ARTICLES

REGULATION: PAST, PRESENT, AND FUTURE

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I. INTRODUCTION

Government regulation has dramatic effects on economic growth and productivity. Generally speaking, strong economic growth occurs when governments promote markets by enforcing property rights and encouraging commerce, and poor economic performance occurs when governments play an active role in regulating prices and output.[1] The United States government has historically left most pricing and output decisions to the private sector. As the United States becomes wealthier, however, demands are increased for regulating marketplace activities that affect environmental quality, health, and safety. It is critical that the nation meet these challenges by designing regulatory institutions that facilitate innovation and stimulate competition.

Although regulatory activity has exploded during the last two decades, regulation of economic affairs is hardly a new phe-

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1. This may help to explain the higher rates of growth and employment in the United States compared to Western European countries during the expansion of the last seven years. *See generally* COUNCIL OF ECONOMIC ADVISERS, ECONOMIC REPORT OF THE PRESIDENT 23-72 (1989) (arguing that free trade and flexible markets are critical determinants of economic growth).

Some scholars have also noted that the level of democracy in a country is positively correlated with economic growth rates. *See* Becker, *An Environment for Economic Growth*, Wall St. J., Jan. 19, 1989, at A8, col. 4.

nomenon in the United States. During the past century, federal, state, and local governments have increasingly regulated the lives of individuals and the activities of business. The average consumer need not venture beyond the home to see the ubiquitous reach of regulation. There are labeling requirements for food and appliances, standards for the paint used inside and outside the home, pollution control requirements and energy standards for cars, standards for gas and electric heating systems, and safety requirements for bicycles.[2] Regulation is so pervasive today that it is difficult to imagine a world in which federal regulation was not a dominant force. Since the early 1970s, more than 100 federal agencies have administered a staggering array of regulations.[3]

Much regulation is motivated by a perception that the marketplace does not adequately address a particular economic or social problem. For example, child labor laws were enacted to help prevent the exploitation of children.[4] Environmental legislation is targeted, among other goals, toward improving the quality of the air people breathe and the water they drink.[5] Safety legislation to protect coal miners was enacted to reduce on-the-job injuries.[6] In other cases, legislation has been introduced to limit potentially "destructive" competition or to help save a cherished institution, such as the family farm. Although many of these regulations have had beneficial effects, they have also had substantial costs.

The success of regulatory programs can be measured in a variety of ways. One measure, frequently used by economists, is to quantify and compare the costs and benefits of regulation in financial terms. Regulatory costs imposed on the economy have been estimated to be approximately $100 billion annually.[7]

2. *See, e.g.*, U.S. CONSUMER PROD. SAFETY COMM'N, U.S. CONSUMER PROD. SAFETY COMM'N ANN. REP., FISCAL YEAR 1986 (1987).

3. *See* OFFICE OF MANAGEMENT AND BUDGET, REGULATORY PROGRAM OF THE UNITED STATES GOVERNMENT: APRIL 1, 1988 - MARCH 31, 1989, at 5 (1988) [hereinafter REGULATORY PROGRAM (1988)].

4. *See, e.g.*, 29 U.S.C. § 212 (1982).

5. *See* 42 U.S.C. §§ 7401-7642 (1982 & Supp. V 1987); 33 U.S.C. §§ 1251-1387 (1982 & Supp. V 1987).

6. *See* 30 U.S.C. §§ 861-878 (1982).

7. The Office of Management has placed the costs of regulation between $50 and $150 billion, which represents about one to three percent of the gross national product. *See* REGULATORY PROGRAM (1988), *supra* note 3, at 6. In inflation-adjusted terms, this is comparable to the estimate of regulatory costs in 1977 made by R. LITAN & W. NORDHAUS, REFORMING FEDERAL REGULATION 22-23 (1983) (cost of regulation ranging between $34 and $91 billion, in 1977 dollars); *see also* M. WEIDENBAUM, COSTS OF REGU-

The benefits of regulation, although more difficult to quantify, are real and substantial in many cases, particularly for programs designed to promote environmental quality, health, and safety. According to critics, government regulation costs too much, tends to favor special interests, and is generally inefficient. Proponents of increased government regulation in the marketplace, meanwhile, point to the myriad of social and economic problems that have not been adequately addressed.

To move beyond debate at such a general level, it is necessary to examine the economic and social impacts of specific regulations and policies. Such analysis reveals that some regulatory reforms have led to unambiguous increases in consumer welfare but that a large number of regulations have had a neutral or adverse effect on consumers in the aggregate. Examples of regulations that have had significant adverse economic impacts on the general public include wage and price controls, regulations on interstate trucking and railroads, and regulations on ocean shipping.[8] Although there are notable exceptions, such as the abolition of the Civil Aeronautics Board and the breakup of the American Telephone and Telegraph Company (AT&T), changes in the regulatory environment have often favored special interests at the expense of the general public.[9]

There are signs, however, that people are fundamentally reexamining some important aspects of the regulatory process. Over the past two decades, free-market proponents have suc-

LATION AND BENEFITS OF REFORM (Paper, Center for the Study of American Business, 1980); R. HAHN & J. HIRD, THE COSTS AND BENEFITS OF REGULATION: REVIEW AND SYNTHESIS (School of Urban and Public Affairs, Carnegie-Mellon University, Working Paper No. 89-37, 1989).

8. *See generally* REGULATORY REFORM: WHAT ACTUALLY HAPPENED (L. Weiss & M. Klass eds. 1986).

9. *See* Noll & Owen, *The Political Economy of Deregulation: An Overview*, in THE POLITICAL ECONOMY OF DEREGULATION: INTEREST GROUPS IN THE REGULATORY PROCESS 26 (R. Noll & B. Owen eds. 1983) (overview of the political economy of regulation and deregulation); *see also* M. OLSON, THE LOGIC OF COLLECTIVE ACTION (1965) (excellent discussion of why political processes tend to favor certain groups at the expense of others). For an alternative view of deregulation that focuses on the "public interest," see Levine, *Revisionism Revised? Airline Deregulation and the Public Interest*, 44 LAW & CONTEMP. PROBS. 179 (1981). It is important to note that interest groups are motivated by a wide array of factors. Traditional interest groups that lobby for particular industries are typically motivated largely by financial gain; the motivations of environmental and consumer groups, however, are not characterized so easily. *See, e.g.*, R. HAHN, THE POLITICAL ECONOMY OF ENVIRONMENTAL REGULATION: TOWARDS A UNIFYING FRAMEWORK (School of Urban and Public Affairs, Carnegie-Mellon University, Working Paper No. 88-33, 1988) (forthcoming in *Public Choice*).

ceeded in deregulating or partially deregulating several industries. In the transportation industries, most notably trucking, railroad, and air transport, the public has realized tremendous gains as a result of deregulation. One study has estimated that the benefits of trucking deregulation are between one and four billion dollars annually,[10] and another study placed the benefits of airline deregulation at fifteen billion dollars per year.[11] A third study found that the partial deregulation of railroads has led to efficiency gains of between nine and fifteen billion dollars annually.[12] These gains have translated into lower prices and a wider range of services available to consumers.

The promotion of increased competition in other sectors has produced similar stories. The widespread introduction of money-market accounts that followed reduced financial industry regulation, for instance, has allowed consumers to obtain higher returns on their savings.[13] The introduction of increased pricing flexibility for stock commissions likewise led to a boom in the discount brokerage industry.[14] The relaxation of restrictions on overnight mail delivery has led to dramatic increases in the availability of next-day delivery services by private companies.[15]

This movement toward deregulation represents one aspect of regulatory evolution. Agencies have recently introduced other efficiency-enhancing innovations in the regulatory process to foster greater innovation in the marketplace without completely removing regulation. For example, the U.S. Envi-

10. *See* R. HAHN & J. HIRD, *supra* note 7, at 28.

11. The fifteen billion dollar estimate was arrived at by adjusting for inflation the eight billion dollar estimate of the net annual benefits of airline deregulation during 1977 to 1983 in S. MORRISON & C. WINSTON, THE ECONOMIC EFFECTS OF AIRLINE DEREGULATION 51 (1986) (estimate in 1977 dollars).

12. *See* C. BARNEKOV & A. KLEIT, THE COSTS OF RAILROAD REGULATION: A FURTHER ANALYSIS 1 (Federal Trade Commission Bureau of Economics Working Paper No. 164, 1988). These authors dispute an earlier study by Professor Boyer, *The Costs of Price Regulation: Lessons from Railroad Deregulation*, 18 RAND. J. ECON. 408 (1987) (estimating the efficiency gains to be ninety million dollars annually), on the basis that Professor Boyer failed to capture adequately gains resulting from more efficient provision of service. At the very least, the Barnekov and Kleit study demonstrates that estimates of efficiency gains are quite sensitive to the specifications used to measure the impact of deregulation.

13. *See, e.g.*, *Banks and the Money Funds: Back to the Races?*, BUS. WEEK, July 16, 1984, at 133.

14. *See, e.g.*, *Bears at the Door*, ECONOMIST, July 30, 1988, at 74.

15. *See* PRESIDENT'S COMMISSION ON PRIVATIZATION, PRIVATIZATION: TOWARD MORE EFFECTIVE GOVERNMENT; REPORT OF THE PRESIDENT'S COMMISSION ON PRIVATIZATION 101 (1988) [hereinafter PRIVATIZATION REPORT].

ronmental Protection Agency (EPA) has pioneered in the development of market-based approaches designed to achieve given levels of environmental quality at lower costs. These approaches have resulted in savings of billions of dollars over the past decade.[16]

Significant changes are occurring in the regulation of public utilities, such as telephone companies, gas companies, and electric utilities. In many cases, the fundamental rationale for public utility regulation has been questioned. The general thrust of these changes is to develop institutions that encourage firms to operate more efficiently. For example, where new electric generating capacity is needed, some state public utility commissions now encourage competitive bidding for contracts to construct new generating capacity.[17] Formerly, a single company serving an area was given a monopoly over the right to build new capacity in that area. Some states are also allowing utilities to provide economic incentives for energy conservation as an alternative to building additional capacity.

The reasons for the evolution of the regulatory process are complex and only partially understood. In contrast, the relationship between the adoption of particular regulatory programs and resulting economic performance is fairly well understood. On the whole, greater reliance on market forces has led to a more efficient industry structure and large gains for consumers.[18] This overall gain does not imply that the changes have all been outright successes nor that everyone gains when competition is promoted. However, in general, the result of deregulatory efforts and efficiency-enhancing regulatory innovations has been to increase the size of the economic pie and to improve the welfare of the average citizen. A critical element in improving U.S. competitiveness in the years to come will be the implementation of regulatory strategies that encourage competition and innovation.

This Article provides a comprehensive review of federal reg-

16. *See* Hahn & Hester, *The Market for Bads: EPA's Experience with Emissions Trading*, REGULATION, 1987, No. 3/4, at 48, 51.

17. Several states have used bidding. *See* Regulations Governing Bidding Programs, Fed. Energy Guidelines, FERC Statutes and Regulations, ¶ 32,455, at 32,021, 32,051 n.34 (Mar. 16, 1988).

18. *See, e.g.*, Bailey, *Deregulation: Causes and Consequences*, 234 SCIENCE 1211 (1986); S. MORRISON & C. WINSTON, *supra* note 11; Moore, *The Beneficiaries of Trucking Regulation*, 21 J.L. & ECON. 327 (1978).

ulatory activity, highlighting those areas in which exciting reforms are taking place and discussing some industries, such as banking, in which additional reform is needed. The analysis demonstrates how the regulatory environment can dramatically affect the performance of particular industries as well as the overall economy. In addition, this Article suggests some innovative approaches to regulatory design that will foster economic growth and promote technological change in the decades ahead.

Section II of this Article provides an overview of regulation. Specific examples of innovative regulatory reforms are reviewed in Sections III and IV. Recent efforts by the Executive Branch to impose greater discipline and coherence on the structure of federal regulation are examined in Section V. Finally, Section VI summarizes the major findings and suggests areas for future research.

II. Regulation: An Overview

Because regulation covers such a broad range of policies, it is difficult to develop a useful definition of just what constitutes regulation.[19] In an effort to provide some general guidelines, economists have identified two broad classes of regulation.[20] The first, sometimes referred to as "economic regulation," usually includes the regulation of specific industries. This regulation takes three basic forms. The first, price and entry regulation, places restrictions on the prices a firm can charge or on the conditions under which firms can enter a particular industry. For example, prior to 1978, airlines needed approval from the Civil Aeronautics Board for specific routes and fares.[21] Truckers and railroads still are required to file rates with the Interstate Commerce Commission.[22]

19. *See* R. Noll, What is Regulation? (California Institute of Technology Social Science Working Paper No. 324, 1980) (discussing possible definitions of regulation). In practice, regulation is frequently defined in terms of the activities of administrative regulatory agencies.

20. This discussion builds on the insightful essay by Joskow & Noll, *Regulation in Theory and Practice: An Overview*, in Studies in Public Regulation 1 (G. Fromm ed. 1981).

21. *See* Council of Economic Advisers, Economic Report of the President 200 (1988).

22. *See* 49 U.S.C. §§ 10,701-10,766 (1982).

The transportation industries as a category could operate more efficiently in the absence of price and entry restrictions. Fortunately, much of this regulation has been removed in recent years, resulting in lower prices and an expanded menu of services to

A second form of economic regulation is applied to industries in which a single large firm can provide a product to meet consumer demand at a lower cost than if several smaller firms were to provide the product. These industries are often referred to as "natural monopolies."[23] Local telephone networks and transmission and distribution systems for electricity and natural gas are often categorized as natural monopolies. This form of regulation is based on the reasoning that, for example, it is usually cheaper to build one very large gas pipeline than several small ones. Frequently, industries with natural monopoly characteristics are regulated by both federal and state governments. The most common form of regulatory control over such industries is to limit the maximum rate of return on investment that industry firms are allowed to receive.[24]

A third form of economic regulation, which the scholarship on regulation has often overlooked, involves the direct government provision of services, to the exclusion of private providers. For example, the government provides mail services through the U.S. Postal Service and prohibits others from competing with those services. This form of regulation represents an extreme form of price and entry regulation in which the government is the sole supplier of the good or service involved.

Complementing economic regulation is a second broad class of regulation targeted not at activities conducted by specific industries but rather at activities common to several industries. This second class, called "social regulation," is intended to tackle problems that are not adequately addressed by the marketplace.[25] Examples include health, safety, and environmental regulation. This regulation is not directed toward prices and market structure, but rather it attempts to address problems where there is a perceived "market failure." An example of social regulation in response to a market failure is a limitation placed on pollution by a factory, where the factory does not include in its costs the effect of its pollution on others.

Although this taxonomy of regulatory activity accounts for much of what one would call "regulation," it is by no means

consumers. *See, e.g.*, Bailey, *supra* note 18; Moore, *Rail and Truck Reform—The Record So Far*, REGULATION, Nov.-Dec. 1983, at 33, 34.

23. *See generally* 1 A. KAHN, THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS 20-57 (1988).

24. *See* S. BREYER, REGULATION AND ITS REFORM 36 (1982).

25. *See generally* L. LAVE, THE STRATEGY OF SOCIAL REGULATION (1981).

comprehensive. Not all economic regulation is targeted at specific industries; for example, minimum-wage laws are a form of economic regulation that applies to almost all industries in one form or another. Antitrust policy is a form of economic regulation designed to promote competition by placing certain limitations on general business conduct and policies. Nevertheless, the preceding classification scheme provides a convenient lens through which to analyze the activities of a wide variety of federal regulatory agencies.[26]

A. *Rationales and Motivations for Regulation*

Defenders of regulation have offered many justifications for its use. Economists quite naturally emphasize potential gains in economic efficiency. The primary example of such an efficiency rationale is the economic regulation of natural monopolies.[27] It is important to recognize that although a single regulated firm in such industries is theoretically capable of producing and selling its output at a lower cost than several smaller firms, a firm thus regulated will not necessarily do so. Just as the marketplace is imperfect in the case of natural monopoly, so too are the tools at the disposal of government regulators.

As noted above, one economic rationale for social regulation is that firms or individuals may impose costs or confer benefits upon other individuals that are not adequately accounted for in the marketplace. Such costs or benefits are sometimes referred to as "externalities," that is, factors external to the marketplace. Examples of externalities include smoke from a factory that contributes to respiratory illnesses of nearby residents and the costs an individual might impose on others by driving while intoxicated. Externalities are generally viewed as a subset of

26. Notably absent from this taxonomy of regulation is the effect of the legal system (most notably the court system) on business and individual decisions. The courts have had and continue to have a tremendous impact on business conduct in the United States. *Compare* R. POSNER, ECONOMIC ANALYSIS OF LAW (3d ed. 1986) *with* P. HUBER, LIABILITY: THE LEGAL REVOLUTION AND ITS CONSEQUENCES (1988). For an analysis of the courts' impact on regulation in the environmental arena, see R. MELNICK, REGULATION AND THE COURTS: THE CASE OF THE CLEAN AIR ACT (1983).

27. "Destructive" or "cutthroat" competition is also used as a rationale for regulation; in most cases, however, the presence of such competition serves to enhance efficiency. Another argument for regulation often used in the context of developing countries is to protect so-called "infant industries." This argument is based on the view that new industries require protection initially to compete with established firms. Although infant industry protection is usually alleged to be temporary, protected industries are often reluctant to allow such protection to lapse.

market failures. Until recently, many economists viewed market failure as a sufficient rationale for government intervention. Because they now widely recognize that government intervention imposes costs of its own, many no longer consider market failure to be a sufficient condition for government intervention.

