Competition as an Evolutionary Process and Antitrust Policy

Shelby D. Hunt and Dennis B. Arnett

The antitrust debate in the United States has been grounded and guided by principles derived from equilibrium-based economics. However, these principles mischaracterize key elements of real economies. The authors (1) explore the nature of the antitrust debate by reviewing a key component of the debate—the efficiency versus wealth transfer argument; (2) illustrate how the equilibrium-based tradition has misguided the debate; (3) sketch an alternative, process view of competition that draws heavily on evolutionary and Austrian economics (resource-advantage theory; Hunt 2000b); and (4) discuss the implications of using a process view of competition as a basis for antitrust policy.

Since the passage of the Sherman Act in 1890 and the Clayton and Federal Trade Commission (FTC) Acts in 1914, the official antitrust policy of the U.S. government has been that competition is good because it benefits consumers; therefore, it is to be encouraged and protected. In contrast, monopoly is bad because it results in harm to consumers; therefore, it is to be discouraged and punished. For more than a century, Congress and the states have passed (relatively) ambiguous laws that are designed to protect competition and punish monopolists, leaving it up to lawyers, economists, regulators, judges, and juries to work out the details. Debate has swirled around such contentious details as how competition and monopoly are to be conceptually defined and empirically identified. Debate has also been spirited as to the public policy goals of antitrust legislation, because the goals of such legislation reflect why it is believed that competition is good for society and monopoly is bad.

Much of the debate has been grounded on and guided by principles derived from neoclassical, equilibrium economics. Although equilibrium economics has provided valuable guidance for the antitrust debate, it has also created a barrier to outside ideas. That is, the domination of equilibrium economics has prevented many potentially important nonequilibrium-based approaches from being included in the debate, because the equilibrium-based research tradition has “hardened” (Lakatos 1978) around its core assumptions. As a result, many potential approaches that run counter to these core assumptions are either dismissed or relegated to minor roles. As Foss (1991) suggests, mainstream economics is locked in on an intellectual trajectory in which nonequilibrium analyses—such as those in evolutionary and Austrian economics—can have no role.

Foss (1991) suggests that the equilibrium-based research tradition suffers from the negative effects of path dependency. A path dependency occurs in an economic system when a “sequence of economic changes is one of which important influences upon the eventual outcome can be exerted by temporarily remote events, including happenings dominated by chance elements rather than systematic forces” (David 1985, p. 332). Path-dependent processes occur because of the network effect, which refers to the situation in which the benefit of consuming a good or adopting a technology varies directly with the number of other people who consume the good or adopt the technology (Katz and Shapiro 1985). These path dependencies from network effects pose externalities that result in technological lock-ins, which prevent the evolution toward more efficient technology (e.g., adoption of the VHS over the Beta format in videocassette recorders). Foss (1991) points out that the market for ideas in academic disciplines can also experience lock-in. Specifically, mainstream economics has become locked in on a path that prevents it from evolving toward more efficient explanations of competition because, as with the VHS format, many “consumers” (i.e., researchers) have adopted the current equilibrium-based approach to explaining competition. Thus, the transition to other schools of thought is difficult because many researchers have made investments in the equilibrium-based approach. As a result, nonequilibrium-based theories are prevented from informing the discussion of topics such as competition and public policy issues.

Both evolutionary economics (e.g., Dosi et al. 1988; Foss 1993; Hodgson 1993; Langlois 1986; Nelson and Winter 1982) and Austrian economics (e.g., Hayek 1948; Kirzner 1982; Lachmann 1986; Mises 1949) share the view that competition is a process that cannot be adequately represented as a series of moving equilibria. Consistent with O’Driscoll (1986), we suggest that equilibrium economics cannot adequately describe the dynamics of competition. Accordingly, the debate over antitrust law has been mis-

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1Lakatos (1978) maintains that every research program should have a set of hard-core assumptions that are not to be subjected to refutation (e.g., the foundational premises of equilibrium-based economics such as perfect and costless information). Lakatos (1978, p. 133) suggests that “we must use our own ingenuity to articulate or even invent auxiliary hypotheses which form a protective belt around this core” (i.e., each research program must “harden” around its core assumptions). In a similar argument, Nelson and Winter (1982) submit that an “orthodoxy” exists in economics and that this position provides a narrow set of criteria that are conventionally used as a cheap and simple test for whether an expressed point of view on certain economic questions is worthy of respect. However, as we suggest, such a hardening or orthodoxy can prevent theories that run counter to the hard-core assumptions from being seriously considered.

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illustrate the major themes of this debate through a generic, equilibrium diagram (see Figure 1). Figure 1 shows a downward sloping demand curve $D$ for some commodity and a flat average cost curve $AC_c$. Under perfect competition and an (implicit) supply curve $S$, the price $P_e$ will equal $AC_c$, and the quantity of the product produced and sold will be $Q_e$. Under a monopoly, the monopolist or a cartel acting as a monopolist will restrict output to $Q_m$, which it can then sell at $P_m$. If, however, the formation of monopoly (by, for example, a merger) enables the monopolist to take advantage of certain production efficiencies (resulting from, for example, economies of scale), average cost drops from $AC_c$ to $AC_m$.

