



U.S. Small Business Administration  
Office of Advocacy

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# **The Invisible Part of the Iceberg: Research Issues in Industrial Organization and Small Business**

*Proceedings of a conference held January 21, 2000*

The Office of Advocacy of the U.S. Small Business Administration was established in 1976 by Congress under Public Law 94-305 to, among other things, examine the current role of small business in the economy, present current and historical data on the small-business sector, and identify economic trends which will or may affect the small-business sector and the state of competition. In fulfillment of this mandate, the Office of Advocacy funds research and publishes reports, such as *The State of Small Business*, *Small Business Profiles*, the *Small Business Answer Card*, and *Small Business Economic Indicators*.

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# **The Invisible Part of the Iceberg: Research Issues in Industrial Organization and Small Business**

Office of Advocacy  
U.S. Small Business Administration  
Washington, D.C.: 2000

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## Foreword

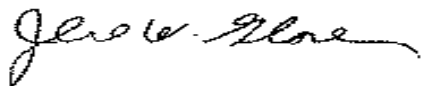
A standing-room-only crowd packed the House Small Business Committee's hearing room on January 21, 2000, for the Office of Advocacy's research conference on "The Invisible Part of the Iceberg: Research Issues in Industrial Organization and Small Business." The daylong meeting featured leading academics, senior policy makers and interest group representatives, all of whom contributed valuable ideas on antitrust policy and research concerns affecting small business.

They played to a diverse and high-level audience that included a member-designate of the Council of Economic Advisers, officials from a score of federal agencies, the CEO of a high technology startup company who flew in from Silicon Valley, and a variety of researchers, lobbyists, and others.

In opening the program, I stressed that I had no preconceptions about the outcome. But I hoped to hear how views of industrial organization, traditionally seen as a large-firm research and policy matter, may have changed. Also, I wanted to come away with some useful suggestions for determining whether the ongoing changes in the economy warrant any changes in Advocacy's research agenda or in federal policies to foster competition. I got an earful. This volume summarizes what was said that day. Full copies of the papers are posted on the Office of Advocacy web site, [www.sba.gov/advo](http://www.sba.gov/advo), which also contains internal studies, data from other agencies, contractors' reports, testimony, and agency comment letters, on a variety of small business topics.

In closing, let me express my warm appreciation to those who worked so hard to make the conference the success that it was and to produce these proceedings: the speakers, conference organizer and summarizer Fred Tarpley, and from the Office of Advocacy, Chief Economist Robert E. Berney, Senior Economic Advisor Kenneth D. Simonson, Senior Editor Kathryn Tobias, and Administrative Support Staff Darlene A. Moye-Mahmoud.

As always, feedback on Office of Advocacy projects and publications is welcome. Contact me at (202) 205-6533, via fax at (202) 205-6928, or by writing to: Office of Advocacy, 409 Third Street, SW, Washington, DC 20416.



Jere W. Glover  
Chief Counsel for Advocacy  
U.S. Small Business Administration

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## Executive Summary

In the 1980s, policy makers were concerned that the U.S. economy was losing its competitive edge to the Asian “tigers” and some European economies. These countries seemed to know how to maximize efficiency through coordination of activity by government and large companies. What a difference a decade has made! By the late 1990s, the United States had re-emerged as the undisputed leader in producing new jobs and innovations, and rising productivity has kept inflation at bay.

What is less well known is that a considerable amount of “churning”—startup and closing of firms, large and small—has been responsible for this unprecedented reinvigoration of the U.S. economy. Economic growth has been led by innovation, particularly in high-technology firms that began as small enterprises.

The remarkable contribution of small, high-tech firms to U.S. economic growth suggests that it is time to re-examine laws and policies regarding industrial organization. Formerly, many economists believed it was healthy for the economy to enable firms to achieve a “minimum efficient scale,” rather than permit a host of supposedly less efficient small firms to operate. But the emergence of many small, innovative competitors may suggest that policies should more actively encourage small firm formation.

These issues and others were explored in the Office of Advocacy’s recent research conference on “The Invisible Part of the Iceberg: Research Issues in Industrial Organization and Small Business.” Led by Chief Counsel for Advocacy Jere W. Glover, of the U.S. Small Business Administration, a spectrum of economists, lawyers and others from universities, government, and interest groups, reviewed the record and made recommendations for further research or for policy changes.

Three speakers highlighted the disproportionate contribution of small startup firms. Harvard Professor F.M. Scherer documented how even a tiny number of startup firms, particularly in certain high-tech fields, can keep competition vigorous. David Audretsch of Indiana University argued that small and new firms increase the economy’s efficiency, contrary to the prevailing wisdom that larger firms are more efficient than small ones. New York University (NYU) Professor Boyan Jovanovic documented the increasing importance of small-firm initial public offerings, especially high-tech stocks, in advancing technological change and increasing economic efficiency. And conference organizer Fred Tarpley, Advocacy’s former chief economist, pointed out that technological changes can alter minimum efficient scale in ways that favor either smaller or larger firms.

John Kwoka of George Washington University and Lawrence White of NYU presented data showing a slow but steady decline in the share of jobs accounted for by small employers and recommended research, by industry, into whether these changes resulted from natural consequences or deliberate strategies by large firms. Other speakers suggested that policies either are needed or are already in place to protect small firms. Specifically, Scherer warned that recent changes in patent and copyright laws may make it harder for some high technology startups to achieve this role. Albert A. Foer, president of the American Antitrust Institute, traced the history of antitrust law, threw his support behind recent initiatives by the Federal Trade Commission (FTC) that he deemed helpful to small firms, and made a case for why small business should support broad antitrust enforcement. He cited the FTC’s successful opposition of the proposed merger of Staples and Office Depot as a step that had saved small businesses \$200 million per year as office supply customers. Adam Golodner, chief of staff of the Justice Department’s

Antitrust Division, stressed the administration's commitment to keeping markets open for small businesses as both competitors and customers.

However, NFIB Education Foundation Senior Research Fellow William J. Dennis and Competitive Enterprise Institute President Fred L. Smith were less complimentary toward government's role. Dennis cited the support that state and local governments give large firms in the form of tax breaks and targeted spending as ways that they tilt the playing field against small business. Smith argued that antitrust policy, as well as international groupings of governments, such as the World Trade Organization, actually work against innovation and startups by defending the status quo.

The remainder of this volume contains a more detailed summary of the individual presentations, panel discussion and a resulting research agenda. Full copies of the papers are posted on the Office of Advocacy web site, [www.sba.gov/advo](http://www.sba.gov/advo).



## **The Invisible Part of the Iceberg: Research Issues in Industrial Organization and Small Business**

On January 21, 2000, the Office of Advocacy of the U.S. Small Business Administration convened a conference titled “The Invisible Part of the Iceberg: Research Issues in Industrial Organization and Small Business.” The conference was held in the Cannon House Office Building. An audience of 110 economists, lawyers, and other policy professionals representing 42 separate organizations in both the executive and legislative branches of government, academia, small business trade associations, and the nonprofit community, participated in the conference.

The conference program consisted of opening remarks by Chief Counsel for Advocacy Jere W. Glover, papers by five economists and one attorney, and a luncheon address by Adam Golodner, chief of staff of the Antitrust Division of the U.S. Department of Justice. Also included on the program were a panel discussion on issues of rapid technological advance and globalization, especially as they affect small technology-based firms, and a wrap-up session in which participants and members of the audience were asked to identify research issues and areas.

### **Jere W. Glover**

Chief Counsel for Advocacy  
U.S. Small Business Administration

In his opening remarks, Chief Counsel for Advocacy Jere Glover commented that his 30 years of involvement with small business policy issues have increased his understanding that the small business role and place in the American economy can best be understood from the evolutionary or dynamic perspective. Unfortunately, economists, lawyers, and other policy professionals have traditionally examined this role using essentially static analysis

One function of the Office of Advocacy is to make available data, analyses, and tools for others to identify small business contributions to the economy, as well as policies and trends that affect those contributions. The results of that work appear in part in *The State of Small Business: A Report of the President*, reports produced by Advocacy’s Office of Economic Research on bank lending to small businesses, state-by-state small business profiles, conferences such as this one, and a small program of contract research.

Three contributions that small businesses make are especially germane to the day’s discussion, Glover said: improving competition, stimulating innovation and entrepreneurship, and providing an avenue through which new and untested products and services can be brought to the marketplace.

He articulated two goals for the conference: to initiate a dialogue on issues relating to small business and industrial organization, which traditionally has been viewed as a subject primarily affecting large businesses, and to identify policy and research issues in small business and industrial organization.

## **F. Michael Scherer**

Aetna Professor of Public Policy and Corporate Management  
John F. Kennedy School of Government, Harvard University

Professor Scherer presented a paper titled “Industrial Organization, Antitrust, and Small Business.” Small businesses impart much of the dynamism that characterizes the American economy, he said. Millions of small businesses have been started in the last decade. Probably half will eventually cease operations. Many others will muddle along; others will grow moderately; but a small fraction will grow spectacularly and become leading producers of goods and services.

In two parts of the economy, small businesses will make major contributions. First, small firms will excel where the provision of a service is closely linked to the environment in which the customer operates. That is, buyers will increasingly demand customized products and services, and this demand for customization will continue in the age of the Internet and the computer. Second, small technology-based companies will play an important role in technological change. This portion of the small business sector is responsible for a disproportionate part of the dynamism of the American economy. He illustrated this point by looking at the growth of the top 5 percent of venture-capital-financed companies from the 1960s, 1970s, and 1980s. While these represent a very small fraction of a very large number of firms, they constitute a major portion of the total venture capital portfolio.

Scherer addressed the question of why high-tech startups make such an important contribution to the dynamism of the American economy. He concluded that large firms, despite having superior resources and organization for initiating innovation, suffer from two problems:

- First, large firms with strong market positions are often unwilling to introduce new products in existing markets that would cannibalize existing sales and profits, absent outside competitive pressures.
- Second, while large firms often do a good job in responding to consumer demand for incremental improvements, their response to significant changes in consumer demand for products is less forthcoming when this response requires radical changes in technology and/or product design.

On the other hand, small startup firms often not only make discontinuous changes in technology and design but are also good at doing so. Often, radical changes in technology and design are the competitive weapons of choice for small businesses.

Scherer did add one cautionary qualification: existing firms whose sales and market position are challenged by small newcomers’ innovative products often adopt a “fast second” response. This response may include copying the new competitor's product through reverse engineering and may be accompanied by aggressive marketing, promotional activities, and even attempting direct legal barriers against the newcomers. These barriers can include the threat or actuality of patent infringement litigation, whether justified or not.

The Supreme Court in the case of *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.* (92-466), 509 U.S. 209 (1993) set a very high standard for small firms trying to prove predatory pricing on the part of a dominant large firm. The price charged by the dominant firm must be below not only average total cost, but most likely the average variable cost as well. Additionally, small firms must shoulder the burden (and attendant high legal fees) of proving that the large firm has recovered or can be expected to recover, with later price increases, any losses it accrued by engaging in predatory pricing.

Dominant large firms often challenge small newcomers by initiating patent and copyright litigation. Scherer observed that over the last two decades, the law and the organization of the court system have changed, to the detriment of small high-tech innovators. In 1983, the Congress created a new Appellate Court for the Federal Circuit, which had as part of its jurisdiction patent and copyright cases. The new court was staffed by intellectual property attorneys. Without making any explicit change in patent and copyright law, this reorganization of the court system had a substantial negative effect on small businesses. The presumption in favor of existing patents was significantly strengthened. Before 1993, two-thirds of the patents challenged were found to be invalid or not infringed. Since 1993, this ratio has been reversed, meaning it is now much harder for small newcomers to innovate successfully, and easier for large incumbents to defend their market position.

The cost of defending a patent infringement suit has increased dramatically. The mere threat of a suit, even when the patent position of the dominant firm is far from clear, often constitutes a major threat to the entrepreneurial firm. This threat has been compounded by a 1993 Supreme Court decision that makes it more difficult to prove that the incumbent's case is a sham and thus subject to reasonable damages. Scherer concluded by noting that as serious as these threats may be, small technology-based businesses have an impressive record of growth and innovation.

### **Albert A. Foer**

President, American Antitrust Institute

The purpose of Mr. Foer's paper on "Why the Little Guys Left the Fold and Why They Should Return" was to examine how small business fits into the post- "Chicago school" antitrust agenda.

Foer, a former Federal Trade Commission (FTC) official, identified four ways an effective antitrust policy can serve the needs of small businesses. Antitrust policies should restrain:

- market power on the supply side, thus bringing down the prices of goods and services used by small businesses;
- market power on the buying side in order to protect small businesses from being forced to sell to a monopoly;
- competitors from unfairly blocking entry into a market or acting in an unfairly oppressive manner; and
- market power in vertical relations, for example, upstream suppliers that attempt to acquire downstream distributors, thus foreclosing competitors from markets.

Foer reviewed recent antitrust activity from the small business perspective. The American Booksellers Association persuaded the FTC to oppose the merger of Barnes & Noble and Ingram Publishing. Ingram Publishing is a primary supplier of small booksellers, whereas Barnes & Noble is one of the largest book retailers. The American Booksellers Association felt that the independence of many of its members was at stake if the primary supplier were owned by a major competitor. Under threat of FTC action, Barnes & Noble walked away from the merger.

The FTC recently opposed the merger of Staples and Office Depot, two of the major superstore chains in office supplies. Economists at the FTC estimated that the merger would cost purchasers of office supplies, many of which were small businesses, \$200 million per year.

In 1998 the FTC brought a case called Fair Allocation System (United States of America before the Federal Trade Commission in the Matter of Fair Allocation System, Inc., a corporation, File No. 971 0065). This case involved protecting access to the market. A group of 25 Chrysler dealers in Idaho and nearby states formed an association called Fair Allocation System in order to coerce Chrysler to change its allocations to a Kellogg, Idaho, dealership that was attempting to sell Chrysler products via a Web site on the Internet. This case ended in a consent decree prohibiting Fair Allocation System from persisting in a boycott of Chrysler.

In the current Microsoft case, the FTC has argued that the bundling of Internet Explorer (Microsoft's browser product) with Windows (its monopolistic operating system) represents an unlawful tying contract and a type of predatory activity that would make it difficult for businesses large or small to enter into the browser market.

Foer concluded that these cases show that small businesses and an assortment of other interest groups have good reason to support an activist stance by the FTC.

**John E. Kwoka, Jr.**

Professor of Economics, George Washington University  
and

**Lawrence White**

Professor of Economics, New York University

Professors Kwoka and White presented a paper titled "The New Industrial Organization and Small Business." They concluded that small business is an important part of the U.S. economy in both absolute and relative terms. For the period 1988 to 1996, the absolute size of the small business sector increased. This rate of increase, however, was less than the rate of increase in all private sector employment. In relative terms, the small business share of private sector employment diminished.

The small business share of employment differs significantly across industries. Kwoka and White looked first at the one-digit sector level (the largest grouping of industries). They found that firms with fewer than 500 employees increased their relative share of employment slightly in five of the nine one-digit sectors (agricultural services, forestry, and fishing; mining; construction; manufacturing; and transportation, communications, and utilities). In the remaining one-digit groups (wholesale trade; retail trade; finance, insurance, and real estate; and services), the small business share has declined, most significantly in retail trade and services. These changes in the small business share of employment in the economy were a result of the interplay of changes in small firms' relative positions within individual sectors and changes in the importance of the sectors themselves.

Traditionally, small versus large business performance has been examined from the perspective of static long-run equilibrium, which features the concept of scale economies. The smallest per-unit cost may be achieved at more than one level of total output. The smallest output at which cost is minimized is called the minimum efficient scale. Given the demand curve for the industry, it is possible to calculate the "necessary" degree of concentration, or the maximum number of efficient firms that the industry can contain. The cost of plant and equipment associated with a scale of output are, in the short run, fixed costs and will not vary with output. These fixed costs are also called exogenous costs.

The “new industrial organization” adds to traditional approaches contributions from game theory and a dynamic perspective. It also places strong reliance on careful empirical statistical estimation based on new theoretical principles.

Kwoka and White used the work of John Sutton to illustrate how modern industrial organization approaches the relationship of small and large businesses. In addition to the traditional exogenous costs that are outside a firm’s control, Sutton introduces the concept that dominant firms have endogenous strategic variables and endogenous costs, ones they can control.

Endogenous sunk costs can affect the minimum efficient size for nondominant firms such as small businesses and alter the cost of entry. These costs are not defined by the underlying technology, but rather by the strategic decisions made by a leading firm to increase the buyers’ demand for the firms’ products. Endogenous sunk costs are discretionary costs associated with such items as advertising, promotion, research and development (R&D), and product development. Other firms (including small businesses) must react to the strategies supported by these investments, or lose customers and profits.

The “new industrial organization” approach raises several research areas and issues, according to Kwoka and White. What industries are more prone to experience endogenous sunk costs? To what extent are large firms’ decisions to increase advertising, promotional expenditures, and R&D made solely in response to the firm’s demand conditions, and to what extent are they aimed at strategically disadvantaging smaller competitors?

### **Boyan Jovanovic**

Professor of Economics  
New York University

Professor Jovanovic began his presentation on “New Technology and the Small Firm” by asking how much of our wealth is created by small firms. A partial answer is implied in the fact that, as of the end of August 1999, four firms that were less than 20 years old had a combined value of approximately 13 percent of U.S. gross domestic product.

Using data from the Center for Research on Security Prices for the period 1926-1996, he found that older generations of firms (with some exceptions) show a tendency for their value to atrophy with the passage of time. He labeled these vintage firms “dinosaurs.”

When the stock prices of smaller (small cap) firms are compared with a broad measure of larger firms’ stock values (the Standard and Poor’s 500 stock index or S&P 500) over the 70-year period 1926-1996, small companies grew faster, by 1.25 percent per year. The difference was not constant, however. The arrival of the microcomputer in the early 1970s appears to have favored small firms. From 1974 to 1982 small-cap stocks outperformed the S&P 500 by a factor of four. Between 1982 and 1996 the S&P, 500 outperformed small-cap stocks.

Jovanovic concluded by looking at the “new economy” that now exists and is likely to exist in the future. Technologies and products are becoming obsolete at a much faster rate. This is not so much a new trend as it is the continuation and acceleration of an existing trend. The time it takes to imitate a new technology has also diminished. New products are not only produced faster but adopted and diffused faster. Capital markets have accelerated. He gave as an example how long it took for Microsoft to issue its initial public offering in comparison with new Internet firms.

We are entering the era of the new firm. The average age of firms in the stock market is declining. The small firm will resume the role it held in 1974-1982, when it outperformed larger firms as a creator of value.

### **David Audretsch**

Director, Institute for Development Strategies  
Indiana University

Professor Audretsch addressed many of the core issues of the conference in a paper titled “Research Issues Relating to Structure, Competition, and Performance of Small Technology-Based Firms.” He began by examining the nature of industrial organization studies of 30 to 40 years ago. The achievements of the centralized Soviet economy in launching Sputnik seemed to pose a dilemma to more decentralized western economies. Centralized economies seemed to be able to amass resources on a scale unimaginable in the West.

Industrial organization literature of the period focused on three related sets of issues:

- First, what are the economic gains of size and scale?
- Second, what are the welfare implications of having an oligopolistic market based on a few large competitors in a particular industry?
- And third, given the benefits of large-scale production and the resulting concentration, what are the public policy implications?

The literature seemed to be saying that we could have the benefits of the efficiency of large-scale production or, alternatively, we could use antitrust enforcement to decentralize economic activity, but it would be difficult to have both.

The static approach to firm size, scale economies, and industrial organization was based on the concept of minimum efficient scale, the lowest level of minimum average cost. Study after study indicated that in many industries, a majority, or at least a significant minority, of the firms were “suboptimal” firms, that is, firms that did not meet the minimum efficient scale.

Industrial organization economists argued that a reduction in the number of suboptimal firms would increase economic efficiency. They were joined by their colleagues in labor economics who argued that larger firms tended to pay higher wages and provide more benefits.

In contrast to this traditional view, Audretsch argued that in the last decade, industrial organization economists have increasingly begun to view the role of small business, particularly innovative, technology-based small businesses, from a dynamic or evolutionary perspective.

One of the legacies of World War II was the belief that firms could purposefully engage in technological innovation. Firms invested in R&D that, it was hoped, would result in product and process innovation. Industries with higher levels of R&D expenditures usually had more technological innovation. Larger firms had access to superior resources to invest in R&D.

The dynamic view of the entry of new firms into markets rejects the view that the new entrants are attempting to become smaller imitations of larger incumbent firms. Instead, they often act as “agents of change” through innovative activity. How do individuals or small groups with knowledge and ideas appropriate returns to this knowledge? If the new knowledge deals with doing things differently in terms of new products or processes, then innovation can take place. This innovation can take place within existing organizations or serve as a basis for new entities.

The incumbent firm may reject new ideas for a variety of reasons. Chester Carlson started Xerox after Kodak, based on their view of themselves as a photography company, rejected his proposal to produce a new type of copy machine. Years later Xerox and 17 other companies rejected a proposal by Steven Jobs to produce a microcomputer. Xerox defined itself as a copying company.

Audretsch posited that agents in the possession of new knowledge and often with an uncertain view of the opportunities that exist will nonetheless create a new entity. New firms are often plagued by uncertainty, and new entrepreneurs often lack essential entrepreneurial and management skills. They attempt to learn by doing and acquire the resources they lack as they go along. Many fail, but some succeed, adding an important dynamic to the economy.

Although larger firms invest greater amounts of resources in R&D, smaller firms tend to be more efficient in utilizing their lesser investments. Small firms have enjoyed relatively high rates of success in areas such as computers and process control technology. Larger firms seem to have an advantage in such industries as pharmaceuticals and aircraft. Often, new entrants can hope to succeed only if they develop new technologies and processes.

The public policy response to the change from the static to the dynamic view of efficiency and growth has not been lost on economic development officials (especially state development officials) in the United States and abroad. The conditions that prevailed in Silicon Valley during its early years have been at least partially duplicated in Austin, Research Triangle, Atlanta, Northern Virginia, and increasingly in Europe. Whereas the static approach to industrial organization saw small businesses as suboptimal, the dynamic approach sees these firms as opportunities for growth.

### **Adam M. Golodner**

Chief of Staff, Antitrust Division  
U.S. Department of Justice

Mr. Golodner delivered the luncheon address. The theme of Mr. Golodner's presentation was that antitrust enforcement is essential to give small businesses the opportunity to compete, to innovate, and to make their historical contributions to the American economy.

The U.S. economy is strong, not only because of its enlightened fiscal and monetary policies, but also because of an increasing national commitment to competitive marketplaces. Our economy is more competitive than it has been in a long time and is the most competitive megamarket in the world, Golodner said. Competition drives our economy. The reliance on competition has reduced the need for regulation.

Dominant firms must not be allowed to force out competitors; groups of firms must not be allowed to collude on prices or market allocation; and anticompetitive mergers that increase prices, reduce output, or stifle innovation must be opposed.

We in the United States practice a very entrepreneurial form of capitalism that not only contributes to our success but also helps define our values. Concepts like opportunity, responsibility, succeeding on one's merit, and enjoying the benefits of hard work have been woven into our very social fabric. One goal of antitrust enforcement is the establishment and maintenance of this "entrepreneurial charter."

Closely allied to the ability to be entrepreneurial is the protection of the ability to innovate. Innovation is difficult, expensive, takes time, and often fails. Innovation works best where markets are open.

A look at the world of telephony before and after the breakup of AT&T in 1984 is instructive. The rate of innovation has been astonishing—fiber optics, wave division technology, compression technology, the Internet, and wide bandwidth. When “Ma Bell” was the only buyer of equipment and was its own equipment supplier, innovation basically took place at the pace set by AT&T. Since 1980, the average revenue per minute has declined by 50 percent, and since 1984, usage has increased by 400 percent.

Over the last three years the Antitrust Division has reviewed a number of bank mergers for their impact on small business loans. In 1998 and 1999 the division required divestitures in nine separate mergers. In 1998 and 1999 the division intervened in six proposed mergers in the radio industry and three proposed mergers in the outdoor advertising industry. At the heart of both of these sets of interventions was the recognition that radio and billboards are important advertising media for small businesses.

The Antitrust Division understands that antitrust enforcement provides a “charter freedom” protecting both customers and small businesses from the misuse of market power by dominant firms. A competitive economy where the ability to compete is protected allows small business to practice entrepreneurship, to innovate, and to continue to provide dynamism to the American economy.

### **Panel on Industrial Organization Issues Relating to Rapid Technological Advance, Globalization of Markets, and the Performance of Small Technology Firms**

Panel members: Fred Tarpley, moderator; William J. Dennis, Jr.; David B. Audretsch; Fred L. Smith, Jr.

Following the individual presentations was a panel discussion on industrial organization issues relating to rapid technological advance, globalization of markets, and the performance of small technology firms.

**Fred Tarpley**, professor of economics (emeritus) at Georgia Institute of Technology, led a discussion of how new technologies in computing and communications have influenced not only the way small businesses do business, but the very form of small business. Geographically separated entities, primarily connected with each other electronically through the Internet, come together into “strategic alliances” or “clusters of competencies” to work on a single project or several projects. After the project(s) is/are finished, each of the participants goes their own way. In the time they are together they act much like a firm, but legally and organizationally they are not a firm.

Technological changes influence scale economies and the minimum efficient scale. For example, a small design operation with moderate expenditures on hardware and software can turn out products that in previous decades would have required a large design studio or department. The minimum efficient scale has been drastically reduced. On the other hand, improvements in point-of-sale cash registers, computers, and communications networks have increased the efficiencies of large multi-unit retailers like Office Depot and Wal-Mart.

Similarly, globalization and technological advances give small businesses the opportunity to address foreign markets but also allow foreign producers to participate more readily in the U.S. economy.