A second rationale for some forms of social regulation is "information asymmetry," which occurs when one party to a transaction has more information about the exchange than the other party.[28] For example, manufacturers may not provide information on some characteristic of their product, such as safety or energy efficiency. In certain situations, such asymmetries can lead to outcomes that are economically inefficient. In some cases, such as in the sale of energy appliances and cigarettes, the government has chosen to address problems of information asymmetry by requiring various types of labeling.[29]

Situations in which government intervention results in a less efficient policy are sometimes termed "government failures" or "nonmarket failures."[30] Such failures can arise in cases of both social and economic regulation, whenever the marketplace response to government intervention diverges from the desired effects that form the basis for the intervention. For example, firms often attempt to use the regulatory process to enhance their competitive position. Barriers to entering an industry may increase with the introduction of new regulations, not only increasing profits for regulated firms, but also yielding a less efficient industry structure. Because opportunities exist for firms and individuals to manipulate the political process, many regulatory programs may be implemented with primary motivations other than economic efficiency. Moreover, economic efficiency is often an unimportant criterion to politicians designing such programs.

During the past twenty years, economists and political scientists (especially those of the "public choice" school) have attempted to explain the motivations behind various forms of regulation. A key finding of this research is that much economic regulation is the result of an interest in redistributing

28. *See* D. WEIMER & A. VINING, POLICY ANALYSIS: CONCEPTS AND PRACTICE 67-74, 154-57 (1989).

29. *See, e.g.*, 15 U.S.C. §§ 1331-1341 (1988).

30. *See, e.g.*, Wolf, *A Theory of Nonmarket Failure: Framework for Implementation Analysis*, 22 J.L. & ECON. 107 (1979).

wealth from the general public to special interest groups.[31] The motivations for social regulation are more difficult to disentangle, but here, too, there is a strong politically based tendency to encourage the redistribution of wealth. For example, the legislation requiring scrubbers on power plants appears to have been motivated as much by the self-interests of environmentalists and high-sulfur coal miners as by a desire to promote cleaner air.[32]

Despite our growing understanding of both the politics and economics of regulation, some important aspects still defy simple explanation. Most notable among these is the wave of deregulatory activity that has occurred over the past two decades. Because many decisions to deregulate during this period, in accordance with expectations, resulted in diffuse benefits to a large group of consumers and concentrated costs to well-organized interest groups, observers have struggled to find an explanation for the adoption of many of these policies.[33]

Several factors appear to have contributed to this dramatic reversal of the trend toward greater regulation. First, an outpouring of research on economic regulation occurred, much of it suggesting that the costs of regulation are often high.[34] Second, some "real-life" experiments provided further evidence that deregulation could result in large benefits. For example, in the case of airlines, almost all intrastate markets were left unregulated under the regimes of the Civil Aeronautics Authority and the Civil Aeronautics Board, whereas interstate markets were heavily regulated. A comparison of the fares for flights between locations in the same state with those for flights of

31. *See, e.g.*, Noll & Owen, *supra* note 9; Peltzman, *Towards a More General Theory of Regulation*, 19 J.L. & ECON. 211 (1976); Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGMT. SCIENCES 3 (1971).

32. *See* B. ACKERMAN & W. HASSLER, CLEAN COAL/DIRTY AIR 21, 23, 31-35 (1981).

33. Professor Becker has argued that, as the deadweight costs associated with specific policies increase, such policies are more difficult to sustain politically. *See generally* Becker, *A Theory of Competition Among Pressure Groups for Political Influence*, 98 Q.J. ECON. 371 (1983). This theory fails to characterize adequately the more general economic circumstances in which deregulatory initiatives are likely to succeed. For example, the deregulatory initiatives that received support under Presidents Ford and Carter appear to have been associated with times of poor performance in the overall economy, suggesting that presidents may be more willing to expend political capital on such initiatives when the "chips are down." For a useful description of the evolution of major deregulatory initiatives, see M. DERTHICK & P. QUIRK, THE POLITICS OF DEREGULATION (1985). Levine, *supra* note 9, presents an interesting case for airline deregulation that relies in part on serving the public interest. For a thoughtful view on the future of regulation, see Noll, *Regulation After Reagan*, REGULATION, 1988, No. 3, at 13.

34. *See* M. DERTHICK & P. QUIRK, *supra* note 33, at 246-52.

similar distances between locations in different states suggested that passengers in interstate markets were paying much higher fares as a result of regulation.[35] Third, technological changes in some industries, such as telecommunications and electric utilities, induced some firms to press for reductions in the entry barriers that protected existing firms. Finally, as the social costs of regulation grew, some politicians may have seen opportunities to build national reputations by promoting policies that would result in significant gains for large numbers of consumers.[36] Although these factors provide possible bases for the movement toward deregulation, they do not explain the wave of deregulatory activity that began in the 1970s, nor do they explain what trends are in store for the future.

B. *Trends in Regulation*

The scope of government regulation has broadened considerably since Congress established the first federal administrative agency, the Interstate Commerce Commission (ICC), in 1887.[37] The Sherman Antitrust Act, an early instrument of economic regulation, became law in 1890.[38] This was followed by the Federal Trade Commission Act[39] and the Clayton Act[40] in 1914, which were designed to protect consumers and to regulate competition. The New Deal period witnessed the creation of several financial regulatory agencies, including the Federal Deposit Insurance Corporation,[41] the Securities and Exchange Commission,[42] and the Federal Home Loan Bank Board.[43] Congress created several other regulatory agencies during this

35. *See* COUNCIL OF ECONOMIC ADVISERS, *supra* note 21, at 202.

36. *See, e.g.*, Weingast, *Regulation, Reregulation, and Deregulation: The Political Foundations of Agency Clientele Relationships*, 44 LAW & CONTEMP. PROBS. 147, 165 (1981) (arguing that Senator Edward Kennedy supported airline deregulation for its political dividends).

37. *See* Act approved Feb. 4, 1887, ch. 104, 24 Stat. 379 (codified as amended in scattered sections of 49 U.S.C.).

38. Sherman Antitrust Act, ch. 647, 26 Stat. 209 (1890) (current version at 15 U.S.C. §§ 1-7 (1988)).

39. Federal Trade Commission Act, ch. 311, 38 Stat. 717 (1914) (current version at 15 U.S.C. §§ 41-51 (1988)).

40. Clayton Act, ch. 323, 38 Stat. 730 (1914) (codified as amended in scattered sections of 15 U.S.C. and 29 U.S.C.).

41. *See* Act approved June 16, 1933, ch. 89, § 8, 48 Stat. 162, 168-80 (codified as amended in scattered sections of 12 U.S.C., ch. 16).

42. *See* Act approved June 16, 1934, ch. 404, § 4, 48 Stat. 881, 885 (current version at 15 U.S.C. § 78d (1988)).

43. *See* Act approved July 22, 1932, ch. 522, § 17, 47 Stat. 725, 736-37 (current version at 12 U.S.C. § 1437 (1982 & Supp. V 1987)).

period, including the Civil Aeronautics Authority[44] and the Federal Communications Commission.[45]

Until at least 1960, federal regulation was primarily targeted toward controlling the market parameters of specific industries. For example, the ICC was charged with the regulation of the rates of railroads involved in interstate commerce.[46] The Civil Aeronautics Board regulated prices and entry into various domestic airline markets.[47] In short, the focus during this period was on economic regulation.[48]

Although economic regulation predominated prior to 1960, some federal agencies also had social regulatory responsibilities, such as addressing health and safety issues, during this period. For example, the Food and Drug Administration was established in 1931 to license and control the labeling of food and drugs and to screen the introduction of new drugs.[49] The Federal Aviation Agency was created in 1958 to help ensure safe air travel.[50]

Since 1960, the focus of new regulatory activity has changed. While traditional regulation of prices and entry still exists in many industries, there has been a virtual explosion of social regulation targeted toward safety, health, and environmental quality. For example, the Environmental Protection Agency was established in 1970 to develop environmental standards and to approve state pollution control plans.[51] The Consumer

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44. *See* Civil Aeronautics Act of 1938, ch. 601, §§ 201-206, 52 Stat. 973, 980-84. In 1940, the Civil Aeronautics Authority's functions were consolidated with those of the Air Safety Board, and the agency was renamed the Civil Aeronautics Board, Reorganization Plan No. 4, § 7, 54 Stat. 1234, 1235-36 (1940). The Civil Aeronautics Board was sunsetted by the Airline Deregulation Act of 1978, Pub. L. No. 95-504, § 40, 92 Stat. 1705, 1744-47.

45. *See* Act approved June 19, 1934, ch. 652, § 1, 48 Stat. 1064 (current version at 47 U.S.C. § 151 (1982)).

46. *See* Act approved Feb. 4, 1887, ch. 104, § 1, 24 Stat. 379 (codified as amended in scattered sections of 49 U.S.C.).

47. *See supra* note 44.

48. *See* S. BREYER, *supra* note 24, at 372.

49. These functions had been performed by agencies with different organizational titles since January 1, 1907, the effective date of the Food and Drug Act of 1906, ch. 3915, 34 Stat. 768. The first federal statute in which the title "Food and Drug Administration" appeared was the Agriculture Appropriations Act of 1931, ch. 341, 46 Stat. 392, 422-23.

50. *See* Federal Aviation Act of 1958, Pub. L. No. 85-726, 72 Stat. 731 (codified as amended in scattered sections of 49 U.S.C.). The functions of the Federal Aviation Agency were largely assumed by the Federal Aviation Administration pursuant to the Department of Transportation Act, Pub. L. No. 89-670, 80 Stat. 931 (1966), which created the United States Department of Transportation.

51. The Environmental Protection Agency was established by Reorganization Plan

Product Safety Commission was formed in 1972 and now sets safety standards for consumer products ranging from carpets to cribs.[52] The Occupational Safety and Health Administration was authorized in 1973 to regulate hazards in the workplace.[53] This growth in social regulation has led to an increased federal presence not only in business activity but also in the daily lives of the general public.

1. *Understanding the Effects of Regulation*

The dramatic increase in regulation has been accompanied by an increase in our understanding of the beneficial as well as harmful effects of this type of government intervention. One important finding regarding the impact of regulatory policy is that such policy significantly affects not only specific sectors of the economy, such as transportation and finance, but also the nation's ability to compete in the global marketplace. For example, if the United States adopts environmental and safety regulations that are more stringent than those of the rest of the world, it may encourage some industries to move facilities abroad. In other cases, social regulation may impose a form of protectionism.[54] For example, if a foreign manufacturer must meet a complex, strict set of U.S. standards, it may choose not to compete in this market. In this way, some pollution and safety regulations may work to benefit domestic manufacturers, albeit at consumers' expense. At the same time, such regulations may produce benefits for consumers by promoting a cleaner environment and increased safety.

There have been several estimates made of the overall level of regulatory activity in the United States. One measure frequently cited is the number of pages printed in the *Federal Reg-*

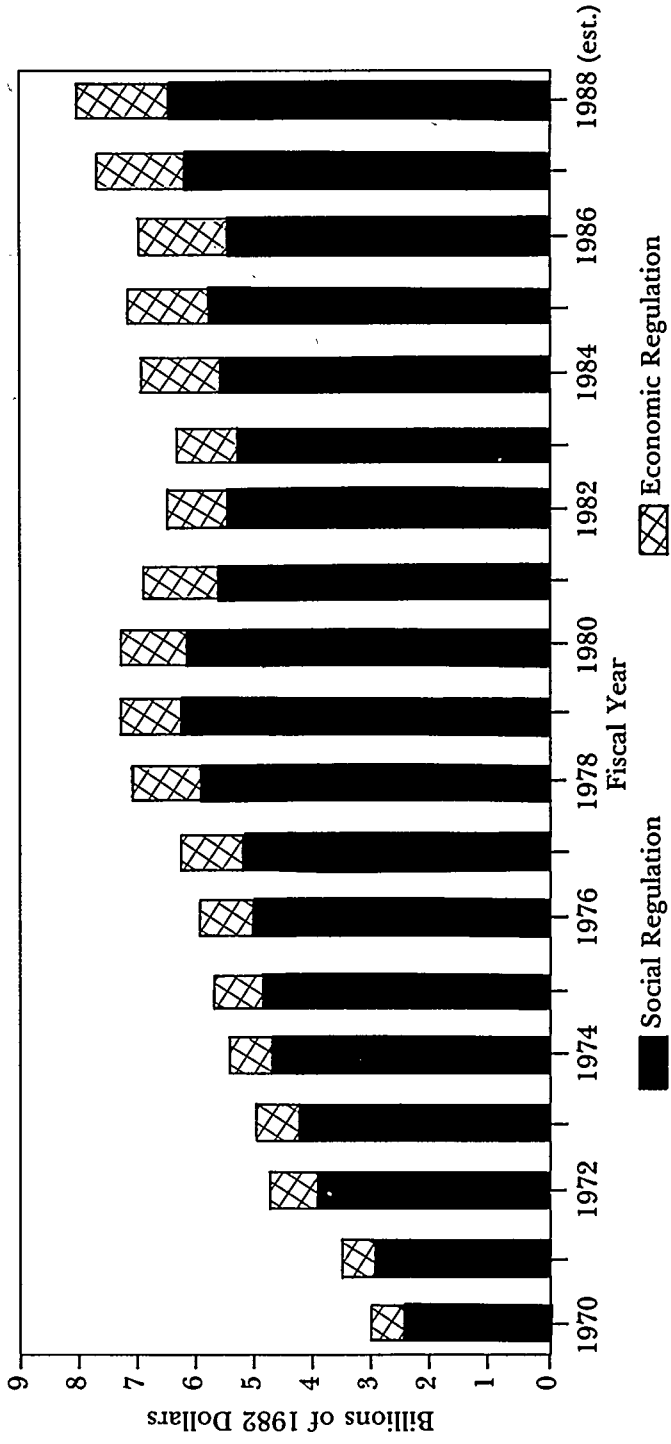
No. 3 of 1970, 84 Stat. 2086, which was transmitted to Congress pursuant to the provisions of chapter 9 of title 5 of the U.S. Code.

52. *See* Consumer Product Safety Act of 1972, Pub. L. No. 92-573, 86 Stat. 1207 (current version at 15 U.S.C. §§ 2051-2083 (1988)); U.S. CONSUMER PROD. SAFETY COMM'N, *supra* note 2, at 150-51.

53. The Occupational Safety and Health Administration was established pursuant to the Occupational Safety and Health Act of 1970, Pub. L. No. 91-596, 84 Stat. 1590 (current version at 29 U.S.C. §§ 651-678 (1982 & Supp. V 1987)).

54. The recent attempt by the European Community to ban imports of beef from the United States into the Community represents an interesting example of protectionist regulation. The ban includes beef that contains certain growth hormones. The United States government is protesting the ban because it believes the supposed health danger has no scientific basis. *See* Fischbach, *Council Directive*, 28 O.J. EUR. COMM. (No. L 191) 46 (1985).

FIGURE 1
FEDERAL OUTLAYS FOR REGULATORY ACTIVITIES
IN CONSTANT 1982 DOLLARS



ister. Unfortunately, this measure is not very informative because it fails to account for differences in the impact of various regulations or for changes in the composition of the *Federal Register* over time.

A somewhat more informative measure of overall regulatory activity is the amount of direct federal outlays for administration of regulations. Figure 1 shows how these costs have varied in real terms over the past nineteen years.[55] The figure shows that the administrative costs of social regulation grew rapidly in the 1970s, fell slightly in the early 1980s, and then began to rise again. Direct federal outlays associated with economic regulation, which represent only a small fraction of total regulatory administrative costs, have grown slowly over this period. Similar patterns for social and economic regulation emerge when administrative costs and staffing requirements are analyzed as a fraction of the gross national product.[56]

Of much greater economic importance are the costs that regulation imposes on industry, which are ultimately borne by the public. These costs are decidedly more difficult to estimate. For example, consider the problem of measuring the economic, let alone the environmental, impacts of federal and state regulatory efforts to reduce air pollution. Information on pollution levels at the time such regulations was implemented is generally inadequate. Moreover, even where accurate records are available, it is difficult to isolate the effects of regulation from other economic activity. Although the data indicate that the level of atmospheric sulfur dioxide in the United States has decreased since 1970, for example, this outcome may be caused as much by economic factors such as increasing energy costs and advancing technology as by regulatory changes.[57]

In spite of the methodological difficulties, scholars have published numerous studies estimating the effects of industry-specific regulation on consumer costs. One recently released study estimated that environmental regulations cost consumers more

55. Sources for the information presented in Figure 1 are M. WARREN & K. CHILTON, 1989 FEDERAL REGULATORY BUDGETS AND STAFFING: EFFECTS OF THE REAGAN PRESIDENCY (Paper, Center for Study of American Business, 1988), and M. WEIDENBAUM, *supra* note 7, with updates by the Council of Economic Advisers, Executive Office of the President.

56. *See* M. WARREN & K. CHILTON, *supra* note 55.

57. *See* Crandall, *The Political Economy of Clean Air: Practical Constraints on White House Review*, in ENVIRONMENTAL POLICY UNDER REAGAN'S EXECUTIVE ORDER: THE ROLE OF BENEFIT-COST ANALYSIS 209 (V.K. Smith ed. 1984).

than seventy-five billion dollars annually; the study's authors, however, made no attempt to measure the benefits of such regulations.[58] Other studies show that federal health and safety regulations cost consumers (in inflation-adjusted terms) approximately twenty-four billion dollars annually, again disregarding benefits.[59] In the case of economic regulations, which seldom produce net benefits, the annual costs are estimated to exceed twenty-seven billion dollars.[60]

2. *The Movement Toward Deregulation*

As pointed out above, one of the most surprising and noteworthy changes in the evolution of regulation in the United States has been the movement toward deregulation during the past two decades. Table 1 chronicles the deregulatory initiatives that have been implemented since 1971.[61] Most of these initiatives have involved economic regulation programs, although a few have occurred in the social regulation area.[62]

The table illustrates the broad range of activities in which deregulation has permitted markets and competition to play an increasingly important role. The deregulation of industries ranging from airlines to cable television has allowed firms to

58. Using a general equilibrium model, M. HAZILLA & R. KOPP, THE SOCIAL COST OF ENVIRONMENTAL QUALITY REGULATIONS: A GENERAL EQUILIBRIUM ANALYSIS (Resources for the Future Discussion Paper 89-11, 1989), found significantly higher costs of environmental regulation than the EPA has reported using the standard expenditure approach. The Hazilla and Kopp study estimates that the costs of implementing the Clean Air Act and Clean Water Act totalled $70.6 billion in 1985 and will rise to over $200 billion by 1990 (both in current dollars). *See id.* at 29. By comparison, the EPA estimates that expenditures to meet the requirements of these two Acts were $56 billion in 1985 and will total $79 billion in 1990. *See id.*

59. Health and safety regulatory costs have been estimated to lie between fourteen and thirty-four billion dollars (in 1988 dollars, where 1977 dollar figures were inflated using the consumer price index). *See* R. LITAN & W. NORDHAUS, *supra* note 7, at 22.