The triangle $I$ and the two rectangles, $R$ and $E$, figure prominently in the debate. The area of $I$ is an estimate of the "deadweight" welfare loss resulting from the resource allocation inefficiency of monopoly. That is, under perfect competition, the price system would have directed additional resources toward the commodity, and consumers would have gotten $Q_e$ at $P_e$ instead of only $Q_m$ at $P_m$. Area $R$ is an estimate of the rents or economic profits that accrue to the monopolist. At $P_e$, no economic profits are earned; only an accounting profit sufficient to keep firms in business is earned. Therefore, compared with perfect competition and $P_e$, area $R$ represents a wealth transfer from buyers of the commodity to sellers of the commodity. Area $E$ is an estimate of the resource cost savings as a result of the shift from perfect competition to monopoly. Compared with the deadweight inefficiency loss of triangle $I$, rectangle $E$ is a societal efficiency gain. Net efficiency losses and gains depend on the size of rectangle $E$ compared with triangle $I$. With this description of Figure 1 in mind, we discuss the major themes of the debate.

The Sherman Act

In terms of Figure 1 and the efficiency versus wealth transfer debate, the arguments by proponents of the Sherman Act (1890) in the latter part of the nineteenth century focused on rectangle $R$ (as well as several other issues, such as the importance of the dispersion of economic power, the desirability of the reduction of political influence of large firms, and the promotion of small business and entrepreneurial opportunity) (Fox 1981). As Lande (1988, p. 449) documents, Senator Sherman referred to the prices resulting from monopolies as "extorted wealth," and other supporters used such terms as "robbery" to describe the actions of the trusts because they "aggregate to themselves great enormous wealth by extortion which makes the people poor." In short, monopolies were argued to be bad because of their wealth transfer effects. The major economic goal of the proponents of the Sherman Act was to prevent the wealth transfers that result from monopoly (Lande 1982, 1988).

That proponents of the Sherman Act focused on rectangle $R$, not triangle $I$, to argue against monopoly is unsurprising. The first edition of Marshall's *Principles* appeared in 1890,
the very year that the act passed—and it was Marshall who first conceived of triangle I as a graphical depiction of the deadweight loss resulting from inefficient resource allocation (Scheler 1977). Not only was the “Sherman Act … framed and debated in the pre-expert era, when economists as a professional group were not directly consulted by legislators” (Hofstadter 1965, p. 199), but also “A careful student of history of economics would have searched long and hard, on July 2, 1890, the day the Sherman Act was signed by President Harrison, for any economist who had ever recommended the policy of actively combating collusion or monopolization in the economy at large” (Stigler: 1982, p. 3). Proponents of the Clayton and FTC Acts also focused on rectangle R (and dispersing economic and political power) (Lande 1982, 1988).

Note that Figure 1 requires definitions of “competition” and “monopoly.” How these terms are defined in antitrust legislation and the courts is guided by equilibrium-based economic theory. For example, although Marshall (1949) gave equal prominence to both evolutionary and mechanistic metaphors, between 1890 and 1950 the evolutionary metaphor was suppressed in economics (Foss 1991), and the neoclassical research tradition hardened (Lakatos 1978) around static equilibrium, profit maximization, firms’-cost-curves, perfect competition, and the language of mathematics. Consequently, in mainstream economics, the term “competition” lost its Adam Smith roots that evoked rivalry. “Competition” became synonymous with perfect competition. As a result, the word “perfect” is often dropped in academic discourse as redundant. A similar metanomorphosis occurred with “monopoly.” Whereas “monopoly” in classical economics denoted the control of the supply of a homogeneous commodity—and Chamberlin (1954, pp. 255-56) put up a valiant fight to retain this view—by the 1950s the term was being equated with simply any firm facing a downward sloping demand curve. Therefore, the term “monopoly” morphed into “monopoly power” and “market power.”

As to how the justice department, the FTC, and the courts in general should measure the degree of monopoly in an industry, the neoclassical tradition and industrial organization economics provided regulators, lawyers, and the courts with the structure—conduct—performance model of Mason (1939) and Bain (1954, 1968). Economists studying industrial organization argued that a four-firm concentration ratio greater than 75% indicated a dangerously concentrated industry, one in which mergers should be prohibited and corporate dissolutions considered. In contrast, a four-firm concentration ratio of less than 50% implied that it was “close enough” (Friedman 1953, p. 15) to be considered competitive and thus no cause for concern. A ratio between 50% and 75% was “worrisome,” and firms in the industry should be watched carefully.

As to why firms with downward sloping demand curves—monopolies in the neoclassical sense—are bad for society, the neoclassical tradition added the deadweight loss of triangle I in Figure 1 to rectangle R. That is, firms with market power not only transfer wealth from buyers to sellers, area R, but also inefficiently allocate resources, area I. What Lande (1988, p. 436), a forceful advocate of vigorous antitrust enforcement, calls the “big is bad, small is good” interpretation of antitrust dominated until the late 1970s and the rise of the Chicago School, so called because of its association with such University of Chicago economists as Aaron Director, Milton Friedman, and George Stigler.

**The Chicago School of Antitrust**

The development of the Chicago school of antitrust analysis is often attributed to Aaron Director, who in the 1950s formulated the key ideas of the school. Authors such as Bowman (1957), Bork (1954, 1966, 1978), McGee (1958), and Tesler (1960) later developed these ideas further. Together these works and others constituted the basis for what came to be known as the Chicago School of Antitrust.