**William J. (Denny) Dennis, Jr.**, of the NFIB Education Foundation, began his presentation by making the point that rapid technological change should benefit small businesses because they are usually thought to be more flexible and able to change quickly. But technology costs money, and this often presents a problem for small businesses.

The Internet offers a low-cost way for small businesses to reach customers, but to get the attention of possible customers, firms must build a “brand image” and this may require expensive advertisements that are beyond the reach of many small businesses.

Dennis stated that we are going to a “free agent” society. More and more people will be involved in self-employment of some kind. They will be part of shifting alliances and arrangements. That brings into question: What is a business? How is it to be taxed or regulated? What is an employer? What is an employee? These questions in turn raise important issues, not only of legal implications, but also of industrial structure.

Dennis also said he worries about the fact that government is not neutral in its responses to size issues. Large firms get most of the subsidies. Large firms out-lobby their smaller colleagues and are thus able to influence legislation and the administration of executive branch agencies.

**David Audretsch** recalled a conference he had attended a decade ago where the topic was competitiveness. He contrasted the mood then and today. We in the United States were worried about threats to our economy from the Japanese and other Asian economies, on the one hand, and the German and other European economies on the other. What a difference a decade makes! An important element of the change in the relative positions of world economies stems from the fact that the infrastructure in the United States is supportive of entrepreneurial activity, including technological activity.

Silicon Valley and Route 128 illustrate what can happen when research capability, technology, infrastructure, government policy, and capital are available in a supportive environment for entrepreneurial development. Over the years, the United States has developed and is developing many smaller “Silicon Valleys.”

After years of delay, Europeans have begun to learn the lessons of our entrepreneurial development. They are developing programs and initiating policies intended to create strong centers for entrepreneurial technological growth. The United States is losing its monopoly on technological innovation.

**Fred L. Smith, Jr.**, president of the Competitive Enterprise Institute, first addressed issues associated with globalization. The World Trade Organization meeting in December 1999 represented a “camp of the dying world order.” This world order was overly regulated and overly taxed.

Governments are not only being held accountable, but they are coming under competitive pressures. Like oligopolists, they react by forming cartels to control this competitive pressure. In the international area, “harmonization” replaces the term “cartelization.” Globalization and rapid technological change are making knowledge, technology, capital, and people resources incredibly mobile. Borders are not nearly as important as they used to be. If government policies, taxes, and regulations are too onerous, entrepreneurs and capital can vote with their feet.

## **A Research Agenda for Industrial Organization Issues**

The conference concluded with a roundtable among speakers and participants from the audience, who suggested a variety of research issues:

- What will be the effects of continuing deficits in the balance of payments and increasing foreign investment in the United States on the structure of the American economy in general and small business in particular?
- Scherer related the results of a study by Harvard sociologists that found job satisfaction extremely low for back-chair players in a symphony orchestra and among the highest for members of a string quartet. Earlier studies have shown that productivity and wages tend to be higher and job satisfaction lower in larger firms. In contrast, productivity and wages are often lower for smaller firms, but job satisfaction is higher. Given that job satisfaction increases the well-being of individuals and society, what are the social and personal benefits of job satisfaction as it applies to small business?
- What is meant by “growth”? Some firms grow by merger and others grow internally. What are the benefits of each?
- Why do firms grow at different rates? How does growth vary by age, by industry, and by region?
- Why and how do small business owners exit? What issues are associated with succession and intergenerational firm ownership?
- How do technology-based small businesses make decisions, absent perfect knowledge? What is the role of “rules of thumb”? Can research improve rules of thumb? How does “horizon scanning” relate to small technology-based firms’ business decisions?
- How can micro-decision making with respect to technology be modeled for small technology-based businesses? How can it be examined empirically?
- In the early post-World War II decades, many industries went from a large number of firms with many choices to a few firms with limited choice. How much was due to strategic decisions by large firms? How much of this was a tradeoff between efficiency and diversity of choice? How has and will technological change affect the tradeoff?
- Can the work of John Sutton be extended to throw light on the relationships among industrial structure, market performance, and small business?

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The American  
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**Small Business and Antitrust:  
Why the Little Guys Left the Fold and Why They Should Return**

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Presented to the SBA Program on "The Invisible Part of the Iceberg: Research Issues in  
Industrial Organization and Small Business"

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The question addressed in this paper is how small business<sup>2</sup> fits into a post-Chicago antitrust agenda. The answer, we will see, relates not to special privileges for the small, but to a vigorous competition policy directed against manifestations of market power.

**I. A Love Affair Not Consummated and Perhaps Gone Sour**

Until roughly the Civil War, we were a country dominated by small businesses and small farms. The advent of the large corporation shook things up and threatened the well-being of the smaller units in the economy. The smaller units, in turn, used their political influence to pass antitrust laws, first in the states, eventually in Washington. While small business stood behind the Sherman Act in 1890, however, we must take care not to overstate its historic claims on antitrust policy. Small business represented only

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<sup>1</sup> The American Antitrust Institute is an independent non-profit research, education, and advocacy organization. See [www.antitrustinstitute.org](http://www.antitrustinstitute.org). This paper cites articles by several members of the AAI Advisory Board: Robert Lande, Marc Allen Eisner, John Kwoka, Lawrence White, Philip Nelson, Warren Grimes, David Penn, and Alfred Kahn. The author appreciates the insights of various Advisory Board members, but assumes full responsibility for the contents.

<sup>2</sup> I use the term "small business" broadly to include the whole wide range of players including mom & pop's, franchisees, professional service providers, independent farmers, even mid-sized companies which face very large, dominant competitors. What these all have in common is a lack of market power and a potential for being exploited or crushed by those who do have market power.

one part of the antitrust coalition. Professor Robert H. Lande's review of the legislative history of the Sherman Act concluded:

Congress...expressed concern for preserving business opportunities for small firms. The opportunity to compete has been viewed as particularly important for small entrepreneurs, perhaps because of their vulnerability to predatory activities...Despite clear judicial recognition, close examination reveals relatively little support in the legislative history, beyond the few references above, for the "small producer" rationale. Although there are a few statements suggesting that the protection of the opportunity of small business to compete was one motivating factor for the legislators, these statements do not imply that the protection of small businesses was meant to override other goals. Congress probably did not intend to go further than establishment of an economic system providing free opportunities for entry and enough producers to ensure vigorous competition, a system in which no company became large enough to dominate.<sup>3</sup>

The situation was different during the Great Depression, when small business was principally responsible for two important pieces of competition policy legislation. Threatened by the growth of large chain retailers like the Great Atlantic and Pacific Tea Company, small businesses were the primary force driving passage of the Robinson-Patman ["R-P"] Act in 1936.<sup>4</sup> This law, targeted primarily against price discrimination and abuses of buyer power, was to be enforced largely by the Federal Trade Commission, and the small business community naturally became an important supporter of the FTC, whose strength was necessary if R-P was to be effective.<sup>5</sup>

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<sup>3</sup> Robert H. Lande, "Wealth Transfers as the Original and Primary Concern of Antitrust: The Efficiency Interpretation Challenged," 34 *Hastings L.J.* 67 (1982), reprinted in Andrew I. Gavil, *An Antitrust Anthology* (Anderson Publishing, 1996) at 53.

<sup>4</sup> 15 U.S.C. 13, 21a, 13a, and 13b; 49 Stat. 1526 et seq.

<sup>5</sup> "Before 1936, when the Robinson-Patman Act was passed to amend [Section 2] of the Clayton Act, the FTC was successful in very few outright price-discrimination cases. The deficiencies of the Clayton Act were brought to public attention by the FTC's 1934 report on chain stores. The report concluded that the growth of the chains and other large concentrations, with their ability to buy cheaply, endangered the survival of small businessmen." Susan Wagner, *The Federal Trade Commission* (1971), 128.

A year later, at the behest of retail merchants, Congress passed the Miller-Tydings Resale Price Maintenance [“RPM”] Act, which exempted resale price maintenance (a form of vertical price fixing) from the Sherman Act.<sup>6</sup> (This was carried further by the McGuire Act in 1952.) While RPM did not serve the interest of all retailers, in that it imposed a substantial restraint on those retailers who wanted to grow through discounting, so-called “fair trade” was nonetheless taken to be a policy favored by small business, allowing merchants to pressure manufacturers not to sell to discounters. Louis Brandeis, who had contributed so much to the antitrust movement, was an energetic proponent of fair trade, arguing, “There must be reasonable restrictions upon competition else we shall see competition destroyed.”<sup>7</sup> Brandeis believed that without fair trade laws, antitrust would drive manufacturers into integrating forward into wholesale and retail trade, squeezing out small storekeepers. He argued that maximizing the number of retail shops would also maximize competition.

This argument did not resonate with most antitrust enforcers, who tended (then and now) to see all forms of price fixing as harmful to consumers. RPM came under severe economic criticism in the 1960’s and early 1970’s. According to Scherer and Ross,<sup>8</sup> the forces of competition had already repealed the law in their own quiet way by the time RPM officially died in 1975 when Miller-Tydings and McGuire were repealed by Congress. Thus, a competition policy (or “non-competition policy”) of interest to much of small business fell by the wayside, and antitrust enforcers made no secret of their pleasure in seeing its demise.

Perhaps even more than RPM, the R-P Act was dissed, cussed, and otherwise condemned by opponents, including many antitrust advocates who saw it as more or less unintelligible and subject to anticompetitive applications. But R-P was never repealed or

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<sup>6</sup> Before the 1930’s, RPM was repeatedly condemned by the courts as a violation of the Sherman Act and an unfair method of competition under the FTC Act.

<sup>7</sup> Thomas K. McCraw, *Prophets of Regulation* (1984), 102.

<sup>8</sup> F.M. Scherer and David Ross, *Industrial Market Structure and Economic Performance* (3<sup>rd</sup> ed., 1990), at 557.

even cut back, legislatively. For many years, the FTC enforced it with vigor,<sup>9</sup> despite an ever-mounting attack from economists and larger businesses. Interestingly, R-P's fall from favor was more the result of efforts by lawyers and reformers to rebuild a moribund FTC than the result of criticism by economists. In 1969, an influential American Bar Association report called for reformation of the FTC, and this was followed in 1972 by a highly publicized attack by Nader's Raiders, speaking for consumers. Here, in part, is what the Nader team said:

R-P...has taken the Commission as far away from its goal as possible. Originally created with 30 economists and 80 lawyers, the Commission has become an enforcement agency with 470 lawyers and 46 economists. In the past, with one full section devoted to R-P, as well as half of the compliance section, three-fourths of the accounting section, and a substantial amount of field work time, the Commission has forsaken its goal of expertise for a statute of questionable value. In the process, the Commission has lost its direction and its ability to plan policy: it has succumbed to the mailbag. It has been split from the inside and attacked from without for its lack of direction, haphazard enforcement, and confusing decisions. All of this for a constituency that is vocal and organized—the small businessman—and to the detriment of a constituency that is not—the consumer.<sup>10</sup>

The FTC, under President Nixon and the Republican Party, was indeed reborn. Instead of responding to the mailbag, which resulted in a storm of small business-generated R-P investigations, the FTC substituted industry-wide investigations for R-P

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<sup>9</sup> “Until the early 1970s the Commission enforced the law heartily...Of the 941 orders [between 1945 and 1965] 682 (72.48 percent) were for violation of the Robinson-Patman Act...The Robinson-Patman express came to a screeching halt in the 1970s.” Alan Stone, *Economic Regulation and the Public Interest* (1977), 98-9.

<sup>10</sup> Mark J. Green (ed.), *The Closed Enterprise System* (Viking, 1972) at 410. Language of this sort suggests the difficulty in trying to bring consumers and small business into a common alliance in favor of antitrust.

cases.<sup>11</sup> Many of these initiatives, such as those brought by the Bureau of Competition against the oligopolistic petroleum and cereal industries, may have been applauded by small business. Others, generally launched by the Bureau of Consumer Protection, involved the writing of trade regulation rules under the relatively new Magnuson-Moss Act. By 1978, fifteen industry-wide trade regulation rules were ringing alarm bells within the small business communities they affected. Former FTC Chair Michael Pertschuk relates a conversation with a key Senator who was losing patience with the Commission:

“You have managed to alienate the leading citizens of every town and city in Kentucky” Senator Wendell Ford wryly observed to me, proceeding to call the roll: “Lawyers, doctors, dentists, optometrists, funeral directors, real estate brokers, life insurance companies and salesmen, new and used car dealers, bankers, loan companies and other credit suppliers, Coca-Cola bottlers...”<sup>12</sup>

Having lost any sense of “ownership,” small business gradually walked away from its support of both the FTC and antitrust generally. This, I emphasize, was even before the triumph of Chicago School economics and the hibernation of antitrust.<sup>13</sup>

I was an Assistant Director and Acting Deputy Director of the FTC’s Bureau of Competition for a time in the late 1970’s, after the FTC’s reformed direction had begun to generate substantial Congressional opposition. One of my tasks was to identify potential allies of the agency and to alert them (we were prohibited from lobbying) to the efforts to strip the agency of some of its powers.

Lo and behold! Hardly anyone was out there who gave a favorable damn about the FTC. Much of the small business community had concluded that the FTC was now an unfriendly regulator. There were several associations that were helpful,<sup>14</sup> but among

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<sup>11</sup> See, e.g., Wesley J. Liebeler, “Bureau of Competition: Antitrust Enforcement Activities,” in Kenneth W. Clarkson and Timothy J. Muris, *The Federal Trade Commission Since 1970: Economic Regulation & Bureaucratic Behavior* (1981), 96.

<sup>12</sup> Michael Pertschuk, *Revolt Against Regulation* (1982), 54-5.

<sup>13</sup> See Marc Allen Eisner, *Antitrust and the Triumph of Economics* (1991).

<sup>14</sup> Examples at the time included the part of the computer industry that was fighting against IBM and the independent sector of the petroleum distribution industry that was fighting against the [then] Seven Sisters. See discussion at text in section on trade associations.

umbrella small business groups there was only the Small Business Legislative Council, an association itself composed of trade associations dominated by small businesses. The SBLC still exists, still headed by Washington attorney John Satagaj, who is personally friendly toward antitrust. But the SBLC's interest in antitrust today is nil, totally and absolutely, according to Satagaj. And if the SBLC doesn't care about antitrust, it seems unlikely that any other umbrella-type multi-industry organization will speak up for the institutions of antitrust.<sup>15</sup>

## II. The Gage Drops from Half Full to Empty

Why did the unconsummated love affair between the small business community and antitrust go sour? I would emphasize the following reasons, as seen from a small business perspective:

- The FTC lacks enthusiasm for R-P and is viewed as ignoring its potential authority to deal with price discrimination<sup>16</sup> and buyer power<sup>17</sup>. This permits large players to bully smaller ones without worrying about legal consequences.

- The antitrust agencies support “efficiency” over “level playing field” fairness and spout the mantra that “antitrust is about protecting competition rather than protecting competitors.” Far from believing that “big is bad,” the enforcement agencies have adopted a mindset that favors big business. For example, they tend to permit most vertical restraints by manufacturers that limit the flexibility of downstream small businesses.

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<sup>15</sup> Speaking up for the institutions of antitrust might entail supporting budget increases for the FTC and Antitrust Division; supporting the appointment of well-qualified regulators; opposing curbs on enforcement authority; and urging Congress to expand the reach of the antitrust laws.

<sup>16</sup> E.g., charging different prices for the same product to different buyers. It is almost always the smallest and least powerful buyers who are the targets of price discrimination.

<sup>17</sup> Buyer power and seller power are mirror images of the same phenomenon. Buyer power may be monopsonistic (one buyer) or oligopsonistic (a few buyers). Perhaps because seller power has been more common, it has received the disproportionate degree of antitrust consideration.



- Under the influence of the “Chicago School,” not to mention the Supreme Court, the agencies rarely pursue predatory pricing cases that can keep dominant firms from destroying smaller competitors.<sup>18</sup>

- An “Exit Strategy Mentality” has evolved within the small business community, leading small businesses to favor non-interventionist policies toward mergers and acquisitions.

- Consolidation of industries has changed the structure of small business trade associations, giving large firms veto power over their agendas.

- There has been a communications failure on the part of antitrust’s supporters. Small businesses do not understand the objective importance of antitrust, even as practiced today, for their strategic well-being.

A little additional commentary may be useful before asking whether these differences are irreconcilable.

## **Antitrust and Regulation**

There is abroad in the land a libertarian philosophy whose adherents instinctively dislike government, particularly dislike centralized, distant federal government, believe that regulation can do virtually nothing as well as a free market, and see antitrust as one more form of regulation, doomed to corruption, incompetence, and failure. The owners and managers of small businesses frequently advocate this philosophy, which stands as an ideological barrier to the entry of small business into a pro-antitrust coalition.<sup>19</sup>

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<sup>18</sup> The Chicago School applies microeconomic theory to virtually all areas of law. In antitrust, the practical result is to oppose horizontal price fixing, but to be very open-minded toward vertical restraints, mergers, and most types of corporate behavior that don’t clearly result in economic waste. For discussions, see, e.g., Marc Allen Eisner, *Antitrust and the Triumph of Economics* (1991); Walter Adams and James W. Brock, *Antitrust Economics on Trial* (1991).

<sup>19</sup> It is important to understand why this barrier exists. (I speak from under the brim of the hat I wore as chief executive of a chain of retail jewelry stores and leader in several different trade associations.) First, to the extent that they have made the voluntary occupational choice (and not been forced by circumstance) to

But this can be overstated. For most small businesses, the antitrust rules that impinge on them are limited to the injunction against price fixing and group boycotts.<sup>20</sup> Pretty simple, even if it occasionally gets in the way of a more profitable strategy. Beyond this, there is a question of hypocrisy. To the extent small businesses are favorably inclined toward the protectionism of an aggressively enforced R-P Act and the ideal of RPM, they are revealed as supporters of self-interested regulation as well as free market competition. Nobody is pure. The larger question, therefore, is whether small businesses, in their own strategic interests, can or ought to be convinced that antitrust is positive for them.

### **The Changing Trade Association**

Small business owners and managers cannot, in general, spend much time on industry-wide issues. They are often individually too busy and preoccupied. When it comes to national trade associations, few are able to take the time to master issues and attend board and committee meetings. Larger firms, recognizing the value of such commitments (and having more to gain than a small firm), are more likely to hire specialists who can do this work. Therefore, take it as an iron law: if an association has large members, they will dominate the agenda and policies of the association. All the

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identify with small business, small business owners tend to be disproportionately independent and entrepreneurial by nature. Second, their own experiences with government tend to be either adversarial (the government commands them) or inconvenient (the government encumbers them). Third, because small businesses are small, their owners often experience these nasty or inconvenient transactions personally, rather than (as in a large organization) through hired specialists, resulting in a visceral rather than abstract anti-regulatory reaction. Fourth, along similar lines, small business owners tend to be preoccupied with the short-term day-to-day management of their own firm, having little time (and in many cases little background) to ponder matters of public policy that are not of immediate concern. And fifth, the small business entrepreneur sees regulatory costs coming out of his own pocket, unlike the professional CEO, whose compensation is much more indirectly affected.

<sup>20</sup> Is antitrust just another form of regulation? Arguably, it is different from economic regulation, which controls such key elements of competition as entry, exit, and prices, because antitrust allows businesses to act as they please, subject to the possible adjudication of consequences after the fact. Antitrust is certainly less precise about what is or is not allowed. On the other hand, the whole area of merger enforcement has changed, since enactment of the Hart-Scott-Rodino Act in 1976, from post-hoc adjudication to pre-merger administrative enforcement, and with the recent merger wave, this has come to represent approximately three-quarters of the federal antitrust effort.

more true when the larger members bear a disproportionate part of the association's costs, which is the norm.

The interests of an association's members may diverge on the basis of the members' size, particularly when it comes to government intervention to maintain a high level of competition, which is what antitrust is all about. An association that started out with a membership of predominantly small businesses, some of which over time became quite successful, gradually morphs into a representative of the most successful members.<sup>21</sup>

The associations that have supported antitrust have tended to be single-strategy associations. Single-strategy associations either serve industries in which, for one reason or another, the larger players have not gained control of the association or they represent a strategic segment of an industry, whose members have a common objective of competing more effectively against the industry's dominant firm(s). Single-strategy associations are the natural allies of antitrust, but they are increasingly rare. More often, we find trade associations that have both small business members and also larger members, which from time to time may support specific antitrust initiatives, but are unwilling to take public positions in favor of antitrust generally.

Query: can small businesses that recognize the strategic value to them of antitrust form and maintain organizations (e.g., an alliance of small business for antitrust) that will not be neutralized by larger members having strategies driven by market power?

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<sup>21</sup> I remember, back in the 1970's, trying to find trade associations that were interested in seeing antitrust take on the conglomerate merger wave that was then prevalent. While I found many whose smaller members would have been happy to support such an initiative, few associations could do so because their larger members were already parts of conglomerates, or hoped to become parts. When an association's members are conflicted, the association either takes no position or takes the position favored by the most active members who pay the largest dues.

## **The Exit Strategy Mentality**

Remember the journalist who supposedly born with “printer’s ink” in his veins? It used to be that the small business owner had “independence” in his or her veins and wanted nothing more than to build a family dynasty based on the independent business. This was before the MBA became ubiquitous. Today’s owner may very well have gone to business school and learned about the strategic necessity for having an exit strategy.<sup>22</sup> Build the firm into something you can sell. Sell it to the highest bidder, who is likely to be the dominant company in the industry. Then become an independent investor. Independence comes through a diversified portfolio, not identity with a small business firm. Such a mentality suggests a negative view toward antitrust, which often tries to stop dominant firms from growing by merger. So antitrust is again suspect.

For the above reasons, both programmatic and ideological, small businesses are unlikely suddenly to embrace active antitrust enforcement en masse. On the other hand, the fact is that today antitrust enforcement is objectively much more important to small firms than they seem to realize. To the extent that this can be demonstrated to small business owners, there’s a good chance that at least the more enlightened among them will come to view it as an important ally.

Ironically, in many industries, once a leading company has acquired enough of the competition to have market power, it may crush the rest, so that they never have the golden opportunity to sell out at a high price. The small business owner who opposes merger enforcement on the basis that he may one day make a fabulous exit, may be like the high school basketball player who ignores academics on the theory that he will one day be a pro player. Query: how good are the odds?

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<sup>22</sup> Admittedly, there are other issues besides the MBA. E.g., in the booming software and internet industries (and also in many more traditional industries), it makes sense for many reasons to start up a small company and move it along by selling out to a larger firm that can roll it out more effectively. The booming stock market is also having its effect, making it more appealing than in the past for companies to make acquisitions using their stock as payment. In 1988 fewer than 2% of large deals were paid for entirely in stock. By 1998, that number had risen to 50%. Wash. Post, Jan. 12, 2000.

### III. What Have You Done for Me Lately?

Why do I believe that antitrust serves the objective needs of small business? In theory, antitrust serves the interest of small businesses because it:

- Restrains market power on the supply side, keeping down the prices of goods and services small businesses depend upon.
- Restrains market power on the buying side, keeping the small business from being crushed by the need to sell into a monopsony.
- Restrains competitors from unfairly blocking entry into a market or acting in an unfairly oppressive manner.
- Restrains market power in vertical relations (e.g., by keeping upstream suppliers from acquiring downstream distributors and foreclosing competitors from their markets), while allowing producers to work out individual and small-numbers types of arrangements that enhance their productivity/ability to compete in the marketplace.

The theory does not always get translated into reality. Partly, this is the result of underfunding of the enforcement agencies<sup>23</sup> (a matter that could be better addressed politically if an antitrust appropriations bill had more small business support). Partly, it is a matter of enforcement policies and decisions that do not always pay enough attention to small business interests. But the potential is there for demonstrating to at least a substantial part of the small business community that support of post-Chicago antitrust policies should be high on the small business agenda.

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<sup>23</sup> See AAI publication, Albert A. Foer, *The Federal Antitrust Commitment: Providing Resources to Meet the Challenge* (1999), available at [www.antitrustinstitute.org](http://www.antitrustinstitute.org).

## **A. Mergers**

Mergers often affect small businesses, not always in direct and obvious ways. Here are three recent cases that throw light on how antitrust enforcement against anticompetitive mergers can assist small businesses.

### **Barnes & Noble and Ingram Publishing (mergers and foreclosure)**

The merger wave may represent a profitable exit opportunity for some small businesses. For small businesses that don't want to lose their independence (or at least not now), it spells big time trouble. For example, the acquisition of Ingram Publishing by Barnes & Noble directly threatened the independent booksellers, because it would place their primary supplier under the control of their largest competitor. Recognizing that antitrust could stop the merger, the American Booksellers Association launched a grassroots campaign aimed at convincing the FTC to take a strong position in opposition to the merger. This appeared to be an uphill battle, because the antitrust agencies have only rarely in recent decades taken an enforcement interest in vertical mergers.

But here the FTC recognized the problem from the perspective of the independent booksellers.<sup>24</sup> Although there were horizontal issues in the case, the FTC staff says it was primarily motivated by the vertical problems, and that it saw this case as an example of the relatively new theory called "raising rivals costs." The FTC's lead lawyer on the case describes his thinking:

In this case, I was concerned that the combined Barnes & Noble/Ingram could choose to raise the costs of their downstream, retailer, rivals - independent bookstores, other national or regional chains, or Internet retailers - in a number of ways, including strategies short of an outright refusal to sell to the non-Barnes & Noble bookstores. For example, Barnes & Noble/Ingram could choose to (1) sell to non-Barnes & Noble bookstores at higher prices; (2) slow down book shipments to

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<sup>24</sup>An explanation of the FTC's thinking (or more accurately, its staff's thinking) may be found a speech by Richard G. Parker, "Global Merger Enforcement," before the International Bar Association, September 28, 1999, available at <http://www.ftc.gov/speeches/other/barcelona.htm>.

rivals; (3) restrict access to hot titles; (4) restrict access to Ingram's extended inventory or back list; or (5) price services higher or discontinuing or reducing these services.<sup>25</sup>

It was an important victory for small business that the FTC, relying on a relatively untried theory, hung tough against the merger and Barnes & Noble walked away without Ingram. Independent booksellers, under pressure from a number of quarters including e-commerce, dodged this particular bullet with the help of aggressive antitrust intervention.

