* note 25, at 30–31.

D. Daubert *trial issues for the productivity growth analysis*

As a litigation matter, Porter's dynamic productivity growth analysis and the productivity paradigm can be used either as an evidentiary or legal matter. As expert evidence, of course, it must meet the *Daubert* quartet's reliability, relevant and "fit" standards or be excluded. Since five forces and other aspects of the productivity paradigm have been used and tested in "actual practice" for more than two decades; it is likely to meet the *Daubert* requirements if presented properly.

Alternatively, as a legal matter, antitrust law is fundamentally a judicial creation, and productivity paradigm analysis can be adopted by the courts like other persuasive authority has been adopted by the Supreme Court for decades.[82]

E. Resolves Schumpeter's innovation-monopoly paradox

Porter's dynamic productivity growth analysis and productivity paradigm, and their two forms of competition (cost and buyer value) also solve Schumpeter's half-century old innovation-monopoly paradox (my term). Rather than innovation inherently requiring a regulated or unregulated monopoly, not competition, Type II competition over buyer value solves the paradox by combining competition and the profitability needed for innovation.[83]

F. New insights for patent-antitrust and essential facilities

The patent-antitrust law interface and the essential facilities doctrine[84] similarly have never had a robust analytical basis for understanding and addressing the antitrust issues they pose for

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[82] *See, e.g.*, State Oil v. Khan, 139 L.Ed. 2d 199 (1997); and Brooke Group Ltd. v. Brown & Williamson, 509 U.S. 209 (1993) (extensive reliance on antitrust commentators and analysts).

[83] *See, e.g.*, Sakakibara & Porter, *supra* note 71, at 310–11. *See also* PORTER ET AL., *supra* note 2 (Type I competition not enough).

[84] *See, e.g.*, Lipsky & Sidak, *Essential Facilities*, 51 STANFORD L. REV. 1187 (1999).

knowledge and innovation. Porter's dynamic productivity analysis provides a fresh new analytical model including five forces, diamond, productivity growth and two forms of competition analysis, for considering, debating and deciding the vital issues raised.

VI. Conclusion

Porter's dynamic productivity growth antitrust analysis is an important evolution of antitrust analysis to the next level beyond the static efficiency economics of the last 20 years. Although it builds on existing economic and other ideas, "many elements of competition captured in the new thinking have been present for decades and even centuries but have been undiscovered or, more often, unappreciated,"[85] it is fundamentally different in numerous ways: productivity replaces efficiency, and standard of living replaces consumer welfare, as primary goals; it does not use concentration theory, HHIs, profitability, price increases and other tools of current antitrust analysis to determine the legal issue of whether or not a substantial lessening of competition is likely; it eliminates the need to determine the relevant market; it uses new empirical tools that are measurable, understandable and rigorous like the widely-used five forces and diamond analysis of the cluster business environment.

In short, it is suggested that Porter's dynamic productivity growth analysis is a major advance in antitrust analysis just in time for the knowledge, and global economy of our times.

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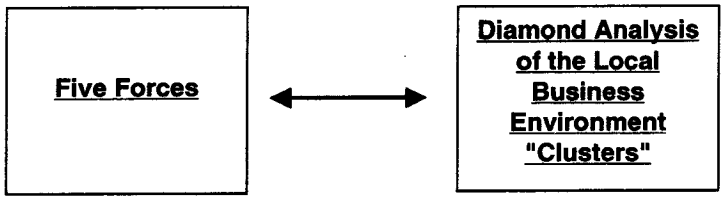
85 *Porter on Competition, ATB Symposium, supra* note 1, at 860.

Figure 2
Porter's Antitrust Analysis' Two Core Components

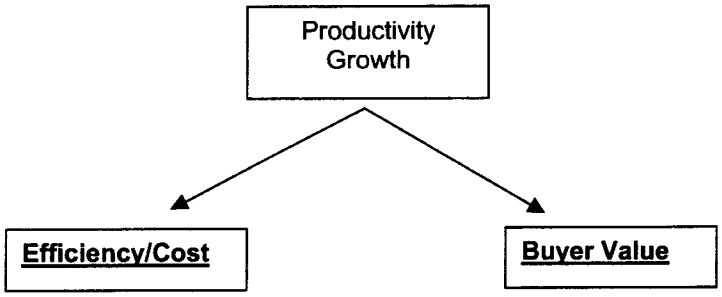
I. Five Forces-Diamond Analysis of Competition Itself.



- Entry
- Substitutes
- Buyers
- Suppliers
- Rivalry

- Factors
- Context
- Demand
- Suppliers, Related Industries & Clusters

II. Risk/Reward Productivity Growth Analysis.



1. Reduce operating costs
2. Amortize fixed/semifixed costs
3. Eliminate corporate overhead

1. Improve product/service quality and features
2. Increase marketing and distribution strength
3. Enhance brand identity