Posner (1979) points out that the Chicago School of Antitrust was the product of meticulous analyses of such specific issues as the historical context of antitrust law and the intent of legislators (Bork 1954, 1966), tying agreements (Bowman 1957), predatory pricing (McGee 1958), and fair trade laws (Tesler 1960). Contrasted with the “big is bad; small is good” school, each issue was analyzed in strict accordance with neoclassical price theory. From these analyses, the Chicago School reached the general conclusion that antitrust policy had been woefully misguided. Defining “unilateral action” as “action that does not involve agreement with a competitor,” the School concluded that firms cannot in general obtain or enhance monopoly power by unilateral action—unless, of course, they are irrationally willing to trade profits for positions. Consequently, the focus of antitrust laws should not be on unilateral action; it should instead be on: (1) cartels and (2) horizontal mergers large enough either to create monopoly directly, as in the classic trust cases, or to facilitate cartelization by drastically reducing the number of significant sellers in the market. Since unilateral action … [has been] the cutting edge of antitrust policy for a great many years, to place it beyond the reach of antitrust law … implied a breathtaking contraction in the scope of antitrust policy. (Posner 1979, p. 928)

As Posner (1979) suggests, the Chicago School’s view resulted from applying price theory to antitrust policy, which was a novelty in the 1950s. The tenets of the Chicago School are deductible from the assumptions of pricing theory. Specifically, businesspeople are rational profit maximizers, demand curves slope downward, an increase in price of a product will reduce the demand for its complement, resources gravitate to the areas where they will earn the highest return, and so forth.

The Chicago approach came to be known as the efficiency approach to antitrust: “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” (Bork 1978, p. 91). The efficiency thesis can be explicated by returning to Figure 1. Except for the absence of area R, monopoly rents, Bork (1978, pp. 107-108) uses a diagram

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3For a history of the Chicago School of Antitrust, see Posner (1979). Posner uses the label “Harvard School” to designate the “big is bad, small is good” approach. Landmark treatises on the Chicago approach to antitrust include Posner (1976, 1986), Bork (1978), and Bronz (1982).
similar to our Figure 1 to argue the Chicago School's efficiency thesis. Bork (1978, p. 91) argues that when an industry's aggregate efficiency is maximized, it promotes the goal of the "maximization of wealth or consumer want satisfaction." Therefore, the proper administration of the antitrust laws entails only comparing area I with area E. If in the case of a proposed merger, E exceeds I, then the merger is efficient and the merger should be allowed. Conversely, if I exceeds E, then the merger should be blocked.

This diagram [Figure 1] can be used to illustrate all antitrust problems, since it shows the relationship of the only two factors involved, allocative inefficiency and productive efficiency. The existence of these two elements and their respective amounts are the real issues in every properly decided antitrust case. They are what we have to estimate—whether the cause is about the dissolution of a monopolistic firm, a conglomerate merger, a requirements contract, or a price fixing agreement.... It must also be remembered that there need not always be a tradeoff between I and E. In most cases, in my opinion, economic analysis will show that one of the areas does not exist, and a decision of the case is therefore easy. Some phenomena involve only a dead-weight loss and no, or insignificant, cost savings. That is the case with the garden-variety price-fixing. Output is restricted so that [Q,E] is to the left of [Q], creating the area I, but there is no downward shift of costs, no line [AC], and hence no area E. (Bork 1978, p. 108; notation changed for consistency with Figure 1)

If it appears that Bork (1978) is arguing that the justice department and FTC should administer the antitrust laws by actually estimating the sizes of areas I and E, this would be incorrect. More than two decades earlier, Chamberlin (1954, p. 257) had described attempting such estimates as "flights of fancy." Bork (1978, p. 125) agrees: "Passably accurate measurement of the actual situation [i.e., areas I and E] is not even a theoretical possibility; much less is there any hope of arriving at a correct estimate of the hypothetical situation." He remarks that firms do not know and regulators cannot know the shape of the requisite demand and cost curves to estimate areas I and E because such curves "change continually." Therefore, because a case-by-case approach is impossible, administrative rules should be devised that presume that unilateral action is efficiency enhancing and procompetitive. He declares (pp. 108–109) that antitrust should restrict itself to cartels and other instances of collusion because "most of the mergers the Supreme Court strikes down and the 'price discriminations' the Robinson-Patman Act is intended to stamp out ... are examples ... which involve only efficiency gain and no dead-weight loss."

In the 1970s, the Supreme Court began to rely increasingly on efficiency-based antitrust reasoning (e.g., Continental TV, Inc. v. GTE Sylvania 1977). In the 1980s, under the Reagan administration, the justice department and FTC began to embrace efficiency reasoning and, accordingly, modified their merger guidelines: "The only goal of antitrust is economic efficiency" (Taylor 1982, p. 28). Also in the 1980s, what Lande (1988, p. 447) calls a "counterrevolution" began that emphasized the wealth transfer effects of market power (e.g., Areeda 1983; Campbell 1983; Fox and Sullivan 1987; Hovenkamp 1985). In this ongoing, heated debate, Chicago School proponents are characterized as "efficiency extremists," whereas wealth transfer (area R) advocates are described as "open-minded thinkers" by Lande (1988, p. 455).