60. Economic regulations have been estimated to cost between $27 and $70 billion (in 1988 dollars, where 1977 dollar figures were inflated using the consumer price index). *See id.* at 23.

61. The table was adapted from Noll & Owen, *Introduction: The Agenda for Deregulation*, in THE POLITICAL ECONOMY OF DEREGULATION: INTEREST GROUPS IN THE REGULATORY PROCESS, *supra* note 9, at 3, 4, with updates by the Council of Economic Advisers, Executive Office of the President.

62. Table 1 is not intended to be exhaustive, though it does provide a broad sample of deregulatory activities. Moreover, some of these initiatives were not completely deregulatory in nature. For example, the Garn-St Germain Depository Institutions Act expands the powers of the Federal Deposit Insurance Corporation and the Federal Savings and Loan Insurance Corporation to intervene when banks and savings and loans are failing, and to arrange for acquisition of such institutions where it is deemed necessary. *See* Garn-St Germain Depository Institutions Act of 1982, Pub. L. No. 97-320, §§ 111, 116, 122, 123, 96 Stat. 1469, 1469-71, 1476-79, 1480-85 (current version at 12 U.S.C. §§ 1729, 1730a, 1823 (1982 & Supp. V 1987)).

TABLE 1
DEREGULATORY INITIATIVES, 1971-89

Year	Initiative
1971	Specialized common carrier decisions (FCC)
1972	Domestic satellite open skies policy (FCC)
1975	Abolition of fixed brokerage fees (SEC)
1976	Railroad Revitalization and Reform Act
1977	Air Cargo Deregulation Act
1978	Airline Deregulation Act
	Natural Gas Policy Act
	Standards revocation (OSHA)
	Emissions trading policy (EPA)
1979	Deregulation of satellite earth stations (FCC)
	Urgent-mail exemption (Postal Service)
1980	Motor Carrier Reform Act
	Household Goods Transportation Act
	Staggers Rail Act
	Depository Institutions Deregulation and Monetary Control Act
	International Air Transportation Competition Act
	Deregulation of cable television (FCC)
	Deregulation of customer premises equipment and enhanced services (FCC)
1981	Decontrol of crude oil and refined petroleum products (Executive order)
	Truth-in-lending simplification (FRB)
	Automobile industry regulation relief package (NHTSA)
	Deregulation of radio (FCC)
1982	Bus Regulatory Reform Act
	Garn-St Germain Depository Institutions Act
	AT&T settlement
	Antitrust merger guidelines
1984	Space commercialization
	Cable Television Deregulation Act
	Shipping Act
	National Cooperative Research Act
1986	Trading of airport landing rights
1987	Sale of Conrail
	Elimination of fairness doctrine (FCC)
1988	Proposed rules on natural gas and electricity (FERC)
1989	Natural Gas Wellhead Decontrol Act
	Price Cap (FCC)

compete with less government intervention. Although estimates of total efficiency gains are not available, these deregulatory initiatives have provided substantial benefits to both industry and consumers.[63]

III. Economic Regulation: Extending the Boundaries of Competition

A. *Price and Entry Regulation*

During the past three decades, a relatively broad consensus has emerged about some types of regulation. Policymakers generally agree, for example, that regulation aimed at controlling prices or entry will lead to inefficiencies in industries where competition can be sustained.[64] In such industries, competition is viewed as a positive dynamic force that will encourage innovation and promote economic growth.

Dramatic advances in technology, particularly in telecommunications, information processing, and financial services have all enhanced the potential for competition in many industries. As a result, regulation of prices and entry has come under increased scrutiny. Some industries, such as transportation, have been substantially deregulated. Others, such as banking and securities, have seen modest moves toward relaxing price and entry barriers, with mixed results. In addition to piecemeal, industry-specific efforts to relax economic restrictions, the federal government has adopted major changes in its treatment of proposed mergers and acquisitions.

1. *The Shift in Antitrust Policy*

Antitrust policies impose economic regulation by limiting the business agreements that firms may enter. For example, antitrust statutes place restrictions on price-fixing because of its presumed anti-competitive effects.[65]

One aspect of antitrust policy that has come under increasing scrutiny in recent years is the review of proposed business mergers. Antitrust merger policy has shifted markedly since 1980. Although the federal government still closely monitors horizontal mergers between companies in similar lines of busi-

63. *See, e.g.*, *supra* notes 10-12 and accompanying text.
64. *See* Joskow & Noll, *supra* note 20, at 4-10.
65. *See* 15 U.S.C. § 1 (1988).

ness when entry barriers and concentration levels are high, the regulation of vertical mergers has evolved considerably. Vertical integration, such as occurs in the petroleum industry when the same firm both refines petroleum and distributes petroleum products, is viewed with less suspicion today. The principal reason for this changed viewpoint is that the efficiency-enhancing nature of many vertical relationships has become more widely appreciated.[66] In addition to relaxing scrutiny of vertical integration, antitrust regulators are increasingly influenced by the recognition that many U.S. firms now compete in global markets. Thus, for antitrust regulation purposes, the measure of market size has been enlarged in many cases.

Reflecting these broad changes in regulatory policy, in 1982 the Department of Justice adopted new guidelines for determining when it would challenge mergers or acquisitions as anti-competitive.[67] At the same time, the Federal Trade Commission (FTC) adopted a comparable policy statement.[68] These new FTC guidelines provide a conceptual basis for evaluating horizontal and vertical mergers while generally loosening restrictions on vertical mergers.[69] In 1984, the Justice Department issued revised guidelines that place greater weight on global competition and the necessary response of antitrust policy to such competition.[70]

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66. *See, e.g.*, White, *The Revolution in Antitrust Analysis of Vertical Relationships: How Did We Get from There to Here?*, in ECONOMICS AND ANTITRUST POLICY 103, 103-04 (R. Larner & J. Meehan eds. 1989). It is now widely believed that vertical integration need not enhance the market power of a firm in a particular market, where market power is defined as the ability to influence price. *See* J. TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 174-81 (1988). Unfortunately, most analyses of this topic do not explore the relationship between a firm's size and its ability to manipulate the political process to its benefit. For very large firms, I believe that this factor, though difficult to quantify, can be significant.

A great deal of controversy remains regarding the effects of some types of vertical integration. For example, Professor Levine has argued that some airlines have been able to use computerized reservation systems as a mechanism for deterring entry into certain airline markets. *See* Levine, *Airline Competition in Deregulated Markets: Theory, Firm Strategy, and Public Policy*, 4 YALE J. ON REG. 393, 415-16, 458-64 (1987). *But see* Morrison & Winston, *Enhancing the Performance of the Deregulated Air Transportation System*, in BROOKINGS PAPERS ON ECONOMIC ACTIVITY: MICROECONOMICS 61, 68 (M. Baily & C. Winston eds. 1989) (finding that such systems have had little impact on consumer choice of specific carriers).

67. *See U.S. Department of Justice Merger Guidelines Issued June 14, 1982, reprinted in* 27 THE ANTITRUST BULL. 633 (1982).

68. *See* White, *Antitrust and Merger Policy: Review and Critique*, J. ECON. PERSP., Fall 1987, at 13.

69. *See id.*

70. *See* Bronsteen, *A Review of the Revised Merger Guidelines*, 29 THE ANTITRUST BULL. 613, 628-30 (1984).

It is too early to assess the economic impacts of the changes in the merger guidelines. One effect, however, has clearly been to increase competition in the market for corporate control through mergers, buyouts, and other acquisition mechanisms. This increased competition should provide greater incentives for managers to operate their corporations more efficiently.[71] Another important change in policy that should complement the recent merger guidelines is the National Cooperative Research Act of 1984 (NCRA).[72] The NCRA was designed to promote greater collaboration on basic and applied research among private companies.[73] As such, the NCRA should encourage domestic firms to engage in cooperative arrangements for research and development. Like the revised merger guidelines, the NCRA was enacted to enhance U.S. firms' ability to compete in a global setting.[74]

2. *Banking: The Need for Reform*

One of the major challenges for the Bush administration and future administrations will be to address the critical problems faced by the banking industry, which now includes a wide variety of institutions besides banks that perform banking functions.[75] These institutions include savings banks and savings and loan associations (thrifts), credit unions, and commercial banks.[76]

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71. *See generally* COUNCIL OF ECONOMIC ADVISERS, ECONOMIC REPORT OF THE PRESIDENT 187-99 (1985).

72. Pub. L. No. 98-462, 98 Stat. 1815, 15 U.S.C. §§ 4301-4305 (1988).

73. For an analysis of the impact of the NCRA, see Scott, *Diversification versus Cooperation in R&D Investment*, 9 MANAGERIAL & DECISION ECON. 173 (1988). Professor Scott argues that cooperation may not lead to the socially optimal level of research and development. Unfortunately, competition does not necessarily do so either. Professor Scott's negative assessment of the NCRA is based largely on the finding that recent cooperative research and development activities have not taken place in unconcentrated industries or in industries characterized by low productivity. *See id.* at 182. Professor Scott does not address the fundamental issue of whether the NCRA helps U.S. firms better compete with foreign competitors. The effect on U.S. competitiveness is difficult to determine because it is difficult to measure the impact of the law on research and development, and it is virtually impossible to measure how research and development affect the ability of the United States to compete over time.

74. Attorney General Thornburgh has suggested that the NCRA was a success and has argued that it is important to reduce further "artificial barriers" imposed by current antitrust statutes. One obvious potential reform in this regard would be to reduce the treble damages that can be recovered in successful antitrust suits. *See* Thornburgh, *Grant Antitrust Exemptions . . .*, Wall St. J., Dec. 27, 1988, at A10, col. 3.

75. For purposes of this article, the terms "bank" and "banking institution" will include all depository institutions that are covered by federal deposit insurance.

76. The categories of lending institutions that are eligible to receive deposit insur-

Much of the present concern over the health of the banking industry results from the marked increase in bank failures in the United States over the past decade. As shown in Figure 2, the number of bank failures remained relatively high throughout the Depression, stayed at relatively low levels from 1945 to 1979, and then rose dramatically.[77] Net outlays for bank failures by the major federal deposit insurance agencies, though not presented here, reveal a similar pattern since World War II, but they were inconsequential prior to that time.[78]

The sharp increase in bank failures has placed a major burden on the deposit insurance systems. The Federal Savings and Loan Insurance Corporation (FSLIC), which provides deposit insurance for savings and loan associations, was insolvent from 1986 until the recent federal bailout.[79] The Federal Deposit Insurance Corporation (FDIC), which insures commercial banks and some savings banks, is still solvent, but ran a loss in 1988.[80] Estimates of the costs to the FSLIC of closing insolvent thrifts rose steadily throughout the process leading to the passage of relief legislation. The Federal Home Loan Bank Board, which regulates these institutions, estimated this cost to be in the range of $50 billion.[81] Other estimates ranged as high as $100 billion.[82] At the time legislation was enacted to address the thrift crisis in August 1989, the projected cost of the bailout was $166 billion through 1999.[83]

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ance through the Federal Deposit Insurance Corporation and the Federal Savings and Loan Insurance Corporation are listed at 12 U.S.C. §§ 1813-1815 (1982 & Supp. V 1987) and 12 U.S.C. §§ 1724, 1726 (1982 & Supp. V 1987), respectively.

77. The sources of the thrift failure data presented in Figure 2 are Barth, Brumbaugh, Sauerhaft & Wang, *Insolvency and Risk-Taking in the Thrift Industry: Implications for the Future*, CONTEMP. POL'Y ISSUES, Fall 1985, at 1, 22-23, and J. Barth & M. Bradley, Thrift Deregulation and Federal Deposit Insurance (Nov. 3-4, 1988) (paper presented at Cleveland Federal Reserve Bank). The source of the bank failure data is U.S. FED. DEPOSIT INS. CORP., 1987 U.S. FED. DEPOSIT INS. CORP. ANN. REP. 49 (1988).

78. *See* FED. HOME LOAN BANK BD., 1987 REPORT OF THE FED. HOME LOAN BANK BD. (1988).

79. *See Tampering With the Safety Net*, N.Y. Times, Nov. 27, 1988, § 3, at 1, col. 2. According to Haraf, *Bank and Thrift Regulation*, REGULATION, 1988, No. 3, at 50, 53, the savings and loan industry was insolvent as early as 1971 on a market value basis.

80. *See* Haraf, *supra* note 79.

81. *See* FED. HOME LOAN BANK BD., *supra* note 78, at 90.

82. *See George is Left Holding the Baby*, ECONOMIST, Nov. 19, 1988, at 86 (describing a range of estimates from a low of $45-50 billion by the Federal Home Loan Bank Board to an estimate of $109 billion by the end of 1989 from McKinsey & Company, a management consulting firm); *see also The Demise of "Gunbelt Savings": How a Brash Texas S&L Went Broke*, Wash. Post, Dec. 4, 1988, at H3, col. 1 [hereinafter *Gunbelt Savings*] (citing the cost of a bailout as rising at $1 billion every month).

83. *See* Jaffee, *Symposium on Federal Deposit Insurance for S&L Institutions*, J. ECON. PERSP., Fall 1989, at 3, 6.

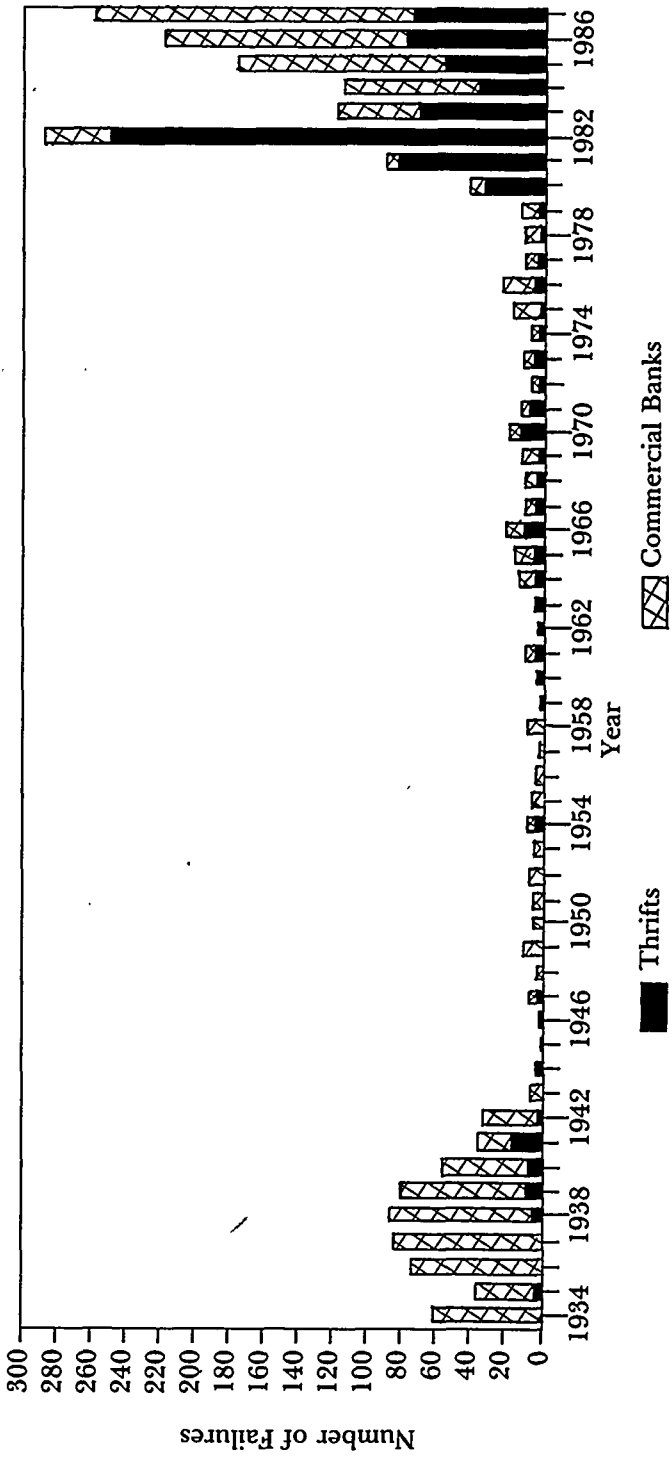

FIGURE 2
BANK AND THRIFT FAILURES
BY TYPE, 1934–1987

The problems facing many U.S. banking institutions have resulted from the incentives provided by banking regulations. For example, thrifts were required to hold portfolios that were unbalanced: A large portion of their assets consisted of long-term, fixed-rate mortgages, while their liabilities were mainly short-term deposits.[84] So long as long-term rates exceeded short-term rates, this imbalance benefitted thrifts, and the industry prospered. But when inflation reared its head in the late 1960s, the relationship reversed, and the return on long-term mortgage portfolios fell below the rate needed to attract short-term deposits. Subsequently, to prevent deposits from being bid away from savings and loans, bank regulators placed binding ceilings on interest rates.[85] These ceilings drove the real rate of return on bank deposits down, often to less than zero. As a result, financial market innovations, such as money-market funds, attracted funds into non-regulated substitutes for bank and thrift deposits. This sudden loss of capital rendered many banks and thrifts insolvent and reduced the capital of many others to dangerously low levels.