### **Staples and Office Depot (mergers and competitive advantage)**

Small businesses spend a lot of money on office supplies, much of it with office supply superstores that particularly target the small business sector. When two of the three national superstore chains, Staples and Office Depot, wanted to merge, the FTC stood in the way.<sup>26</sup> A court enjoined the merger and the deal was off. FTC economists calculated that the merger would have cost purchasers of office supplies \$200 million per year in higher prices, based on comparisons of markets in which these stores did and did not compete against one another.<sup>27</sup> A large part of this price increase would have come from small businesses. On the other hand, larger competitors who buy in much greater bulk have other low-cost sources for supplies, so they would not have been hurt by the merger. The name of the game is competitive advantage.<sup>28</sup> In this case, antitrust

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<sup>25</sup> *Id.*

<sup>26</sup> This case is analyzed by Serdar Dalkir and Frederick R. Warren-Boulton in John E. Kwoka, Jr., and Lawrence J. White (eds.), *The Antitrust Revolution* (1999) at 143. The FTC's victory rested on a market definition which at first seemed questionable (there being so many retailers of office supplies), but the careful marshalling of price data and other empirical evidence showed that office superstores constituted a separate market. This type of hard-nosed emphasis on facts is one characteristic of post-Chicago antitrust analysis. As an ironic side note, the enforcement agencies sometimes offend the small business community by defining markets in such a way that small businesses are left out. E.g., in the Staples Case, the merger was reachable by antitrust because the market definition only included superstores (thereby allowing the conclusion that there was too much concentration). Thousands of small retailers were deemed not to play a role in this market, even though they sell office supplies. There's no good reason why small businesses should feel insulted in such situations.

<sup>27</sup> Robert Pitofsky, "An Overview of FTC Antitrust Enforcement," Prepared Statement Before the Committee on the Judiciary, U.S. House of Representatives, Nov. 5, 1997. \$200 million is roughly the combined annual antitrust budget of the FTC and Department of Justice.

<sup>28</sup> See Michael Porter, *Competitive Advantage* (1985).

intervention on behalf of consumers generally also kept small businesses (in their role as purchasers) from being subjected to a competitive disadvantage *vis a vis* their larger competitors.

## **B. Buyer Power (it's what's happening at the supermarket these days)**

Supermarkets are in the process of rapidly consolidating through mergers. Consequently, a small number of very large supermarket chains now have substantial buying power, which is used to force suppliers to give them low prices and special promotional allowances and benefits not available to smaller supermarket companies. Until recently, the FTC permitted these mergers to go through, conditioning them on divestiture of assets (i.e., stores) that were clearly serving the same geographic market. In the Ahold/Pathmark merger, which was opposed by the National Grocers Association and local supermarkets that feared Ahold's increasing market power<sup>29</sup>, the FTC held firm, and Ahold recently walked away from the deal.<sup>30</sup> There were many reasons why the FTC could have opposed this merger, including the pervasive overlaps of the stores involved and Ahold's apparently poor track record in previous cases where divested stores did not

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<sup>29</sup> Among the tactics used by the grocers, as also by the booksellers in the Barnes & Noble case, were careful development of the legal and factual case, visits to the enforcement agencies, efforts to involve relevant State Attorneys General, invigoration of the grassroots, and a media campaign. An activist trade association is critical to this type of effort.

<sup>30</sup> Royal Ahold issued a press release on December 16, 1999, saying that the FTC had communicated its strong opposition and that Ahold was consequently terminating its offer to Pathmark. Ahold stated, "We believe that the regulators' position represents a distinct departure from past policies." This was a case in which the FTC was unwilling to accept divestitures that were offered by the parties in return for permission to merge. Inherent in negotiations of this sort is the question of what kinds of firms will be deemed acceptable purchasers of divested assets. Suppose the FTC is demanding that merging retailers divest a large number of stores, as a condition of approval. Is the better policy to require that the assets be sold to a large chain that has not heretofore participated in the particular geographic market; or to multiple small businesses? Arguably, the first will bring a stronger ability to compete, but the second will create a larger number of competitors. This would seem a fertile area for research if small business advocates want to make a persuasive case for the latter solution. See FTC Staff, *A Study of the Commission's Divestiture Process*, August, 1999. One of the conclusions of the FTC study, at p. 14, was that divestitures to small, entrepreneurial firms were at least as successful as divestitures to larger firms. I consider the study to be flawed in its definition of what constitutes a successful divestiture (i.e. if the asset is still in business, the divestiture was successful), and urge further research that takes into account the volume of business, profitability, and market share as of a specific point in time after the divestiture.



perform very well,<sup>31</sup> and there is no evidence to indicate that the buyer power issue was persuasive to the staff.

Nevertheless, small businesses have a direct interest in the power buyer argument. Small businesses are affected by mergers like Ahold/Pathmark in two ways. If they happen to be suppliers who sell to a power buyer, they are likely to be squeezed mercilessly, because the buyer controls so many outlets (so much shelf space) that he can “make an offer you can’t refuse.” This can occur at the local, regional, or national level. If the small businesses happen to be competitors of the power buyer, they will be at a competitive disadvantage because the supplier, to stay in business, has to charge a higher price to the non-power buyers. The presence of power buyers is key to a vicious cycle that is deadly to small businesses. Moreover, in many mergers, there is not as much direct overlap as in Ahold/Pathmark, and unless the agencies are concerned about buyer power issues, there will be no basis for taking action any more serious than approving the merger subject to divestiture of overlaps; buyer power will continue to grow.

“Although most antitrust litigation of market power offenses has involved monopoly sellers rather than buyers, monopsony can impose social costs on society similar to those caused by monopoly.”<sup>32</sup> Antitrust has the ability, so far only occasionally used, to constrain power buyers. The agencies could proceed on two fronts: stopping mergers where accumulated buying power constitutes a monopsonist or oligopsonist threat to competition; and using the R-P Act to go after the exercise of market power. But the agencies have been slow to do this.<sup>33</sup> The law in this area is underdeveloped in the U.S.,

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<sup>31</sup> See AAI’s letter to Chairman Pitofsky of the FTC, June 18, 1999, available at [www.antitrustinstitute.org](http://www.antitrustinstitute.org). Also see Albert A. Foer, “Swift Concentration in the Supermarket Industry Spawns the Power Buyer,” *The Legal Times*, October 25, 1999, also available at [www.antitrustinstitute.org](http://www.antitrustinstitute.org).

<sup>32</sup> Herbert Hovenkamp, *Federal Antitrust Policy* (1994), 14.

<sup>33</sup> Three recent examples of the agencies paying attention to buyer power are the Antitrust Division in its enforcement action against the merger of Aetna and Prudential (*U.S. v. Aetna*, Civ. Act. No. 3:99CV1398H) (alleging that merger would give Aetna buying power to reduce rates paid for physicians’ services); and against Cargill’s acquisition of Continental Grain (*U.S. v. Cargill*, Case No. 1:99CV01875(GK)) (alleging that the merger would give Cargill the ability to reduce the price it pays suppliers for corn, soy, and wheat; and the FTC in its enforcement action against Toys “R” Us, FTC Dkt. No. 9278 (Opinion and Final Order, Oct. 13, 1998) (with Comm’r. Swindle concurring in part and dissenting in part), *appeal filed*, Dkt. No. 98-4107 (7<sup>th</sup> Cir., filed Dec. 7, 1998). The Commission found that Toys “R” Us used its power as a leading buyer of toys (not a monopsonist but a dominant buyer) to enter

but has advanced further in Europe.<sup>34</sup> Research on buyer power should prove extremely useful to the small business community.<sup>35</sup>

### **C. Predation**

Predation is another antitrust topic that can have great importance to small businesses. The following section provides a brief intellectual history of the subject and may be skipped over by those who are already familiar with it or are anxious to read about three current manifestations of the predation issue that have special relevance to small business. Our discussion, following the intellectual history, focuses on airlines, computers, and the idea of failed predation.

#### **An Intellectual History of Predation**

In the early days of America's experiment with antitrust, predatory acts by a dominant firm were of great concern to the public and to the law. The landmark case that resulted in the breakup of the Standard Oil trust in 1911 was premised on evidence that Standard Oil had engaged in a variety of predatory acts intended to kill off its smaller competitors.<sup>36</sup> Predation remained a major concern of antitrust, and particularly to small businesses that faced competitors having substantial market power; but scholars identified with the

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into both unlawful vertical arrangements with toy manufacturers and an unlawful horizontal arrangement among toy manufacturers. The vertical arrangements consisted of the series of agreements that Toys "R" Us had extracted from almost all of the major toy manufacturers individually to partially boycott the warehouse clubs that competed against Toys "R" Us. The horizontal arrangement was reached when Toys "R" Us conveyed assurances of compliance with its policies from one manufacturer to another, thus orchestrating a horizontal agreement among several manufacturers to adhere to the desired restrictions.

<sup>34</sup> See John J. Curtin, Daniel L. Goldberg, and Daniel S. Savrin, "The EC's Rejection of the Kesko/Tuko Merger: Leading the Way to the Application of a "Gatekeeper" Analysis of Retailer Market Power Under U.S. Antitrust Laws," 40 *Boston College L.Rev.*537 (1999).

<sup>35</sup> Research could lead, for example, to modifications of the Federal Merger Guidelines, which do not address the effect of the dominant retailer in the marketplace. Curtin et al., *id.*, at fn 78, speculate that this is because the Guidelines appear to be drafted on the primary premise that the mergers addressed will involve manufacturers of goods, rather than retailers or service providers. Yet these are the sectors that most often include small businesses.

<sup>36</sup> *Standard Oil Co. of New Jersey v. United States*, 221 US 1 (1911).

“Chicago School” of economics began in the 1970’s to question the logic of predation.<sup>37</sup> Working from static analyses based in price theory, they reasoned that it would rarely, if ever, make sense for a firm to engage in predatory behavior.<sup>38</sup> And since true predation is so rare (jumping from analysis by logic to an empirical-type conclusion), enforcement against predation is more likely to chill competition than to serve it.<sup>39</sup>

This line of argument was enhanced by a vigorous academic dispute over the definition of price predation. How should a court or an enforcement agency draw the line between prices that are merely aggressive, and those that are likely to be predatory? The most famous proposal in this area was developed by professors Areeda and Turner, who said that only a price that is below the firm’s own costs should be deemed predatory, and that cost should be defined operationally in terms of average variable cost.<sup>40</sup>

The high water mark of the “Chicago” line is the Supreme Court’s opinion in *Matsushita Electric Industrial Co. v. Zenith Radio Corp.*<sup>41</sup> in 1986, a case in which

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<sup>37</sup> See, e.g., Robert H. Bork, *The Antitrust Paradox* (1978), and Yale Brozen (ed.), *The Competitive Economy* (1975), which contains a leading article by John S. McGee, “Predatory Price Cutting: The Standard Oil (N.J.) Case,” that questions the logic and occurrence of price predation.

<sup>38</sup> The logic goes like this: Firm A has substantial market power in market X, and observes Firm B entering the market. Firm A responds by reducing its prices to the point where it cannot make a profit, or even loses money on each unit it sells, with the intent that it will drive out Firm B, recapture its dominance, and raise its prices. It will only do this, says the “Chicago School,” if it foresees that it can sustain its eventual elevated prices at least long enough to recoup the investment made in predation (i.e., recover the profits lost by selling cheap). Unless there are barriers to entry, once Firm A raises its prices, however, Firm C will make the decision to enter market X, and Firm A will have to make yet another investment in predation. Since the “Chicago School” does not believe that entry is generally difficult, in the absence of government-created barriers, their conclusion is that in general, corporate strategies of price predation will not be worth pursuing. Moreover, as a matter of public policy, they argue, we would not want to deter vigorous price competition, which is in the interests of consumers. We should opt not to risk intervening in most situations where competitors are alleging that they are being damaged by predation: since predation is unlikely to occur, our interventions would have an unnecessarily chilling effect upon true price competition.

<sup>39</sup> E.g., as a result of this logic, the Supreme Court has made it increasingly difficult for a plaintiff to get beyond dismissal at summary judgment an antitrust case, and especially with regard to claims of predatory pricing. *Matsushita Electric Industrial Co. v. Zenith Radio Corp.*

<sup>40</sup> Phillip Areeda and Donald F. Turner, “Predatory Pricing and Related Practices under Section 2 of the Sherman Act,” 88 *Harvard Law Review* 697-733 (1975). Average variable costs are the measure most commonly used by courts, although there are variations among the federal circuit and state courts.

<sup>41</sup> 475 U.S. 574 594 (1986). The case is discussed (rather favorably) by Kenneth G. Elzinga in John E. Kwoka, Jr., and Lawrence J. White, *The Antitrust Revolution* (1999) at 220.

dumping charges were brought by American TV manufacturers against Japanese manufacturers. The Court cited the Chicago School literature on predation and suggested that predatory pricing would only harm consumers in particular market environments where recoupment of losses through raised supracompetitive prices was likely. The Court made it clear that it thought price predation rarely occurs and is extremely unlikely. This was expanded in *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*,<sup>42</sup> where the Court held that in a predatory pricing case, a plaintiff must prove (a) that the prices complained of are below an appropriate measure of costs, and (b) that the alleged predator had a reasonable prospect, or a “dangerous probability,” of recouping its investment in below-cost prices.

By making it extremely difficult for a plaintiff to succeed in a predatory pricing case, the Chicago School has taken away one of the most important tools for protecting small business’ ability to compete on a level playing field. One would think that this should be of great concern to the small business community.

In the face of the influential “Chicago School” critique of predation, a “Post-Chicago” movement has emerged, which has answered the critique and developed deeper insights into how competition works both in the real world and as a matter of theory.<sup>43</sup>

First, the Post-Chicago rejoinder says, it is fundamentally wrong to think that a static analysis provides an adequate picture of how firms compete. When Firm A commits itself to the investment in keeping Firm B out of Market X, it is sending a message not only to Firm B but to other firms that might contemplate entry into Market

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<sup>42</sup> 509 U.S. 209 (1993). For a narrow reading of the implications of this case, see Jonathan B. Baker, “Predatory Pricing After Brooke Group: An Economic Perspective,” 62 *Antitrust Law Journal* 585 (1994).

<sup>43</sup> See Robert H. Lande, “Beyond Chicago: Will Activist Antitrust Arise Again?” 39 *Antitrust Bulletin* 1 (Spring, 1994). (A recent layman’s summary of these developments may be found in the May 2, 1998 issue of *The Economist* at pp. 62-64, concluding, that the Post-Chicago theories “will motivate enforcers to investigate business behavior that hitherto would have raised no eyebrows. They will come to understand new ways in which businesses acquire excessive market power. Consumers should be grateful.” Also see the introduction in John E. Kwoka, Jr., and Lawrence J. White, *The Antitrust Revolution* (1999).

X. Moreover, if Firm A also operates in other markets, it may be sending a message to other companies it faces in other markets. The message is: “I am one tough, aggressive warrior; if you cross me, I will do whatever is in my power to crush you.” In other words, the investment is in building a particular kind of reputation that is thought to have strategic value in the overall business of the firm. It does not necessarily have to be recouped in Market X.

But, second, even if the predatory investment does have to be recouped in Market X, the analysis has to turn to the thought processes of the next firm that might contemplate its own possible entrance into Market X. It has to ask itself (or its investors will ask), in light of what happened to Firm B when it tried to enter, will Firm A maintain its demonstrated aggressive policy?<sup>44</sup> Chicago School economists believe that entry is generally easy, but they tend to overlook the sunk costs that are a part of most market entry strategies. In reality, the next potential entrant is likely to be deterred if it believes that Firm A has a predatory character and the market power to prey.

Third, the Post-Chicago rejoinder has argued that a focus solely on price is in many situations too difficult to apply. Obtaining clear-cut information about a firm’s variable costs with regard to one of its many products not only requires access to detailed accounting data, but also requires second-guessing and debating a host of accounting decisions relating to the proper allocation of expenses. In practice, cost-based tests of predation have been difficult to apply, even when there is agreement on the appropriate test.<sup>45</sup> A better test might focus on the firm’s strategic intent, which is admittedly less quantifiable than price/cost data, but is not necessarily any less valid.<sup>46</sup>

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<sup>44</sup> For a while in the 1980’s, there was a Chicago theory called “contestable markets” which argued that even a monopolist has to set prices as if it were up against competition, because raising prices higher than the competitive level would induce “hit and run” entry by potential competitors who would come in, make their profit, and then exit if the monopolist responded with reduced prices. “Contestable markets” theory was shot down because it ignored the role of sunk costs and exaggerated the ease of entering a market. The theory now carries little weight in that it would be so rare to find a market where it could apply.

<sup>45</sup> See, e.g., Oliver E. Williamson, *Antitrust Economics*, 225 (1987).

<sup>46</sup> Richard Posner, in *Antitrust Law, An Economic Perspective* (1976), suggested that both intent and cost need to be considered. His definition of predatory pricing is pricing at a level calculated to exclude from the

And fourth, the Post-Chicago rejoinder has noted that price is only one aspect of a strategy. Various forms of non-price predation have been identified and analyzed, some focused on strategies aimed at imposing losses on rivals, others at raising rivals' costs. For example, it has been theorized that firms may sometimes change a product's characteristics in order to head off entry by a rival<sup>47</sup> or that entrenched firms may try to make it more expensive for firms to enter or introduce new products by increasing the costs of acquiring market information, a tactic which has been dubbed signal jamming.<sup>48</sup>

### **Airline Hubs**

The deregulation of air transportation in 1978 was premised on the assumption that a competitive market would adequately protect consumers, without the necessity for burdensome economic regulation by the C.A.B. The implicit understanding was that vigorous antitrust enforcement would assure a competitive market that would serve consumers better than regulation. Unfortunately, antitrust oversight of the air transportation industry has not fulfilled its end of the bargain, with the result that we now have an industry that is concentrated in too few players, whose dominance of various system hubs results in self-regulation by monopolists rather than regulation by competitive markets. With the movement toward domestic airline alliances further reducing the level of competition in our air transportation industry, it is all the more important to focus on increasing competition at the hubs.

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market an equally or more efficient competitor. *Id.* at 188. In this, the Chicago School departed from the teachings of Professor (now Judge) Posner.

<sup>47</sup> See Thomas J. Campbell, "Predation and Competition in Antitrust: The Case of Nonfungible Goods," 87 *Columbia Law Review* 1625 (Dec. 1987) and John C. Hilke and Phillip B. Nelson, "Nonprice Predation and Attempted Monopolization: The Coffee (General Foods) Case (1984) in John E. Kwoka, Jr., and Lawrence J. White, *The Antitrust Revolution* 208 (1999).

<sup>48</sup> See Steven C. Salop and David T. Scheffman, "Raising Rivals' Costs," 73 *American Economic Review* 267 (May, 1983); Thomas G. Krattenmaker and Steven C. Salop, "Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price," 96 *Yale Law Journal* 209 (Nov., 1986); Steven C. Salop and David T. Scheffman, "Cost-Raising Strategies," 36 *Journal of Industrial Economics* 19 (Sept., 1987); Drew Fudenberg and Jean Tirole, "A 'Signal Jamming' Theory of Predation," 17 *Rand Journal of Economics* 366 (1986).

As a result of uncontested mergers and other strategic moves that until recently had gone unchallenged, large airlines gained control over transportation hubs and have maintained their dominant market positions by excluding new entrants. The pricing elements of their strategies include reducing prices for seating on routes that are being challenged by new entrants; and offering frequent flier bonuses to consumers who fly with them on the challenged routes. The frequent flier benefits have value to the consumer and therefore can be viewed as a form of additional discount. Non-price strategies include adding additional seats at low fares; scheduling flights to bracket the times offered by the entrant; and aggressive marketing targeted against the entrant. The elements of strategy are often combined, and the overall objective is to keep consumers from switching to the entrant. Once this objective succeeds and the entrant withdraws from the market, the elements of the strategy may be withdrawn, and, in particular, the “fighting fares” will be phased out.<sup>49</sup>

The dominant firm hub system affects small businesses in two ways. First, small airlines that want to compete at hubs and are capable of competing (generally as low cost carriers) are unable to enter the market. Second, small businesses as consumers of air transportation are at the mercy of non-competitive pricing. Market power permits price discrimination and no other industry has carried price discrimination to the altitude of the airlines. Business fares (characterized by last-minute buying and the need to travel at specific times) have been separated from, and made substantially higher than, tourist fares. Unlike very large corporations, which can negotiate low prices for their employees based on the leverage of their frequent flying, small businesses must pay the extremely high business fares, raising their costs of doing business compared to their largest competitors.

Two developments provide some reason to think that change may be coming. One is the Department of Transportation’s proposed “Enforcement Policy Regarding Unfair

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<sup>49</sup> See Alfred Kahn, “How To Know Airline Predatory Pricing When You See It,” *FTC: WATCH* No. 512, Dec. 7, 1998, available at [www.antitrustinstitute.org](http://www.antitrustinstitute.org).

Exclusionary Conduct in the Air Transportation Industry.”<sup>50</sup> If this policy goes into effect, it will create a regulatory control over predation. The second is the Department of Justice’s pending lawsuit against American Airlines,<sup>51</sup> accusing it of driving smaller competitors out of one of its most important markets by illegally slashing ticket prices below cost and increasing flights sharply. This is the first predatory pricing action brought by the government against an airline since the industry was deregulated and is also the first predatory pricing case brought by the government since the 1970’s. How it comes out should be of substantial interest to the small business community.

### **Minimal Marginal Costs, Recoupment, and the Microsoft Case**

Many segments of high technology industry seem to be characterized by rapidly declining marginal costs. (The marginal cost of a few lines of software program may be close to zero.) In such industries, a new entrant may be faced with a competitor’s extremely low, nearly vanishing marginal costs. If pricing must be proven to be below marginal cost in order to qualify as an element of predatory pricing, a new entrant that is targeted by a dominant competitor with low marginal costs will always be without remedy, without regard to the dominant firm’s predatory strategic intent. The Justice Department’s realistic take on corporate strategies, as displayed with regard to both American Airlines and Microsoft, is essential to the ability of antitrust to maintain level playing fields in the high tech world of the future.

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<sup>50</sup> D.O.T. Docket No. T-98-3713. See AAI’s comments to D.O.T. dated July 21, 1998, and follow-up comments dated September 10, 1998, at [www.antitrustinstitute.org](http://www.antitrustinstitute.org).

<sup>51</sup> See Stephen Labaton, “Government Sues American Airlines, Accusing It of Predatory Pricing,” *New York Times*, May 13, 1999. U.S. v. AMR et al, Civil Action No.: 99-1180-JTM, filed: May 13, 1999. It is fairly typical of predation cases that the predator picks off a specific target, usually a new entrant or maverick. American is alleged to have picked off three low-cost competitors (Vanguard Airlines, Sun Jet International, and Western Pacific) on the occasions when they tried to enter the Dallas-Fort Worth International Airport. When Vanguard entered, it is alleged, American cut prices and added flights on nearly all of Vanguard’s Dallas routes, including the one to Wichita. Two months later, Vanguard abandoned its routes and soon after that American reduced its capacity on the Wichita route by 30% and raised the one-way fare by more than 50%.



The Microsoft case<sup>52</sup> involves predatory practices, although the Justice Department has chosen not to speak much about “predatory pricing” because of the legal and conceptual difficulties we have discussed. At the most general level, Microsoft’s outcome will no doubt tell us a lot about the applicability of antitrust to high technology industries. I simply want to focus here on one rather small aspect that has not received much discussion. One of the allegations by the Justice Department is that Microsoft bundled the Internet Explorer (its browser product) with Windows (its monopolistic operating system), and in effect sold the browser at a price of zero, i.e. Microsoft gave away the browser to anyone who purchased the Windows operating system. This type of tying practice, if permitted, would make it extremely difficult for a small business (or a large one, for that matter) to enter the browser market.

But predatory pricing, in the Chicago view of the law, would be next to impossible to prove. For instance, where is the evidence that Microsoft, after driving Netscape out of the market, intended to raise the price of the Internet Explorer to recoup the “investment” it had allegedly made in pricing below cost? This would be relevant under the *Brooke Group* holding that recoupment must occur in the same market where the alleged predation occurred—a nearsighted and damaging holding. Nonetheless, in the Plaintiffs’ Joint Proposed Conclusions of Law filed December 6, 1999, the Department argued that

Microsoft's zero pricing and vast spending for distribution of Internet Explorer, by contrast [to earlier holdings regarding the recoupment element of predatory pricing], did not require for its anticompetitive effect an ability to raise the price of Internet Explorer in the future. It achieved an anticompetitive effect simply by perpetuating Microsoft's monopoly in the market for another product, the Windows operating-system.

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<sup>52</sup> *U.S. v. Microsoft Corp.*, Civil Action No. 98-1232 (TPJ). See Albert A. Foer, “The Importance of the Microsoft Case,” 31 *Conn. L. Rev.* 1275 (1999). While my comments are directed to the issue of predation, it is worth noting that Microsoft’s alleged use of market power in its vertical relationships also has very important ramifications for small businesses. For a review of the first Microsoft case, which led to a consent decree in 1995, see Richard J. Gilbert, “Networks, Standards, and the Use of Market Dominance: Microsoft (1995),” in John E. Kwoka, Jr., and Lawrence J. White (eds.), *The Antitrust Revolution* (1999), 409.

In other words, the Department of Justice has taken the position that recoupment may have strategic ramifications unrelated to earning back the “investment” by later raising the price of the product which was predatorily priced. There may be other strategic reasons underlying the predation, such as maintaining barriers to entry for another product. This is a realistic assessment of the Microsoft strategy of a type that ought to be accepted as sufficient proof of the probability of recoupment. As such, it would help bring predatory pricing back from a world of theological distinctions to one of actual business practice.