An Analysis of the Debate

The striking aspect of the antitrust debate is not the points of disagreement but the commonalities between advocates of the wealth transfer and efficiency views: (1) Both sides agree that partial equilibrium analysis (Figure 1) is the appropriate method of analysis; neither side argues from an evolutionary economics or Austrian economics perspective (Block 1994). Therefore, alternative, nonequilibrium methods are not appropriate starting points for the analysis of antitrust policy. (2) Both sides agree that "competition" means perfect competition; neither side argues for an evolutionary, process view (High 1984–85). Therefore, perfect competition and all of its tenets and assumptions are appropriate for setting antitrust policies. (3) Both sides agree that "monopoly" means simply a downward sloping demand curve; neither side argues that "monopoly" should be restricted to the control of the supply of some generic commodity. Therefore, any firm characterized as having a downward sloping demand curve is a monopoly. (4) Both sides agree that market power (downward sloping demand curves) results in a misallocation of resources and constitutes a major problem for society; neither side argues that downward sloping demand curves are natural and contribute to the efficient allocation of resources. Therefore, government must step in when evidence suggests that a firm has too much market power. (5) Both sides agree that firms are production functions that can be represented as a series of cost curves; neither side argues that cost curves are an inappropriate model for understanding the aspects of firms that are important for public policy. Therefore, Figure 1 is an appropriate tool for analyzing antitrust issues. (6) Both sides agree that firm efficiency (reducing costs while providing equivalent value) is an important consideration; neither side argues that firm effectiveness (increasing value while maintaining equivalent costs) should also be considered. Therefore, the effectiveness of firms is irrelevant in the examination of antitrust policies. (7) Both sides agree that the goal of efficiency is important; neither side argues for the importance of both efficiency and economic growth as goals. Therefore, only efficiency, not economic growth, should be considered in the examination of antitrust policy.

In summary, both sides agree that the neoclassical, equilibrium-based research tradition is the appropriate starting point for analysis. Points of disagreement center on the primary goal of antitrust—that is, is it to prevent wealth transfers or promote efficiency—and such details as the relative sizes of triangle I and rectangles E and R in Figure 1. As Block (1994) points out, for example, it is not the case that Austrian arguments against antitrust are considered and then...

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4See Bork's (1978, p. 107) Figure 1. The Chicago School ignores area R because it represents only transfer payments from one group of consumers (the buyers of particular firms' products) to another group of consumers (the producers of the products).

5Indeed, High (1984–85) argues that Bork's (1978) analysis is a paradoxical blend of static and dynamic theory.
rejected. Rather, Austrian arguments are not considered at all, because they cannot be expressed in "blackboard economics." That is, Austrian arguments—for example, that the debate wrongly assumes that interpersonal comparisons of utility are possible—are not considered because they cannot be expressed in terms of shifts in demand and cost curves in static equilibrium.

The antitrust debate is an example of the power of a research tradition to frame all aspects of a debate. We argue that both good science and good public policy require moving the antitrust debate beyond the neoclassical, equilibrium-based tradition. Our analysis shows that both the wealth transfer and efficiency approaches to antitrust are misguided.

The key to understanding how misguided the antitrust debate has been is recognizing that Figure 1 is meaningless in most antitrust cases. The existence of $P_c$ (the competitive price) and $Q_c$ (the quantity produced under perfect competition) requires the intersection of one demand curve and one supply curve for one homogeneous commodity. But a homogeneous commodity requires the existence of both homogeneous industry demand and homogeneous industry supply. Homogeneous industry demand, in turn, requires homogeneous tastes and preferences. Likewise, homogeneous supply requires firms to be combiners of homogeneous and perfectly mobile resources that use a standard production function. In most industries, however, demand is not homogeneous (Alderson 1957, 1965; Chamberlin 1962; Hunt and Morgan 1995). Similarly, the firms in most industries cannot be approximated by the cost curves associated with homogeneous and perfectly mobile resources and a standard technology (Barney 1991, 1992; Conner 1991; Hunt and Morgan 1995; Penrose 1959; Wernerfelt 1984).

Therefore, in most of the antitrust cases actually prosecuted, the demand and (implicit) supply curves in Figure 1 do not and cannot exist. To use Chamberlin's (1962, p. 9) famous example, it makes no sense to refer to the demand for automobiles. Because the existence of the competitive price $P_c$ and the competitive quantity $Q_c$ in Figure 1 requires industry demand and supply curves (with all firms expanding output to the quantity such that price equals marginal cost equals minimum average cost), $P_c$ and $Q_c$ in Figure 1 are meaningless concepts. Therefore, because demand $D$, price $P_c$, and quantity $Q_c$ are meaningless concepts in most antitrust cases, the deadweight loss, monopoly rents, and efficiency gain $E$ are equally meaningless.

In short, Figure 1 (in all its various manifestations) is meaningless in most antitrust cases and cannot be used to provide a foundation for meaningful debate on antitrust policy and implementation. Therefore, the antitrust debate framed by Figure 1, for advocates of both the wealth transfer and efficiency approaches, has been misguided by the neoclassical tradition.

It is important to distinguish between the meaningless claim made here and the measurability claim of the Chicago School. Recall that Bork (1978), though claiming that Figure 1 applies to "all antitrust problems" (p. 108), argues that accurate measures of rectangle E and triangle I are impossible because the shapes of the requisite demand and supply curves "change continually" (p. 126). It is no doubt true that even in the few industries in which demand and supply are close enough to being homogeneous, empirically estimating such curves for the purpose of antitrust is thwarted by (among other things) changing economic circumstances. However, the claim made here is much more radical than just pointing out a difficult problem of measurement. We argue that in the overwhelming majority of antitrust cases, Figure 1 is totally meaningless—it makes no sense at all. It is not the case that demand and supply curves are difficult to measure; it is the case that demand and supply curves cannot exist and therefore cannot be estimated. Making sense should be a minimum desideratum of any science, and Figure 1 fails the sense-making criterion of science.