This rapid capital flight exposed some serious defects in the current system of deposit insurance. Most notably, this system, which currently guarantees about three trillion dollars of deposits,[86] has exacerbated the problems faced by the banking industry by failing to provide banks with incentives for risk management, particularly when banks have little or none of their own capital at risk.

Indeed, the deposit insurance system is a classical example of the divergence that often occurs between the intended and actual effects of regulation. Deposit insurance was formulated to provide safe investment opportunities for individuals and businesses that desire low-risk investments. It was also designed to reduce the likelihood of runs on banks. Unfortunately, while

84. *See, e.g.*, G. BENSTON & G. KAUFMAN, RISK AND SOLVENCY REGULATION OF DEPOSITORY INSTITUTIONS: PAST POLICIES AND CURRENT OPTIONS 16 (Occasional Papers, American Enterprise Institute, 1987); Haraf & Fand, *S&Ls—Don't Blame Deregulation*, Wash. Post, Jan. 29, 1989, at D7, col. 1 (noting that savings and loans were permitted initially to invest only in fixed-rate mortgages having maturities of at least twenty years).

85. *See* Carron, *The Political Economy of Financial Regulation*, in THE POLITICAL ECONOMY OF DEREGULATION: INTEREST GROUPS IN THE POLITICAL PROCESS, *supra* note 9, at 69.

86. *See* White, *Litan's What Should Banks Do?: A Review Essay*, 19 RAND J. ECON. 305, 308 (1988).

providing these benefits, deposit insurance has also dramatically reduced the incentives for depositors to monitor the financial health of the bank that they select. Because most, if not all, of their deposits are fully insured, many depositors pay little attention to the possibility that a bank's poor financial health might cause them to sustain losses on their investments. As a result, one of the most effective mechanisms for curbing the imprudent practices of banking institutions—monitoring by prospective and present depositors—is lost under our current deposit insurance system.

Therefore, the task of monitoring banking institutions falls primarily upon shareholders and federal regulatory agencies. Because shareholders' interests differ from those of depositors, the task of protecting depositors' interests as well as the general health of banks is left largely to the regulators.[87]

From the regulator's standpoint, effective monitoring becomes particularly important as the financial health of a bank deteriorates. As a bank's net worth declines, the bank has an increasing incentive to engage in risky behavior, because less of its own capital is at peril. In the extreme (but not unusual) case in which a bank becomes insolvent but is still allowed to keep its doors open, the bank may engage in highly speculative investments. If such investments perform well, the bank will reap the gains; however, if such investments perform poorly, the brunt of the adverse consequences will be borne by the deposit insurance funds and, ultimately, the taxpayer.[88]

The ultimate irony in the savings and loan crisis of the 1980s is that federal government policies bred the environment that led to this debacle. Deposit insurance, as initially devised, was limited in scope; the insured limit on private savings and loan accounts was set at $2,500 in 1934.[89] Since then, the amount insured per deposit has increased dramatically. Most recently, in 1980 Congress increased the ceiling on deposit insurance for individual savings and loan accounts from $40,000 to $100,000.[90] Two years later, a congressional resolution explic-

87. Shareholders also have an incentive to monitor the health of the bank, but they have little incentive to share this information with regulators or the public.

88. *See Gunbelt Savings, supra* note 82.

89. *See* Act of June 16, 1934, ch. 546, § 1(6), 48 Stat. 969, 969-70.

90. In real terms, the increase has been less dramatic, although the maximum amount insured has escalated sharply on this basis as well during the past fifteen years. The maximum amount insured, in 1988 dollars, has increased as follows (with nominal

itly affirmed the full faith and credit backing of deposit insurance funds by the U.S. government.[91]

Meanwhile, the effective scope of deposit insurance has expanded. It now protects not only accounts of amounts under the ceiling but also many accounts exceeding $100,000. In some cases, other creditors and, in rare cases, stockholders have also been fully or partially protected.[92] In sum, federal banking policy has moved toward providing greater coverage for depositors and creditors, particularly in the case of large bank failures, such as that of the Continental Illinois Corporation.[93] Although this move may have decreased the likelihood of runs on particular banks, it has also contributed to the decline in the health of the U.S. banking industry.

Federal agencies have taken other steps that have exacerbated, rather than alleviated, the problem of excessive risk-taking. These steps often resulted from congressional pressure. One such measure, taken in response to bank capital erosion, was to lower capital standards in 1986 for institutions with heavy concentrations of farm and energy investments.[94] Again, the result of this reduction in capital requirements is that banking institutions in poor financial health have less of their own money at risk when making investments. Moreover, given the deposit insurance system, these institutions have an incentive to engage in riskier investments, largely at the taxpayer's expense, if such ventures are unsuccessful.

In addition to imposing lower capital requirements on troubled banks, regulators have been reluctant to require banks to value their loan portfolios at current market value. As a result, some banking institutions appear solvent when, in fact, they are not. Regulators may reap a short-term payoff by refraining from action in such cases, but they thereby impose a long-term cost on the taxpaying public. If regulators do not interfere in such circumstances, insolvent banks remain in business, often

values in parentheses): $22,071 in 1934 ($2,500), $44,241 in 1934 ($5,000), $49,087 in 1950 ($10,000), $54,769 in 1966 ($15,000), $64,469 in 1969 ($20,000), $95,984 in 1974 ($40,000), and $143,568 in 1980 ($100,000). *See* U.S. FED. DEPOSIT INS. CORP., *supra* note 78, at 63.

91. *See* H.R. Con. Res. 290, 96 Stat. 2639 (1982).

92. *See* Haraf, *supra* note 79, at 53.

93. *See* G. BENSTON & G. KAUFMAN, *supra* note 84, at 30. Depositors in large banks have come to expect to be compensated because the Federal Reserve is extremely concerned about the possibility of a bank run on such an institution.

94. *See* Haraf, *supra* note 79, at 53.

investing in excessively risky assets in the process and thus increasing the exposure of the deposit insurance funds.[95]

As insolvency problems have grown, financial regulatory agencies have responded by attempting to reduce present costs to the deposit insurance funds.[96] In some cases, the agencies have allowed banks with financial problems to bid on other troubled banks. In other cases, the agencies have entered into long-term agreements with purchasers of failed thrifts that protect the new owner from any losses on the acquired portfolio for up to ten years. Unfortunately, by weakening incentives for efficient management, these actions, too, are likely to raise insurance costs in the long run. Most of these regulatory actions have merely postponed the day of reckoning for solving the savings and loan problem, sharply increasing costs to the general public in the process. At the same time, this general regulatory strategy made life difficult for healthy institutions. Because banking institutions that are engaged in excessive risk-taking have been allowed to remain in business, healthy thrifts covered by the FSLIC have been forced to pay higher insurance premiums to finance the bailout of those thrifts that are failing or have failed.

One of the first major policy initiatives of the Bush administration was to address the "S&L crisis." The major challenge the administration faced was to raise the necessary funds to expedite the reorganization of failing savings and loans without breaking the anti-tax campaign pledge of President Bush. On August 9, 1989, the President signed the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRRE Act),[97] which was designed to achieve this goal, along with helping to restore the health of the banking industry. The FIRRE Act's funding mechanism is a combination of increased insurance fees imposed on banks and savings and loans, along with direct increases in taxpayer contributions to address the problem of failing institutions.[98] Approximately three-fourths

95. *See id.*

96. *See id.*

97. Pub. L. No. 101-73, 1989 U.S. CODE CONG. & ADMIN. NEWS (103 Stat.) 183.

98. This funding approach parallels that recommended in the administration's original proposal. *See Bush's Thrift Plan Greeted with Caution on Hill*, CONG. Q., Feb. 11, 1989, at 255. Inevitably, virtually all of the costs of the reorganization will be borne directly or indirectly by taxpayers and consumers. Nevertheless, the incidence of these costs is hardly an insignificant matter, as the Bush administration discovered when it proposed

of the cost is expected to be borne by taxpayers.[99]

The FIRRE Act possesses both strengths and weaknesses. Its principal strength is its acknowledgment that there is a serious problem that requires immediate attention.[100] The FIRRE Act provides for higher capital standards for thrifts, increased penalties for fraud, embezzlement, and other criminal violations, and increased funding for the Department of Justice to enforce the Act.[101] All these features will permit financial regulators to reduce the liability of U.S. taxpayers.

The legislation, however, also has its drawbacks. For example, it retains the basic system of deposit insurance. Proposals to replace this system with a private insurance approach have continued to fall on deaf ears, largely for political reasons.[102] A second drawback of the FIRRE Act is that it does not provide adequate incentives to financial institutions to move to market-based accounting techniques. If the market values of the assets and liabilities of banks were routinely estimated, the true financial positions of these institutions would be more readily available.[103]

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a fee on deposits in early 1989. *See, e.g., Bush Doesn't Abandon Proposal for Fee on Deposits, but Plan Strikes Sour Chord*, Wall St. J., Jan. 30, 1989, at A16, col. 1.

For a general discussion of the effects of spending and deficit constraints on politics and the economy, see Hahn, *Instrument Choice, Political Reform and Economic Welfare* (School of Urban and Public Affairs, Carnegie-Mellon University, Working Paper No. 88-53, 1989), PUB. CHOICE (forthcoming 1990).

99. *See* Jaffee, *supra* note 83, at 6.

100. Whether the reorganization of the thrifts will result in a healthier banking system under the Act, however, depends on the manner of reorganization. If the insolvent thrifts are sold to new owners, the new owners should be required to place a significant amount of their own equity at risk. Otherwise, the same problem will likely recur.

101. *See Congress OKs Sweeping Bill to Save Thrift Industry*, CONG. Q., Aug. 12, 1989, at 2147.

102. *See, e.g.*, Smith, *Cap the Financial Black Holes*, Wall St. J., Sept. 29, 1988, at 30, col. 4. Some economists have argued that private insurance may be neither feasible nor desirable in this instance. *See* Woodward, *A Transaction Cost Analysis of Banking Activity and Deposit Insurance*, 7 CATO J. 683 (1988) (arguing that many bank loans are difficult to evaluate by third parties and therefore that an insurance market would be costly to develop). *But see* Ely, *Private Sector Depositor Protection is Still a Viable Alternative to Federal Deposit Insurance*, ISSUES IN BANK REG., Winter 1986, at 40.

Even if a private insurance market were not to emerge, ending federal deposit insurance would still encourage innovation in the banking industry. *See infra* notes 104-06 and accompanying text.

103. *See, e.g.*, G. BENSTON & G. KAUFMAN, *supra* note 84. Prior to the passage of the FIRRE Act, the Federal Home Loan Bank Board proposed a new minimum capital requirement that would have tied the minimum level of capital to the riskiness of assets held by the thrift. *See Bank Board Adopts Proposed Risk-Based Capital Regulation*, Fed. Home Loan Bank Board News, Dec. 19, 1988. Although such a risk-based capital requirement is desirable, it is doubtful that regulators would have the necessary information to make risk-level determinations under a system of this type.

The Federal Home Loan Bank Board also expressed its desire to have the option to

The recent steps by the administration, Congress, and bank regulators to address the thrift crisis are generally in the right direction. Because these measures fail to deal with monitoring and incentive problems directly, however, regulators will still be required to play a major role in reorganizing insolvent banks in a timely and prudent manner. Whether the regulators will be able to do so depends to a large extent on whether Congress will allow them to perform their jobs in the face of substantial political costs to individual congressional members.

In the current political environment, deposit insurance is treated as an entitlement. However, one can easily envision a banking system without deposit insurance that would perform very well. Such a system could be patterned after the presently popular money-market mutual funds.[104] Money-market mutual funds, which are not government-insured, now hold approximately $300 billion in assets.[105] Many people prefer to use these funds for checking purposes because they offer higher interest rates than traditional bank checking accounts. By allowing nominal claims for withdrawals to vary according to market conditions, "mutual-fund banks" would eliminate the risk of bank runs, which is the primary reason for the existence of deposit insurance. Depositors in money-market funds could choose from an array of different funds offering several levels of risk and rate of return. For example, those depositors desiring very safe investments could place their money in funds that purchase only government securities, such as Treasury bills. Those depositors seeking a higher rate of return could select a fund that invests in riskier assets. Were it not for the many regulatory restrictions on banking, banks would adopt such innovations much more rapidly than they presently do.[106]

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reorganize an institution whenever its capital-to-asset ratio falls below 1.5%, as measured by generally accepted accounting procedures (not market-based valuation methods). Because of divergences between generally accepted accounting procedures and market-based valuation methods, the 1.5% ratio may be lower than desirable. The Shadow Financial Regulatory Committee has recommended a higher "trigger" ratio and procedures that would allow regulators to restrict an institution's operations as its capital-to-asset ratio falls to lower and lower levels. *See* Statement of the Shadow Financial Regulatory Committee on Risk-Based Capital and Early Intervention Proposal of Federal Home Loan Bank Board, No. 40 (Feb. 13, 1989).

104. For an excellent discussion of the mechanics of this system and its relationship to other reform proposals, see T. Cowen & R. Kroszner, Mutual Fund Banking: A Market Approach (Feb. 23-24, 1989) (paper presented at Cato Institute Monetary Conference).

105. *See id.* at 6 (citing FED. RESERVE BULL., Jan. 1989, at A45).

106. *See id.* at 14-16.

The banking industry is evolving quickly. The purpose of regulation should be to encourage the development of a healthy financial service sector that can compete internationally. Needed reforms include not only restructuring the deposit insurance system but also redefining the appropriate sphere of competition for depository institutions. Although these two aspects of regulatory reform are separate endeavors, they will both rely heavily on an understanding of how the incentive structure faced by banking institutions led to the crises of the past decade.

B. *Rethinking the Limits of Natural Monopoly*

There has been a long-standing debate about how best to regulate natural monopolies. The traditional approach to regulating such industries has been to regulate selected firms to prevent excessive profits. Under this approach, the regulator usually assesses the value of the firm's capital stock and then allows the firm to conduct its business in a fashion that permits it to obtain a "reasonable" return on its investment. In practice, state and federal regulatory commissions do not fix the rate of return, per se, but rather agree on maximum prices that the firm can charge. These prices are intended to result in profits that do not exceed the allowable rate of return, although larger profits sometimes result.[107]

Rate-of-return regulation has several flaws. First, it tends to be time-consuming and expensive. For example, one rate proceeding before the Federal Communications Commission (FCC) concerning appropriate charges for international satellite communications took eleven years.[108] A second problem, related to the first, is that it is often difficult to determine which portions of a firm's capital stock should be included in calculating the appropriate rates and total returns and how this capital should be valued. A third problem is that firms subject to such regulation may face distorted investment decisions. In circumstances where the allowable rate of return exceeds the cost of capital, firms may try to increase their capital stock beyond op-

107. *See* S. BREYER, *supra* note 24, at 36. For a more in-depth treatment of the actual behavior of public utility commissions, see Joskow, *Inflation and Environmental Concern: Structural Change in the Process of Public Utility Price Regulation*, 17 J.L. & ECON. 291 (1974).

108. *See* L. JOHNSON, ISSUES IN INTERNATIONAL TELECOMMUNICATIONS: GOVERNMENT REGULATION OF COMSAT vi (Rand Corp. Report R-3497-MF, 1987).

timal levels simply to obtain higher revenues. When the allowable rate of return is below the cost of capital, on the other hand, firms may be unable to add capacity in accordance with market conditions. In short, the regulator is placed in the unenviable position of having to set both a "reasonable" rate of return and price levels on the basis of limited information regarding demand and costs.

Rate-of-return regulation needs to be analyzed critically and compared to other approaches for responding to natural monopolies. Although a competitive market structure could conceivably result in higher costs when there is a natural monopoly, such a structure might also serve to spur innovation and to drive down prices. For example, a study of electric utilities in markets with and without competition suggests that rates could be lowered by increasing competition.[109] In all circumstances, regulatory policy should be based on actual, rather than theoretical, performance; thus, competition, even in industries exhibiting natural monopoly characteristics, may be preferred.[110]

In view of the costs associated with the rate-of-return regulatory construct and its attendant inefficiencies, there have been several suggestions for reforms and alternative approaches. One such approach, sometimes called "franchise bidding," is to allow firms to bid on the right to offer a particular service, with the right awarded to the most competitive bidder. Franchise bidding schemes, however, can present difficulties. Once a bidder wins a contract to offer a particular service, it may be difficult to ensure adequate performance. Moreover, the contractor may create conditions that impede other firms from entering the market when the contract has expired. These problems tend to limit the applicability of franchise bidding.[111]

Two new ideas that present promising alternatives to traditional rate-of-return regulation of natural monopolies have re-

109. *See* Primeaux, *A Reexamination of the Monopoly Market Structure for Electric Utilities*, in PROMOTING COMPETITION IN REGULATED MARKETS 175, 194-200 (A. Phillips ed. 1975).

110. The theory of "contestable markets" demonstrates that potential competition can serve as a disciplining force even when industries are characteristically natural monopolies. *See* W. BAUMOL, J. PANZAR & R. WILLIG, CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE (1982). Even for markets that are not "perfectly" contestable, the possibility of competition may be preferable to direct regulation.

111. *See* Williamson, *Franchise Bidding for Natural Monopolies—in General and with Respect to CATV*, 7 BELL J. ECON. 73 (1976).

cently surfaced. The first would replace rate-of-return regulation with a "price-cap" approach. Under price-cap regulation, an upper limit is placed on the price a firm can charge over a given period; the firm is allowed to choose any price that does not exceed the cap. The advantage of this approach is that the firm has an incentive to produce its output at least cost.[112] Moreover, the firm also has a strong incentive to search for new technologies that would lower production costs, because the firm would be allowed to retain the profits obtained by reducing its costs.[113] By contrast, because it removes these incentives, rate-of-return regulation often encourages firms to choose input mixes that are inefficient and discourages investment in innovation.[114]

Price-cap regulation presents some difficulties in practice. In many instances, it will be difficult to set the price cap at a level reflecting a "competitive" price. The problem is further complicated if the price cap must be revised periodically. Indeed, constant revision of the price cap may result in a system of regulation as cumbersome and deleterious to incentives as traditional rate-of-return regulation. Therefore, care should be taken to apply price-cap regulation only where it will result in efficiency gains. Although there are no hard and fast rules, it would appear that price caps are most likely to succeed where an industry is evolving from a government-sanctioned monopoly to a more competitive market structure.[115]

The regulation of prices for some long-distance telephone calls is one potentially promising application of price caps. The FCC is using this approach in regulating a portion of American

112. The firm may not have an incentive to produce the socially optimal level of output, however. This depends on the level of the price cap and on the industry structure. *See* R. Braeutigam & J. Panzar, Diversification Incentives Under 'Price-Based' and 'Cost-Based' Regulation (Oct. 30-Nov. 1, 1988) (paper presented at Fifteenth Annual Telecommunications Policy Research Conference at Airlie House, Virginia).