From a small business point of view, an essential strategy should be to support efforts to restore the ability of antitrust to fight predatory strategies by dominant firms.

### **The Case of Failed Predation**

Nowhere is the issue for small business more directly presented than in the case of failed predation. Suppose a company with a high-volume, price-cutting strategy makes known that it is about to enter a retail market. Suppose further that the largest incumbent companies engage in a price war, even before the new entry occurs, intended either to keep the newcomer out entirely or to teach it a lesson (discipline it) so as to moderate the new competition. Suppose also that a variety of the smaller businesses are damaged by the price war. (“The elephant sneezed and fell to its knees, and what became of the monk, the monk?”) Assuming that the price war involved prices below cost, should the damaged small retailers have a claim for antitrust damages?

The current state of the law –the result of years of intellectual and political lobbying by Chicago School opponents of vigorous antitrust enforcement—makes it almost impossible for a small business plaintiff to recover.<sup>53</sup> Part of the problem is procedural, involving questions of who has antitrust standing, what is deemed antitrust injury, and what must be demonstrated before a litigated case is allowed to proceed beyond a defense

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<sup>53</sup> See *Indiana Grocery, Inc. v Super Valu Stores, Inc.*, 864 F2d 1409 (7<sup>th</sup> Cir. 1989), upon which the above example is based.

motion for summary judgment. These are themselves issues that small business ought to be challenging.

We will focus on the other part of the problem: the Chicago attitude that price predation can only occur if there is a dangerous probability that recoupment in the same market will occur. In other words, if a firm engages in below-cost pricing, with predatory intent, but for some reason (e.g., miscalculation, bad luck, or perhaps an intent to recoup in some other market) it is not likely to be able to raise its prices in that market to a super-competitive level after it knocks out its competitor, there is no law violation. If small businesses were driven out, Chicago says, that's the price we have to pay for vigorous competition. Post-Chicago would reply, it seems to be a high price to pay, not for vigorous competition, but for a logician's unrealistic exercise in economic reasoning.

Indeed, one wonders why the free market economists would be comforted by this logic. When a firm prices below marginal cost, it is sending false signals to the market. It is telling consumers to buy more than they would if prices were set at the competitive level. Similarly, if you hold an ice cube next to your home's thermostat to signal your furnace to throw off more heat, you get an inefficient result. False signals in the market create allocative inefficiencies, and laissez faire economists usually oppose allocative inefficiencies. Their inability to see that failed predation is bad for the economy is probably very damaging to small businesses.<sup>54</sup>

Query: how many small businesses are harmed by failed predation? Perhaps, if the numbers are high, the "chilling effect" on competition that worries the Chicago School about the enforcement of the antitrust laws against price predation are in fact outweighed by the harm done by avoidance of enforcement.<sup>55</sup>

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<sup>54</sup> Does a company with market power that engages in a predatory price war and succeeds in gaining more market share (by knocking out the competition) really have to raise its prices above the previous level in order to recoup? Perhaps its previous prices were already reflective of market power and perhaps the increased market share is quite valuable even if prices only return to where they were before the price war.

<sup>55</sup> What about consumers? Chicago tells us that very low pricing is so valuable to consumers that we can't afford to risk enforcing against predatory pricing. But consumers are not entitled to prices that are below costs and consumers will pay a price later, if predation succeeds in eliminating businesses, by reduced choices and perhaps higher (recoupment) prices.

#### **D. Keeping the World Safe for New Entrants**

Small business has always been the special beneficiary of policies that facilitate the entry of new businesses into a market. And one of antitrust's highest services has been to make it difficult for the status quo to entrench itself through the creation of artificial entry barriers. Nowhere is this function more important than in rapidly changing markets where established firms are being challenged by newcomers. Here is a recent example of how antitrust can promote opportunity for small businesses.

##### **The Fair Allocation System Case**

The FTC in 1998 brought a little noted but significant case,<sup>56</sup> which involved the boycott of Internet competition. A Chrysler dealership in Kellogg, Idaho, created a web site where consumers in Idaho and nearby states could shop for cars from the comfort of their homes. By advertising on the Internet, this dealer offered consumers in remote parts of the state -- and in other states -- the opportunity to comparison shop in a far less costly and time-consuming fashion. A group of 25 rival brick-and-mortar dealers responded by forming an association called Fair Allocation System ("FAS") and collectively attempted to force Chrysler to change its vehicle allocation system to disadvantage the Internet advertiser. They threatened to refuse to sell certain Chrysler vehicles and to limit the warranty service they would provide customers unless Chrysler changed its allocation system to disadvantage dealers that sold large quantities of vehicles outside their local geographic area. The Commission obtained a consent decree barring FAS from coordinating or participating in future boycotts.

Note the ambiguity of this case in terms of small business interests. The dealer who used the Internet was a small business. So, too, however, were the dealers who tried to convince Chrysler to boycott the new form of competition. In the "gale of creative destruction" which Schumpeter said was the essence of capitalism, small businesses will often represent the status quo that is endangered by the competition of new technologies.

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<sup>56</sup> *Fair Allocation System, Inc.; Analysis to Aid Public Comment*, 63 Fed. Reg. 43182 (1998).

Often, the carriers of such new technologies will get their start in the basement or garage, as the smallest of businesses. If antitrust is to hold its traditional position of protecting the way for newcomers, it must often choose among small business interests. When it opposes vertical price fixing (as it does with respect to RPM) and when it opposes group boycotts (as it did in the Fair Allocation case), it risks making one segment of the small business community an enemy, even as it makes another segment a friend.

And we might as well point out, since we are talking about political action, that while the status quo usually can defend itself through trade associations, newcomers most often are working on their own, without an established industry or network of commonly situated interests to support them.

### **E. Vertical Relations**

The Chicago School's greatest achievement was to change the way the antitrust world thinks about vertical relationships. Chicago has demonstrated that many vertical relationships enhance efficiency and are therefore positive for the economy. But they have gone too far and the pendulum seems to be swinging toward a new equilibrium, in which vertical restrictions will be given more scrutiny. At the heart of competition is the idea that no one has substantial power over the market: it should be the market that controls the firms and not the other way around. Yet, when one looks at what goes on (as opposed to what some economists have theorized), market power is all too prevalent. Here we look briefly at franchises, electricity deregulation, and partial exclusive dealing contracts to make the point that small businesses have an important interest in antitrust's being able to constrain market power—and in defining market power in a sufficiently broad way to be useful.

## Constraining Market Power of Franchisors

More than one-third of all consumer dollars flow through franchised outlets. Franchisors often have market power in dealing with franchisees. Abuses of this power can distort competition and injure the franchisee, efficient suppliers of the franchisee, and the consuming public. As described in a recent essay by Warren Grimes, over the past 80 years, antitrust claims have provided a measure of protection against these abuses, but a number of recent lower court decisions have summarily dismissed antitrust claims against franchisor abuses.<sup>57</sup> These courts have reasoned that because a franchisor has no market power over a franchisee *before* the franchise contract is signed, post-contractual competitive abuses should be governed exclusively by contract law. If this theory is accepted, the franchise/franchisor relationship is rendered virtually immune from antitrust scrutiny.

These holdings have either ignored or distinguished the Supreme Court's *Kodak* case,<sup>58</sup> which offers some bases for defending the rights of franchisees. Potential purchasers of Kodak machines understood that they could later go to independent service organizations for parts and service. But Kodak subsequently changed its policy to require them to purchase a Kodak service contract, thereby eliminating the independent aftermarket. Kodak itself did not have a dominant market share in its industry, but had significant power over its customers, whom the Supreme Court found were "locked in" by the relationship (the cost of switching away from Kodak, just for parts and services would be unreasonable) and could therefore be exploited. The Supreme Court also focused on the customers' inability to predict future changes in Kodak's policies at the time they entered into their contracts. It used these insights to help define the relevant market in a narrow manner and made it clear that plaintiffs can attempt to prove their

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<sup>57</sup> Warren Grimes, "Franchise Antitrust Claims: The Vacuum in Federal Leadership," *FTC:WATCH* No. 531 (Oct. 25, 1999), available at [www.antitrustinstitute.org](http://www.antitrustinstitute.org).

<sup>58</sup> *Eastman Kodak Co. v. Image Technical Services, Inc.*, 112 S. Ct. 2072 (1992)

information-based allegations as a basis for demonstrating anticompetitive behavior.<sup>59</sup> While it may take many years to work out all the implications of *Kodak*, it seems that it provides by analogy a foundation for determining that a franchisor has sufficient market power *vis a vis* a locked-in franchisee so that it can be restrained from exploitative behavior.

The FTC has brought no recent franchise antitrust cases. Small business would benefit from its leadership in restoring a balance to federal antitrust law to protect against traditional franchise antitrust abuses such as tie-ins, exclusive dealing, and vertical maximum price fixing when those practices injure competition without offsetting competitive benefits.

### **Electricity Deregulation**

The last and largest of the major deregulation efforts is intended to introduce competition at the retail or ultimate customer level of electricity distribution. Electricity is a complex, \$200 billion-per-year industry and its deregulation has been promoted primarily by large-sized businesses that expect competition to result in lower rates. Small businesses and consumers are much less certain that they will share in the benefit, but over 20 states have already passed deregulatory legislation.

What should be clear to residential and small business consumers and to many firms that are being counted on to compete against public utilities that have up to now been regulated monopolies, is this: if competition is to work in the broad public interest, the market won't simply take care of itself.<sup>60</sup> To the contrary, a carefully planned

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<sup>59</sup> See Robert H. Lande, "Chicago Takes It on the Chin: Imperfect Information Could Play a Crucial Role in the Post-Kodak World," 62 *Antitrust Law Journal* 193 (1993).

<sup>60</sup> See, e.g., David W. Penn, "The Answer Is Market Structure, Market Structure, Market Structure," remarks to the American Association of Law Schools Section on Socio-Economics, Washington, DC, January 6, 2000, available at the American Public Power Association.

transition is needed to “Shermanize” the rules, processes, participants, and regulators who will oversee the emerging electricity market.<sup>61</sup>

If naked neoclassical economics prevails, there is a strong likelihood that electricity deregulation will result in unregulated monopolies dominating the picture. Not only will this force out the smaller players (including, for example, municipal electricity companies, rural electric coops, and private non-utility energy companies), but the resulting pricing patterns are likely to provide another competitive advantage to the largest electricity users *vis a vis* smaller users. It is in the interest of small businesses, therefore, to help assure not only that antitrust principles are applied aggressively after deregulation, but that the proper institutional adjustments are made before deregulation is a *fait accompli*.<sup>62</sup>

### **Partial Exclusive Dealing Contracts**

Antitrust has long dealt with exclusive dealing contracts, applying the rule of reason rather than a *per se* rule. Exclusive-dealing arrangements are most likely to threaten competition in one of two ways: the arrangements can either facilitate collusion among competitors, or they can facilitate exclusion by allowing a firm to raise its rivals’ costs in order to give it the power to increase its price. When an exclusive contract is entered by a dominant manufacturer, other manufacturers (many of whom may be small businesses) will be foreclosed from the distribution channel that has been tied up. On the other hand, importantly, they can also enhance efficiency by setting up effective incentives for promoting interbrand competition. The rule of reason is intended to balance the costs and benefits.

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<sup>61</sup> See Albert A. Foer, “Institutional Contexts of Market Power in the Electricity Industry,” 12 *The Electricity Journal* 13 (May, 1999). Experience with previous deregulation efforts is rather mixed, in large part because antitrust was not able effectively to play the role assigned to it for the post-deregulation era.

<sup>62</sup> For example, common ownership of generation (expected to be a competitive market) and transmission (expected to remain a natural monopoly) can easily be abused, so that competing generation companies are put at a competitive disadvantage. FERC has recognized this by requiring open access to transmission, but many supporters of a competitive industry doubt that this will be a sufficient protection against the abuse of market power by the transmission owner.



Typically, the exclusive contract negotiated by a manufacturer with a distributor or retailer covered one hundred percent of the downstream participant's market. In recent years, however, some manufacturers have begun to use subtler arrangements in which incentives replace requirements and partial exclusivity replaces total exclusivity.<sup>63</sup> For example, a manufacturer might agree that the downstream partner need devote only eighty percent of his efforts to the manufacturer's product, but might provide a large incentive such as a discount (the so-called market share discount) that goes back to the first unit purchased, once a certain higher target is met, making it highly likely that the distributor will end up working exclusively with the one manufacturer, and foreclosing other manufacturers from the partner's channel of distribution. The question raised is whether these partial exclusive agreements will be treated in the same manner as one hundred percent agreements.

Some of these new types of arrangements, whether partial exclusive deals or formally non-exclusive deals that contain incentives that are intended to have the effect of creating exclusive dealing, may have anticompetitive consequences that outweigh any efficiency benefits. Although the likelihood of an anticompetitive effect may fall as the percentage of the market tie-up falls, nonetheless it would seem that the same type of rule of reason analysis should be used as in a formal exclusive dealing agreement. We should not get caught up in linguistic arguments over whether a particular contract does or does not require literal "exclusivity," but rather focus on the particular industry and the particular facts. Despite some judicial opinions that seem to apply a literal test, it can be

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<sup>63</sup> See Willard K. Tom, David A. Balto, and Neil W. Averitt, "Anticompetitive Aspects of Market-Share Discounts and Other Incentives to Exclusive Dealing," *Antitrust L. J.* (forthcoming).

argued that they are wrongly decided or otherwise distinguishable.<sup>64</sup> Anyway, the question of how these relatively new agreements will be handled awaits development.

Query: How important a role is played by these new partial exclusionary and market share incentive agreements and what is their impact on small businesses?

#### **IV. Toward a Coalition for Post-Chicago Antitrust Policies**

With rare exceptions (e.g., in 1912-1914), the institutions of antitrust have not had much political salience. To the extent that antitrust has had an on-going constituency, it was primarily to be found in the small business and consumer communities and in the federal antitrust agencies themselves, at least prior to the small business retreat in the 1970's. Antitrust's opposition came largely from big business and laissez faire economists, which was "the party in power" during the 1980's. Today, antitrust is on the rebound. The large and long-lasting merger wave, the inadequate competition in deregulated industries, and the landmark *Microsoft* case have cumulatively focused public attention on antitrust to a greater extent than any time since the AT&T divestiture agreement.<sup>65</sup>

For those who support this reinvigoration of antitrust, the question is whether it can be sustained and moved forward. An opposition force clearly exists, so we have to ask, who currently and potentially will be there on the side of antitrust?

Query: What might a post-Chicago antitrust coalition look like?

We have to start with consumer groups. Consumers are those who are most injured by anticompetitive practices, and therefore have the most to gain by supporting antitrust.

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<sup>64</sup> Id.

<sup>65</sup> See *United States v. AT&T*, 552 F. Supp. 131 (D.D.C. 1982).

Not all consumer advocates favor market solutions, and most have a rather skeptical view about the efficacy and fairness of markets. But even those who might prefer more direct methods of public regulation recognize that the world has changed and that antitrust is today among their best tools for constraining anti-consumer abuses of private power.

Organized labor, often the ally of consumer interests, has normally not been friendly toward antitrust. In its early history, antitrust was used to enjoin union activity, leaving a lingering bad taste in the mouth of labor. Although antitrust labor injunctions are no longer an issue, there remains a logical inconsistency between free markets and organized factors of production that is not always easy to bridge. Moreover, unions in highly concentrated industries may do particularly well for their members, because monopoly rents put something on the bargaining table that can be split between ownership, management, and labor. However, some unions have in recent years become interested in antitrust as a response to the downsizing and destabilizing effects of the merger wave. Although this has resulted in some labor campaigning against particular mergers, there has to date been no indication that organized labor is about to go to bat for antitrust generally. It is more likely that specific labor unions will ally with an antitrust coalition from time to time, when the shoe pinches.

Although firms with dominant positions are not likely ever to support antitrust, and indeed for thirty years or more have been leading the charge to reduce the national antitrust commitment (often working through large and well-funded conservative think tanks), a number of relatively large second-tier companies have increasingly found it appropriate to support antitrust because of the strategic assistance it can give them in their fight to survive against a dominant rival. (Consider that the opponents of Microsoft have created the 'Pro-Competition' coalition<sup>66</sup>; that American Express and Discover have assisted the Division in its case against MasterCard and Visa; that Pepsi Cola has brought a private antitrust action against Coca Cola.) These firms represent a potential constituency of real significance and stand to benefit from being viewed as in alliance with consumer interests.

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<sup>66</sup> Described at the coalition's home page, [www.procompetition.org](http://www.procompetition.org).

The current Federal antitrust enforcers are an obvious part of the community that supports activist antitrust. State attorneys general, seeing a gap in federal enforcement (even today, given inadequate federal funding) and finding political benefit in pursuing antitrust cases, have responded to the political potential that is latent in antitrust. Through the National Association of Attorneys General and its Antitrust Task Force, the Attorneys General and their staffs represent an influential force in favor of antitrust, but it is a force limited by small numbers and very limited scope (because of civil servant status) for reform advocacy and political action outside of what happens on-the-job.

Antitrust attorneys, both within and outside of government agencies, usually working through the American Bar Association's Antitrust Section, tend to support the institutions of antitrust, but not necessarily aggressive substantive policies. A somewhat fuzzy distinction can be made between defense attorneys, whose income may derive from vigorous enforcement of the antitrust laws but whose clients are often not favorably inclined to the idea of antitrust; and plaintiffs' attorneys, whose contingent fee income may directly depend on the health of antitrust institutions. (Some lawyers handle both plaintiff and defense cases. One group of attorneys who specialize in plaintiffs' antitrust cases has come together under the name "Committee to Support the Antitrust Laws.")

Similarly, there is a community of economic consultants focused on antitrust and competition policy issues. They have a similar economic interest in activist law enforcement policies and a similar mixture of motives reflecting both the clients who pay the bills and internal debates among industrial organization economists. Those allied with the institutionalist wing of the profession are most likely to support a post-Chicago coalition.

Finally, there are the academics --lawyers and economists-- and specialized journalists who make a living from their knowledge of antitrust. Individually, these people may or may not have their own policy agendas; as a group, they benefit when antitrust is dynamic and doing things that the rest of the world wants to understand.

Let's be clear that these groupings do not today constitute a coalition. They are not organized. They do not even recognize, for the most part, a commonality of interest, although the American Antitrust Institute, which was founded in 1998, is trying to develop a sense of commonality. Together with small businesses and their trade associations, they represent the potential political base for antitrust from which supporters would have to be found.

So, finally, where does small business fit? Should antitrust policy be dramatically changed to attract small business? The nature of a coalition is that positions must be compromised to keep the members within the coalition. Here are some thoughts on where the "winning ground" for compromise may lay.

An agenda that can be adopted by the above groupings would have to be fairly centrist. It must be more aggressive and expansive than the policies advocated by libertarians and laissez faire advocates, but it must be much more directed by economic analysis than the policies advocated by populists on the left. Because of the priority of having consumer support, it has to make consumer benefit the touchstone. It would favor market-type solutions as a first choice, but pragmatically, with awareness of the fact that markets are embedded in institutions and are subject to failures. It would assign government the task of helping markets to succeed, while remaining wary of too much regulation.

Contrary to the desire of some small business advocates, such an agenda could not include a return to the FTC's mailbag, hyperthyroid enforcement of R-P, rehabilitation of RPM and "fair trade," nor could it welcome small business cartels and boycotts. Brandeis would not be totally thrilled by this coalition, but on the other hand, here are several directions that can be taken, to appeal to at least part of the small business community.

1. Recognize that antitrust should be allied with the more vigorous, creative, and growth-oriented segments of small business. It is the discounters, the newcomers, the innovators, risk takers, and mavericks that play the largest role

in making competition work for the consumer. These are the natural opponents of restrictive business practices and their support should be sought.

2. In order to demonstrate that the Robinson-Patman law is still being enforced, the FTC should bring a small number of well-conceived R-P cases that make focus on abuses of by power buyers and therefore make sense for competition policy and for consumers.
3. Place increased emphasis on the emergence and exercise of buyer power as an anticompetitive concern.
4. Institutionalize more realistic, strategy-based and imperfect information-based interpretations of predation.
5. Make small mergers a little easier to achieve (e.g., through reduced reporting requirements and lower filing fees) and large mergers more difficult.
6. Look for the impact on small business of each case that is brought and find ways to communicate benefits to the small business community.
7. Encourage a trade association for growth-oriented small and mid-size businesses that would support antitrust's opportunity-maintaining function.

## **Conclusion**

A potential base currently exists for a post-Chicago coalition of interests that can provide the political support for antitrust. To attract small business into this coalition without pandering to protectionist desires will not be easy, but the small business community has an objective strategic need for antitrust in order to minimize the negative impact of unconstrained market power.

# THE NEW INDUSTRIAL ORGANIZATION AND SMALL BUSINESS

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## Abstract

The small business sector is an important part of the American economic landscape, in both absolute and relative terms. Despite its absolute growth, however, the sector accounts for a diminishing share of private sector activity. But its importance, and changes in importance, vary across industrial sectors of the economy.

Drawing on the theoretical and empirical insights developed in recent books by John Sutton, we suggest that the presence or absence of endogenous strategic behaviors of the larger firms with respect to advertising, promotion, research and development, and other sunk cost expenditures may well play an important role in explaining the differing levels of small business importance, both cross-sectionally and over time. We conclude the paper with suggestions for research directions that could shed further light on these ideas.

# **THE NEW INDUSTRIAL ORGANIZATION AND SMALL BUSINESS\***

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## **I. INTRODUCTION**

When asked why he robbed banks, Willie Sutton was reputed to have explained, "Because that's where the money is." If asked why they study large profit-making enterprises, most industrial organization economists would probably answer, "Because that's where the interesting questions are." (Some might give Willie Sutton's response as well.) But while large profit-making enterprises clearly raise interesting and important questions, so do nonprofit organizations, public enterprises, and small businesses. This paper focuses on the role and importance of small business, and on the economic research issues that they raise. We are particularly interested in the implications of the so-called "new industrial organization" for small business.

This paper begins with an analysis of the importance of small business in the U.S. economy. As the analysis makes clear, small business constitutes a major sector in the economy, but equally importantly, it is of differential importance in different industries and over time. One concern highlighted by this review is the number of industries where the role of small business has diminished over time, raising a question as to whether this is the result of market forces or of less benign factors. That question is addressed in the second part of this paper. There we discuss an important framework from the new industrial organization that provides one explanation as to how small business may be

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\* We would like to thank Brian Headd and Alicia Robb for their assistance in providing and explaining the SBA data and F.M. Scherer for his valuable comments on an earlier draft.



systematically disadvantaged by strategic behavior undertaken by larger companies. We will then show how this framework can help explain small businesses' differential success among industries and indicate what further research would help clarify the mechanism and its policy implications.

## II. THE POSITION OF SMALL BUSINESS IN THE U.S. ECONOMY

In this section we describe and discuss the recent (1988-1996) aggregate absolute and relative position of the small business sector in the U.S. economy. As our discussion at the end of this section indicates, these data are consistent with earlier findings.

Our definition of small business encompasses firms that have either fewer than 100 employees or fewer than 500 employees. Both are standard benchmarks,<sup>1</sup> although an enterprise with 499 employees would strike many observers as "small" only in a comparative sense.<sup>2</sup>

Our measure of the position of small business is the aggregate employment in those firms.<sup>3</sup> The employment data come from the Small Business Administration's Office of Advocacy.<sup>4</sup> The data pertain to "private employer firms," which encompass private-sector enterprises that have employees. The data exclude the self-employed; farms; railroads; the U.S. Postal Service; households (e.g., as

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<sup>1</sup> See, for example, Acs and Audretsch (1990).

<sup>2</sup> After all, if the labor cost per employee were \$50,000 and employee value added were 50% of the firm's revenues, a 499 employee firm would have about \$50 million in revenues.

<sup>3</sup> In principle, the value added in enterprises would be a better measure of their economic importance; in practice these data are not available. Two other potential measures, which are available -- the number of firms and the number of establishments -- are less indicative of the absolute and relative importance of a sector. A final potential measure is aggregate payroll, which is available (and which, of course, is a component of value added). Payroll data are less evocative of relative importance, however, than is employment. Accordingly, we will focus on employment. It is worth noting, however, that the payroll data show a similar pattern to that which we report for employment -- i.e., an absolute increase but relative decrease for the small business sector over the 1988-1996 period.

<sup>4</sup> The data are posted on the Office of Advocacy's Website. The sources of the data are files

employers of domestic workers); and large pension, health, and welfare funds. The data do, however, include enterprises in the non-profit sector.<sup>5</sup>

As can be seen in Table 1, the aggregate employment in small businesses, under both definitions, increased over the years 1988-1996.<sup>6</sup> For the under-100 category, the percentage increase over these years was 9.6%; for the under-500 category, the increase was 11.0%. In all years except 1991 (a recession year), the annual change in both categories was positive.

The overall private sector was growing during these years (except for 1991) as well, however. As the last column of Table 1 indicates, overall private sector employment by these "employer firms" rose by 16.3% during the 1988-1996. Thus, in relative terms, the small business sector lost ground. Further, it is worth noting that this loss of ground occurred during a period that (with the exception of 1990-1991) encompassed strong economic growth for the U.S. economy.

This loss of relative position is revealed dramatically in Table 2. Regardless of the category of small business that is used, the relative importance of the small business sector declined steadily through the 1988-1996 years. For both categories the rate of decline has been almost one percentage point for every three years of changes.

This relative decline can be explored in somewhat greater depth by examining the employment data for broad (one-digit) sectors of the U.S. economy. In Table 3 we present the small business shares for 1988 and 1996 for the broad sectors. For the first five sectors shown in the table, the

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compiled by the Bureau of the Census.

<sup>5</sup> For further descriptions of the data, see Armington (1998) and Robb (1999, 2000a, 2000b).