For example, in 1997 the FTC requested and was granted a preliminary injunction blocking the proposed merger of Staples and Office Depot (FTC v. Staples Inc. 1997). Consider how the case was argued. The FTC argued that if such a merger took place, competition would be harmed. Because the merger would eliminate the most significant rival in the office superstore market, it was suggested that Staples would be able to maintain prices at the current level or even increase them after the merger (Monroe 1999). In reply, Staples argued that the merger would result in efficiencies that would be passed on to the consumer (Figure 1, rectangle E). However, the federal district court ruled in favor of the FTC. The court ruled that Staples could neither justify the proposed efficiencies nor show a history of passing on savings to the consumer. Therefore, at the least, the merger would enable Staples to raise prices and collect monopoly rents (rectangle R in Figure 1; a wealth transfer argument); at worst, any efficiencies realized from the merger, the court concluded, would not outweigh the deadweight inefficiency loss (i.e., the area of triangle I would be larger than the area of rectangle E in Figure 1; an efficiency argument). However, the arguments used by the court require that Figure 1 and all of its assumptions are an accurate depiction of competition, which is false. There is no industry demand curve in the office superstore market, nor is there a supply curve. Therefore, there can be no competitive price or monopoly rents.

It can be argued that some firm's prices and profits, on some particular criterion, are too high; however, Figure 1 cannot be used to so argue. Furthermore, it can be argued on some particular criterion that wealth should be redistributed from the producers or buyers of a product to other buyers or producers, but Figure 1 cannot be used to so argue. Likewise, it can be argued on some particular criterion that "big is bad; small is good." Assuredly, however, Figure 1 cannot be used to so argue. As O'Driscoll (1986, p. 157) points out, "Advocates believe that economic intervention can protect and promote competition. This position may be defensible if competition is defined in terms of equilibrium conditions in a static model. The position of antitrust advocates is more suspect if one defines competition as a process."

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9For a more detailed account of this case and its many implications, see Baker (1999) and Monroe (1999)
In the early 1990s, efficiency-based reasoning was dealt a setback by the Supreme Court in *Eastman Kodak v. Image Technical Services Inc.* (1992; Lande 1993). As Schleicher (1997, p. 311) stresses,

The U.S. Supreme court ... apparently abandoned its former strict application of the Chicago approach and used the "post-Chicago" antitrust theory. The court, contrary to its prior antitrust decisions, did not view the plaintiffs' claims purely in terms of efficiency, but focused on information costs as market imperfections that should be remedied by antitrust law.

The post-Chicago approach is associated with such scholars as Banz, Gortner, and Picker (1994), Baker (1989), Hovencamp (1985), Lande (1988, 1993), Salop (1992), and Williamson (1987). As Gundlach (2001) points out, post-Chicago advocates are much more likely to use game theory to examine the dynamic aspects of competition that involve strategic business behaviors under conditions of imperfect information. Furthermore, rather than the norm-based, deductive, abstract approach of the Chicago School, post-Chicago economists—though not a monolithic group—are much more likely to use an inductive, empirical, fact-based approach. Because post-Chicago analyses are more dynamic and empirical, they might therefore be expected to eschew arguments such as those illustrated by Figure 1. But such is not the case. Indeed, Lande (1988, p. 241), a prominent post-Chicago advocate, uses a version of Figure 1 to argue that "the wealth transfer approach is starting to replace the efficiency standard and eventually will succeed at implementing Congressional populist sentiment in an administrable, predictable manner."

That post-Chicago analyses continue to be grounded in Figure 1 is unsurprising. After their econometric analyses in particular cases, post-Chicagoans still resort to the use of comparative norms such as the competitive price and the competitive quantity (\(P_c\) and \(Q_c\) in Figure 1) from equilibrium economics. Thus, Salop (1992, p. 20) correctly concludes that his "work shares the same basic economic paradigm as Chicago," because both are grounded in equilibrium economics and its theory of perfect competition. That is, both employ concepts (i.e., \(P_c\) and \(Q_c\)) that are totally meaningless in most antitrust cases.

If both Chicago and post-Chicago analyses are grounded in concepts that are meaningless in most antitrust cases, what determines the outcomes of such cases? Jacobs (1995) provides a provocative answer to this question in his meticulously developed review of the foundations of antitrust. Jacobs chronicles the rise of the Chicago School and details its debate with post-Chicago adherents. He then inquires as to the kind of data that would be necessary for the debate to be resolved through empirical testing and concludes,

Although the disputants fail to acknowledge it, the absence of empirical proof about the efficiency effects of many business practices, the competitive consequences of large firm size, the profligacy of firms to collude, and the efficacy of government intervention, has only retarded the emergence of clear answers to the questions under debate, but has also obscured the very nature of that debate. (p. 259)

If theory-driven empirical testing cannot resolve antitrust issues, what does? This is Jacobs's answer:

To the question of why refrain (or intervene), Chicagoans would claim that, for the most part, markets function efficiently and courts do not. Post-Chicagoans would argue precisely the opposite... [Both] their theses rest on unproven beliefs about markets and government.... At bottom, the debate between Chicago and post-Chicago economists implicates contending articles of political faith. (p. 259)

We agree. The primary determinant of what is legal or illegal, rewarded by accolades or punished by fines (and jail sentences), appears not to be antitrust law grounded in meaningful economic theory. Rather, it is the ideology of elected presidents and appointed regulators and judges, in conjunction with the rhetorical skills of lawyers and expert witnesses. This should concern all who value civil liberties and the rule of law.

We suggest that a process view of competition could provide a useful theoretical base from which the different components of antitrust policy could be meaningfully debated. With this commentary in mind, we now present a brief overview of a process-based theory of competition—R-A theory.