113. It would be possible, in principle, to share profits (according to some pre-specified rule) with ratepayers or another group, or both, without removing firms' incentives to produce output at least cost. Price-cap regulation, however, may not provide sufficient incentives for some firms that have legal monopolies to produce output efficiently. If the activities of firm managers are difficult to monitor, it may be difficult to write contracts with shareholders that guarantee that managers will attempt to maximize firm profits. Where market discipline is lacking, managers may choose to pursue goals other than cost minimization.

114. *See* Joskow, *supra* note 107, at 294, 304.

115. If such an evolution is not occurring, price-cap regulation may be no more effective than traditional rate-of-return regulation because politically feasible price-cap rules that will provide firms with appropriate incentives are difficult to devise in such situations. *See generally Symposium on Price-Cap Regulation*, 20 RAND J. ECON. 367 (1989).

Telephone & Telegraph's (AT&T's) telecommunications business.[116] The longevity of the price-cap proposal in this case is uncertain.[117] Price caps, however, are already being used in a variety of industries, including telecommunications, in Great Britain. For example, British Telecom, formerly a state-owned entity, is now subject to price caps that are adjusted periodically to account for inflation and productivity.[118]

A second recent innovation in regulating natural monopolies has been to devise institutional mechanisms to permit competition to thrive even where an industry is characteristically a natural monopoly. One approach with great promise in this regard is that of shared capacity rights.[119] These rights allow private parties to use property jointly in a way that benefits all of the participants. Examples of this approach include the sharing of common space and facilities in a shopping mall, the joint ownership of fiber optics cables for trans-Atlantic telephone calls, and time-sharing arrangements for vacation homes.

The shared-capacity concept can be, and often is, applied to large investments via complex arrangements. For example, suppose it is less expensive to build one large natural gas pipeline than two small pipelines each of which has half the capacity of the large pipeline. The large pipeline, which would provide transportation of natural gas at a lower per-unit cost, need not be owned by a single firm. Indeed, several firms could each

116. The FCC's price-cap proposal applies only to AT&T, but competitors are expected to follow the industry leader's price changes in response to the plan. The price-cap scheme, which began on July 1, 1989, requires AT&T to cut inflation-adjusted rates by at least three percent annually to reflect productivity gains. For example, if inflation is five percent in a given year, AT&T will be able to raise prices by no more than two percent. *See Long-Distance Price Caps Set For Approval*, Wash. Post, Mar. 16, 1989, at C11, col. 3.

117. Price caps may serve useful political objectives. For example, in the AT&T case, the price cap may serve to stabilize long-distance telephone rates for consumers. At the same time, the cap may provide the FCC an opportunity to reduce its oversight of the long-distance telecommunications market. However, there is significant congressional opposition to price-cap regulation at this point, and complete deregulation is not even being seriously considered. Interview with Evan Kwerel, Federal Communications Commission (Dec. 8, 1988).

118. Little information is available regarding the effectiveness of price caps in practice. A review of the British Telecom regulatory scheme, however, indicated that companies met the caps and made large profits. The Office of Telecommunications (OFTEL) also found that British Telecom was not earning an excessive rate of return. *See* Policy and Rules Concerning Rates for Dominant Carriers, 52 Fed. Reg. 33,962, 33,968-70 (1987). For an overview of this area, see Joskow & Schmalensee, *Incentive Regulation for Electric Utilities*, 4 YALE J. ON REG. 1 (1986).

119. *See, e.g.*, Smith, *Electric Power Deregulation: Background and Prospects*, CONTEMP. POL'Y ISSUES, July 1988, at 14.

own a share of the pipeline. The ownership share would entitle the firm to use a certain fraction of the pipeline's capacity. By dividing ownership among several firms or individuals in this manner, a competitive market could possibly emerge for pipeline capacity; if a single business owned the only pipeline, competition would not exist. As regulatory barriers to entry are reduced, the shared-capacity approach could serve as a first step toward promoting competition in industries previously viewed as natural monopolies, including telecommunications, electricity transmission, and the pipeline transportation of oil and natural gas.[120]

In addition to the new approaches evolving as substitutes for traditional rate-of-return regulation, recognition is growing that many industries formerly thought of as natural monopolies can be reorganized altogether to foster greater competition and efficiency. Changed views of which industries are natural monopolies can be attributed in part to technological change[121] and to growth in the size of markets. For example, the equipment necessary—and available—to provide a network for making a long-distance telephone call is vastly different now than was the case twenty-five years ago. As a result, competition in many long-distance telephone markets is a reality. Changed opinions regarding industries previously viewed as natural monopolies can also be attributed to more careful examination of the cost structure of many such industries. For example, in the case of telecommunications, in recent years most economists have argued that local telephone companies generally resemble natural monopolies, but long-distance service can be more efficiently provided under a competitive market structure.[122] As a result, most reform proposals that have been designed by economists would deregulate the long-distance portion of the industry to permit competition to lead to more efficient service.[123]

120. As is the case for any market in which capacity is fixed in the short run, there may be opportunities here for collusion among the shared-capacity owners. These opportunities can be addressed either by reducing barriers to entry (if possible) or by antitrust enforcement. Even when potential collusion is difficult to police, shared-capacity systems are likely to be more efficient than traditional rate-of-return regulation.

121. *See, e.g.*, Noll, *The Twisted Pair: Regulation and Competition in Telecommunications*, REGULATION, 1987, No. 3/4, at 15.

122. *See id.*

123. The primary disagreement in the current debate over telecommunications deregulation regards the extent to which local telephone companies that exercise some

The impetus for reform in this case came not only from economists but also from firms that stood to gain from a changed regulatory environment. For example, MCI Telecommunications, a relatively new entrant in the telecommunications market, saw an opportunity to profit from providing consumers with lower rates on long-distance telephone calls than were being offered at the time.[124] Similarly, low-cost producers of electricity can be expected to support an opening of markets in their industry on the hope that they would profit from such a reform. Indeed, in virtually all cases of regulatory reform, at least one interest group in a position to gain in direct economic terms from the changes has actively advocated the reform. Such advocacy, however, is rarely sufficient on its own to generate regulatory changes.[125]

Two of the most exciting reform movements occurring in the regulation of industries generally viewed as natural monopolies involve electric utilities and pipelines for transporting energy. The changes in these industries, discussed below, underscore the potential for regulatory reform as well as some of the possible pitfalls.

1. *Increasing Competition in the Electric Power Industry*

Electric utilities are frequently cited as classical examples of natural monopolies. Indeed, all three components of the industry—generation, transmission, and distribution—were historically believed to be subject to economies of scale.[126] Thinking on this issue has changed dramatically in recent years. Econometric studies have produced ambiguous findings about whether scale economies could result from larger power generation plants.[127] Although economies of scale probably exist over some range of output (as they do in many industries), this range may be small enough to allow several firms to construct and operate power plants for the same market without increasing total costs. Although it is still widely agreed that transmis-

degree of market power should be allowed to compete in areas outside their normal scope of operation. *See id.*

124. *See* 2 A. KAHN, THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS 132-36 (1988).

125. *See supra* note 33.

126. *See* P. JOSKOW & R. SCHMALENSEE, MARKETS FOR POWER: AN ANALYSIS OF ELECTRIC UTILITY DEREGULATION 48-64 (1983).

127. *See id.* at 48-58.

sion and distribution systems are characterized by economies of scale and barriers to entry, methods exist to allow competition to flourish even in these components of the electric utilities industry.

The interest in new institutional arrangements to reform electric utilities regulation was sparked in part by problems arising in the industry in the early 1970s.[128] Prior to the 1970s, real electricity rates showed a marked downward trend. This trend was dramatically reversed, of course, as oil prices exploded during the decade of the 1970s. The traditional rate-regulation scheme was ill-equipped to adapt to these changing circumstances, and acrimonious public debate resulted. Consumer groups relentlessly pressured public utility commissions to hold down rates, while utilities argued that rate increases were necessary both to cover costs and to make the necessary investments in new generating capacity. Fortunately, both electric utility providers and regulators have begun to develop innovative solutions in response to these tensions. Utilities, in cooperation with state and federal regulators, have developed sophisticated arrangements to contract for the purchase and sale of power. Long-term contracts have been developed to permit the purchase of partial or full ownership of a generator. At the other end of the time horizon, spot markets for electricity permit utilities to exchange power on an hourly basis.

Congress contributed to the movement toward a more competitive generating sector by enacting the Public Utility Regulatory Policies Act of 1978 (PURPA).[129] The primary purpose of this legislation was to encourage cogeneration and small-scale power production, and it has produced precisely those results.[130] Since PURPA was implemented, cogeneration has increased dramatically. In a recent report, the North American Electric Reliability Council projected that between 1988 and 1997, twenty-seven percent of all new electric capacity will originate from sources that are not owned exclusively by traditional electric utilities.[131] Unfortunately, while PURPA appro-

128. *See* Joskow, *supra* note 107.

129. Pub. L. No. 95-617, 92 Stat. 3117 (1978), 16 U.S.C. §§ 2601-2645 (1982).

130. Cogeneration entails the joint production of heat and electricity at the same facility. Because two products result from a single process, cogeneration often facilitates the generation of electricity at a lower cost than is possible using conventional generation methods.

131. *See* NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL, 1988 ELECTRICITY SUPPLY AND DEMAND FOR 1988-1997: ANNUAL DATA SUMMARY 49 (1988).

priately promoted the use of alternative generation technologies as well as small facilities, it also contributed to the purchase of some unneeded capacity. The principal reason for this unintended outcome was that, under the PURPA system, states sometimes provided inducements to builders of capacity that did not accurately reflect the actual needs of power systems receiving the electricity.[132]

Although the implementation of PURPA has created some inefficiencies, this legislation has helped to create a group of entrepreneurs who seek greater access to the electricity generation market. Under PURPA, market participants have demonstrated that an electricity generation market with several participants is technologically feasible. In other words, it has been shown that new firms can enter the generating sector without compromising the reliability and stability of the power system. The technological feasibility having been shown, the principal challenge that remains is to design rules that will promote efficiency in the generation sector.

In 1988, the Federal Energy Regulatory Commission (FERC) issued three proposed rules that would encourage even greater competition in the electricity generation market.[133] The rules set guidelines that, if implemented, would reduce regulatory entry barriers for the market and, moreover, establish well-reasoned compensation mechanisms to reward entering entrepreneurs. Each of the three rules would make one key change. One rule sets guidelines for administratively determining "avoided cost," or the cost that a utility can avoid incurring by purchasing electricity from a third party. To promote economic efficiency, the proposed rule defines avoided cost in a manner approximating the economic concept of marginal cost.[134] Under the rule's definition, avoidable cost is dependent, among other factors, upon the availability of other generating

132. *See* Administrative Determination of Full Avoided Costs, Sales of Power to Qualifying Facilities, and Interconnection Facilities, Fed. Energy Guidelines, FERC Statutes and Regulations, ¶ 32,457, at 32,155, 32,158-62 (Mar. 16, 1988).

133. *See* Regulations Governing Bidding Programs, 53 Fed. Reg. 9324 (1988) (to be codified at 18 C.F.R. pts. 35 and 293) (proposed Mar. 16, 1988); Regulations Governing Independent Power Producers, 53 Fed. Reg. 9327 (1988) (to be codified at 18 C.F.R. pts. 38 and 382) (proposed Mar. 16, 1988); Administrative Determination of Full Avoided Costs, Sales of Power to Qualifying Facilities, and Interconnection Facilities, 53 Fed. Reg. 9331 (1988) (to be codified at 18 C.F.R. pt. 292) (proposed Mar. 16, 1988).

134. *See* Administrative Determination of Full Avoided Costs, Sales of Power to Qualifying Facilities, and Interconnection Facilities, *supra* note 133.

units, which in turn is dependent upon the time of day and time of year at which the power need is anticipated. These guidelines will encourage states to avoid unnecessary capacity purchases. In particular, this rule is designed to prevent utilities from being forced to purchase uneconomical power, as has sometimes been the case under PURPA.

Another of the proposed rules would promote market-based mechanisms that would eliminate the need for an administrative determination of avoided cost.[135] The thrust here is to establish a market in which firms are allowed to bid to supply needed capacity. Other factors being equal, the firm with the lowest bid would supply the additional capacity. For such a market to work effectively, capacity must be defined carefully. This rule would provide that purchasers of additional capacity that place a high value on non-price factors, such as system reliability, state their priorities in writing.

The third proposed rule would introduce greater competition into the electricity generation market by significantly lowering barriers for new entrants. This rule would regulate "independent power producers," defined as those that generate electricity for sale outside the areas in which they have market power, provided that they do not control key transmission facilities.[136] Both utilities and nonutilities can be independent power producers. The intent of the independent-producer rule is to provide a framework for such producers to compete in electricity generation without being subject to traditional rate-of-return regulation. The rule would permit utilities to build inexpensive, reliable sources of power for the purpose of competing in markets outside their normal area of operation. For example, a utility operating in North Carolina can build a power plant in California to supply customers there, provided that the North Carolina utility is the lowest bidder. This increased competition will ultimately result in lower electricity prices for businesses and consumers.

These rules are an important step toward a regulatory regime that will encourage more efficient electricity generation. Nevertheless, many added reforms are needed. For example, FERC should take steps to encourage the ever-present alterna-

135. *See* Regulations Governing Bidding Programs, *supra* note 133.
136. *See* Regulations Governing Independent Power Producers, *supra* note 133.

tive to increased generation capacity: conservation.[137] The regulatory structure should reward such efforts as those made by various utilities to encourage conservation through advertising and by providing economic incentives to users to reduce demand. An incentive-based policy that would place conservation and capacity investments on an equal footing would promote further cost savings.

One important issue that the FERC rules do not address is the determination of needed capacity. Under current regulations, needed capacity is determined jointly by the local public utility and the public utility commission.[138] Unfortunately, these projections are usually based on demand forecasts, which are in turn based on prevailing prices that rarely reflect underlying costs. A better system would provide that electricity users be asked to pay a price that reflects the costs they impose on the system. Until such a system is in place, it will be impossible to assess capacity needs accurately.[139]

Although many people support greater competition in the electricity generation sector, no consensus exists regarding the appropriate course of action for transmission and distribution systems that are characterized by economies of scope and scale.[140] Competition in these areas, however, is also desirable. Indeed, once the electricity generation reforms are implemented, FERC has indicated its intention to review opportunities to promote competition in the transmission sector. In some instances, utilities have already devised innovative arrange-

137. For an insightful critique of several proposed conservation measures, along with a proposal that would promote economically efficient conservation, see *FERC: Electricity Demand-Side Bidding: Hearing Before the Subcomm. on Energy and Power of the House Committee on Energy and Commerce*, 100th Cong., 2d Sess. (1988) (statement of Paul Joskow, Professor of Economics, Massachusetts Institute of Technology). For a description of an alternative proposal, see Cicchetti & Hogan, *Including Unbundled Demand-side Options in Electric Utility Bidding Programs*, PUB. UTIL. FORT., June 8, 1989, at 9.

There are two fundamental economic arguments for policies that would promote further conservation. First, the current prices that utilities charge may be below the marginal cost of supplying electricity, thus encouraging consumption in excess of the social optimum. Second, market imperfections may lead some consumers to purchase electrical devices that consume excessive amounts of energy. To address the first problem, a utility could agree to rebate the difference between price and marginal cost for each unit of electricity that is conserved. A remedy for the second problem is not obvious, if it even exists.

138. *See* Hahn, *An Assessment of the Determination of Energy Needs: The Case of Nuclear Power*, 13 POL'Y SCIENCES 9 (1981).

139. *See, e.g.*, 1 A. KAHN, *supra* note 23, at 95-100.

140. It is important to note, however, that access to the transmission system is a critical component to facilitating competition in the generation sector.

ments, such as shared capacity rights, to help spur competition in the transmission and generation sectors. To consider one possible innovation in these two segments, one can easily see the advantages of shared capacity rights to transmission and distribution providers. The shared-capacity concept has proven effective in other industries.[141] The key to its successful implementation by electric utilities and other heavily regulated industries (such as telecommunications) is to design systems that would enable currently regulated utilities to adapt to a more competitive environment.[142]

2. *Regulation of Oil and Natural Gas: Some New Developments*

Energy regulation during the past two decades provides a textbook study of the deleterious effects on markets of price controls and government intervention. Fortunately, the array of energy price controls imposed in the 1970s have, for the most part, been reversed. Controls on gasoline and crude oil prices were removed at the beginning of the Reagan administration.[143] Price controls, however, do remain on some fuels, such as natural gas.

The American experiment with energy price controls has taught clear lessons. Such controls lead to inefficiencies and shortages, and rather than ease market dislocations, they typically exacerbate the adverse impacts of price shocks (such as the oil price hikes of the 1970s) on the overall economy.

The transmission system for oil remains heavily regulated, in spite of the Reagan administration's efforts to deregulate portions of the oil pipeline network and formulate a price-cap sys-

141. Examples include time-sharing for vacation homes, sharing of oil pipeline capacity, and common areas in shopping malls.