<sup>6</sup> It is important to note that these data constitute a contemporaneous "snapshot" of employment in firms of each size category in each year. By contrast, other estimates of the importance of small business -- especially those that emphasize job growth -- sometimes trace the subsequent employment totals for firms that were initially (as of a base year) in a small business size category. See, for example,

relative positions of small business within the sectors did not change substantially over the 1988-1996 period; in some instances, the relative position of small business even increased. For the remaining four classifiable sectors, however, the relative decline of small business was substantial. The relative decline of small business in the services sector was especially sizable.

These sector-specific patterns raise the following question with respect to the pattern of relative decline of small business that is reported in Table 2: To what extent was the pattern of decline in the aggregate position of small business influenced by these sectoral changes and to what extent was it influenced by the changing relative importance of the various sectors (e.g., the decline in manufacturing and the rise in services)?

To address this question, we first report the broad sectoral employment percentages for 1988 and 1996 in Table 4. As can be seen, the services sector experienced a large increase in relative importance over these years. All but one of the other classifiable sectors experienced declines in relative importance; the decline in the importance of the manufacturing sector was the most sizable.

The changes in the manufacturing and services sectors illustrate the potential influence that changes in sectoral importance could play in determining the overall pattern of the relative decline of small business. Manufacturing was a sector in which small business was relatively less important in 1988 (only 21.3% of employment in that sector was in firms with less than 100 employees), but manufacturing experienced a decline in relative importance over 1988-1996. By contrast, services was a sector in which small business was relatively more important in 1988 (44.7% of employment in that sector was in firms with less than 100 employees), and services experienced a sharp increase in relative importance over 1988-1996. These changes in weights, with the rising importance of services, could

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U.S.SBA (1999).

offset declines within sectors.

In Table 5 we present the results of calculations that bring out these roles of the changing relative importances of small businesses within sectors and the changing relative importances of the sectors themselves. In the first two rows of Table 5 we reproduce the aggregate percentage figures from Table 2 for 1988 and 1996. In the third row we present the computational result of holding the relative employment shares (weights) of the sectors constant at their 1988 levels and allowing only the relative importance of small business within each sector to reflect their 1996 values. As can be seen, if sectoral employment weights had remained unchanged, the aggregate small business percentage share would have been even lower in 1996 than it actually was. The changes in the employment weights (especially the increase in the relative importance of the services sector) clearly did offset the more severe declines in the small business shares that were occurring within some sectors.

In the fourth row of Table 5 we present a somewhat similar computational result, in which we held the small business shares within each sector constant at their 1988 values and allowed only the relative employment importance of the sectors to reflect their 1996 values. As can be seen, if the small business shares within each sector had remained constant, the changes in the employment shares would have caused the aggregate small business percentage to rise from its 1988 levels. Again, the powerful role of the services sector is primarily responsible for this result.

Thus, the actual changes in the relative role of small business in the overall economy were indeed the result of the interplay between the changes in relative positions of small business within the individual sectors and the changes in the relative importances of the sectors themselves.

The patterns that we have described in this study -- absolute increases but relative decreases for the small business sector, with the relative decreases influenced by changes in sectoral employment

weights -- are consistent with the patterns reported in an earlier study by one of the authors (White 1981, 1984) for the years 1958-1977. The relative decline of the small business sector that we have found for 1988-1996 thus appears to be a continuation of a longer-term trend.

### **III. SUNK COSTS AND SMALL BUSINESS**

As the above review makes clear, small business is of considerable importance in the U.S. economy overall, but there is enormous diversity in its prevalence across sectors, and there have been substantial changes in its importance in some industries over time. The traditional explanation for this diversity and change relies on exogenous cost considerations, specifically, on the interaction of scale economies and demand factors.<sup>7</sup> We shall show why that explanation leaves much to be desired and introduce a different framework from the new industrial organization. This alternative view focuses on the endogenous, strategic actions on the part of leading firms that alter the competitive process in their favor and to the disadvantage of smaller businesses.

The traditional view of small versus large business is straightforward: Scale economies in an industry can be described by a declining-and-then-flattening long-run average cost curve such as that in Figure 1. The smallest output at which cost is minimized is the so-called "minimum efficient scale" (MES). No firm needs to be larger than this to achieve all cost efficiencies. Thus, if one knows the "size of the market" -- roughly, the output where the demand curve intersects the long-run average cost curve -- then the "necessary" degree of market concentration (i.e., the minimum level of market concentration that is consistent with all firms' being at MES) can be determined. One divides that market size  $S$  by the minimum efficient scale  $m$  to obtain the number of efficient-size firms that fit into

the industry,  $N$ :

$$N = S/m \tag{1}$$

This framework has several straightforward implications. Markets that are relatively large, with demand curves like  $D_1$ , allow numerous efficient-size firms and have correspondingly low concentration. Smaller markets like  $D_2$  result in higher concentration, but market growth over time should result in deconcentration as rightward shifts of demand overtake scale considerations. On the other hand, if scale economies in an industry increase over time, so should concentration, other things equal. Finally, it should be observed that firms exceeding minimum efficient scale must have achieved such size for reasons other than scale economies.

This model of market concentration dates back to Bain (1956) and has been relied upon in most subsequent research. While it provides important insights into the broad contours of industry structure, this model ultimately does not do a very good job at explaining the finer details of the structure of many industries. In their benchmark review of this literature, Scherer and Ross (1990, p. 114), for example, conclude that "least-cost plant sizes tend to be quite small relative to the national market — too small to warrant [the] high levels of concentration" that actually occur. Even after allowing for regional markets for some industries and for multiple plants where those confer additional economies, their conclusion persists: In U.S. industry generally, concentration is greater, leading firms are larger, and smaller firms are less numerous than would be implied by the relationship of scale economies and market size.

Consider the often-studied brewing industry: In 1947 the industry was composed of over 400 companies and had a four-firm concentration ratio of just 21 percent. Over the next 35-40 years, while

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<sup>7</sup> For example, see White (1982) and Acs and Audretsch (1990, ch. 4).

industry sales (in physical quantities and in constant dollars) more than doubled, the number of companies declined by about 85 percent, driving four-firm concentration up to 87 percent. Thus, instead of market growth's resulting in a reduction in concentration, it was accompanied by the largest concentration increase of any major industry over this period of time. True, the underlying technology of the industry caused some increase in minimum efficient scale. But this can account for at most a four-fold increase in size (Scherer 1996, pp. 405-406), whereas the average size of the top four firms has gone from \$435 million to \$3.66 billion (in 1992 dollars) — a nearly nine-fold increase.

Such empirical anomalies have been a source of interest to industrial organization for a long time, but until recently there has been no comprehensive, compelling, and testable explanation for them. That awaited the advent of the new industrial organization over the past fifteen years. The new I.O. has two manifestations. On the one hand, it models individual oligopoly firms using game theory and a dynamic framework, with a view to an improved understanding of how individual firms develop and exploit their unique market positions. This is in contrast to traditional theory, which focuses on how oligopolists collectively achieve cooperative outcomes and maintain above-competitive profits for all. The second characteristic of the new I.O. is its emphasis on careful empirical estimation of theoretical predictions and underlying phenomena rather than the more casual empiricism that often characterized the older tradition. Of course, in order to undertake estimation based on the new I.O., that theory must yield testable implications, and data must be available for measuring such novel concepts as sunk costs.

The new industrial organization consists of a diverse set of models and evidence, and by no means do all of them satisfy these criteria. One example that does this — and that forms the basis for analysis of the key questions posed in this paper -- is the work of John Sutton (no known relation to

Willie). Sutton (1991, 1998) integrates some observations from traditional theory with key elements of the new I.O. into a testable model of industry structure and evolution. The model explains a great deal of the variation in firm sizes and in the different fates of small versus large businesses in various types of industries.<sup>8</sup>

The last phrase is key, since Sutton's theory carefully distinguishes between different types of industries in terms of the forces that govern their structure and evolution. Specifically, Sutton (1991) shows that the simple model of equation (1) above is approximately correct only for an industry characterized by exogenous sunk costs. Sunk costs are those that cannot be recovered when production ceases. These would be illustrated by capital investment that has no use outside the industry in question and hence is lost upon exit. Exogenous sunk costs are those that are determined by the underlying production technology in the industry. These are precisely the assumptions implicit in the discussion underlying equation (1), and Sutton concurs that in this case a larger market is generally associated with lower concentration. This proposition is illustrated by the line in Figure 2, which shows the declining relationship between market concentration and a variable representing the ratio of market size divided by minimum efficient scale (as a proxy for sunk costs).<sup>9</sup>

Sutton adds two refinements to this proposition. First, he notes that the actual relationship between seller concentration and market size also depends upon the strength of price competition in the industry. When such competition is stronger, fewer new competitors are attracted by market growth since the profit expectations for entrants are low.<sup>10</sup> Hence, the line in Figure 2 describes a

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<sup>8</sup> Major reviews of Sutton (1991) are provided by Bresnahan (1992) and Schmalensee (1992).

<sup>9</sup> See Sutton (1991, chs. 4 and 5) for further discussion of the development of these estimates.

<sup>10</sup> As an illustration of this apparently counter-intuitive proposition, consider an industry that produces homogeneous goods and in which there are no diseconomies of large-scale production. If



lower bound on the relationship, rather than the exact estimate for all such industries. Second, Sutton distinguishes homogenous products industries from those characterized by product differentiation. Figure 2 holds (as a lower bound) for the former, whereas a differentiated products industry will lie above that bound to a degree that depends upon the extent of differentiation.

Sutton finds good evidence that these considerations apply to a number of industries. Figure 2 reproduces his scatter diagram for six homogeneous goods industries in six countries, showing that concentration does indeed persistently decline as the size/sunk cost variable grows, with the solid line denoting the lower bound.

If this were all that there was to Sutton's theory, it would represent at most a modest extension of Bain's theory of industry structure. But there is another class of industries that Sutton identifies and analyzes. The scatterplot of seller concentration versus market size for these other industries is depicted in Figure 3, and for these industries there is no tendency for market concentration to decline regardless of how large the industry grows. Firm sizes increase in tandem with market growth, smaller firms do not thrive, and high concentration persists. Which are these industries, and how does this occur?

The crucial element of this facet of Sutton's theory is endogenous sunk costs -- that is, sunk costs not determined by the underlying technology but rather by the strategic decisions of the leading firm (or firms) in the industry to make such an investment. The necessary characteristic of this

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competition in this industry is characterized by "tough" (i.e., "Bertrand") rivalry -- i.e., each seller ignores the price reactions of others when it contemplates the setting of its own prices -- then as few as two firms will produce a zero (economic) profit equilibrium, regardless of the size of the industry. The prospective profit opportunities for entrants will generally appear dismal, entrants will be unlikely to enter, and seller concentration will remain high. As competitive conjectures among the incumbent firms "soften," a larger number of firms will be required to achieve a zero-profit equilibrium (or a limit-

investment is that it increases buyers' demand for the firm's product. Other firms that do not follow will lose customers and profits. But following entails higher fixed and sunk costs, giving rise to a larger necessary scale of operation and hence maintaining and even elevating the position of large leading firms, despite growth of the market. To extend our previous example of the brewing industry, the discretionary sunk expenditure would be advertising. In other industries its role might be played by R&D or product development costs.

Sutton shows that for industries that conform to these not-overly-stringent assumptions, there is a lower bound on concentration regardless of market size: That is, the market will never converge to a fragmented state regardless of how large the market might become so long as further sunk expenditures continue to increase demand. The lower bound is higher as consumers are more attracted by the advertised product, but any demand shift will prevent deconcentration. The scatterplot in Figure 3 illustrates this non-convergence for fourteen advertising-intensive industries in six countries analyzed by Sutton. His regression analysis on the underlying data confirms that market size is a statistically insignificant explanator of concentration for these industries, although market size is highly significant in explaining concentration for the relatively unadvertised products in Figure 2.

In his second book, Sutton (1998) generalizes his earlier analysis by examining industries that are composed of several different groups or segments. Now couched in terms of R&D, this model focuses on a measure of the degree to which a firm that is spending more than its rivals on R&D thereby earns high returns. That, in turn, is a function of economies of scope among product groups as well as a parameter relating R&D to product quality and consumer willingness to pay. Sutton now demonstrates that for industries with low R&D/sales ratios, once again the lower bound of the price equilibrium with positive profits for incumbents), and seller concentration will be lower.

relationship of concentration to market size is effectively zero, but where R&D (or advertising) intensity is greater, the lower bound of this relationship is an increasing function of the degree of homogeneity among product groups.

Sutton's theoretical approach, embodied in both books, provides a novel explanation for the failure of certain industries to become more fragmented as they grow. At the same time it suggests how fragmented industries can be transformed into highly concentrated ones, and how smaller businesses will lose ground. By initiating demand-shifting expenditures, large firms force smaller businesses to choose between the loss of customers and a heightened cost disadvantage (if the smaller firms attempt to match the larger firms' advertising or promotion expenditures). In this manner they alter the competitive process to their persistent advantage and preserve or even increase market concentration.

Among the prominent manufacturing industries that illustrate this theory are brewing, autos, computers, and coffee; a few words on each will highlight the mechanism.<sup>11</sup> In brewing the 1972 acquisition of Miller by Philip Morris resulted in a huge expansion of advertising expenditures and a bifurcation of the industry into a segment of large advertiser/brewers and a second tier of much smaller niche brewers (Scherer 1996). Consolidation of the auto industry in the 1930s and again in the 1960s coincided with periods of much more rapid (and expensive) style change, led by the larger firms at the time (Kwoka 1998). Computer platforms underwent shakeouts during the 1970s and 1980s as product development costs escalated (Bresnahan and Greenstein 1999). The coffee industry is notable since it consists of two segments — roasted and instant — both with high advertising but with very

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<sup>11</sup> These illustrations should not be interpreted as a claim that small business has largely or completely disappeared from manufacturing; the data in Table 3 clearly indicate otherwise.

different setup costs. The roasted segment has low sunk costs and exhibits considerably lower concentration than the high-sunk-cost instant segment (Sutton 1991, ch. 12).

What does all this imply? Most importantly, it implies that the fate of small businesses is often in the hands of leading firms in their markets. Small businesses may be forced to compete on terms not of their choosing, and indeed on terms chosen strategically to disadvantage them. A further implication is that there is much to be learned from detailed study of particular industries, as has been undertaken by Sutton and the other named authors above. Sweeping generalizations simply cannot reveal the mechanisms that determine the structure and evolution of specific industries. Moreover, while any good industry study addresses all segments of the industry, industrial organization research would do well to devote more attention to the market and strategic environment in which small business operates. Such a focus would usefully complement the conventional preoccupation with large firms. It would help in understanding how the competitive environment is shaped and how small business must adapt to and operate within that environment. This would bring into sharper relief the constraints on small business and possibly suggest policies to address them.

#### **IV. CONCLUSIONS**

We began this paper by citing Willie Sutton's response to a question about the focus of his strategic behavior. We conclude with observations based on John Sutton's focus on the strategic behavior of large firms and their implications for smaller firms.

The small business sector is an important part of the American economic landscape, in both absolute and relative terms. Despite its absolute growth, however, the sector accounts for a

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Nevertheless, the manufacturing sector does provide excellent illustrations of Sutton's theory.

diminishing share of private sector activity. But its importance, and changes in importance, vary across industrial sectors of the economy. Among the likely reasons for these variances are the presence or absence of endogenous strategic behaviors of the larger firms with respect to advertising, promotion, research and development, and other sunk cost expenditures in specific industries.

If analysts and policy makers are to understand the reason for and role of small business in individual industries, the research base related to small business must be expanded. Sutton's explication of the strategic environments of industries suggests a number of research directions:

-- Why are some industries more prone to experience endogenous sunk costs (which tend to place small business at a greater disadvantage) than are others?<sup>12</sup> What are their important characteristics? What role does technological change -- exogenous or endogenous -- play?

-- To what extent are large firms' advertising and similar promotional expenditures focused solely on the firms' own perceived demand conditions and to what extent are they strategically aimed at disadvantaging their smaller rivals (i.e., "raising rivals' costs")?<sup>13</sup>

-- What potential counter-strategies are available to smaller firms when they face disadvantages of endogenous sunk costs? Why are the counter-strategies effective? Where and when are they effective?

-- What are the welfare implications of Sutton's analysis and empirical findings?

-- Can Sutton's predictions and empirical findings be extended to a wider set of industries

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<sup>12</sup> As an initial observation, we note that the "commodityness" of an industry's output is likely to be a necessary condition for an industry not to be prone to endogenous sunk costs; but commodityness is probably not a sufficient condition. After all, it is difficult to think of a product that is more a commodity than is water; yet bottled ("designer") water has become an important market in the last two decades. Might we someday see "designer sugar" or "designer salt"?

<sup>13</sup> See Salop and Scheffman (1983, 1987).

beyond the 20 that he examined? Can they be extended beyond manufacturing?

-- What policy implications, if any, follow from Sutton's analysis and empirical findings?

As we suggested at the end of the previous section, such research could sensibly be pursued through detailed case studies of individual industries as well as broader cross-sectional analyses.

In sum, the new industrial organization and its strategic implications open a new and interesting window on the prospects for small business. The opportunities for research that will open this window further appear quite promising.

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Table 1: Employment in Private Employer Firms  
U.S. Economy, 1988-1996

<u>Year</u>	<u>Employment in firms with fewer than 100 employees</u>	<u>Employment in firms with fewer than 500 employees</u>	<u>Employment in all firms</u>
1988	35,153,344	47,914,723	87,844,303
1989	35,980,220	49,166,797	91,626,094
1990	36,621,948	50,166,797	93,469,275
1991	35,859,223	49,002,613	92,307,559
1992	36,057,451	49,200,841	92,825,797
1993	36,490,825	50,316,063	94,773,913
1994	36,889,313	51,007,688	96,721,594
1995	37,992,089	52,652,510	100,314,946
1996	38,524,694	53,174,501	102,187,297

Source: U.S.SBA, Office of Advocacy



Table 2: Small Business Shares of Employment in All Private Employer Firms in the U.S. Economy, 1988-1996

<u>Year</u>	<u>Firms with fewer than 100 employees</u>	<u>Firms with fewer than 500 employees</u>
1988	40.0%	54.5%
1989	39.3	53.9
1990	39.2	53.7
1991	38.9	53.1
1992	38.7	53.0
1993	38.5	53.1
1994	38.1	52.7
1995	37.9	52.5
1996	37.7	52.0

Source: Table 1

Table 3: Small Business Shares of Employment in Private Employer Firms, by Sector, 1988 and 1996

<u>Sector</u>	<u>Firms with fewer than 100 employees</u>		<u>Firms with fewer than 500 employees</u>	
	<u>1988</u>	<u>1996</u>	<u>1988</u>	<u>1996</u>
Ag. svcs., forestry, fishing	77.4%	80.3%	87.0%	88.3%
Mining	28.3	27.8	39.4	41.3
Construction	73.7	75.1	88.4	89.5
Manufacturing	21.3	22.3	37.4	38.4
Trans., communications, utilities	25.6	25.5	35.4	36.0
Wholesale trade	53.1	50.2	68.4	65.9
Retail trade	45.4	40.9	56.2	51.2
Finance, insurance, real estate	32.3	31.3	44.7	42.7
Services	44.7	38.6	62.4	55.5
Nonclassifiable	70.1	100.0	54.5	100.0
All sectors	40.0%	37.7%	54.5%	52.0%

Source: U.S.SBA, Office of Advocacy

Table 4: Sectoral Shares of Employment in All  
Private Employer Firms in the U.S. Economy, 1988 and 1996

<u>Sector</u>	<u>1988</u>	<u>1996</u>
Ag. svcs., forestry, fishing	0.5%	0.6%
Mining	0.8	0.6
Construction	5.7	5.1
Manufacturing	21.9	18.2
Trans., communications, utilities	6.0	5.9
Wholesale trade	6.8	6.5
Retail trade	21.5	21.0
Finance, insurance, real estate	7.6	7.0
Services	28.7	35.0
Nonclassifiable	0.4	0.1
Total	100.0%	100.0%

Source: U.S.SBA, Office of Advocacy

Table 5: The Aggregate Effects of Changing Weights

	<u>Firms with fewer than 100 employees</u>	<u>Firms with fewer than 500 employees</u>
Actual small business employment share in 1988:	40.0%	54.5%
Actual small business employment share in 1996:	37.7	52.0
Hypothetical small business employment share in 1996 if sectoral employment shares had remained unchanged at at their 1988 levels:	37.4	51.5
Hypothetical small business employment share in 1996 if small business shares in each sector had remained unchanged at their 1988 levels:	40.7	55.5

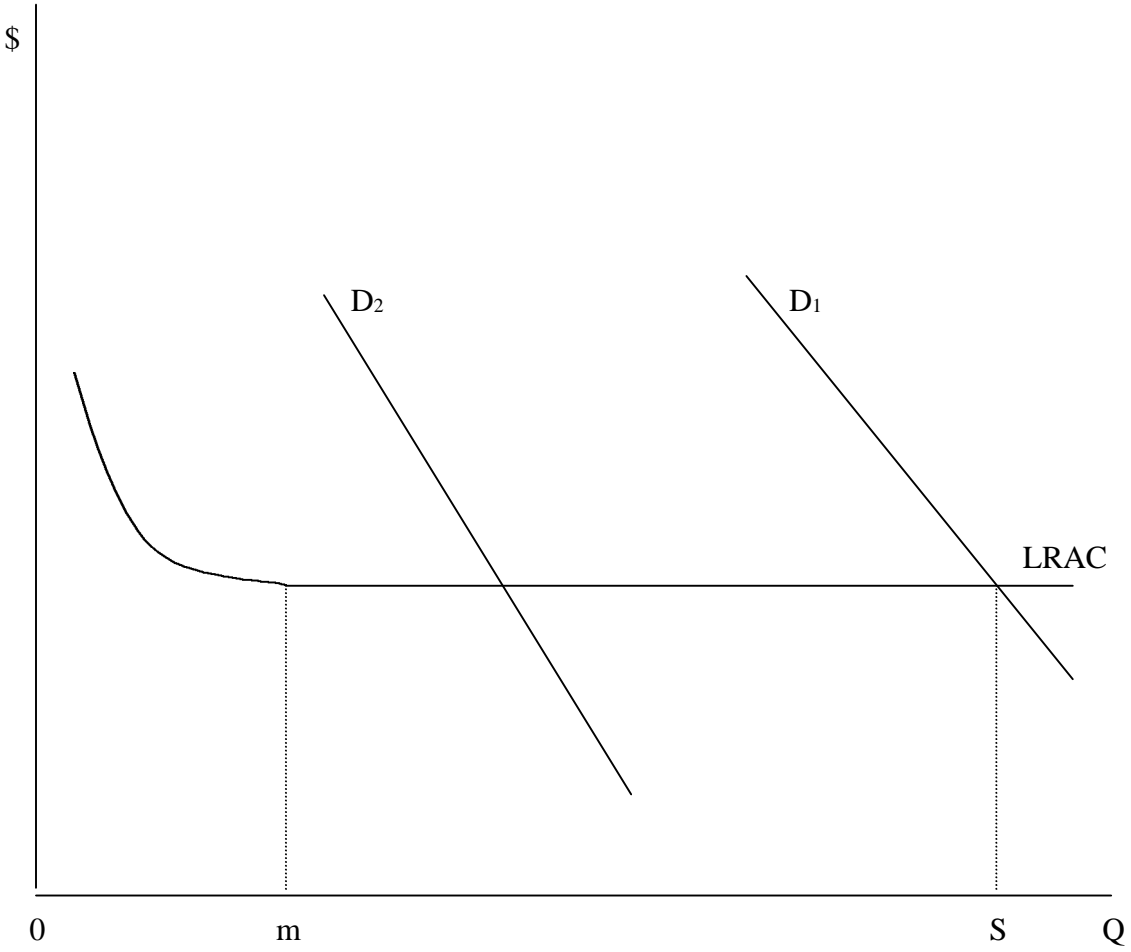
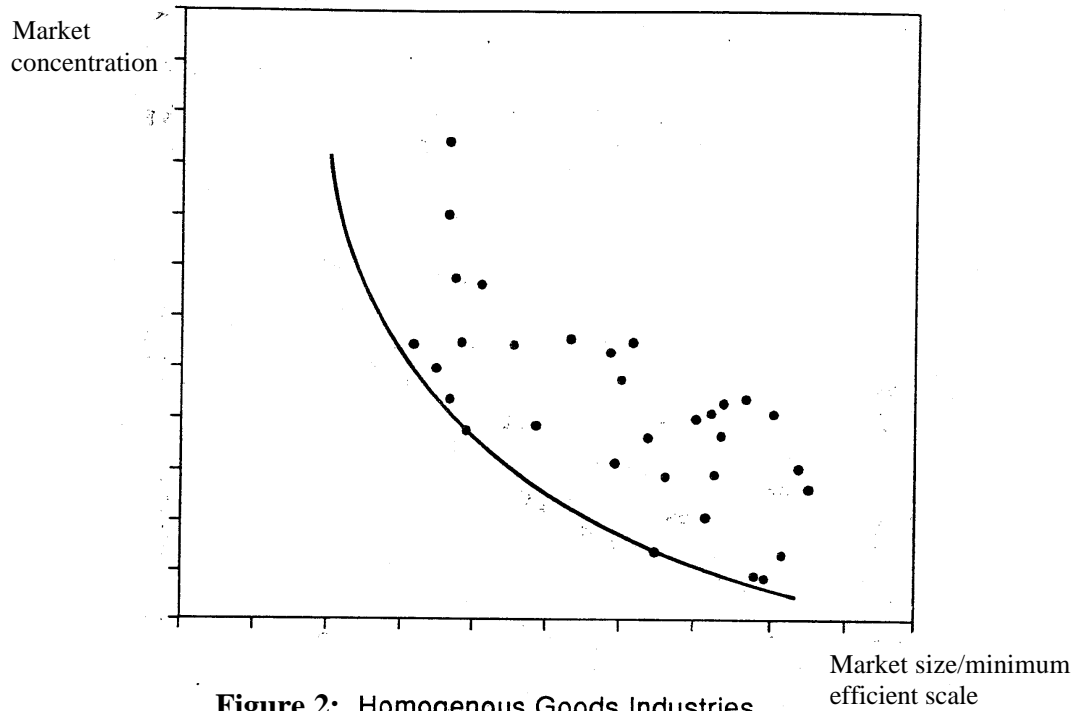
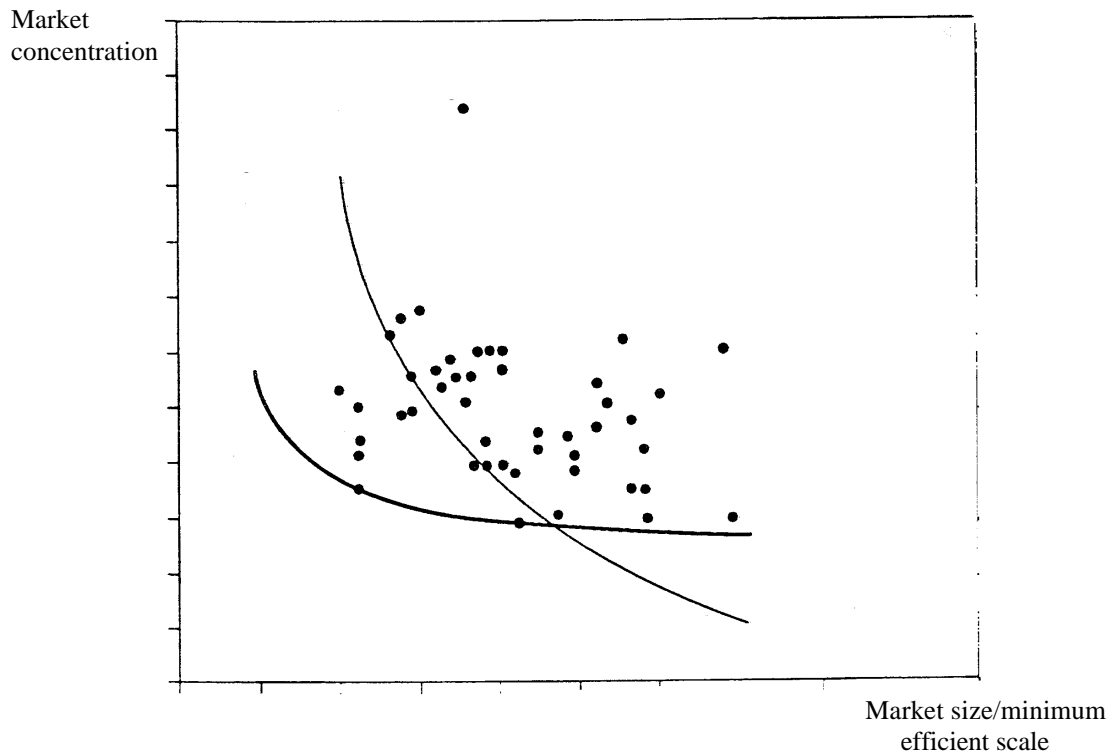


Figure 1: The relationship between minimum efficient scale (m) and market size (S)



**Figure 2: Homogenous Goods Industries**

Source: Sutton (1991, Figure 5.4 (i), p. 118). The solid line is the estimated lower bound of the scatterplot representing six homogeneous goods industries in six countries. The vertical axis is the logit transformation of an industry's four-firm concentration ratio; i.e., it is  $Y = \log(C/(1-C))$ . The horizontal axis is the ratio of the corresponding industry's sales divided by Sutton's estimate of the industry's minimum efficient scale.