### An Overview of R-A Theory

Resource-advantage theory is a general theory of competition that describes the process of competition. As a result, exploring its implications does not involve solving sets of equations, as in neoclassical, mainstream economics. As Burt (1992, pp. 5–6) emphasizes,

[Competition is a process not a result. With important exceptions, most theories of competition concern what is left when competition is over. They are an aside in efforts to answer the practical question of how to maximize producer profit ... The alternative is to start with the process of competition and work toward its result. This is a less elegant route for theory, but one that gets closer to the reality of competition as we experience it.]

Therefore, we explicate R-A theory using a descriptive approach. In Figures 2 and 3, we provide a schematic depiction of R-A theory's key constructs, and in Table 1 we provide its foundational premises. Our overview will follow closely Hunt's (2000b) discussion of the theory.

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<tr>
<th>Table 1. Foundational Premises of R-A Theory</th>
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<tr>
<td>(P_1): Demand is heterogeneous across industries, heterogeneous within industries, and dynamic</td>
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<td>(P_2): Consumer information is imperfect and costly</td>
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<td>(P_3): Human motivation is constrained self-interest seeking</td>
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<td>(P_4): The firm's objective is superior financial performance</td>
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<td>(P_5): The firm's information is imperfect and costly</td>
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<td>(P_6): The firm's resources are financial, physical, legal, human, organizational, informational, and relational</td>
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<td>(P_7): Resource characteristics are heterogeneous and imperfectly mobile</td>
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<td>(P_8): The role of management is to recognize, understand, create, select, implement, and modify strategies</td>
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<td>(P_9): Competitive dynamics are disequilibrium provoking; innovation is endogenous</td>
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7For a discussion of when \(P_1\) and \(Q_1\) would not be meaningless, see Hunt (2000b, pp. 240–47).
The Structure of R-A Theory

Using Hodgson's (1993) taxonomy, R-A theory is an evolutionary, disequilibrium-provoking, process theory of competition, in which innovation and organizational learning are endogenous: firms and consumers have imperfect information; and entrepreneurship, institutions, and public policy affect economic performance. Evolutionary theories of competition require units of selection that are (1) relatively durable—that is, can exist, at least potentially, through long periods of time—and (2) heritable—that is, can be transmitted to successors. In R-A theory, both firms and resources are proposed as the heritable, durable units of selection, and competition for comparative advantages in resources constitutes the selection process.


Contrasted with perfect competition, heterogeneous demand theory views intratrade demand as significantly heterogeneous with respect to consumers' tastes and preferences. Therefore, viewing products as bundles of attributes, different market offerings or bundles are required for different market segments within the same industry. Contrasted with the view that the firm is a production function that combines homogeneous, perfectly mobile factors of production, the resource-based view holds that the firm is a combiner of heterogeneous, imperfectly mobile factors, which are labeled "resources." These heterogeneous, imperfectly mobile resources, when combined with heterogeneous demand, imply significant diversity as to the sizes, scopes, and levels of profitability of firms within the same industry. As diagrammed in Figures 2 and 3, R-A theory stresses the importance of (1) market segments, (2) heterogeneous firm resources, (3) a comparative advantage/disadvantage in resources, and (4) marketplace positions of competitive advantage/disadvantage.

In brief, market segments are defined as intratrade groups of consumers whose tastes and preferences with regard to an industry's output are relatively homogeneous. Resources are defined as the tangible and intangible entities available to the firm that enable it to produce efficiently and/or effectively a market offering that has value for some marketing segments. Thus, resources are not just land, labor, and capital as in neoclassical theory. Rather, resources can be categorized as financial (e.g., cash resources, access to financial markets), physical (e.g., plant, equipment), legal (e.g., trademarks, licenses), human (e.g., the skills and knowledge of individual employees), organizational (e.g., competences, controls, policies, culture), informational (e.g., knowledge from consumer and competitive intelligence), and relational (e.g., relationships with suppliers and customers). Each firm in the marketplace will have a unique set of resources (e.g., knowledgeable employees, efficient production processes) that could constitute a comparative advantage in resources that could lead to positions of advan-

Figure 2. A Schematic of R-A Competition

<table>
<thead>
<tr>
<th>Societal Resources</th>
<th>Societal Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resources</td>
<td>Market Position</td>
</tr>
<tr>
<td>- Comparative advantage</td>
<td>- Competitive advantage</td>
</tr>
<tr>
<td>- Parity</td>
<td>- Parity</td>
</tr>
<tr>
<td>- Comparative disadvantage</td>
<td>- Competitive disadvantage</td>
</tr>
<tr>
<td>Financial Performance</td>
<td></td>
</tr>
<tr>
<td>- Superior</td>
<td>- Parity</td>
</tr>
<tr>
<td>- Parity</td>
<td>- Competitive disadvantage</td>
</tr>
<tr>
<td>- Inferior</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Competition is the disequilibrating, ongoing process that consists of the constant struggle among firms for a comparative advantage in resources that will yield a marketplace position of competitive advantage and therefore superior financial performance. Firms learn through competition as a result of feedback from relative financial performance that signals relative market position, which in turn signals relative resources. Source: Adapted from Hunt and Morgan (1997).
Figure 3. Competitive Position Matrix