142. This area, in my opinion, has received insufficient attention from the academic community. The traditional regulatory approach has been to try to keep firms with legal or natural monopolies from competing in markets in which they have an unfair advantage. Even if this approach makes economic sense, political realities do not always allow this strategy to produce an economically efficient result. Legal and natural monopolies have repeatedly demonstrated that they both have and will use political clout. This factor needs to be considered in devising a transition to a less regulated environment. The specific attributes of certain monopolistic firms that are difficult to replicate, such as the ability to innovate through vigorous research and development, should also be considered.

143. *See* Kalt, *The Creation, Growth and Entrenchment of Special Interests in Oil Price Policy*, in THE POLITICAL ECONOMY OF DEREGULATION: INTEREST GROUPS IN THE REGULATORY PROCESS, *supra* note 9, at 97, 98-99 (discussing oil price regulation).

tem for the remainder of the network. The FERC has announced that it will reduce regulatory oversight of proposed rate increases by an oil pipeline if the pipeline lacks significant market power.[144] One of the keys to successful implementation of regulatory reforms in this area will be to identify those markets in which competition-enhancing changes will serve consumers better than traditional regulation.

Natural gas pipelines continue to be regulated by FERC and the States. FERC has issued several rules and proposed rules attempting to ease restrictions on the supply of natural gas.[145] One proposed rule would allow pipeline capacity rights to be bought and sold. This change would enhance the efficiency of the pipeline network by utilizing the market system to allocate the use of pipelines to their highest value.

Policymakers should pursue more complete deregulation of the natural gas industry. Natural gas deregulation not only makes good economic sense but also is an environmentally sound policy. Because it is a clean-burning fuel that produces relatively low emissions of carbon dioxide, natural gas could be a valuable component of a policy response to the global warming phenomenon. Moreover, because its combustion results in much lower levels of nitrogen and sulfur oxides than oil or coal, natural gas could play an important role in reducing at-

144. *See* Buckeye Pipe Line Co., 44 Fed. Energy Reg. Comm'n Rep. (CCH) ¶ 61,066 (July 15, 1988).

145. A number of deregulatory measures have been advanced in recent years. FERC Order No. 436, 50 Fed. Reg. 42,408 (1985) (codified in scattered sections of 18 C.F.R.), which was later vacated by the U.S. Court of Appeals for the District of Columbia, *see* Associated Gas Distributors v. FERC, 824 F.2d 981 (D.C. Cir. 1987); and FERC Order No. 500, 52 Fed. Reg. 30,334 (1987) (codified in scattered sections of 18 C.F.R.), essentially a sequel to FERC Order No. 436 that took the D.C. Circuit's concerns into account, have encouraged increased access to pipelines. FERC Order No. 451, 51 Fed. Reg. 22,168 (1986) (codified in scattered sections of 18 C.F.R.), subjected price-controlled "old gas" to market pricing. Because these orders can be complied with solely on a voluntary basis, however, not all pipelines have elected to open their systems, thus limiting the efficiency gains of these reforms. *See* A. Alger, R. O'Neill & M. Toman, Making a Market: New Approaches to Gas Pipeline Regulation (May 23, 1988) (unpublished manuscript).

Recently, the FERC issued a proposed rule, Brokering of Interstate Natural Gas Pipeline Capacity, 53 Fed. Reg. 15,061 (1988) (to be codified at 18 C.F.R. pts. 284 and 385), that would allow pipeline rights-holders to sell or assign those rights. The outcome of the proposed rulemaking is uncertain. President Bush recently signed legislation that will deregulate natural gas prices by 1993. *See* Natural Gas Wellhead Decontrol Act of 1989, Pub. L. No. 101-60, 1989 U.S. CODE CONG. & ADMIN. NEWS (103 Stat.) 157 (to be codified in scattered sections of 15 U.S.C.). The success of this policy will likely depend on the pattern of natural gas prices between now and 1993. If prices rise so that price ceilings become binding again, there may be pressure to introduce further controls before this deregulatory initiative can take effect.

mospheric acid deposition.[146]

In summary, the potential for deregulation of industries formerly viewed as natural monopolies requiring heavy government intervention is enormous.[147] The greatest potential in this regard lies in industries characterized by network structures, including telecommunications, electricity, energy, water delivery systems, and air traffic control. Price caps, shared capacity rights, and other innovative approaches to regulatory reform should be pursued vigorously.

C. *Privatization*

Privatization, or the transfer of government activities to the private sector, is a component of deregulation. Whenever the government opens markets to the private sector for services previously provided solely by the government, competition is necessarily enhanced. Potential for deregulation through privatization is great; the federal government provides many goods and services that the private sector could also provide, such as air traffic control, the enrichment of uranium, and mail service.[148]

From an efficiency standpoint, the critical issue regarding the desirability of privatizing a government activity is whether firms could provide the same or improved services at a lower cost.

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146. *See, e.g.*, Gray, *Octane, Ozone and Obstinacy*, REGULATION, 1987, at 37, 40 (noting the potential for natural gas).

147. This is not to suggest that there are not difficulties involved in moving to a deregulated environment. Indeed, the academic community is just beginning to recognize the difficulty of transition in some cases. *See, e.g.*, Meyer & Tye, *Toward Achieving Workable Competition in Industries Undergoing a Transition to Deregulation: A Contractual Equilibrium Approach*, 5 YALE J. ON REG. 273 (1988); Hahn & Kroszner, *The Mismanagement of Air Transport: A Supply-Side Analysis*, PUBLIC INTEREST, Spring 1989, at 100.

One problem frequently exposed by deregulation of natural monopolies is that of "uneconomic" bypass, by which firms receive inappropriate price signals from purported natural monopolies, often as a result of cross-subsidization of consumers. For example, business telephone users may be induced to bypass local telephone networks because they can obtain less expensive or superior telephone service from other firms. Although uneconomic bypass may be inefficient in the short run, it does limit the extent to which a natural monopoly can cross-subsidize, and, in many cases, may spawn innovations that produce a more competitive market.

148. In March 1988, the President's Commission on Privatization issued a comprehensive report calling for increased federal government privatization. *See* PRIVATIZATION REPORT, *supra* note 15. That report identified low-income housing, housing finance, federal loan programs, air traffic control, education, postal delivery, military commissary operation, prison operation, urban mass transit, and inter-city passenger rail transportation as areas well-suited for privatization. The Commission did not examine certain other candidates for privatization, such as the uranium enrichment industry and power marketing authorities, because Congress has legislated that no federal funds can be used even to *study* privatization of these activities! *See id.* at 164-65.

Obviously, not all government activities can or should be privatized; the government, however, now performs several tasks that could be more effectively and efficiently handled by the private sector.[149] One explanation for this is that objectives other than economic efficiency are better served by public provision of such services. Recent history has demonstrated that other factors often hold sway over economic efficiency in debates over privatization. Indeed, even those privatization measures that promise clear efficiency gains generally encounter substantial political resistance. In many cases, a crucial element to achieving privatization is to design institutions that will compel the beneficiaries of such a reform to compensate adequately those who will lose under the privatized scheme.

There are three main techniques to privatize goods and services presently supplied by the public sector.[150] One method is to sell government-owned assets to persons or institutions that will manage them privately. An example of this method is the federal government's divestiture of Conrail in 1987, which involved the sale of the entire railroad as a functioning unit.[151] Some assets, such as obsolete military bases, loan portfolios, and surplus equipment, can be sold piecemeal.

A second privatization technique is to contract out government-provided services, under which the government contracts with private firms to provide goods and services that the government would otherwise supply directly. In recent years, the federal government has contracted to purchase approximately $200 billion of goods and services annually.[152] Research has shown that contracting out usually produces cost savings because competition for contracts among vendors drives down total expenditures. In a 1986 study, the General Accounting Office determined that additional opportunities for contracting out could result in the transfer of between 95,000 and 500,000 current government positions to the private sector, at annual savings ranging from $0.9 to $4.6 billion.[153] Contracting out is most likely to succeed when the terms and measurement of ser-

149. The empirical evidence on the relative efficiency of private and public provision of services is mixed. For one such comparison, see Spann, *Public versus Private Provision of Governmental Services*, in BUDGETS AND BUREAUCRATS: THE SOURCES OF GOVERNMENT GROWTH 71 (T. Borcherding ed. 1977).

150. *See* PRIVATIZATION REPORT, *supra* note 15, at 1.

151. *See id.*

152. *See id.* at 129.

153. *See id.* at 132 (citing U.S. GENERAL ACCOUNTING OFFICE, FEDERAL PRODUCTIV-

vice delivery are clear and easily defined, when several firms have the capacity to perform the contract, when the contractor receiving the bid does not need to make large new capital expenditures to perform the contract, and when the contract is amenable to regular renegotiation and renewal.[154] Examples of areas particularly well-suited to contracting out include data processing, laboratory testing, and payroll services.

A third technique of privatization is the use of vouchers. Under this approach, rather than directly providing goods or services, the government distributes chits, such as food stamps, that permit eligible consumers to purchase those goods and services from private suppliers. For example, the government currently provides housing vouchers that can be applied to rental payments for more than 140,000 low-income households as a substitute for public housing.[155] A frequently discussed proposal that would employ this technique is the distribution of education vouchers, which would act as a partial substitute for public schools.[156]

Privatization of at least some components of postal delivery appears to have great potential for enhancing economic efficiency.[157] Many components of postal delivery are not characteristically natural monopolies and are therefore good candidates for privatization. Indeed, postal delivery has already been partially privatized. The U.S. Postal Service (USPS) annually contracts out about three billion dollars of services, primarily long distance mail transport and rural delivery services.[158] The USPS also offers discounts to large mailers who presort their mailings. In addition, since 1979, private-sector express couriers have been permitted to deliver "extremely urgent" mail, subject to government restrictions on time of delivery and minimum price.[159] Firms providing express courier service have grown dramatically during this time period. One private

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ITY: POTENTIAL SAVINGS FROM PRIVATE SECTOR COST COMPARISONS 11 (Report No. GGD-87-30, 1986)).

154. *See id.* at 244.

155. Interview with Scott Mexic, Office of Privatization, Office of Management and Budget (Dec. 8, 1988).

156. *See, e.g.*, COUNCIL OF ECONOMIC ADVISERS, *supra* note 21, at 175.

157. The U.S. Postal Service is a government-owned monopoly under the federal private express statutes, which prohibit private letter delivery. *See* 18 U.S.C. §§ 1696-1697 (1982).

158. *See* PRIVATIZATION REPORT, *supra* note 15, at 104.

159. *See id.* at 101.

courier handled more than 178 million pieces of urgent mail in 1987, and another firm controlled more than 90% of the parcel market in that year.[160] The USPS has responded to this competition with its own express mail service, but the government agency serves only a small share of this market.

Postal delivery could be further privatized in several ways. As recommended by the President's Commission on Privatization, Congress could amend the private express statutes by repealing the prohibition against privatization of third class mail delivery and rural delivery, repealing the restrictions on the private use of letter boxes, loosening the restrictions on private delivery of urgent mail, and permitting more widespread use of contracting out.[161] Going a step further, as the Commission also recommended, Congress should consider private ownership of the USPS, with priority given to employee ownership.[162]

Perhaps the greatest obstacle to more widespread privatization in the United States is the groups that are special beneficiaries of the government provision of goods and services. Such groups arise, among other instances, whenever the federal government charges a single price for goods and services, even though costs to the government vary among consumers. In this situation, low-cost consumers subsidize high-cost consumers.[163] The high-cost consumers accordingly resist privatization measures that would end or reduce the subsidies they are receiving. Another group of special beneficiaries of government provision of goods and services, of course, are the government workers providing the goods and services. Members of this group may receive compensation and benefits under a government provision regime in excess of that available to them were privatization to occur.[164]

Political resistance by these current beneficiaries has successfully blocked most privatization initiatives in recent years. More

160. *See id.*

161. *See id.* at 116, 119-22.

162. *See id.* at 118.

163. Such subsidization typically results in inefficiencies because prices charged to various consumers deviate from their individual marginal costs. Such subsidization may also provide incentives for uneconomic bypass to occur. *See supra* note 147.

164. Postal workers fall into this category. They represent a potent political force because they are well-represented in all congressional districts and also because the average consumer probably has closer contact with the "mailman" than any other civil servant.

and more people, however, support more widespread privatization, both because they realize that substantial benefits can often be obtained and because they recognize an accelerating, worldwide trend toward privatization.[165] This trend is most obvious in Great Britain but is also visible in many other countries, including several in the Eastern bloc.[166] If Congress can formulate future measures to address the interests of special beneficiaries, further privatization could expand the sphere of competition and improve aggregate economic welfare.

IV. Rethinking Social Regulation

Just as the nature and scope of economic regulation are changing significantly, new approaches to social regulation are emerging as well. Although economic regulation is receding, social regulation is not.[167] This reflects the view of a large portion of the public that the federal government should take a strong leadership role in protecting the public from environmental, health, and safety risks.[168]

Frequently, elected officials have accommodated the public's concerns in these areas by passing legislation intended to "fix" specific problems. Unfortunately, many of these legislative efforts have failed to produce results meeting their specified goals. In some cases, this failure is because the goals set were highly symbolic.[169] For example, the 1972 amendments to the Clean Water Act called for the elimination of all discharges into navigable waterways by 1985[170]—a goal that, if achievable, would have been prohibitively expensive. In other cases, sub-

165. One explanation for this trend may be a "demonstration effect" of successful privatization initiatives in some countries, but that does not help explain the trend's genesis. I conjecture that as the government's cost of providing services increases in comparison to the private sector's cost of providing similar services, privatization initiatives are more likely to succeed. This outcome would be consistent with the argument made by Professor Becker, *supra* note 33. This argument, however, does not explain the differences in the type and pace of privatization across various countries.

166. *See* Privatization Report, *supra* note 15, at 4-5.

167. *See, e.g.*, Hahn & Richards, *The Internationalization of Environmental Regulation*, 30 Harv. Int'l L.J. 421 (1989); Smith, *Superfund: A Hazardous Waste of Taxpayer Money*, Human Events, Aug. 2, 1986, at 10.

168. *See* Project 88: Harnessing Market Forces to Protect Our Environment 4 (Conference sponsored by U.S. Senators Timothy Wirth and John Heinz, Dec. 1988) [hereinafter Project 88] (noting the strong demand for taking concrete action to address environmental problems).

169. This is not to suggest that establishing symbolic goals cannot be useful in a political setting. *See generally* M. Edelman, The Symbolic Uses of Politics (1964).

170. *See* Federal Water Pollution Control Act Amendments of 1972, § 2, 33 U.S.C. § 1251(a) (1982).

stantive legislation, as implemented, has inadvertently increased both the risks and costs to society. For example, the Consumer Products Safety Commission's requirement that child-proof caps be placed on packages for certain products, such as aspirin, appears to have led initially to an increase in the number of poisoning accidents in the United States.[171]

Agencies responsible for social regulation generally specialize in one of two areas.[172] "Standard-setting" agencies focus on defining acceptable levels of risk and setting standards accordingly. These agencies seek to reduce the current levels of risk facing society from such commonplace activities as breathing polluted air, working in hazardous areas, living or working near noisy airports, and driving automobiles. Each agency faces a burden of proof, both legally and politically, in setting such standards. The second group of social regulatory agencies focuses on "screening" new risks by requiring manufacturers to prove that their new products will not be harmful. Absent such "proof," the agency is authorized to prohibit the product's sale to the general public. While statutes for standard-setting agencies sometimes require the costs imposed on the regulated to be weighed, statutes for screening agencies rarely contain such provisions.[173] Consequently, agencies are rarely permitted to weigh explicitly the safety of a new product against the safety of a product it would replace. Moreover, screening agencies often do not have to justify, either to the courts or to Congress, the costs or foregone benefits of prohibiting the sale of potentially valuable products.[174]

Both types of social regulation lead to inefficiencies. The challenge is to design regulatory institutions that achieve social objectives more efficiently. Recently, several agencies have attempted to implement some innovative reforms intended to streamline and improve the regulatory process. Several note-

171. Evidently, this regulation lulled parents into taking fewer precautions over hazardous products that were not child-proof. *See* W. VISCUSI, REGULATING CONSUMER PRODUCT SAFETY 78 (1984).

172. The classification scheme presented here draws heavily on the work of Peter Huber. *See, e.g.*, Huber, *Exorcists vs. Gatekeepers in Risk Regulation*, REGULATION, Nov.-Dec. 1983, at 23.

173. *See id.* at 26.

174. The dichotomy drawn between standard-setting agencies and screening agencies is not universally applicable. For example, the EPA has both standard-setting and screening responsibilities. Nonetheless, the classification illustrates the differing fundamental functions of social regulatory agencies.

worthy reforms, as well as challenges that remain for improving social regulation, are discussed in the next section.

A. *The Expanded Use of Market Incentives*

In the two decades since its establishment, the Environmental Protection Agency (EPA) has developed a large and ever-growing body of regulations to address a wide range of environmental problems, including toxic dumps, acid rain, and smog.[175] The EPA's approach to environmental management has been rigid, with companies allowed little flexibility in meeting mandated environmental targets. Unfortunately, as is the case with all highly centralized managerial approaches in large organizations, this command-and-control strategy fails to take advantage of important information available to the firms being regulated. Firms, not regulators, have the most detailed knowledge about pollution control costs—knowledge that is crucial to finding the least expensive method of cleaning the environment.

The evidence is clear that the EPA's rigid regulatory strategy has wasted a substantial portion of the nation's investment in at least one important area, air quality improvement. The cost of air pollution control during the 1980s has averaged more than thirty billion dollars annually (in 1988 dollars)[176]; economic studies indicate that more cost-effective pollution control strategies could have achieved the same degree of environmental quality for billions less.[177] Political pressures and congressional mandates have combined to drive regulation cost concerns virtually off the EPA's agenda.