**Figure 3: Advertising-Intensive Industries**

Source: Sutton (1991, Figure 5.4(ii), p. 118). The shallow solid line is the lower bound of the scatterplot representing fourteen advertising-intensive industries in six countries. The steeper line is that for homogeneous goods industries, reproduced from Figure 2 for comparison. See Figure 2 for further descriptions of the axes.



# DEPARTMENT OF JUSTICE

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SBA CONFERENCE ON INDUSTRIAL ORGANIZATION

"ANTITRUST, INNOVATION,  
ENTREPRENEURSHIP AND SMALL BUSINESS"

By

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Presented at

Cannon House Office Building  
Washington, DC

January 21, 2000



I'm delighted to be here today to talk with you about antitrust enforcement at the Antitrust Division of the Department of Justice, and, in particular, how what we do helps allow small businesses to compete, innovate and continue their historic contributions to the American economy. In the short time I have with you today, I want to talk about a few aspects of antitrust enforcement that are directly related to small businesses. First, I'll say a bit about how the antitrust laws work as an economic "charter of freedom" by protecting our economy from the misuse of market power by dominant firms, or from anticompetitive collusion by groups of firms, or from anticompetitive mergers, all of which can blunt the mainspring of our economic success -- competitive markets. Second, I'm going to expand a bit on this first theme by focusing on how antitrust enforcement helps preserve two freedoms that I think small businesses care about very much: the freedom to engage in entrepreneurship, and the freedom to innovate. Finally, I'm going to talk about a few recent cases we've had at the Antitrust Division that illustrate the many ways in which antitrust enforcement has helped the small business marketplace.

The U.S. economy is strong. In fact, it's the strongest in the world. By next

month, the current cycle of robust economic growth will be the longest lasting we have ever had. In an unprecedented way, growth has been vigorous, and unemployment low, hovering around 4% for almost two years -- while inflation has stayed in-check.

Back in the early 90's, few of us would have predicted that the American economy would turn in this kind of performance. But clearly a number of things mattered, including the decision to balance the budget, and, the decisions we made in our fiscal and monetary policies. I would like to add one more. A competitive marketplace. Our economy is more competitive today than it has been in a long time. In fact, today it is the most competitive major economy in the world. As Assistant Attorney General Joel Klein has noted, "over the past several decades, we have experienced a steadily increasing national commitment to competitive markets and away from a regulatory approach." In airlines, surface transportation, energy, and telecommunications, our faith in competition has led to more open markets, new competitors and opportunities for entrepreneurship, better and cheaper products, and a better economy within which all businesses, including small businesses, can compete, innovate, and thrive.

This brings me to my first point. Competition drives our economy. And even countries that used to rely on planned economies and national champions are rushing

to competition. Competition clearly is one of the most significant reasons why we are an economic success. That is why the antitrust laws are so important to all of us. If dominant firms are allowed to misuse market power to fence out competition, or if groups of firms are allowed to collude to prevent competition by fixing prices or allocating customers, or if anticompetitive mergers increase prices, reduce output or stifle innovation -- our economy will suffer. And because the success of virtually any small business depends greatly on the general condition and health of the economy, unchecked anticompetitive behavior that hurts the economy also hurts small business. Thus, although it is important to understand the consumer benefits of antitrust policy, it is also important to know that the central role of antitrust in maintaining a competitive marketplace also benefits small businesses in a direct and very significant way.

Let me pause just a moment to give a few examples of the ways in which anticompetitive behavior can hurt small businesses. Small businesses are often the first and most directly affected by the harm caused by price-fixers and market allocators. These cartels can, and have, controlled the price, availability and other terms of the essential inputs small businesses need to transact business and make products. In the last year alone, the Division has obtained over \$1.1 billion, yes billion, of court-awarded criminal fines from global criminal cartel price-fixers. The vast majority of

these fines were paid by foreign companies. These cartels were literally taking money out of the pockets of U.S. businesses and consumers. We currently have over 30 grand juries sitting around the U.S. investigating additional global criminal cartel activity. The misuse of market power by other firms can also affect your business. For example, we recently brought a case against American Airlines for unlawful monopolization and attempted monopolization at its hub in Dallas-Ft-Worth. We allege that American engaged in a number of practices against new low cost entrants serving routes like Dallas to Wichita, aimed at preventing the upstart from eroding American's market power in these routes. Every small business person who travels these routes, of course, is part of this story. In mergers, any merger that leads to an increase in price or a stifling of innovation of your inputs, of course, adversely affects you. In our merger investigations, we usually interview customers to see what the real-world effect of the merger will be in the market, and small businesses are often on the list of customers to whom we talk. Later, I'll touch on a few of the merger enforcement actions in telecommunications, banking, advertising and the like in the recent past that benefited small businesses. I'll also describe a number of actions we've taken to protect competition in e-commerce.

In addition to the domestic effects, I want to touch on the international.

According to SBA statistics, small businesses represent over 96% of all individual U.S. exporters of goods and services, and account for over 29% of the value of all U.S. exports. This is significant, and says a lot about small business' role in a global digital economy. And, the competitive nature of the U.S. economy helps U.S. businesses abroad. As Michael Porter, an economist at the Harvard Business School, has pointed out in his book "The Competitive Advantage of Nations," "active domestic rivalry is strongly associated with international success"-- whereas reliance on huge and non-competitive "national champions" rarely results in international competitive advantage. Porter's point is a simple one: firms that face competitive markets at home are lean and mean competitors on the international stage. Accordingly, by Porter's lights, "a strong antitrust policy . . . is essential to the role of upgrading any economy."

There is another very important way in which U.S. antitrust enforcement helps U.S. businesses succeed internationally. In the last decade, as the benefits of competitive markets have been seen throughout the world, the Antitrust Division has undertaken a significant competition policy and enforcement role. We have engaged with existing antitrust authorities in bilateral discussions and agreements, and helped developing countries create antitrust laws and enforcement structures so they can

transition to a competitive, market-based economy. In 1997, the Attorney General and Assistant Attorney General Joel Klein appointed a blue ribbon Advisory Committee to study the issues of transnational mergers, global cartel enforcement and the intersection of trade and competition policy. After extensive public hearings, they are preparing a report which should be delivered in the not too distant future. This past November, I had the honor of serving as a member of the U.S. delegation to the WTO in Seattle, where a number of competition issues were part of the discussion. I'll save these remarks for another time, but suffice it to say that antitrust and competition are being seen as global issues. In any case, it is clear that as markets in the rest of the world get more competitive and open, U.S. businesses will benefit from the ability to compete in those markets. And American business, at the cutting edge of innovation in the digital economy, will lead the way in setting the physical and knowledge infrastructure of the new economy in developing countries.

So, this brings me to my second topic, which is how the antitrust laws protect two freedoms important to small businesses: the freedom to engage in entrepreneurship and the freedom to innovate. First, entrepreneurship -- and for this a bit of history will help.

Small businesses were an important constituency that helped to pass the

Sherman Act in 1890. Then, small businesses were concerned that the railroads, which at the time enjoyed regional monopolies, were charging non-competitive and discriminatory shipping rates, and discriminating against certain customers for their own advantage. In addition, small businesses were concerned about the tactics of the Standard Oil company, and other trusts, that controlled, among others, the fuel oil, sugar, tobacco, cotton seed oil, and whiskey markets. The trusts employed predatory tactics against small businesses and drove out entrepreneurs with coercive threats of “sell or be ruined.”

Even before that, Adam Smith recognized the need to have laws to ensure competitive markets. And, given that history, it is plain to see why the Sherman Act, and the subsequent Clayton Act, were vital to the protection of entrepreneurs in the 20<sup>th</sup> century. And, today it is clear, they will be even more vital in the 21<sup>st</sup> century. Perhaps more than any other society on earth, the United States is dependent on the willingness of its people to take risks in pursuit of success. We practice an intensely entrepreneurial flavor of capitalism. And, we think of entrepreneurship not just as vital to our economic success, but also to our social fabric, and our sense of who we are. That is, entrepreneurship creates certain values that we like -- and that we believe are tied-in to the success of our country. Values like opportunity. Responsibility for

ourselves and to others. Succeeding or failing on our own merits. And enjoying the fruits of our hard work. So there are reasons aside from the desire to create wealth that cause us to want to sustain entrepreneurship. But people won't be willing to spend money, sweat, time and tears on their own venture if the market is rigged against them. People are willing to take risks, but not foolish risks.

The antitrust laws help to sustain this entrepreneurial spirit by ensuring that markets are open, and that new entrants can compete, and, if they build a better mouse trap -- have the chance to succeed. The importance of this role can't be overstated: in keeping markets contestable, the antitrust laws enrich our social fabric, and country, as well as our economy.

Much the same can be said of antitrust's role in preserving the freedom to innovate. It is well known that many important technological breakthroughs have been made by small businesses. Historically, small businesses gave us: the self-winding watch, the oxygen process in steel making, and the stainless steel razor blade. Today, small businesses are in the forefront in developing new advances in telecommunications -- for example, the next generation of lasers, routers and optical switches that will allow fibre optic networks to move ever-increasing amounts of data at the speed of light. Small companies are also important players in biotechnology; for



example, small biotech firms are heavily involved in the search for an AIDS vaccine. Small businesses also reinvent older technologies. For example, small business is now in the lead in developing the fuel cells that may one day replace the internal combustion engine in cars.

Innovation, like entrepreneurship, is risky. It costs money. It takes time. It often fails. Therefore, common sense tells us that there will be a lot less of it if markets are not open to competition from businesses that have a better idea. Just think for a moment of the world of telephony before and then after the breakup of AT&T. Think of the enormous acceleration in the rate of innovation -- fibre optics, wave division technology, compression technology, the common use of the Internet, and now broadband Internet access-- all spurred by the introduction of competition into this critical area of the economy. Here's just one example: when MaBell was the only buyer of telephone equipment, an innovative small supplier of equipment faced a difficult environment. Improvements in equipment technology, under the old MaBell system, appeared at a pace dictated by AT&T, not by the needs of businesses or residential customers. And because MaBell had its own manufacturing subsidiary, it had the ability to impede other manufacturers. But when competition was introduced, in long distance and by the separation of long distance and local services, the best

technology was given a chance to succeed.

Of course, the breakup of AT&T has helped small businesses and consumers directly by bringing down the price of long distance calls. According to the FCC, long distance prices (international and domestic), as approximated by average revenue per minute, have fallen by more than 50 percent since 1980. And along with the drop in prices, usage has increased -- FCC data indicates that long distance traffic has increased by almost 400% percent since 1984.

Now, I've given a number of examples of how antitrust enforcement helps small businesses. Let me say just one more thing that I think is relevant to this topic. Antitrust laws are market-based. They are not regulatory. Application of the antitrust laws up-front staves off regulation. The antitrust laws reflect a decision that the private sector provision of goods and services should be guided by market forces, and that government should, for the most part, be a spectator rather than a participant in the marketplace. But antitrust enforcement is critical. Because small businesses are often the source of both technological and managerial ideas that provide them with significant competitive advantages, small businesses can thrive in open markets, which is what antitrust laws protect. And because antitrust enforcement preserves competitive markets, it reduces the urge for government to regulate, which urge arises

most often when markets are not competitive.

Now, earlier I told you that I would spend a little time on some recent specific merger, non-merger and criminal actions that directly benefit small businesses. And I will do that. But I want you to know that there were so many in just the last few years that this is a truncated list and, in the interest of time I might just skip through some of these, and refer you to our web site ([www.usdoj.gov/atr](http://www.usdoj.gov/atr)) for the rest. My first example involves the banking industry. In the last three years the Division has reviewed a number of bank mergers which threatened to harm small businesses by reducing competition in the provision of small business loans and other specialized banking services. In 1998 and 1999 alone, the Division required divestitures to satisfy competitive concerns in at least nine separate mergers involving large regional banks covering most areas of the country. In all, these actions required the merging parties to divest over \$20 billion in assets, as well as sell over 450 branch offices.

The Division has also been working to ensure that markets for wireless telephone service remain competitive. On December 6, 1999, we reached a consent decree with Bell Atlantic, Vodafone AirTouch and GTE that allowed Bell Atlantic to create a national wireless phone network, provided the companies agreed to divest wireless assets in 96 markets in 15 states, including major metropolitan markets like

San Francisco, Phoenix, Seattle and Cincinnati. Wireless telephones are, of course, a useful small business tool.

The Division has also been active in ensuring that radio and billboard advertising -- two methods of reaching customers on which many small businesses depend -- stay competitive. In 1998 and 1999 alone the Division intervened in at least six proposed mergers in the radio industry, and required the divestiture of more than 36 radio stations in order to preserve competition. The Division's action preserved the choices, and advertising rates, available to advertisers, often small businesses, in those cities.

The Division's recent efforts in the billboard advertising industry are also noteworthy. In 1998 and 1999, the Division intervened in three billboard company mergers that we believed created a threat to competition, and required the divestiture of outdoor advertising properties in more than three dozen cities and counties around the U.S. These actions will help small businesses by maintaining competitive markets for this type of advertising, which is an important small businesses advertising avenue.

The Division has also protected competition in the market for employee health insurance. The Division recently required divestitures in the merger between Aetna and Prudential Health Care's HMOs where we believed that their dominance would

enable them to raise prices above competitive levels. Health care costs are, of course, a significant expenditure for many small businesses, and the Division's action in the Aetna/Prudential merger will help preserve choice and constrain price.

A high priority of the Antitrust Division continues to be the investigation and prosecution of cartel-type activities, such as horizontal price fixing, market allocations and group boycotts. Such collusive activity artificially raises prices and suppresses or excludes competition. Small businesses are frequently purchasers, and, thus, are often the victims of such practices.

Late last year two high-ranking Swiss executives from F. Hoffmann-La Roche agreed to plead guilty and serve time in a U.S. prison for their participation in an international conspiracy to fix the price of vitamins. Two of the conspiring companies in this matter, Swiss firm F. Hoffmann-La Roche and German firm BASF AG, were fined \$500 million and \$225 million, respectively. The \$500 million fine is the largest criminal fine in the history of the Department of Justice, under any law, not just the antitrust laws. Thereafter, three Japanese pharmaceutical companies also agreed to plead guilty in this matter and pay fines totaling \$137 million. In all, the Division recovered more than \$850 million in fines relating to this conspiracy.

Finally, over the years, the Division has prosecuted a large number of bid-

rigging conspiracies, many of which hurt consumers, small businesses, and the public fisc. In the most recent of these matters, just over a month ago the Division charged an Illinois construction company and its former CEO with conspiring to rig bids and allocate contracts for the sale of materials and supplies used in the construction of cable-stayed bridges in the U.S. I mention this case to you because it illustrates how widespread the harm stemming from antitrust violations can be. Most often, bridges are built and paid for by government agencies. So stamping-out this conspiracy helped save money for all taxpayers, including small businesses.

Before I close, let me just say a word about the role of antitrust in the new world of e-commerce. Clearly, the growth of e-commerce is opening up countless opportunities for small business, especially because the Internet can, in many instances, help small businesses compete with larger players. This may be particularly true in the business-to-business segment of the market, where business buyers and sellers are reaching-out across the net to create new relationships. Already the Division has been active in ensuring that these new markets remain open and competitive. In July, 1998, in the MCI/ WorldCom merger, the Division required MCI to divest its "Internet backbone" business to address Division concerns that the merger would have an anticompetitive effect on the all-important backbone. In a 1998 FCC

wireless license auction case, the Division prosecuted several firms for anticompetitive signaling during an electronic auction for wireless licenses that took place over the Internet. Also in 1998, the Division sued the Visa and MasterCard networks for limiting competition in credit cards, a behavior that stifled competition and innovation in products like smart cards and secured transactions over the Internet. And finally, in the Citibank/Transactive merger challenge, the Division sued to stop a merger of the two main competitors in the provision of government benefits delivered by electronic benefits transfer. The same principles apply in e-commerce as in other applications of the antitrust laws, and as the market develops, we will continue our job of keeping the marketplace competitive.

In closing, competitive markets have been central to the strength of our economy. People are now recognizing that competition policy stands with fiscal and monetary policy as the necessary underpinnings of our economic success. The truth of this has become even clearer in the post cold-war era as countries that relied on planned economies now rush to embrace competition. A competitive economy, and the ability to compete, are conditions in which small businesses thrive -- innovating, spurring entrepreneurship and living the American dream. We understand the importance of competition, and I look forward to our continuing dialogue on these

issues throughout this new year. Thank you for the opportunity of spending some time with you here today.



# New Technology and the Small Firm

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February 11, 2000

## Abstract

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## 1 Wealth and the small firm

How much of our wealth is created by small firms? The question is somewhat misleading because many of today's giant firms did not exist thirty years ago. Consider Table 1, which reports the twenty largest companies by market capitalization, as of the end of August 1999, and the dates when they were incorporated. Some like Lucent are spun off from an old company, while others like Citigroup comprise companies that were founded at much earlier dates than the column reports. But four of these giants – Microsoft, Cisco Systems, MCI and Dell – are clearly less than twenty years of age, and their value adds up to 12 or 13 percent of our gross domestic product.

The broader picture emerges when we look at a larger sample of companies. Most stock-market incumbents are identifiable from the Center for Research in Security Prices (CRSP) data. These data can identify who, precisely created the additional wealth? To a large measure, the 1968 incumbents were replaced by the once-small firms in the NASDAQ. These firms represent a particularly high-tech subset of the post-1968 entrants. To get a broader representation of the fate of incumbents, we now present plots of market shares of various generations of incumbents which we endearingly call “dinosaurs” because of their tendency to atrophy with the passage of time. One way to see the process of decay is to look at the share of market value, in December 1996, of each vintage of CRSP entrant, starting in 1928 when the observations start.

The vertical axis measures the share that each vintage holds in total stock-market capitalization in 1996. The large spike in 1928 that we see in Figure 1 is the value of companies that were started before that date. From Table 1 we see that GE, IBM, Exxon, AT&T, etc., are all in this group of firms. The spikes reflect the intensity of investment in the year in which a particular “vintage” of firms entered the stock

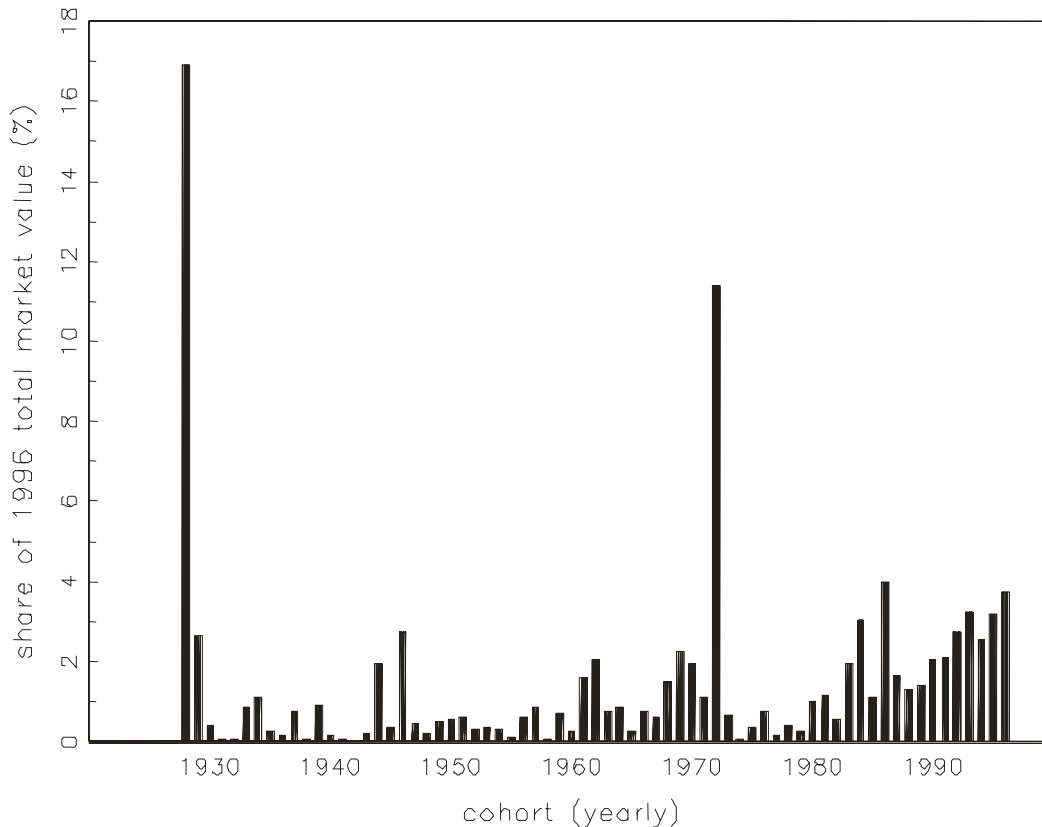


Figure 1: *1996 capitalization shares by cohort*

market, as well the survivorship of that vintage of capital. We see, for instance, that not much value from the World War II vintages survives today, but that is probably because very few firms entered during the wartime years. Similar remarks apply to the years of the great depression. Moreover, two of the spikes are artificial because the 1961 spike reflects largely the entry of the AMEX firms into the CRSP, and 1971 spike reflects the entry of the NASDAQ firms. Once these anomalies are recognized, we see a definite drop-off in the contribution of the vintage of a firm as the age of the capital rises.

## 2 Small firms versus large over the past seventy years

One barometer of how well small business does is to compare the stock market values of small firms with those of large firms. What I do here is report the relative performance of a broad-based small company index against that of the S&P 500 index over

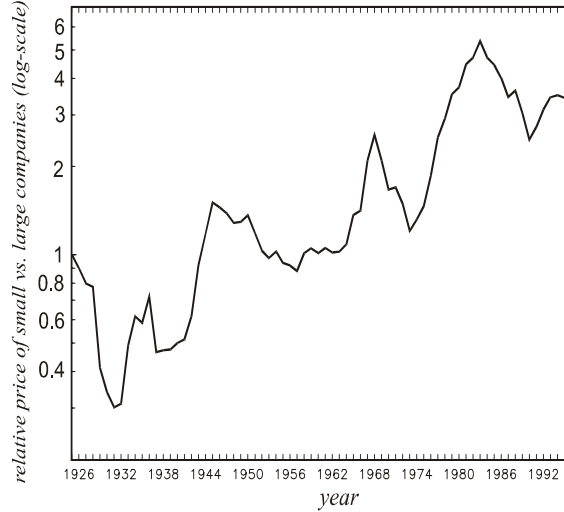


Figure 2: Performance of small companies vs. large companies

the seventy-year period 1926 - 1996.<sup>1</sup>

The figure shows two striking things. The first of these is well known – small companies grow faster in value than large companies. The difference in trend is about  $1\frac{1}{4}\%$  per year. This is a risk premium, but it is nowhere near as large as the premium that both indexes would command over bonds and treasury bills.