<table>
<thead>
<tr>
<th>Relative Resource-Produced Value</th>
<th>Lower</th>
<th>Parity</th>
<th>Superior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower</td>
<td>1 Indeterminate Position</td>
<td>2 Competitive Advantage</td>
<td>3 Competitive Advantage</td>
</tr>
<tr>
<td>Parity</td>
<td>4 Competitive Disadvantage</td>
<td>5 Parity Position</td>
<td>6 Competitive Advantage</td>
</tr>
<tr>
<td>Higher</td>
<td>7 Competitive Disadvantage</td>
<td>8 Competitive Disadvantage</td>
<td>9 Indeterminate Position</td>
</tr>
</tbody>
</table>

Notes: The marketplace position of competitive advantage identified as Cell 3 results from the firm, compared with its competitors, having a resource assortment that enables it to produce an offering for some market segments that (1) is perceived to be of superior value and (2) is produced at lower costs. Source: Hunt and Morgan (1997)

It is genuinely entrepreneurial in the classic sense of entrepreneur. In contrast, the latter is innovation that is directly prompted by the learning process of firms competing for the patronage of market segments. Both proactive and reactive innovation contribute to the dynamism of R-A competition.

Firms (attempt to) learn in many ways—using formal market research, seeking out competitive intelligence, dissecting competitors' products, benchmarking, and test marketing. What R-A theory adds to extant work is how the process of competition itself contributes to organizational learning. As the feedback loops in Figure 2 show, firms learn through competition as a result of the feedback from relative financial performance that signals relative market position, which in turn signals relative resources. When firms that are competing for a market segment learn from their inferior financial performance that they occupy positions of competitive disadvantage (see Figure 3), they attempt to neutralize and/or leapfrog the advantaged firms by acquisition and/or innovation. That is, they attempt to acquire the same resource as the advantaged firms and/or to innovate by imitating the resource, finding an equivalent resource, or finding (creating) a superior resource. Here, "superior" implies that the innovating firm's new resource enables it to surpass the previously advantaged competitor in terms of relative efficiency, relative value, or both.

Firms occupying positions of competitive advantage can continue to do so if (1) they continue to reinvest in the resources that produced the competitive advantage and (2) rivals' acquisition and innovation efforts fail. Rivals will fail (or take a long time to succeed) when an advantaged firm's resources either are protected by such societal institutions as patents or are causally ambiguous, socially complex, or tacit or have mass efficiencies or time compression diseconomies.

Competition, then, is viewed as an evolutionary, disequilibrium-provoking process. It consists of the constant struggle among firms for comparative advantages in resources that will yield marketplace positions of competitive advantage and therefore superior financial performance. When a firm's comparative advantage in resources enables it to achieve superior performance through a position of competitive advantage in some market segments, competitors attempt to neutralize and/or leapfrog the advantaged firm through acquisition, imitation, substitution, or major innovation.

Therefore, R-A theory is inherently dynamic. Disequilibrium, not equilibrium, is the norm. In the terminology of Hodgson's (1993) taxonomy of evolutionary economic theories, R-A theory is noncumulative: It has no end-stage, only a never-ending process of change. The implication is that though market-based economies are moving, they are not moving toward some final state, such as a Pareto-optimal general equilibrium.

Public Policy and R-A Theory
Recall that in the equilibrium-based tradition "monopoly," "monopoly power," and "monopoly profits" morphed from the control of the supply of a generic commodity and the power and profits associated with such control to firms (1) having downward sloping demand curves, (2) being price setters and quantity takers (rather than price takers and...
quantity setters), and (3) having the profits associated with price setting. Thus, "monopoly profits" in the equilibrium-based tradition became not the profits of monopoly but the profits of any firm that had pricing discretion.

Consider the "5% rule" in the merger guidelines adopted by the U.S. Department of Justice in 1982. The guidelines state that the "unifying theme ... is that mergers should not be permitted to create or enhance 'market power' or to facilitate its exercise ... [because] the result is a transfer of wealth from buyers to sellers and a misallocation of resources" (U.S. Department of Justice 1982, pp. 2-3). As to whether "market power" exists, as a first approximation the Department will hypothesize a price increase of five percent and ask how many sellers could sell the product to such customers within one year (U.S. Department of Justice 1982, p. 13). Note that any firm is automatically suspected of anticompetitive behavior when it has a competence that enables it to produce a market offering that is more reliable or has higher quality and therefore is worth 5% more to consumers. Note also that the 5% rule was promulgated by those labeled as free-market extremists by advocates of even more stringent antitrust enforcement (Lande 1988). Such is how equilibrium-based theory has misguided the debate.

Sensible debate on public policy requires reconceptualizing competition and monopoly. For R-A theory, "competition" implies a particular kind of evolutionary process, not a particular kind of market structure. Likewise, for R-A theory, the term "monopoly" has its classical meaning, that is, a firm having control over the supply of a generic commodity. Furthermore, the existence of firms having downward sloping demand curves signifies neither the absence of competition nor a problem for government to solve. Rather, such curves are the natural product of heterogeneous demand and signify the presence of the evolutionary process of competition. Moreover, because the general case of competition is that firm resources are heterogeneous and imperfectly mobile, then—contra the 5% rule—competition is expected to produce price differentials that are often long-lasting. It is the process of R-A competition, we argue, that public policy should encourage.

For R-A theory, sensible debate on public policy also requires examining the issue of static efficiency versus dynamic efficiency. It is sometimes maintained that public policymakers face a trade-off between static and what is (misleadingly) referred to as dynamic efficiency. That is, policies that promote competition and the efficient allocation of scarce, tangible resources are often argued to be inconsistent with the goal of promoting the innovations that result in economic growth. However, the trade-off disappears when "competition" is no longer defined as perfect competition: Vigorous R-A competition promotes (1) the efficient allocation of scarce tangible resources; (2) the proactive and reactive innovations that result in increases in effectiveness; and (3) the creation of the new tangible, intangible, and higher-order resources that drive economic growth (Hunt 2000b; Hunt and Morgan 1995, 1996, 1997).