Over the past decade, the EPA has adopted several modest reforms to allow firms greater flexibility in meeting environmental standards. The most ambitious of these reforms is the emissions trading policy, which includes the bubble program

175. This discussion draws heavily on work done jointly with Gordon Hester. *See, e.g.*, Hahn & Hester, *Where Did All the Markets Go? An Analysis of EPA's Emissions Trading Program*, 6 YALE J. ON REG. 109 (1989); Hahn & Hester, *Marketable Permits: Lessons for Theory and Practice*, 16 ECOLOGY L.Q. 361 (1989) [hereinafter *Marketable Permits*].

176. The federal expenditures for air pollution abatement for fiscal years 1980 to 1985 are as follows, in billions of 1988 dollars (adjusted from 1982 dollars using the consumer price index): $30.3 (1980), $31.7 (1981), $30.6 (1982), $32.3 (1983), $35.0 (1984), and $36.2 (1985). *See* Farber & Rutledge, *Pollution Abatement and Control Expenditures*, SURV. CURRENT BUS., July 1986, at 94, 98; Farber & Rutledge, *Pollution Abatement and Control Expenditures, 1982-85*, SURV. CURRENT BUS., May 1987, at 21, 23.

177. *See, e.g.*, *Marketable Permits*, *supra* note 175, at 374.

and three lesser known programs.[178] The basic concept behind emissions trading is that firms, if given the proper incentive, can often devise less costly ways to control their emissions than can regulators. The emissions trading policy attempts to take advantage of this fact by creating markets for the de facto right to pollute. Because this policy allows these rights to be traded, it increases efficiency by encouraging the market to concentrate air pollution control efforts on those emission sources that cost the least to control.

Emissions trading has produced both striking accomplishments and disappointments. The program has afforded many firms flexibility in meeting emissions limits, and this flexibility has significantly reduced aggregate costs. These cost savings, however, represent only a small portion of the total potential savings. Far less than one percent of the total stock of emissions has been traded, despite the suggestion from economic studies that trading could be much more prevalent.[179] One important reason that more emissions trading has not occurred is that the program has generated a firestorm of controversy over regulatory reform. The EPA and local pollution control agencies have responded to this controversy by restraining the use of property rights. Some of these restraints have dampened use by industry of this exciting regulatory alternative.

The political battle over emissions trading is a struggle over the nature and distribution of property rights.[180] Specifically, environmentalists and industry in this case disagree over whether firms are entitled to pollute and, if so, at what levels.[181] Regardless of this dissension, the emissions trading policy represents a constructive attempt to reduce the cost of regulation without diminishing regulatory benefits.

Although only a handful of market-based approaches to envi-

178. *See id.* at 368-80.

179. *See id.*

180. *See* Stewart, *Privprop, Regprop, and Beyond*, 13 HARV. J.L. & PUB. POL'Y 91 (1990).

181. Environmentalists have generally opposed market-based reforms in the past. However, the attitudes of environmental groups toward such policies appear to be changing. *See, e.g.*, Dudek & Palmisano, *Emissions Trading: Why is this Thoroughbred Hobbled?*, 13 COLUM. J. ENVTL. L. 217 (1988). Specifically, the Environmental Defense Fund has expressed increased interest in the use of markets to address the problem of reducing sulfur oxides emissions. *See* Hahn, *The Politics and Religion of Clean Air*, REGULATION, Winter 1990, at 21. Several environmental groups have supported incentive-based approaches to reduce the production and use of chlorofluorocarbons. *See* Hahn & McGartland, *The Political Economy of Instrument Choice: An Examination of the U.S. Role in Implementing the Montreal Protocol*, 83 Nw. U.L. REV. 592 (1989).

ronmental problems have actually been implemented,[182] the future promises to bring greater reliance on such approaches.[183] The EPA is currently considering market-based approaches to a wide variety of problems. For example, the agency has established pilot programs that allow participating manufacturers of light trucks and diesel automobiles to trade reductions in particulate emissions.[184] A similar program that would allow trading between nitrogen oxide emissions and particulate matter would be targeted at engines used in heavy-duty trucks. The EPA has also been pressured to propose a rule that would permit trading and banking of credits associated with heavy-duty engine emissions. Recently, the agency also proposed a rule that would allow a market to develop for rights to produce chlorofluorocarbons as their use is phased out.[185] A similar approach has been proposed for the phaseout of asbestos.[186]

Interest in market-based innovation in environmental regulation is not limited to the EPA. The final report of *Project 88* recommends that market-based approaches be applied to a wide variety of environmental problems.[187] President Bush has stated that "the Administration's program [on acid rain] will include market-based approaches."[188] An acid rain emissions trading program could save tens of billions of dollars com-

182. *See Marketable Permits*, *supra* note 175. One of the most successful applications to date has been the market that evolved for lead rights in gasoline. In 1982, the EPA implemented a "lead trading" program designed to reduce the cost of achieving the phaseout of lead in gasoline. The EPA estimated that the program would save more than $200 million annually during its operation. *See id.* at 387 (citing OFF. OF POLICY ANALYSIS, EPA, COSTS AND BENEFITS OF REDUCING LEAD IN GASOLINE, FINAL REGULATORY IMPACT ANALYSIS VIII-31 (1985)).

183. *See* R. HAHN, *supra* note 9; *see also* Becker, *supra* note 33.

184. *See* Office of Management and Budget, Barriers to Innovation: Alternative Approaches to Regulation 5 (Dec. 12, 1988) (unpublished memorandum) [hereinafter Barriers to Innovation].

185. *See generally* Hahn & McGartland, *supra* note 181.

186. *See* Barriers to Innovation, *supra* note 184.

187. *See* PROJECT 88, *supra* note 168.

188. G. BUSH, BUILDING A BETTER AMERICA 83 (supplement to message presented to Joint Session of Congress, Feb. 9, 1989). The President "will ask Congress to establish an acid rain program that will obtain significant SO_2 and NOx emissions reductions . . . ." *Id.* at 83-84. The President clearly believes that market-based approaches should play an important role in achieving these reductions in a cost-effective manner.

> The goal is to get the Federal Government out of the detailed regulation of industry decisions and reduce the need for elaborate EPA-approved, State-prepared emission reduction plans. This [market-based] approach provides greater flexibility and incentives for the development of innovative, lower cost ways of achieving regulatory goals.

Id. at 84.

pared to a more onerous command-and-control approach that would require power plants to use scrubbers to remove emissions of sulfur oxides.

B. *The Impact of Social Regulation on Innovation*

Although regulatory screening protects the public from certain risks, it also has undesirable side effects. Because screening procedures frequently focus on an extremely narrow definition of risk, screening sometimes leads to the outright ban of products that would provide net benefits to society. For example, since 1958, the Delaney Clause has required the Food and Drug Administration (FDA) to prohibit the sale of any food additive found to cause cancer in either man or animals.[189] Such a zero-risk standard does not permit the comparison of the costs and benefits of potential new products. In effect, screening under the Delaney Clause and similar other restraints acts as an entry barrier against the introduction of new products, even when the new item is safer than the product it would replace.[190]

Ironically, zero-risk standards have sometimes led to marked increases in the level of risk faced by society.[191] For example, in 1983 the EPA denied an application for permission to use a fungicide on hops, which fungicide was projected by the EPA to increase a heavy beer drinker's chances of contracting cancer by one in 100 million.[192] Because the application was denied, previously approved fungicides, which are thousands of times riskier, continued to be utilized.

The EPA recently dropped its zero-risk policy, replacing it with a policy that allows pesticides to be introduced if they pose a "negligible risk," currently set at one in one million.[193] Such a policy will encourage chemical manufacturers to develop new and safer products to replace existing, often more dangerous, products already on the market.

189. *See* Food Additives Amendment of 1958, § 4, 21 U.S.C. § 348(c)(3)(A) (1982).

190. Not surprisingly, firms take all different sides on the debate on screening procedures. Firms comfortable with the status quo are likely to support cumbersome screening procedures; on the other hand, innovative firms will likely want to reduce the costs of screening. The playing out of these opposing views in the regulatory process depends largely on the relative strengths of the two groups. Both groups, however, can be expected to support a regulatory process that is sufficiently certain to provide a prosperous business environment.

191. *See, e.g.*, A. WILDAVSKY, SEARCHING FOR SAFETY 189-203 (1988).

192. *See New Pesticide Policy Leaves Residue of Questions*, Wash. Post, Oct. 24, 1988, at A11, col. 3.

193. *See id.*

The policies of screening agencies dramatically affect the rate of technological innovation. A pointed example is the FDA. After the Food, Drug, and Cosmetic Act was amended in 1962, the FDA required pharmaceutical companies to prove not only the safety of proposed new drugs but also their efficacy (that is, that the drugs met the manufacturer's claims).[194] Several studies have attempted to document the impact of the efficacy requirement on the FDA's approval of "new chemical entities."[195] One study showed that, on average, fifty-four new chemical entities were approved annually during the years 1950 to 1962; for the years 1963 to 1975, the average number fell to just more than sixteen, a seventy-percent decline.[196] This decline in new drug innovations restricted the public's choice of remedies for physical ailments, even though consumers could obtain independent judgments about a product's efficacy from their physicians.

In response to criticisms of its slow approval process, which had taken an average of ten years to complete, the FDA has attempted to streamline its screening procedures in both the research and market approval stages. Administrative measures adopted by the FDA have helped to reduce the average time to develop a new drug by two years.[197] In addition, the number of pending new drug applications fell from 343 at the end of 1983 to 204 just three years later.[198] Moreover, the average annual number of new drug applications approved by the FDA increased from eighty-six between 1976 and 1979 to 109 between 1980 and 1986.[199]

Recently, the FDA has agreed to help companies design drug studies to produce data as early in the approval process as pos-

194. *See* S. BREYER, *supra* note 24, at 141; S. PELTZMAN, REGULATION OF PHARMACEUTICAL INNOVATION: THE 1962 AMENDMENTS 9 (1974).

195. For a comprehensive explanation of the term "new chemical entities," see S. PELTZMAN, *supra* note 194, at 13. For an analysis of the effect of the adoption of the efficacy requirement on research expenditures, see Wiggins, *The Impact of Regulation on Pharmaceutical Research Expenditures: A Dynamic Approach*, 21 ECON. INQUIRY 115 (1983). The precise impact of the efficacy requirement is difficult to estimate because the FDA simultaneously tightened safety standards.

196. *See* H. GRABOWSKI, DRUG REGULATION AND INNOVATION: EMPIRICAL EVIDENCE AND POLICY OPTIONS 18 (1976).

197. *See* U.S. FEDERAL DRUG ADMINISTRATION, SUMMARY OF SIGNIFICANT ACCOMPLISHMENTS AND ACTIVITIES IN FISCAL YEAR 1986, at 15 (1986).

198. *See* U.S. FEDERAL DRUG ADMINISTRATION, NEW DRUG EVALUATION: STATISTICAL REPORT 121 (1987).

199. *See id.* at 24.

sible.[200] In certain cases, the FDA will hasten the approval process for drugs that would treat ailments threatening serious illness or death, such as AIDS or hairy-cell leukemia.[201] The reforms in the FDA's drug approval process may result in a significant increase in the number of new drugs approved, provided that the reforms actually reduce firms' costs of obtaining drug approval. Whether the process will actually be expedited depends largely on the effects of the changes the FDA has suggested in the design of drug studies on the cost of introducing new drugs.[202]

For drugs that would treat life-threatening diseases, such as AIDS, a strong argument can be made that the decision to use new experimental drugs should be ceded by the FDA to the patient and the patient's physician. President Reagan's Task Force on Regulatory Relief, chaired by then-Vice President Bush, endorsed measures to reduce the regulatory role of the federal government in such situations. One alternative, expedited approach would be to approve drugs conditionally after initial testing shows them to be safe. Drugs could be further tested in the field following issuance of the drug, with proper warnings to both physicians and patients. This contrasts with the current procedure, which generally requires that all testing be performed in industry laboratories.

The Drug Export Amendments Act of 1986,[203] which allows approval of drugs for export that are not yet approved for domestic use but do meet the importing country's regulations,[204] provides additional incentives to pharmaceutical manufacturers to develop and produce new drugs in the United States. This legislative change will help the domestic drug industry to compete globally and aid foreign citizens,[205] while aiding the health of Americans by spurring domestic product innovation.

A major challenge for regulators will be to develop effective

200. *See* 50 Fed. Reg. 7452 (1985) (codified at scattered sections of 21 C.F.R.).

201. *See* 52 Fed. Reg. 19,466 (1987) (codified at scattered sections of 21 C.F.R. pt. 312).

202. The critical determinant will be the extent to which the FDA will be willing to relax the evidentiary standards required prior to approval. Interview with Professor Howard Beales, George Washington University (Dec. 5, 1988).

203. Pub. L. No. 99-660, Title I, 100 Stat. 3743, 3743-52 (1986), 21 U.S.C. § 382 (1982 & Supp. V 1987), 42 U.S.C. §§ 241(c), 262(h) (1982 & Supp. V 1987).

204. For an example of an application received by the FDA for export of drugs under this statute, see 53 Fed. Reg. 40,960 (1988).

205. *See* OFFICE OF MANAGEMENT AND BUDGET, REGULATORY PROGRAM OF THE UNITED STATES GOVERNMENT: APRIL 1, 1987 - MARCH 31, 1988 xxvii (1987).

screening procedures in the field of biotechnology. The United States is capable of simultaneously becoming a commercial giant in this area while protecting the public from unnecessary harm. Already, biotechnology applications have shown commercial promise in agriculture (development of pest resistance), medicine (development of recombinant DNA-derived human insulin), the containment of oil spills, and the clean-up of hazardous waste sites.[206] Worldwide demand for biotechnology products may be as high as $100 billion annually by the year 2000.[207] The proper federal role in regulating biotechnology is to ensure that new processes and products do not, on balance, pose an unreasonable risk to the public. Measuring the total risk of introducing a new product, however, is complicated. For example, if a federal agency prohibits the application of a biotechnology product to crops as a pesticide, the agency is implicitly favoring the use of currently approved pesticides. Here, too, regulators should evaluate the risk of a new product not in isolation but in comparison to the risk of the products it would replace.

Field testing of genetically-engineered microorganisms poses particularly challenging problems. At present, very little is known about the behavior of these organisms in the environment. Moreover, the risks associated with field releases depend not only on the product itself, but also on such factors as the conditions under which the product is released.[208] Biotechnology regulation should be designed so that experimentation on new microorganisms yields useful information regarding the types of microorganisms released that are likely to present minimal risks to society. This will necessarily require the development of effective monitoring techniques and analytical capabilities so that data obtained can be readily used. Although

206. *See* OFFICE OF TECHNOLOGY ASSESSMENT, U.S. CONGRESS, 4 NEW DEVELOPMENTS IN BIOTECHNOLOGY: U.S. INVESTMENT IN BIOTECHNOLOGY—SPECIAL REPORT 161-251 (Report No. OTA-BA-360, 1988); *see also* Tompkins, *Capitalizing on Life*, SCI. DIG., June 1986, at 32.

207. *See* Tompkins, *supra* note 206, at 35 (estimates of demand ranging from $15 to $100 billion annually). Other estimates are considerably lower, with projected annual U.S. sales of several billion dollars in the 1990s to $40 billion by 2000. *See* Miller, Cohrssen, Young, & Kingsbury, *The United States Coordinated Framework for the Regulation of Biotechnology and the Protection of Human Health*, 38 INT'L DIG. HEALTH LEGIS. 644, 651 (1987).

208. *See generally* J. Toll, Environmental Microbiotechnology: Public Policy Decision Making for an Emerging Environmental Technology (1989) (unpublished Ph.D. thesis, Department of Engineering and Public Policy, Carnegie-Mellon University).

the need to establish a regulatory process from which society can systematically glean information may seem obvious, designing such a process can be difficult.

The Reagan administration made some progress toward regulatory coordination of new product approval by forming the Biotechnology Science Coordinating Committee. In 1986, the President's Office of Science and Technology Policy (OSTP) established a framework for coordinating the policies of the six federal agencies having oversight responsibilities for biotechnology regulation.[209] In its notice establishing the framework, the OSTP concluded that, in most instances, regulation of an engineered microorganism should focus on the risks of the organism itself, rather than on the process that formed it.[210] This approach ensures that simply because a product can be labeled "biotechnology," that fact in itself does not justify special (and often more stringent) regulation. The wisdom of this approach is supported by the results of a National Academy of Sciences study, which has shown that no unique hazards exist by virtue of using genetic engineering technology.[211]

As a result of these changes, numerous new products have reached the marketplace. The FDA has approved at least nine therapeutic drugs developed through biotechnology, including an anti-cancer drug and a hepatitis vaccine.[212] The FDA has also approved a human growth hormone marketed by two companies for treating growth disorders in children.[213] The first vaccine tested for use against AIDS was a product of biotechnology.[214] In all, more than 600 biotechnology products were

209. The six agencies include the Department of Agriculture, the National Institutes of Health, the FDA, the EPA, the National Science Foundation, and the Occupational Safety and Health Administration. *See* Announcement of Policy and Notice for Public Comment, 51 Fed. Reg. 23,302 (1986).

210. *See id.* at 23,303. J. Toll, *supra* note 208, however, argues persuasively that in the case of environmental releases, both the product and the environment in which it is released are critical variables in assessing potential risks.

211. Specifically, the study notes that "there is no evidence that unique hazards exist either in the use of R-DNA techniques or in the transfer of genes between unrelated organisms." NATIONAL ACADEMY OF SCIENCES, INTRODUCTION OF RECOMBINANT DNA-ENGINEERED ORGANISMS INTO THE ENVIRONMENT: KEY ISSUES 465 (Report, Committee on the Introduction of Genetically Engineered Organisms into the Environment, 1987).

212. *See* Promoting Competitiveness in Biotechnology: An FDA Plan for Action (Mar. 30, 1988) (unpublished memorandum from Dr. Henry Miller, Food and Drug Administration) [hereinafter Promoting Competitiveness Memo].

213. *See* Food and Drug Administration, Talk Paper T87-16 (Mar. 12, 1987).