The second striking thing we see is rather larger waves or departures from trend. The arrival of the microprocessor in the early 1970's seemed, for about ten years or so, to favor the small firm. This is what one would expect, in as much as the arrival of any major new technology should favor young, small firms – firms that tend to have a nonhierarchical structure, fewer unionized or tenured workers, and fewer outdated management practices.

Figure 2 plots the ratio of the small cap index to the S&P 500 index. During the period 1974 - 1982, small cap stocks outperformed the S&P 500 by a factor of nearly 4. Since then, the S&P 500 has done better than the small caps, probably because, by the early 1980's and the advent of the junk-bond, inefficient large firms began to feel stronger hostile-takeover pressures, and responded by becoming more efficient.

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<sup>1</sup>The data come from Ibbotson et al (1997). More precisely, the data underlying the plot in Figure 1 are as follows:

1. Large company stocks: S&P 500 index with dividends reinvested (S&P 500, 1957-present, S&P 90, 1926-1956)
2. Small Company stocks: Firth capitalization quintile of stock on the NYSE for 1926-1981. Performance of the Dimensional Fund Advisors (DFA) Small Company Fund, 1982-present. [This is also a total return index, i.e. dividends (which are probably insignificant anyway for small firms) are also assumed to be reinvested.]

### 3 What is new in the “New Economy”

The new economy is one in which technologies and products become obsolete at a much faster rate than a few decades ago. Recently, this is the result of the information age, but it is merely a continuation of a trend that we have been witnessing for at least the past century. Shrinking imitation lags: A startling finding by Agarwal and Gort is that imitation lags have shrunk. Response times are shrinking. That is, new products are produced faster than before, and new technologies are adopted faster. Companies are now going public on the internet – a practice unheard of before 1995. That is, the “speed of diffusion” has risen sharply over the last century. But the same is true about the IT revolution. The early companies – Microsoft, for instance – took a long time to IPO, but now the process is faster, partly because the technology is mature.

It is clear that we are entering the era of the young firm. The average age of all companies in the stock market – and the average age of the giants – is shrinking as well. Since the death rate of old capital is higher, this means that the “birth rate” of new capital must rise if we are to maintain the stock of existing capital at existing levels. The small firm will thus resume a role that, in its importance, is greater than it has been at any time in the last seventy years or so.

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**Research Issues Relating to Structure, Competition, and Performance  
of Small Technology-Based Firms**

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## 1. Introduction

The role that small firms play in industrial organization has evolved considerably since the second world war. This paper seeks to document how and why small business plays a very different role in industrial organization research today than it did some three decades ago.

The most important development in the field of industrial organization is a shift in the framework for analyzing small business. While there were always a few studies around analyzing small business through a dynamic lens, a much more profound and comprehensive shift in the literature began in the later 1980s and early 1990s. The most salient characteristic feature of this literature was the introduction of a dynamic or evolutionary framework.

In the second section of this paper, the view of small business emerging from the static framework of the post-war industrial organization is described. This view identifies small business as being sub-optimal in terms of scale of production. The resulting impact on performance is negative, in terms of productivity and wages. The policy implication is that, at least in terms of economic efficiency, small business exerts a drag on economic welfare.

In the third section of the paper, the view of small business emerging from the dynamic framework of the last decade is introduced. This view provides a striking contrast to the role and contribution of small business. When viewed through the lens of a dynamic framework, small businesses are seen as an *agent of change*. The empirical evidence supporting this dynamic view of small business is presented in the fourth section. The implications for public policy towards business are presented in the fifth section. In particular, we find that the role of public policy towards business has shifted from constraining the power of large corporations to enabling the creation and commercialization of knowledge, particularly by small business. A summary and conclusions are provided in the final section.

## 2. Small Business in Industrial Organization: The Static View

In linking entrepreneurship to economic growth, the obvious starting point is the theory of the firm. The field of economics that focuses the most on links between the organization of firms in industries and the resulting economic performance has been industrial organization. The ascendancy of industrial organization in the post-war period as an important and valued field economics came from the recognition not only by scholars but also by policy makers that industrial organization matters. The widespread fear vis-à-vis the Soviet Union pervasive throughout the United States at the end of the 1950s and early 1960s was not just that the Soviets might bury the Americans because they were the first into space with the launching of the *Sputnik*, but that the superior organization of industry facilitated by centralized planning was generating greater rates of growth in the Soviet Union. After all, the nations of Eastern Europe, and the Soviet Union in particular, had a “luxury” inherent in their systems of

centralized planning – a concentration of economic assets on a scale beyond anything imaginable in the West, where the commitment to democracy seemingly imposed a concomitant commitment to economic decentralization.

Although there may have been considerable debate about what to do about the perceived Soviet threat some three decades ago, there was little doubt at that time that the manner in which enterprises and entire industries were organized mattered. And even more striking, when one reviews the literature of the day, there seemed to be near unanimity about the way in which industrial organization mattered. It is no doubt an irony of history that a remarkably similar version of the giantism embedded in Soviet doctrine, fueled by the writings of Marx and ultimately implemented by the iron fist of Stalin, was also prevalent throughout the West. This was the era of mass production when economies of scale seemed to be the decisive factor in dictating efficiency. This was the world the world so colorfully described by John Kenneth Galbraith (1956) in his theory of countervailing power, in which the power of big business was held in check by big labor and by big government.

It became the task of the industrial organization scholars to sort out the issues involving this perceived trade-off between economic efficiency on the one hand and political and economic decentralization on the other. The scholars of industrial organization responded by producing a massive literature focusing on essentially three issues: (i) What are the economic gains to size and large-scale production? (ii) What are the economic welfare implications of having an oligopolistic market structure, i.e. is economic performance promoted or reduced in an industry with just a handful of large-scale firms? and (iii) Given the overwhelming evidence from (ii) that large-scale production resulting in economic concentration is associated with increased efficiency, what are the public policy implications?

A fundamental characteristic of the industrial organization literature was not only that it was obsessed with the oligopoly question but that it was essentially static in nature. There was considerable concern about what to do about the existing firms and industrial structure, but little attention was paid to where they came from and where they were going. Oliver Williamson's classic 1968 article in the *American Economic Review*, "Economies as an Antitrust Defense: The Welfare Tradeoffs," became something of a final statement demonstrating this seemingly inevitable tradeoff between the gains in productive efficiency that could be obtained through increased concentration and gains in terms of competition that could be achieved through decentralizing economic policies, such as antitrust. But it did not seem possible to have both, certainly not in Williamson's completely static model.

One of the most striking findings emerging in this static view of industrial organization is that small firms generally operate at a level of output that is too small to sufficiently exhaust scale economies, even when the standard definition of a small firm employing fewer than 500 employees is applied. A large number of studies found that because the minimum efficient scale (MES) of output, or the lowest level of output where the minimum average cost is attained, large-scale production is typically required to exhaust scale economies in manufacturing. Any enterprise or establishment that was smaller than required by the MES was branded as being *suboptimal* or inefficient, in that it produced at average costs in excess of more efficient larger firms.

Weiss (Audretsch and Yamawaki, 1991, p. 403) assumed that “The term ‘suboptimal’ capacity describes a condition in which some plants are too small to be efficient.

The importance of scale economies in the typical manufacturing industry relegated most small firms to being classified as suboptimal. For example, Weiss (1964) found that suboptimal plants accounted for about 52.8 percent of industry value-of-shipments, Scherer (1973) found that 58.2 percent of value-of-shipments emanated from the suboptimal plants in twelve industries, and Pratten (1971) identified the suboptimal scale establishments accounting for 47.9 percent of industry shipments. After reviewing the literature on the extent of suboptimal firms, Weiss (in Audretsch and Yamawaki, 1991, p. xiv) concluded that, “In most industries the great majority of firms is suboptimal. In a typical industry there are, let’s say, one hundred firms. Typically only about five to ten of them will be operating at the MES level of output, or anything like it.”

What are the economic welfare implications? Weiss (1979, p. 1137) argued that the existence of small firms which are sub-optimal represented a loss in economic efficiency and therefore advocated any public policy which “...creates social gains in the form of less sub-optimal capacity.” This actually translated into an ingenious argument against market power, since empirical evidence suggested that the price umbrella provided by monopoly power encouraged the existence of suboptimal capacity firms. Weiss (1979) went so far as to argue that the largest inefficiency associated with market power was not the higher prices charged to consumers but rather that it facilitated the existence of suboptimal scale small firms.

Wages and productivity would be expected to reflect the degree to which small firms are less efficient than their larger counterparts. There is a large body of empirical evidence spanning a broad range of samples, time periods and even countries that has consistently found wages (and non-wage compensation as well) to be positively related to firm size. Probably the most cited study is that of Brown, Hamilton and Medoff (1990, pp 88-89), who conclude that, “Workers in large firms earn higher wages, and this fact cannot be explained completely by differences in labor quality industry, working conditions, or union status. Workers in large firms enjoy better benefits and greater security than their counterparts in small firms. When these factors are added together, it appears that workers in large firms do have a superior employment package.”

Seen through the static lens provided through traditional industrial organization and labor economics the economic welfare implications of the recent shift in economic activity away from large firms and towards small enterprises is unequivocal – overall economic welfare is decreased since productivity and wages will be lower in small than in large firms. As Weiss (1979) argued in terms of efficiency and Brown, Hamilton and Medoff (1990) in terms of employee compensation, the implication for public policy is to implement policies to shift economic activity away from small firms and towards larger enterprises.

### **3. Small Firms in Industrial Organization: The Dynamic View**



Coase (1937) was awarded a Nobel Prize for explaining why a firm should exist. But why should more than one firm exist in an industry? One answer is provided by the traditional economics literature focusing on industrial organization. An excess level of profitability induces entry into the industry. And this is why the entry of new firms is interesting and important -- because the new firms provide an equilibrating function in the market, in that the levels of price and profit are restored to the competitive levels. The new firms are about business as usual -- they simply equilibrate the market by providing more of it.

An alternative explanation for the entry of new firms was provided for by Audretsch (1995), who suggests that new firms are not founded to be smaller clones of the larger incumbents but rather to serve as *agents of change* through innovative activity.

The starting point for most theories of innovation is the firm. In such theories the firms are exogenous and their performance in generating technological change is endogenous. For example, in the most prevalent model found in the literature of technological change, the model of the *knowledge production function*, formalized by Zvi Griliches (1979), firms exist exogenously and then engage in the pursuit of new economic knowledge as an input into the process of generating innovative activity.

The most decisive input in the knowledge production function is new economic knowledge. And as Cohen and Klepper (1991 and 1992) conclude, the greatest source generating new economic knowledge is generally considered to be R&D. Certainly a large body of empirical work has found a strong and positive relationship between knowledge inputs, such as R&D, on the one hand, and innovative outputs on the other hand.

The knowledge production function has been found to hold most strongly at broader levels of aggregation. The most innovative countries are those with the greatest investments to R&D. Little innovative output is associated with less developed countries, which are characterized by a paucity of production of new economic knowledge. Similarly, the most innovative industries, also tend to be characterized by considerable investments in R&D and new economic knowledge. Not only are industries such as computers, pharmaceuticals and instruments high in R&D inputs that generate new economic knowledge, but also in terms of innovative outputs (Audretsch, 1995). By contrast, industries with little R&D, such as wood products, textiles and paper, also tend to produce only a negligible amount of innovative output. Thus, the knowledge production model linking knowledge generating inputs to outputs certainly holds at the more aggregated levels of economic activity.

Where the relationship becomes less compelling is at the disaggregated microeconomic level of the enterprise, establishment, or even line of business. For example, While Acs and Audretsch (1990) found that the simple correlation between R&D inputs and innovative output was 0.84 for four-digit standard industrial classification (SIC) manufacturing industries in the United States, it was only about half, 0.40 among the largest U.S. corporations.

The model of the knowledge production function becomes even less compelling in view of the recent wave of studies revealing that small enterprises serve as the engine of innovative activity in certain industries. These results are startling, because as Scherer (1991) observes, the bulk of industrial R&D is undertaken in the largest corporations; small enterprises account only for a minor share of R&D inputs. Thus the knowledge production function seemingly implies that, as the *Schumpeterian Hypothesis* predicts, innovative activity favors those organizations with access to knowledge-producing inputs -- the large incumbent organization. The more recent evidence identifying the strong innovative activity raises the question, "Where do new and small firms get the innovation producing inputs, that is the knowledge?"

One answer, proposed by Audretsch (1995), is that, although the model of the knowledge production function may still be valid, the implicitly assumed unit of observation -- at the level of the firm -- may be less valid. The reason why the knowledge production function holds more closely for more aggregated degrees of observation may be that investment in R&D and other sources of new knowledge spills over for economic exploitation by third-party firms.

A large literature has emerged focusing on what has become known as the *appropriability problem*. The underlying issue revolves around how firms which invest in the creation of new economic knowledge can best appropriate the economic returns from that knowledge (Arrow, 1962). Audretsch (1995) proposes shifting the unit of observation away from exogenously assumed firms to individuals -- agents with endowments of new economic knowledge. As J. de V. Graaf observed nearly four decades ago, "When we try to construct a transformation function for society as a whole from those facing the individual firms comprising it, a fundamental difficulty confronts us. There is, from a welfare point of view, nothing special about the firms actually existing in an economy at a given moment of time. The firm is in no sense a 'natural unit'. Only the individual members of the economy can lay claim to that distinction. All are potential entrepreneurs. It seems, therefore, that the natural thing to do is to build up from the transformation function of men, rather than the firms, constituting an economy. If we are interested in eventual empirical determination, this is extremely inconvenient. But it has conceptual advantages. The ultimate repositories of technological knowledge in any society are the men comprising it, and it is just this knowledge which is effectively summarized in the form of a transformation function. In itself a firm possesses no knowledge. That which is available to it belongs to the men associated with it. Its production function is really built up in exactly the same way, and from the same basic ingredients, as society's."

But when the lens is shifted away from focusing upon the firm as the relevant unit of observation to individuals, the relevant question becomes, *How can economic agents with a given endowment of new knowledge best appropriate the returns from that knowledge?*

The appropriability problem confronting the individual may converge with that confronting the firm. Economic agents can and do work for firms, and even if they do not, they can potentially be employed by an incumbent firm. In fact, in a model of perfect information with no agency costs, any positive economies of scale or scope will ensure that the appropriability problems of the firm and individual converge. If an

agent has an idea for doing something different than is currently being practiced by the incumbent enterprises -- both in terms of a new product or process and in terms of organization -- the idea, which can be termed as an innovation, will be presented to the incumbent enterprise. Because of the assumption of perfect knowledge, both the firm and the agent would agree upon the expected value of the innovation. But to the degree that any economies of scale or scope exist, the expected value of implementing the innovation within the incumbent enterprise will exceed that of taking the innovation outside of the incumbent firm to start a new enterprise. Thus, the incumbent firm and the inventor of the idea would be expected to reach a bargain splitting the value added to the firm contributed by the innovation. The payment to the inventor -- either in terms of a higher wage or some other means of remuneration -- would be bounded between the expected value of the innovation if it implemented by the incumbent enterprise on the upper end, and by the return that the agent could expect to earn if he used it to launch a new enterprise on the lower end. Or, as Frank Knight (1921, p. 273) observed more than seventy years ago, "The laborer asks what he thinks the entrepreneur will be able to pay, and in any case will not accept less than he can get from some other entrepreneur, or by turning entrepreneur himself. In the same way the entrepreneur offers to any laborer what he thinks he must in order to secure his services, and in any case not more than he thinks the laborer will actually be worth to him, keeping in mind what he can get by turning laborer himself."

Thus, each economic agent would choose how to best appropriate the value of his endowment of economic knowledge by comparing the wage he would earn if he remains employed by an incumbent enterprise,  $w$ , to the expected net present discounted value of the profits accruing from starting a new firm,  $\pi$ . If these two values are relatively close, the probability that he would choose to appropriate the value of his knowledge through an external mechanism such as starting a new firm,  $\Pr(e)$ , would be relatively low. On the other hand, as the gap between  $w$  and  $\pi$  becomes larger, the likelihood of an agent choosing to appropriate the value of his knowledge externally through starting a new enterprise becomes greater, or

(1)

This model analyzing the decision of how best to appropriate the value of new economic knowledge confronting an individual economic agent seems useful when considering the actual decision to a new firm taken by entrepreneurs. For example, Chester Carlsson started Xerox after his proposal to produce a (new) copy machine was rejected by Kodak. Kodak based its decision on the premise that the new copy machine would not earn very much money, and in any case, Kodak was in a different line of business -- photography. It is perhaps no small irony that this same entrepreneurial startup, Xerox, decades later turned down a proposal from Steven Jobs to produce and market a personal computer, because they did not think that a personal computer would sell, and, in any case, they were in a different line of business -- copy machines (Carrol, 1993). After seventeen other companies turned down Jobs for virtually identical reasons, including IBM and Hewlett Packard, Jobs resorted to starting his own company, Apple computer.

Similarly, IBM turned down an offer from Bill Gates, "the chance to buy ten percent of Microsoft for a song in 1986, a missed opportunity that would cost \$3 billion today." IBM reached its decision on the grounds that "neither Gates nor any of his band of thirty some employees had anything approaching the credentials or personal characteristics required to work at IBM."

Divergences in beliefs with respect to the value of a new idea need not be restricted to what is formally known as a product or even a process innovation. Rather, the fact that economic agents choose to start a new firm due to divergences in the expected value of an idea applies to the sphere of managerial style and organization as well. One of the most vivid examples involves Bob Noyce, who founded Intel. Noyce had been employed by Fairchild Semiconductor, which is credited with being the pioneering semiconductor firm. In 1957 Noyce and seven other engineers quit *en masse* from Schockley Semiconductor to form Fairchild Semiconductor, an enterprise that in turn is considered the start of what is today known as *Silicon Valley*. Although Fairchild Semiconductor had "possibly the most potent management and technical team ever assembled" (Gilder, 1989, p. 89), "Noyce couldn't get Fairchild's eastern owners to accept the idea that stock options should be part of compensation for all employees, not just for management. He wanted to tie everyone, from janitors to bosses, into the overall success of the company...This management style still sets the standard for every computer, software, and semiconductor company in the Valley today...Every CEO still wants to think that the place is run the way Bob Noyce would have run it" (Cringley, 1993, p. 39). That is, Noyce's vision of a firm excluded the dress codes, reserved parking places, closed offices, and executive dining rooms, along with the other trappings of status that were standard in virtually every hierarchical and bureaucratic U.S. corporation. But when he tried to impress this vision upon the owners of Fairchild Semiconductor, he was flatly rejected. The formation of Intel in 1968 was the ultimate result of the divergence in beliefs about how to organize and manage the firm.

The key development at Intel was the microprocessor. When long time IBM employee Ted Hoff approached IBM and later DEC with his new microprocessor in the late 1960s, "IBM and DEC decided there was no market. They could not imagine why anyone would need or want a small computer; if people wanted to use computer, they could hook into time-sharing systems" (Palfreman and Swade, 1991, p. 108).

The model proposed by Audretsch (1995) refocuses the unit of observation away from firms deciding whether to increase their output from a level of zero to some positive amount in a new industry, to individual agents in possession of new knowledge that, due to uncertainty, may or may not have some positive economic value. It is the uncertainty inherent in new economic knowledge, combined with asymmetries between the agent possessing that knowledge and the decision making vertical hierarchy of the incumbent organization with respect to its expected value that potentially leads to a gap between the valuation of that knowledge.

How the economic agent chooses to appropriate the value of his knowledge, that is either within an incumbent firm or by starting or joining a new enterprise will be shaped by the knowledge conditions underlying the industry. Under the routinized

technological regime the agent will tend to appropriate the value of his new ideas within the boundaries of incumbent firms. Thus, the propensity for new firms to be started should be relatively low in industries characterized by the routinized technological regime.

By contrast, under the entrepreneurial regime the agent will tend to appropriate the value of his new ideas outside of the boundaries of incumbent firms by starting a new enterprise. Thus, the propensity for new firms to enter should be relatively high in industries characterized by the entrepreneurial regime.

Audretsch (1995) suggests that divergences in the expected value regarding new knowledge will, under certain conditions, lead an agent to exercise what Albert O. Hirschman (1970) has termed as *exit* rather than *voice*, and depart from an incumbent enterprise to launch a new firm. But who is right, the departing agents or those agents remaining in the organizational decision making hierarchy who, by assigning the new idea a relatively low value, have effectively driven the agent with the potential innovation away? *Ex post* the answer may not be too difficult. But given the uncertainty inherent in new knowledge, the answer is anything but trivial *a priori*.

Thus, when a new firm is launched, its prospects are shrouded in uncertainty. If the new firm is built around a new idea, i.e., potential innovation, it is uncertain whether there is sufficient demand for the new idea or if some competitor will have the same or even a superior idea. Even if the new firm is formed to be an exact replica of a successful incumbent enterprise, it is uncertain whether sufficient demand for a new clone, or even for the existing incumbent, will prevail in the future. Tastes can change, and new ideas emerging from other firms will certainly influence those tastes.

Finally, an additional layer of uncertainty pervades a new enterprise. It is not known how competent the new firm really is, in terms of management, organization, and workforce. At least incumbent enterprises know something about their underlying competencies from past experience. Which is to say that a new enterprise is burdened with uncertainty as to whether it can produce and market the intended product as well as sell it. In both cases the degree of uncertainty will typically exceed that confronting incumbent enterprises.

This initial condition of not just uncertainty, but greater degree of uncertainty vis-à-vis incumbent enterprises in the industry is captured in the theory of firm selection and industry evolution proposed by Boyan Jovanovic (1982). Jovanovic presents a model in which the new firms, which he terms *entrepreneurs*, face costs that are not only random but also differ across firms. A central feature of the model is that a new firm does not know what its cost function is, that is its relative efficiency, but rather discovers this through the process of learning from its actual post-entry performance. In particular, Jovanovic (1982) assumes that entrepreneurs are unsure about their ability to manage a new-firm startup and therefore their prospects for success. Although entrepreneurs may launch a new firm based on a vague sense of expected post-entry performance, they only discover their true ability -- in terms of managerial competence and of having based the firm on an idea that is viable on the market -- once their business is established. Those entrepreneurs who discover that their ability

exceeds their expectations expand the scale of their business, whereas those discovering that their post-entry performance is less than commensurate with their expectations will contract the scale of output and possibly exit from the industry. Thus, Jovanovic's model is a theory of *noisy selection*, where efficient firms grow and survive and inefficient firms decline and fail.

The role of learning in the selection process has been the subject of considerable debate. On the one hand is what has been referred to as the *Larackian* assumption that learning refers to adaptations made by the new enterprise. In this sense, those new firms that are the most flexible and adaptable will be the most successful in adjusting to whatever the demands of the market are. As Nelson and Winter (1982, p. 11) point out, "Many kinds of organizations commit resources to learning; organizations seek to copy the forms of their most successful competitors."

On the other hand is the interpretation that the role of learning is restricted to discovering if the firm has the *right stuff* in terms of the goods it is producing as well as the way they are being produced. Under this interpretation the new enterprise is not necessarily able to adapt or adjust to market conditions, but receives information based on its market performance with respect to its *fitness* in terms of meeting demand most efficiently vis-à-vis rivals. The theory of organizational ecology proposed by Michael T. Hannan and John Freeman (1989) most pointedly adheres to the notion that, "We assume that individual organizations are characterized by relative inertia in structure." That is, firms learn not in the sense that they adjust their actions as reflected by their fundamental identity and purpose, but in the sense of their perception. What is then learned is whether or not the firm has the right stuff, but not how to change that stuff.

The theory of firm selection is particularly appealing in view of the rather startling size of most new firms. For example, the mean size of more than 11,000 new-firm startups in the manufacturing sector in the United States was found to be fewer than eight workers per firm (Audretsch, 1995). While the minimum efficient scale (MES) varies substantially across industries, and even to some degree across various product classes within any given industry, the observed size of most new firms is sufficiently small to ensure that the bulk of new firms will be operating at a suboptimal scale of output. Why would an entrepreneur start a new firm that would immediately be confronted by scale disadvantages?

An implication of the theory of firm selection is that new firms may begin at a small, even suboptimal, scale of output, and then if merited by subsequent performance expand. Those new firms that are successful will grow, whereas those that are not successful will remain small and may ultimately be forced to exit from the industry if they are operating at a suboptimal scale of output.

Subsequent to entering an industry, an entrepreneur must decide whether to maintain its output, expand, contract, or exit. Two different strands of literature have identified several major influences shaping the decision to exit an industry. The first, and most obvious strand of literature suggests that the probability of a business exiting will tend to increase as the gap between its level of output and the minimum efficient scale (MES) level of output increases. The second strand of literature points to the role that the technological environment plays in shaping the decision to exit. As Dosi

(1988)) and Arrow (1962) argue, an environment characterized by more frequent innovation may also be associated with a greater amount of uncertainty regarding not only the technical nature of the product but also the demand for that product. As technological uncertainty increases, particularly under the entrepreneurial regime, the likelihood that the business will be able to produce a viable product and ultimately be able to survive decreases.