Therefore, to the extent that the goals of public policy are wealth creation, productivity (i.e., efficiency and effectiveness), and economic growth, policymakers should promote formal and informal institutions that promote R-A competition. That is, public policy should promote the evolutionary process that consists of the constant struggle of firms for comparative advantages in resources that yield marketplace positions of competitive advantage and therefore superior financial performance. Important formal institutions are those that protect property rights in particular and promote economic freedom in general. Important informal institutions include those that promote social trust. Consider, for example, the cases of marginal tax rates and intellectual property rights.

Recall that R-A theory posits that the primary objective of firms is superior financial performance because such performance leads to superior rewards flowing to owners, managers, and employees. Institutions that promote the linkage between performance and rewards therefore promote vigorous R-A competition. That is, individuals must perceive the link between superior firm performance and their own personal rewards. Consequently, low marginal tax rates for both firms and individuals promote the linkage between performance and rewards, which in turn promotes R-A competition and thus productivity and economic growth.

Now recall that R-A competition prompts the proactive and reactive innovations that create the new tangible, intangible, and higher-order resources that ultimately result in productivity and economic growth. Vigorous competition therefore requires institutions that promote the linkage between resource creation and rewards. That is, vigorous competition requires institutions that protect the property rights that firms and individuals have in the innovations they create. With its focus on intangible and higher-order resources, R-A theory emphasizes the importance of protecting intellectual property rights, as Sherwood (1990) stresses. That is, it is not just protecting tangible, physical property from expropriation or protecting inventions by a strong patent system that is important. Equally important is institutional protection of trade secrets, copyrights, trademarks, and "mask works."10

Analyses similar to those can easily be made to show how other aspects of economic freedom (e.g., low tariffs, low inflation, the absence of quotas and licensing requirements) promote R-A competition. In short, formal institutions protecting property rights and promoting economic freedom promote R-A competition. In turn, R-A competition promotes productivity and economic growth. Therefore, to the extent that the goals of public policy are wealth creation, productivity, and economic growth, policymakers should promote formal and informal institutions that promote R-A competition.

It should be emphasized that R-A theory is a work in progress. Much work remains to be done fleshing out its public policy implications. Nonetheless, as an evolutionary, process view of competition, R-A theory provides a viable starting point from which to debate antitrust issues. It also

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8See U.S. Department of Justice (1982)

9Sherwood (1990) argues that the protection of intellectual property is—contrary to conventional wisdom—at least as important to developing countries as it is to developed countries for promoting economic growth.

10A mask work is defined as "the expression of a design for elements of a semiconductor 'chip' which is exclusive to its creator; it falls between patent and copyright in concept" (Sherwood 1990, p. 12)
provides public policy researchers with many potentially fruitful avenues for empirical investigation. As with any theory, R-A theory's worth can be evaluated only through critical discussion and empirical investigation. Prior explications of the theory in several articles spanning a wide variety of disciplines suggest possible topics for inquiry. In an effort to aid researchers, we provide topics that may be of interest to public policy researchers. (To improve readability, we do not provide multiple citations from individual articles. Instead, we provide specific page numbers from Hunt [2000b], which in turn references other articles.)

Resource-advantage theory may enhance the understanding of a variety of areas pertinent to public policy research; for example, it contributes to explaining firm diversity (pp. 152–55); makes the correct prediction regarding financial performance diversity (pp. 153–55); contributes to explaining observed differences in quality, innovativeness, and productivity between market-based and command-based economies (pp. 169–70); shows why competition in market-based economies is dynamic (pp. 132–33); incorporates the resource-based view of the firm (pp. 85–86); incorporates the competence view of the firm (pp. 87–89); has the requisites of a phylogenetic, nonconsummatory, and disequilibrium-provoking theory of competition (pp. 23–24); explicates the view that competition is a process of knowledge discovery (pp. 29–30, 145–47); contributes to explaining why social relations constitute a resource only contingently (pp. 100–102); and has the requisites of a moderately socialized theory of competition (pp. 100–102).

In addition, R-A theory shows how path dependence effects occur (pp. 149–52), expands the concept of capital (pp. 186–90), predicts correctly that technological progress dominates the K/L (i.e., capital/labor) ratio in economic growth (pp. 193–94), predicts correctly that increases in economic growth cause increases in investment (pp. 194–99), predicts correctly that most of the technological progress that drives economic growth stems from actions of profit-driven firms (pp. 199–200), predicts correctly that R-A competition can prevent the economic stagnation that results from capital deepening (pp. 200–203), contributes to explaining the growth pattern of the (former) Soviet Union (pp. 201–203), provides a theoretical foundation for why formal institutions promoting property rights and economic freedom also promote economic growth (pp. 215–28), provides a theoretical foundation for why informal institutions promoting social trust also promote economic growth (pp. 235–37), and has the requisites for a general theory of competition that incorporates perfect competition as a limiting special case, thereby incorporating the predictive success of neoclassical theory and preserving the cumulative nature of economic science (pp. 240–43).

We believe that further investigations of these issues will lead to valuable insights for the area of public policy and marketing. We invite researchers to help develop the implications of the theory in more detail by using the preceding suggestions as starting points.

References