214. Interview with Shannah Koss, Office of Management and Budget (Mar. 30, 1989).

recently undergoing clinical trials, including special grains capable of growing in the drought-stricken desert regions of Africa.[215]

Although these recent developments in screening procedures are encouraging, a fundamental defect in the current approach to screening remains: Regulators have little incentive to permit new products to reach the marketplace as soon as possible. Because regulators often shoulder the blame if a health problem is discovered after a new product is approved, they are likely to be overly cautious. Until this basic problem is addressed, government screening procedures are likely to reinforce the status quo, causing technological innovation to be slower than the optimal rate.[216]

V. The Introduction of Executive Regulatory Oversight

When regulation represented a relatively small portion of the activity of the federal government, there was no pressing need to coordinate its implementation or evaluate its overall effects. Now that regulation is an important component of economic policy, it obviously needs coordination. Most importantly, regulations must be coordinated to ensure that they do not promote conflicting policies. As the regulatory network becomes more and more pervasive, the evaluation of the expected costs and benefits of regulations must take into account their indirect effects on various groups and society. In the past, regulatory agencies have lacked incentives to investigate such effects. Unless such incentives are provided, many regulations will continue to be designed to yield short-term political benefits while imposing larger, sometimes hidden costs on the public in the long term.

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215. *See* Promoting Competitiveness Memo, *supra* note 212.

216. Possible biases common to many regulations that might favor or disfavor technological innovation have generated much debate. Much of this debate centers around whether technology generally solves or creates problems in society, as well as the biases associated with the current system. *See, e.g.*, Krier & Gillette, *The Un-Easy Case for Technological Optimism*, 84 Mich. L. Rev. 405 (1985).

From an analytical standpoint, the problem of determining the optimal level of technological innovation reduces to balancing the risks and costs of such innovation. *See, e.g.*, Page, *A Generic View of Toxic Chemicals and Similar Risks*, 7 Ecology L.Q. 207 (1978). There is no right answer to this problem, but the effects of biases built into the regulatory process on the pace and kind of technological innovation are important to recognize and understand.

To address the wave of regulatory activity that began in the late 1960s and continues to the present, the four presidents preceding President Bush each introduced regulatory oversight mechanisms, with varying degrees of success.[217] In 1971, President Nixon established a "Quality of Life" review of selected regulations. Formulated primarily to address concern that some EPA regulations were ineffective or too costly, this review process was administered by the Office of Management and Budget (OMB). It required agencies issuing regulations affecting health, safety, and the environment to coordinate their activities. In 1974, President Ford formalized and broadened the review process in Executive Order 11,821,[218] which required that agencies prepare, and OMB review, inflationary impact statements for major rules.

In 1978, President Carter fortified executive regulatory oversight by issuing Executive Order 12,044,[219] which required detailed regulatory analyses of proposed rules and review by the Executive Office of the President. In addition, President Carter established two interagency groups. The Regulatory Analysis Review Group, consisting of representatives from the Executive Office of the President and regulatory agencies, examined a limited number of proposed regulations that were expected to have substantial economic impact. The Regulatory Council, consisting of the heads of federal regulatory agencies, was required to publish the Calendar of Federal Regulations. This calendar, which summarized major regulations being developed, was designed to expose regulatory overlaps and to describe the costs and benefits of proposed regulatory actions.

The Reagan administration acted further to strengthen executive regulatory oversight. Two days after entering office, President Reagan announced the formation of his interagency Task Force on Regulatory Relief (Task Force) to be chaired by then-Vice President Bush. The Task Force reviewed existing regulations and was established, in the President's words, to "cut away the thicket of irrational and senseless regulations."[220] Described by President Reagan as "one of the keystones in our

217. The information in the text regarding the actions of previous presidents is based on the summary presented in REGULATORY PROGRAM (1988), *supra* note 3, at 13.

218. 3 C.F.R. 926 (1974), *reprinted in* 12 U.S.C. § 1904, at 592 (1976).

219. 3 C.F.R. 152 (1978), *reprinted in* 5 U.S.C. § 553, at 70 (1976 & Supp. II 1978).

220. *Remarks Announcing the Establishment of the Presidential Task Force on Regulatory Relief*, 1981 PUB. PAPERS 30 (1982).

program to return the nation to prosperity,"[221] the Task Force later counted among its achievements expediting the drug approval process, reducing airborne lead emissions by phasing out lead in gasoline and encouraging the search for safe alternatives, and promoting more efficient use of energy resources.[222] Three weeks after forming the Task Force, President Reagan issued Executive Order 12,291,[223] which authorized the Office of Information and Regulatory Affairs (OIRA)[224] and the Task Force to work together to develop more effective and less costly regulations. The OIRA has primary responsibility for implementing Executive Orders 12,291 and 12,498.[225] Executive Order 12,291, among other provisions, requires cost-benefit analyses of all major rules. Although it cannot veto agency rules, the OMB can improve a rule's content by sending its analysis back to the agency for reconsideration. Executive Order 12,498[226] requires annual publication of the *Regulatory Program of the United States Government*, a review of regulations proposed by agencies and their conformance with administration policy and priorities. Thus, the approach of the Reagan administration was unique both in the scope of regulatory review as well as in the formal inclusion of estimated benefits in regulatory impact analyses of major rules.

The impact of increased executive oversight is difficult to determine. Oversight procedures sometimes improve the caliber of rules by providing an independent evaluation. They can also serve as a check to ensure that the proposed regulations are consistent with the views of the President and the agency head. At the same time, the oversight process can be used strategically to delay the issuance of regulations. Regulatory oversight has generated a great deal of controversy,[227] but no system-wide analysis has been published regarding the actual effects of

221. *Id.*

222. Interview with John Schmitz, Deputy Counsel to Vice President Bush (Dec. 20, 1988).

223. 3 C.F.R. 127 (1981), *reprinted in* 5 U.S.C. § 601, at 431 (1982).

224. The OIRA was established in 1981 pursuant to the Paperwork Reduction Act of 1980, § 2(a), 44 U.S.C. § 3503 (1982).

225. *See* REGULATORY PROGRAM (1988), *supra* note 3, at 14.

226. 3 C.F.R. 323 (1986), *reprinted in* 5 U.S.C. § 601, at 40 (Supp. II 1984).

227. Commentators hold widely divergent perspectives on the impact of executive regulatory oversight during the Reagan years. *Compare* DeMuth & Ginsburg, *White House Review of Agency Rulemaking*, 99 HARV. L. REV. 1075 (1986), *with* Morrison, *OMB Interference with Agency Rulemaking: The Wrong Way to Write a Regulation*, 99 HARV. L. REV. 1059 (1986).

the oversight procedure on decisionmaking.[228]

Figure 3 provides some insight regarding the OIRA's activities during the Reagan administration's tenure. Figure 3 shows the fraction of major and minor rules that were not changed during the review process from 1981 to 1987.[229] The figure shows that the OIRA recommended changes in only a small fraction of proposed rules in the early 1980s. In addition, the figure indicates that the OIRA recommended changes to major rules more often than to minor rules. Finally, the figure illustrates that the percentage of rules that survive review without any change has declined over time. This trend may suggest that the OIRA has taken an increasingly active role in the development of regulations. Such a conclusion, however, is premature without further analysis of the nature of the review process over time.

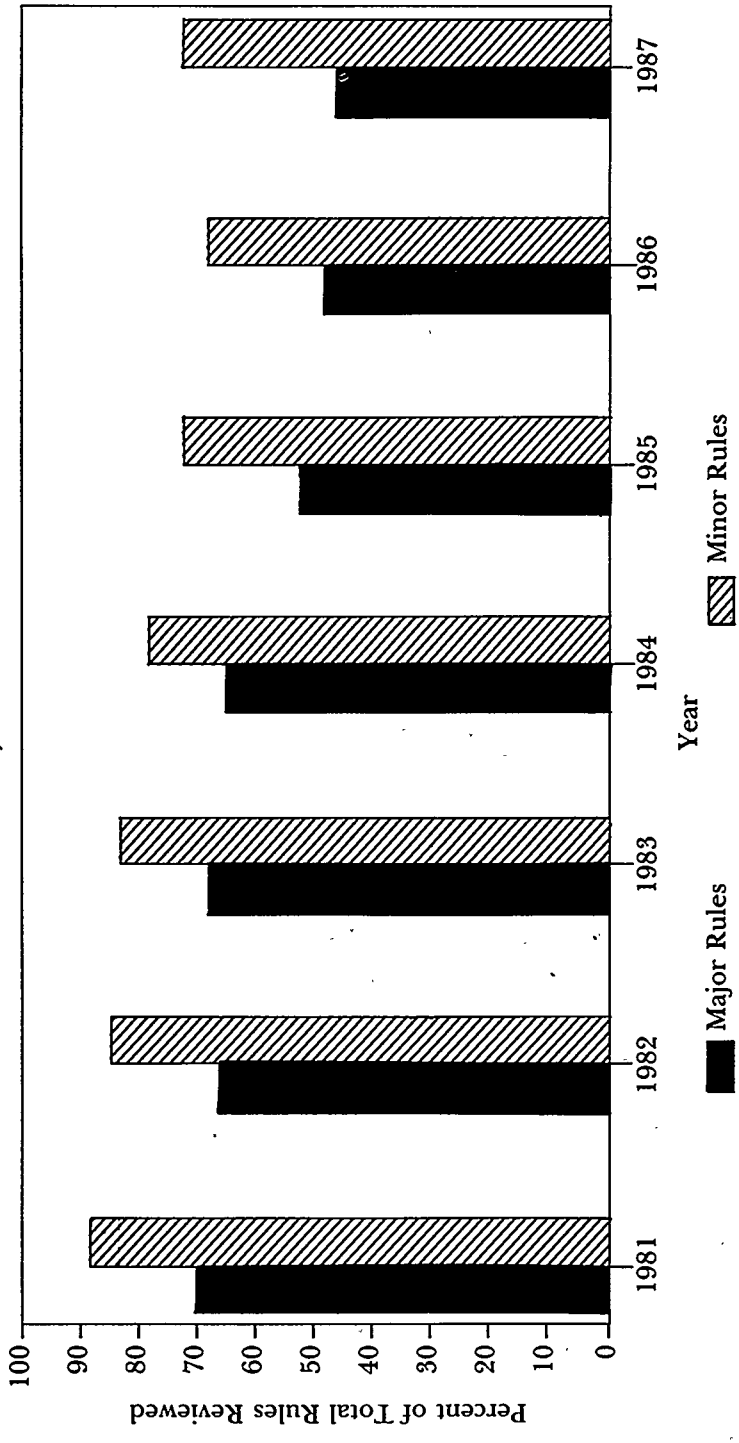
Unfortunately, executive regulatory oversight has only limited potential to impose discipline on the regulatory process. For one thing, regulatory reform is rarely a high priority for any administration because it is difficult to convince the public of the need for regulatory streamlining; specific regulatory issues stimulate much greater interest. The problem with attaining regulatory streamlining is similar to the problem of limiting the budget or government spending. The public recognizes that, in the aggregate, many regulations are burdensome, but a vocal interest group almost always exists that will oppose changes to the particular regulations from which the group benefits. A second reason for pessimism regarding the results of regulatory oversight is that congressional advocates of particular regulatory programs oppose the consequences of such oversight. Indeed, some statutes, including some portions of the Clean Air Act, require that standards be set without regard to costs.[230]

228. For a review of specific examples in environmental regulation and a discussion of the likely impacts of Executive Order 12,291 in that area, see ENVIRONMENTAL POLICY UNDER REAGAN'S EXECUTIVE ORDER: THE ROLE OF COST-BENEFIT ANALYSIS (V.K. Smith ed. 1984).

229. The information presented in Figure 3 was developed by the OIRA and Council of Economic Advisers, Executive Office of the President.

230. In Lead Indus. Ass'n v. Environmental Protection Agency, 647 F.2d 1130, 1150-53 (D.C. Cir. 1980), the U.S. Court of Appeals for the District of Columbia Circuit ruled that, under section 109 of the Clean Air Act, 42 U.S.C. § 7409, the EPA is not permitted to consider economic or technological factors in promulgating ambient air quality standards. *But see* Natural Resources Defense Council v. Environmental Protection Agency, 824 F.2d 1146, 1154-63 (D.C. Cir. 1987) (EPA not precluded from

FIGURE 3
RULES APPROVED BY OMB WITHOUT CHANGE BY TYPE, 1981–1987



Several years ago, the concept of a "regulatory budget," which would place a dollar amount on the aggregate economic impact of federal regulations on society, was advanced as a mechanism to limit the costs that agencies could impose on society through regulations.[231] This concept, unfortunately, would be very difficult to implement. One problem is that the costs that regulations impose are very difficult to measure accurately.[232] Without reasonable cost estimates, a regulatory budget would probably not withstand the scrutiny of the three branches of government.

Nevertheless, the existing process could be modified in several ways to make the costs and benefits of regulation more visible to the public. For example, the Executive Branch could publish an annual document that lists and explains the estimated costs and benefits of major regulations that were promulgated in the past year. This information is currently available but receives little public exposure. A relatively simple, systematic presentation of this information by a high-level administration official would lend legitimacy and visibility to this document.[233]

In any event, without the cooperation of Congress, the options available to the Bush administration and future administrations with regard to regulatory oversight are quite limited.[234] The Executive Branch can attempt to improve the coordination of regulatory oversight activities by fostering cooperation with different groups within the White House, such as the Office of Policy Development, the Council of Economic

considering cost and technological feasibility in setting emission standards for vinyl chloride, a strong carcinogen, under section 112 of the Clean Air Act, 42 U.S.C. § 7412); 42 U.S.C. § 7411 (1982) (explicitly permitting consideration of cost in setting standards of performance for new stationary sources).

231. *See, e.g.*, R. LITAN & W. NORDHAUS, *supra* note 7, at 133-58.

232. Moreover, proposals for such budgets often focus solely on the costs of regulation. Although the benefits of regulations are often more difficult to quantify than costs, they are nonetheless critical to policy decisions. The idea underlying regulatory budgets is to encourage political officials to select the most desirable regulations from a broad menu.

233. This proposal, if put in place, could lead to the adoption of an "incremental" regulatory budget, that is, a regulatory budget that would consider only newly proposed regulations.

234. Some of the options that Congress might undertake within its own institutions are discussed in R. LITAN & W. NORDHAUS, *supra* note 7, at 100-82. One option that deserves consideration, though it is unlikely to be popular, is to establish separate House and Senate committees to review all regulatory decisions. These committees would serve functions similar to those served by the Budget Committees, for regulation.

Advisers, the Vice President's Office, and the OIRA. Alternatively, the regulatory oversight process might be given a new "spin," as was perhaps the motivation behind the Bush administration's informal redesignation of the Task Force on Regulatory Relief as the Council on Competitiveness. This redesignation may allow regulatory reform to profit from a politically exciting theme: improving competitiveness.[235]

The political attractiveness of imposing regulatory costs on society can, in one sense, be expected to grow in the near future as pressures to reduce the budget deficit without raising taxes continue.[236] In the absence of large amounts of new federal revenues, members of Congress will be forced to seek other means of satisfying the needs and desires of their constituents.[237] Indeed, this is already happening in environmental regulation. President Bush has proposed an agenda of environmental policy that, while providing major benefits, would substantially increase regulatory costs. Regulatory costs would be increased by tens of billions of dollars annually by the administration proposal to reauthorize the Clean Air Act.[238]

Although the prospects for widespread reform of the regulatory process are dim, executive regulatory oversight can play a constructive role in coordinating policies and reducing the burden of some of the most onerous regulatory proposals. Hopefully, the existing review process will continue to operate. An open question is whether intensive review of a very limited set of regulations (the current practice), or screening of all proposed regulations, is preferable. In any event, the ability of the Executive Office of the President to review rules and to recommend changes helps to ensure that agency regulations are better justified and more consistent with administration policy.

VI. Lessons and Challenges

A tempting response to virtually any perceived social need is to call for some form of government intervention. Experience to date with federal regulation suggests the need to keep this

235. The impact of a change in name is of course limited, but public recognition of the integral relationship between competitiveness and regulation is very important.

236. *See* Hahn, *supra* note 181.

237. *See Senators' Goal: Make New Ideas Pay Their Own Way*, N. Y. Times, Mar. 20, 1989, at A14, col. 1.

238. *See* Hahn, *supra* note 181. To the President's credit, he has endorsed economically sound approaches for meeting environmental targets. *See supra* note 188.

impulse in check. This observation does not imply that regulation should be eliminated, but rather that regulation should be applied judiciously. Moreover, regulatory institutions should be designed to permit the market to work, while adequately addressing problems that cannot be solved by the marketplace alone. The strengths and limitations of many older regulatory approaches are now well understood. Price and entry regulation often produces inefficiencies and stifles innovation. Inflexible social regulations that place strict, detailed limits on firms' behavior also frequently stifle innovation and impose unnecessary costs.[239] In many cases, regulations deny firms the incentive to search for innovations that would reduce the cost of compliance.

This Article argues that social gains can result from the judicious application of marketplace incentives to traditional areas of economic and social regulation. Determining the gains to be made from such changes and designing institutions that will enable the public to benefit from these gains are necessary elements of constructive regulatory reform. These elements, however, may not be sufficient for achieving reform because strong political forces will resist changes to the status quo. These political forces can be counterbalanced effectively only if the public gains a more widespread understanding of why current regulatory schemes often produce inefficient and ineffective results. Successful episodes of deregulation and successful changes in regulatory procedures that produce more efficient policies have somewhat improved this understanding. As the costs of onerous regulations become more widely recognized, this understanding will be further enhanced.

The United States is fully integrated in the global marketplace. To continue to compete successfully, this nation must develop regulatory policies that promote technological innovation. Such policies have better prospects of adoption if the institutions that yield such innovations are thoroughly understood and the necessary political leadership is asserted to meet the challenge of worldwide competition.

239. For example, it makes little sense to require a business to install an expensive pollution control device when the business can achieve the same result using another mechanism at half the cost.