An important implication of the dynamic process of firm selection and industry evolution is that new firms are more likely to be operating at a suboptimal scale of output if the underlying technological conditions are such that there is a greater chance of making an innovation, that is under the entrepreneurial regime. If new firms successfully learn and adapt, or are just plain lucky, they grow into viably sized enterprises. If not, they stagnate and may ultimately exit from the industry. This suggests, that entry and the startup of new firms may not be greatly deterred in the presence of scale economies. As long as entrepreneurs perceive that there is some prospect for growth and ultimately survival, such entry will occur. Thus, in industries where the MES is high, it follows from the observed general small size of new-firm startups that the growth rate of the surviving firms would presumably be relatively high.

At the same time, those new firms not able to grow and attain the MES level of output would presumably be forced to exit from the industry, resulting in a relatively low likelihood of survival. In industries characterized by a low MES, neither the need for growth, nor the consequences of its absence are as severe, so that relatively lower growth rates but higher survival rates would be expected. Similarly, in industries where the probability of innovating is greater, more entrepreneurs may actually take a chance that they will succeed by growing into a viably sized enterprise. In such industries, one would expect that the growth of successful enterprises would be greater, but that the likelihood of survival would be correspondingly lower.

#### **4. The Empirical Evidence**

Not only was the large corporation thought to have superior productive efficiency, but conventional wisdom also held the large corporation to serve as the engine of technological change and innovative activity. After all, Schumpeter (1942, p. 106), “What we have got to accept is that the large-scale establishment has come to be the most powerful engine of progress.” A few years later, John Kenneth Galbraith ((1956, p. 86) echoed Schumpeter’s sentiment when he lamented, “There is no more pleasant fiction than that technological change is the product of the matchless ingenuity of the small man forced by competition to employ his wits to better his neighbor. Unhappily, it is a fiction.”

Knowledge regarding both the determinants and the impact of technological change has been largely shaped by measurement. Measures of technological change have typically involved one of the three major aspects of the innovative process: (1) a measure of inputs into the process, such as R&D expenditures, or the share of the labor force accounted for by employees involved in R&D activities; (2) an intermediate

output, such as the number of inventions that have been patented; or (3) a direct measure of innovative output.

The earliest sources of data, R&D measured, indicated that virtually all of the innovative activity was undertaken by large corporations. As patent measures became available, the general qualitative conclusions did not change, although it became clear that small firms were more involved with patent activity than with R&D. The development of direct measures of innovative activity, such as data bases measuring new product and process introductions in the market, indicated something quite different. In a series of studies, Acs and Audretsch (1987, 1988 and 1990) found that while large firms in manufacturing introduced a slightly greater number of significant new innovations than small firms, small-firm employment was only about half as great as large-firm employment, yielding an average small-firm innovation rate in manufacturing of 0.309, compared to a large-firm innovation rate of 0.202. The relative innovative advantage of small and large firms was found to vary considerably across industries. In some industries, such as computers and process control instruments, small firms provide the engine of innovative activity. In other industries, such as pharmaceutical products and aircraft, large firms generate most of the innovative activity. Knowledge regarding both the determinants and the impact of technological change has been largely shaped by measurement.

Acs and Audretsch (1988 and 1990) concluded that some industries are more conducive to small-firm innovation while others foster the innovative activity of large corporations corresponds to the notion of distinct technological regimes – the routinized and entrepreneurial technological regimes.

Empirical evidence in support of the traditional model of entry, which focuses on the role of excess profits as the major incentive to enter, has been ambiguous at best, leading Geroski (1991, p. 282) to conclude, "Right from the start, scholars have had some trouble in reconciling the stories told about entry in standard textbooks with the substance of what they have found in their data. Very few have emerged from their work feeling that they have answered half as many questions as they have raised, much less that they have answered most of the interesting ones."

Perhaps one reason for this trouble is the inherently static model used to capture an inherently dynamic process. Manfred Neumann (1993, pp. 593-594) has criticized this traditional model of entry, as found in the individual country studies contained in Geroski and Schwalbach (1991), because they "are predicated on the adoption of a basically static framework. It is assumed that startups enter a given market where they are facing incumbents which naturally try to fend off entry. Since the impact of entry on the performance of incumbents seems to be only slight, the question arises whether the costs of entry are worthwhile, given the high rate of exit associated with entry. Geroski appears to be rather skeptical about that. I submit that adopting a static framework is misleading...In fact, generally, an entrant can only hope to succeed if he employs either a new technology or offers a new product, or both. Just imitating incumbents is almost certainly doomed to failure. If the process of entry is looked upon from this perspective the high correlation between gross entry and exit reflects the inherent risks of innovating activities...Obviously it is rather difficult to break loose



from the inherited mode of reasoning within the static framework. It is not without merit, to be sure, but it needs to be enlarged by putting it into a dynamic setting."

Still, one of the most startling results that have emerged in empirical studies is that entry by firms into an industry is apparently not substantially deterred or even deterred at all in capital-intensive industries in which scale economies play an important role (Audretsch, 1995). While studies have generally produced considerable ambiguity concerning the impact of scale economies and other measures traditionally thought to represent a *barrier to entry*, Audretsch (1995) found conclusive evidence linking the technological regime to startup activity. New-firm startup activity tends to be substantially more prevalent under the entrepreneurial regime, or where small enterprises account for the bulk of the innovative activity, than under the routinized regime, or where the large incumbent enterprises account for most of the innovative activity. These findings are consistent with the view that differences in beliefs about the expected value of new ideas are not constant across industries but rather depend on the knowledge conditions inherent in the underlying technological regime.

Geroski (1995) and Audretsch (1995) point out that one of the major conclusions from studies about entry is that the process of entry does not end with entry itself. Rather, it is what happens to new firms subsequent to entering that sheds considerable light on industry dynamics. The early studies (Mansfield, 1962; Hall, 1987; Dunne, Roberts and Samuelson, 1989; and Audretsch, 1991) established not only that the likelihood of a new entrant surviving is quite low, but that the likelihood of survival is positively related to firm size and age. More recently, a wave of studies have confirmed these findings for diverse countries, including Portugal (Mata, Portugal and Guimaraes, 1994; and Mata, 1994), Germany (Wagner, 1994), and Canada (Baldwin and Gorecki, 1991; Baldwin, 1995, and Baldwin and Rafiquzzaman, 1995).

Audretsch (1991), Audretsch and Mahmood (1995) shifted the relevant question away from *Why does the likelihood of survival vary systematically across firms?* to *Why does the propensity for firms to survive vary systematically across industries?* The answer to this question suggests that what had previously been considered to pose a barrier to entry may, in fact, constitute not an entry barrier but rather a barrier to survival. The answer to this question suggests that what had previously been considered to pose a barrier to entry may, in fact, constitute not an entry barrier but rather a barrier to survival.

What has become known as *Gibrat's Law*, or the assumption that growth rates are invariant to firm size, has been subject to numerous empirical tests. Studies linking firm size and age to growth have also produced a number of stylized facts (Wagner, 1992). For small and new firms there is substantial evidence suggesting that growth is negatively related to firm size and age (Hall, 1987; Wagner, 1992 and 1994; Mata, 1993, and Audretsch, 1995). However, for larger firms, particularly those having attained the minimum efficient scale (MES) level of output, the evidence suggests that firm growth is unrelated to size and age.

An important finding of Audretsch (1991 and 1995) and Audretsch and Mahmood (1995) is that although entry may still occur in industries characterized by a high degree of scale economies, the likelihood of survival is considerably less. People

will start new firms in an attempt to appropriate the expected value of their new ideas, or potential innovations, particularly under the entrepreneurial regime. As entrepreneurs gain experience in the market they learn in at least two ways. First, they discover whether they possess *the right stuff*, in terms of producing goods and offering services for which sufficient demand exists, as well as whether they can produce that good more efficiently than their rivals. Second, they learn whether they can adapt to market conditions as well as to strategies engaged in by rival firms. In terms of the first type of learning, entrepreneurs who discover that they have a viable firm will tend to expand and ultimately survive. But what about those entrepreneurs who discover that they are either not efficient or not offering a product for which there is a viable demand? The answer is, *It depends -- on the extent of scale economies as well as on conditions of demand*. The consequences of not being able to grow will depend, to a large degree, on the extent of scale economies. Thus, in markets with only negligible scale economies, firms have a considerably greater likelihood of survival. However, where scale economies play an important role the consequences of not growing are substantially more severe, as evidenced by a lower likelihood of survival.

What emerges from the new evolutionary theories and empirical evidence on the economic role of new and small firms is that markets are in motion, with a lot of new firms entering the industry and a lot of firms exiting out of the industry. But is this motion horizontal, in that the bulk of firms exiting are comprised of firms that had entered relatively recently, or vertical, in that a significant share of the exiting firms had been established incumbents that were displaced by younger firms? In trying to shed some light on this question, Audretsch (1995) proposes two different models of the evolutionary process of industries over time. Some industries can be best characterized by the model of the conical revolving door, where new businesses enter, but where there is a high propensity to subsequently exit from the market. Other industries may be better characterized by the metaphor of the forest, where incumbent establishments are displaced by new entrants. Which view is more applicable apparently depends on three major factors -- the underlying technological conditions, scale economies, and demand. Where scale economies play an important role, the model of the revolving door seems to be more applicable. While the rather startling result discussed above that the startup and entry of new businesses is apparently not deterred by the presence of high scale economies, a process of firm selection analogous to a revolving door ensures that only those establishments successful enough to grow will be able to survive beyond more than a few years. Thus the bulk of new entrants that are not so successful ultimately exit within a few years subsequent to entry.

There is at least some evidence also suggesting that the underlying technological regime influences the process of firm selection and therefore the type of firm with a higher propensity to exit. Under the entrepreneurial regime new entrants have a greater likelihood of making an innovation. Thus, they are less likely to decide to exit from the industry, even in the face of negative profits. By contrast, under the routinized regime the incumbent businesses tend to have the innovative advantage, so that a higher portion of exiting businesses tend to be new entrants. Thus, the model of the revolving door is more applicable under technological conditions consistent with

the routinized regime, and the metaphor of the forest, where the new entrants displace the incumbents -- is more applicable to the entrepreneurial regime.

Why is the general shape of the firm-size distribution not only strikingly similar across virtually every industry -- that is, skewed with only a few large enterprises and numerous small ones -- but has persisted with tenacity not only across developed countries but even over a long period of time? The evolutionary view of the process of industry evolution is that new firms typically start at a very small scale of output. They are motivated by the desire to appropriate the expected value of new economic knowledge. But, depending upon the extent of scale economies in the industry, the firm may not be able to remain viable indefinitely at its startup size. Rather, if scale economies are anything other than negligible, the new firm is likely to have to grow to survival. The temporary survival of new firms is presumably supported through the deployment of a strategy of compensating factor differentials that enables the firm to discover whether or not it has a viable product.

The empirical evidence supports such an evolutionary view of the role of new firms in manufacturing, because the post-entry growth of firms that survive tends to be spurred by the extent to which there is a gap between the MES level of output and the size of the firm. However, the likelihood of any particular new firm surviving tends to decrease as this gap increases. Such new suboptimal scale firms are apparently engaged in the selection process. Only those firms offering a viable product that can be produced efficiently will grow and ultimately approach or attain the MES level of output. The remainder will stagnate, and depending upon the severity of the other selection mechanism -- the extent of scale economies -- may ultimately be forced to exit out of the industry. Thus, the persistence of an asymmetric firm-size distribution biased towards small-scale enterprise reflects the continuing process of the entry of new firms into industries and not necessarily the permanence of such small and sub-optimal enterprises over the long run. Although the skewed size distribution of firms persists with remarkable stability over long periods of time, a constant set of small and suboptimal scale firms does not appear to be responsible for this skewed distribution. Rather, by serving as agents of change, new firms provide an essential source of new ideas and experimentation that otherwise would remain untapped in the economy.

## **5. The Public Policy Response**

The policy response to this new view of the knowledge production function has been to shift away from targeting outputs to inputs. In particular, this involves the creation and commercialization of knowledge. Examples include the promotion of joint R&D programs, education and training programs, and policies to encourage people to start new firms. As Saxenian (1985, p. 102) points out, "Attracting high-tech has become the only development game of the 1980s." Justman (1995) and Justman and Teubel (1986) show how investment in infrastructure provide an important source of growth.

The provision of venture and informal capital to facilitate the creation and growth of new firms has replaced concern about the market power of existing ones in policy debates (Hughes, 1997; Mason and Harrison, 1997). The lack of finance capital for

new ventures has been blamed for the inability of Germany and France to shift economic activity into new industries that generate high-wage employment. One of the most repeated phrases on the pages of the business news over the last few years has been “Put Bill Gates in Europe and it just wouldn’t have worked out.”<sup>1</sup>

Policy efforts to address the most pressing contemporary economic problems have focused on enablement rather than constraint. Emphasis on enabling firms and individuals to create and commercialize new knowledge is not restricted to any single country or set of countries. Laura Tyson (1994), former chair of the Council of Economic Advisors in the Clinton Administration, recently emphasized the importance of government policies to promote entrepreneurship and new-firm startups in the former Soviet Union. Similarly, as unemployment in Germany surpassed four million, and stood at nearly eleven percent of the labor force, it is not surprising the Chancellor Helmut Kohl would undertake action to spur the creation of new jobs. What is more surprising is the main emphasis announced by the Chancellor in the *Initiatives for Investment and Employment*<sup>2</sup> in 1996 on new and small firms. The first and main point of the Chancellor’s Program consists of a commitment to the “creation of new innovative firms.”<sup>3</sup> The rationale underlying this policy approach by the Chancellor is stated in the Program: “New jobs are created mainly in new firms and in small- and medium-sized enterprises.”<sup>4</sup>

Audretsch and Feldman (1996) argue that industrial policies targeting the production and commercialization of new economic knowledge will have a greater impact on particular regions and not diffuse rapidly across geographic space. They point out that knowledge spillovers are a key source of new knowledge generating innovative activity, but due to the tacit nature of that knowledge, knowledge flows tend to be geographically bounded. Although the cost of transmitting information has become invariant to distance, the cost of transmitting knowledge, and especially tacit knowledge, rises with distance. By creating regions of knowledge-based economic activities, government policies can generate highly concentrated innovative clusters.

As long as the major policy issue was restricting large, oligopolistic firms in command of considerable market power, a federal or national locus of control was appropriate. This is because the benefits and costs derived from that market power are asymmetric between the local region where the firm is located and the national market, where the firm sells its product. Not only was production concentrated in one or just

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<sup>1</sup> “Where’s the Venture Capital?” *Newsweek*, 31 October, 1994, p. 44. Similar sentiment was expressed by Joschka Fischer, parliamentary leader of the Green Party in Germany, who laments, “A company like Microsoft would never have a chance in Germany” (“Those German Banks and Their Industrial Treasures,” *The Economist*, 21 January, 1994, 77-78.

<sup>2</sup> This was announced as the Aktionsprogramm fuer Investitionen und Arbeitsplaetze (“Soziale Einschnitte und Steuerreform sollen Wirtschaftswachstum anregen: Bundesregierung beschliesst Aktionsprogramm fuer Investiitionen und Arbeitsplaetze,” *Der Tagesspiegel*, 31 January, p. 1).

<sup>3</sup> The original text of the *Aktionsprogramm* states, “Offensive fuer unternehmerische Selbstaendigkeit und innovationsfaehigkeit” (“Ein Kraftakt zu Rettung des Standorts Deutschland,” *Frankfurter Allgemeine*, 31 January, 1996, p. 11).

<sup>4</sup> “Ein Kraftakt zu Rettung des Standorts Deutschland,” *Frankfurter Allgemeine*, 31 January, 1996, p. 11. The original text reads, “Neue Arbeitsplaetze entstehen zumeist in neugegruendeten Unternehmen und im Mittelstand.”

several regions, but the workers along with the ancillary suppliers also tended to be located in the same regions. These workers as well as the community at large share the fruits accruing from monopoly power. Systematic empirical evidence (Weiss, 1966) shows that wages are positively related to the degree of market power held by a firm, even after controlling for the degree of unionization. Higher profits resulting from market power are shared by labor. Workers and firms in the region have the same interest.

As Olson (1982) shows, relatively small coalitions of economic agents benefiting from some collective action tend to prevail over a large group of dispersed economic agents each incurring a small cost from that action. The costs of organizing and influencing policy are relatively low for the small coalition enjoying the benefits but large for the group of dispersed economic agents. Government policies to control large oligopolistic firms with substantial market power were not likely to be successful if implemented on the local level. Rather, as Olson (1982) predicts, a regional locus of policy towards business tends to result in the capture of policy by the coalition of local interests benefiting from that policy. Only by shifting the locus of policy away from the region to the national level can the capture of policy by special interest groups be minimized. This is because the negative effects of market power in the form of higher prices are spread throughout the national market while the benefits accruing from that power are locally concentrated.

Starting in the Carter Administration in the late 1970s and continuing into the Administrations of presidents Reagan, Bush and Clinton, antitrust has been de-emphasized and a twenty year wave of deregulation has led to a downsizing and even closure of a number of the former regulatory agencies.

Many economists interpret the downsizing of the federal agencies charged with the regulation of business as the eclipse of government intervention. But to interpret the retreat of the federal government as the end of public intervention is to confuse the downsizing of government with a shifting of the locus of government policy away from the federal to the local level. The last decade has seen the emergence of a set of enabling policy initiatives at the local level. This new type of industrial policy is decentralized and regional in nature. As Sternberg (1996) emphasizes in his review of successful technology policies in the four leading technological countries, the most important industrial policies in the last decades have been local not national. They have occurred in locations such as Research Triangle (Link, 1995), Austin, Texas and Cambridge (U.K.). Sternberg (1996) shows how the success of a number of different high-technology clusters spanning the four most technologically advanced countries is the direct result of enabling policies undertaken at the regional level.

Eisinger asks the question, "Do American States Do Industrial Policy?" in a 1990 article published in the *British Journal of Political Science*. Lowery and Gray (1990) confirm Eisinger's affirmative answer by analyzing the impact of state industrial policy in the United States. They develop a new data set on gross state product and a new measure of state industrial policy activism. Their results suggest that the implementation of industrial policy at the state level tends to promote growth. For example, Feller (1997, p. 289) points out that "in theory and implementation, state technology development programs – as in Texas, Ohio, New York, New Jersey, and

Pennsylvania – may be viewed as bands on a wide spectrum from basic research to product development, with the ends reflecting quite divergent state strategies..” The Advanced Research Program in Texas has provided support for basic research and the strengthening of the university infrastructure, which played a central role in recruiting MCC and Sematech and developing a high-tech cluster around Austin. The Thomas Edison Centers in Ohio, the Advanced Technology Centers in New Jersey, and the Centers for Advanced Technology at Case Western Reserve University, Rutgers University and the University of Rochester have supported generic, precompetitive research. This support has generally provided diversified technology development involving a mix of activities encompassing generic research, applied research, and manufacturing modernization through a broad spectrum of industrial collaborators spanning technology-intensive multinational corporations, regional manufactures and new-firm startups.

This shift in the locus of policy is the result of two factors. First, because the source of comparative advantage is knowledge, which tends to be localized in regional clusters, public policy requires an understanding of region-specific characteristics and idiosyncrasies. As Sternberg (1996) concludes, regional strengths provide the major source of innovative clusters. The second factor is that the motivation underlying government policy is now growth and the creation of (high-paying) jobs, largely through the creation of new firms. These new firms are typically small and pose no oligopolistic threat in national or international markets. There are no external costs imposed on consumers in the national economy in the form of higher prices as in the case of a large oligopolistic corporation in possession of market power. There is no reason that the promotion of local economies imposes a cost on consumers in the national economy, so that localized industrial policy is justified and does not result in any particular loss incurred by agents outside of the region.

## **6. Conclusions**

While traditional theories suggest that entrepreneurship will retard economic growth, new theories suggest exactly the opposite – that entrepreneurship will stimulate and generate growth. The reason for these theoretical discrepancies lies in the context of the underlying theory. In the traditional theory, new knowledge plays no role; rather, static efficiency, determined largely by the ability to exhaust scale economies dictates growth. By contrast, the new theories are dynamic in nature and emphasize the role that knowledge plays. Because knowledge is inherently uncertain, asymmetric and associated with high costs of transactions, divergences emerge concerning the expected value of new ideas. Economic agents therefore have an incentive to leave an incumbent firm and start a new firm in an attempt to commercialize the perceived value of their knowledge. Entrepreneurship is the vehicle by which (the most radical) new ideas are sometimes implemented.

While this policy emphasis on small and new firms as engines of dynamic efficiency may seem startling after decades at looking to the corporate giants to bestow efficiency, it is anything but new. Before the country was even half a century old, Alexis de Tocqueville, in 1935, reported, "What astonishes me in the United States is

not so much the marvellous grandeur of some undertakings as the innumerable multitude of small ones."

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## Speakers

**Fred Tarpley** Conference Coordinator. Dr. Tarpley is Professor of Economics (Emeritus) at Georgia Tech, where he taught beginning in 1962 and also served as Associate Dean and Acting Dean. From 1980 to 1985 he ran the Atlanta High Tech Venture Capital Conference. His government service includes stints in the Office of Advocacy, U.S. Small Business Administration, where he was Chief Economist, 1994-1998, and Director of Economic Research, 1978-1979; Principal Economist, National Productivity Group, General Accounting Office; and Program Associate, National Science Foundation.

**Jere Glover** Chief Counsel for Advocacy, U.S. Small Business Administration. Mr. Glover has served since the Senate confirmed his nomination by President Clinton on May 4, 1994. In that capacity he serves as an independent voice for small business within the federal government. Previously he was an attorney specializing in small business issues and CEO of several successful small businesses. Earlier he served as subcommittee counsel for the House Small Business Committee, worked for several federal agencies, and was the deputy to the first Chief Counsel for Advocacy, Milton Stewart.

**F.M. Scherer** Aetna Professor of Public Policy and Corporate Management, John F. Kennedy School of Government, Harvard University. Dr. Scherer also has taught at Princeton University, the University of Michigan, Northwestern University, and Swarthmore College. In 1974-1976 he was Chief Economist at the Federal Trade Commission. He is author or co-author of numerous books on industrial economics and the economics of technological change, including *New Perspectives on Economic Growth and Technological Innovation* (1999), and is past president of the Industrial Organization Society.

**Albert A. Foer** President, American Antitrust Institute. The Institute is an independent, nonprofit institution formed in 1998 to support a vigorous presence for antitrust in the national economy. Mr. Foer has been a lawyer in private practice in Washington, a senior executive of the Federal Trade Commission's Bureau of Competition, the CEO of a retail jewelry company, a leader of several trade associations generally representing small businesses, and an adjunct professor of antitrust.

**John E. Kwoka, Jr.** Professor of Economics and Columbian College Distinguished Professor, The George Washington University. Dr. Kwoka has previously taught at the University of North Carolina at Chapel Hill and served in various capacities at the Federal Trade Commission, the Antitrust Division of the U.S. Department of Justice, and the Federal Communications Commission. He has written extensively on industrial organization, regulation, and antitrust policy, including *The Antitrust Revolution* (3<sup>rd</sup> ed. 1999, co-edited with Lawrence J. White) and *Power Structure*.

**Lawrence J. White** Arthur E. Imperatore Professor of Economics, the Stern School of Business, New York University. Dr. White has taken leave from NYU three times to serve in the federal government: In 1986-1989 he was a Board Member of the Federal Home Loan Bank Board; during 1982-83 he was the Chief Economist of the Antitrust Division of the U.S. Department of Justice; and in 1978-1979 he was a Senior Staff Economist on the President's Council of Economic Advisers. Among his publications are *The S&L Debacle* and *The Antitrust Revolution* (3<sup>rd</sup> ed. 1999, co-edited with John E. Kwoka, Jr.)

**Adam M. Golodner** Chief of Staff and Counselor to the Assistant Attorney General, Antitrust Division, U.S. Department of Justice. Previously Mr. Golodner was Deputy Administrator of the Rural Utilities Service, U.S. Department of Agriculture, a member of Vice President Gore's National Information Infrastructure Task Force, and a nonvoting member of the Communications Committee of the National Association of Regulatory Utility Commissioners. Before entering government service in 1993, he was a partner in the Denver law firm of Moye, Giles, O'Keefe, Vermeire and Gorrell.

**David B. Audretsch** Ameritech Chair of Economic Development and Director of the Institute for Development Strategies, Indiana University. Dr. Audretsch is also a Research Fellow of the Centre for Economic Policy Research (London). He was at the Wissenschaftszentrum Berlin fuer Sozialforschung (Berlin), a government-funded research institute, between 1984 and 1997, and has consulted with numerous U.S. and international agencies. He is the author of over 100 scholarly articles and 20 books, including *Innovation and Industry Evolution* (1995), and is founder and editor of the journal *Small Business Economics*.

**Boyan Jovanovic** Professor of Economics, New York University. Dr. Jovanovic has held a variety of positions beginning in 1983. He has also taught at Columbia University, the State University of New York at Sunny Brook, Yale University, and the University of Pennsylvania, and worked on the technical staff of Bell Laboratories. He is a Fellow of the Econometric Society, a Research Associate of the National Bureau of Economic Research, Editor of the *Review of Economic Development*, and author or co-author of more than 40 published papers.

## **Panelists**

**Fred L. Smith, Jr.** President and Founder, Competitive Enterprise Institute, a public interest group dedicated to the principles of free enterprise and limited government, active in a wide range of economic and environmental public policy issues. Earlier Mr. Smith was Director of Government Relations for the Council for a Competitive Economy, Senior Economist for the Association of American Railroads, and Senior Policy Analyst at the Environmental Protection Agency.

**William J. Dennis, Jr.** Senior Research Fellow, NFIB Education Foundation (Washington), research arm of the National Federation of Independent Business, where he has worked since in various capacities since 1976. Mr. Dennis also has been adjunct faculty at Georgetown University and founder, director, or member of numerous research panels and organizations relating to small business or education. In 1998 he received the Office of Advocacy's Small Business Research Advocate Award.

