CHAPTER 5

Competitive Forces and Regulation

GOVERNMENT AT ALL LEVELS affects economic activity through such mechanisms as taxes, law enforcement, and the construction of roads and highways. Regulation, however, generally refers to legal rules that alter the way private companies and others conduct their operations or that mandate government provision of goods and services. "Economic" regulation takes many different forms. It includes regulating prices and limiting the extent of competition in an industry, by establishing, for example, a single local telephone company with rates set by a government body. The government also attempts to protect the environment, health, and safety through "social" regulation. Much of this regulation has been enacted in response to concern about exposure to risk.

Economic and social regulation, the main focus of this chapter, are part of a broader class of regulatory activities that affect businesses and consumers. Governments require schools to provide special services for certain groups of students, require places of business to be accessible to the handicapped, and require firms to provide certain benefits to their employees. The government sometimes provides services directly, such as mail services through the U.S. Postal Service, and prohibits others from competing to perform many of these services, including first-class mail.

While the intentions of many regulations are laudable, they can have unintended adverse impacts on the general public. For example, oil price controls and allocation schemes, begun in 1971 and abandoned in 1981, exacerbated the effects of the two energy crises of the 1970s by creating gasoline lines and spot shortages of gasoline. In contrast, during the Persian Gulf crisis, the short-lived price spike reflected the potential scarcity of oil created by Iraq's invasion of Kuwait. The higher prices encouraged consumers to reduce their gasoline use, avoiding the need for government allocations. Once it became apparent that future supply disruptions were unlikely to occur, prices receded.

Why are regulations that have an adverse impact on the general public instituted in the first place? One reason is that proponents of increased government regulation fail to consider the costs associated with new regulations relative to the benefits they are intended to achieve. This failure is particularly common when regula-

tions are developed to reduce exposure to risk. Similarly, regulation to prevent monopoly pricing by public utilities, although intended to benefit consumers, can be costly if it discourages innovation by the utility. Also, new regulation results from efforts by interest groups to influence legislators and regulatory agencies. As a result, regulations are adopted that sometimes benefit a particular interest group to the detriment of overall societal goals. *Appropriate regulation is based on a balancing of costs and benefits to society in general, taking into account hidden costs such as reductions in the incentives for firms to innovate.*

Once in place, regulations often are difficult to eliminate or to alter. A regulation is a legal rule that can be changed only by legislation or the further actions of a government agency. Moreover, special interests that would lose from the removal of a regulation that diminishes the well-being of consumers often resist proposed rule changes. Continued restrictions on price cutting on international air routes, for example, benefit the owners of some air carriers because they are protected from competition, but consumers in general suffer because they are forced to pay higher fares. Foreign governments that regulate or control air carriers that would be forced to become more efficient in a more competitive market resist the change to a deregulated environment. Deregulation, however, is appropriate when there is reason to believe that, without government intervention, a market would be competitive. Even when some regulation is required, reduced or modified regulation is warranted when the market outcome will be more competitive with less restrictive regulation.

The Administration remains committed to the continued process of deregulating or reducing regulation in markets that are or can be competitive and to advocating regulation only when there is a strong presumption that the benefits to society exceed the costs. Energy, for example, is an important input into production and is also consumed directly. Increased reliance on the competitive market has improved the ability of the economy to respond to shocks in energy supply. *The Administration's National Energy Strategy has proposed regulatory changes that would allow energy markets to function even more effectively.* Further reductions in regulation would increase the availability of natural gas. They would also increase competition in the generation of electric power by encouraging the entry of lower cost, more innovative producers.

Reforming the regulation of financial institutions while ensuring the integrity of the financial sector is another major goal of this Administration. In early 1991 the Administration proposed legislation to address the fundamental problems of the banking industry—the need to recapitalize the bank insurance fund; the need to make banks safer, stronger, and better able to compete; the need to

attract private capital into the industry; and the need to protect the taxpayer from a costly deposit insurance bailout. The legislation produced by the Congress provided critical funding for the bank insurance fund but little more. Further legislation is needed to make banks stronger and to improve the competitiveness of the industry. The regulation of financial markets was analyzed in detail in the 1991 *Report.*

Where regulation remains necessary, the movement toward "incentive regulation," which encourages firms to operate more efficiently, has been a positive regulatory innovation. As a transition to complete deregulation, the Federal Communications Commission (FCC) is now regulating the rates AT&T (American Telephone and Telegraph) charges for long-distance telephone services in a way that encourages the company to produce more efficiently. The Environmental Protection Agency (EPA) has pioneered the use of a regulatory mechanism that allows the market to determine the most efficient way to achieve air quality levels. While the burden of clean air legislation will be high, this Administration initiative will save several billion dollars over the next two decades.

Poorly designed regulations can impose burdens on firms and their workers that in the long run will hurt economic growth. As part of the Administration's agenda to enhance economic growth, the President has announced a regulatory reform initiative designed to reduce the economic burden of regulation (Box 5–1). When it is determined that the government should intervene directly, regulatory approaches that use or replicate market forces, rather than impose direct bureaucratic control on output and prices, will allow markets to retain their flexibility and encourage the most productive use of the economy's resources.

COMPETITION AND THE ROLE OF GOVERNMENT

The competitive market system has three important advantages. First, the discipline of competition encourages efficient production. In a competitive market, a firm that does not produce efficiently will have to charge a higher price to make a profit and will lose customers to its more efficient competitors. Ultimately the firm will be driven out of business.

Second, a competitive market ensures that the economy's productive resources are put to their best use. Automobile manufacturers, for example, decide what kind of cars to build based on the relative prices of different parts needed for the car and on what they think consumers will pay for different kinds of cars. As economists since Adam Smith have emphasized, in competitive markets, consumers and producers will be led to an outcome in which the value con-

305-592 O—92——6

Box 5-1.—The President's Regulatory Reform Initiative

There is increasing concern that the high cost of regulation has become a barrier to economic growth. On January 28, 1992, the President announced a regulatory reform initiative as part of the Administration's agenda to enhance economic growth. The central theme of the regulatory reform initiative is to have Federal regulatory agencies review existing regulations and to accelerate action on initiatives that eliminate unnecessary regulations or otherwise promote economic growth, as allowed by law. The goals of the review are to:

- revise (or repeal where appropriate) those regulations that clearly impose costs that exceed their benefits;
- ensure that regulatory goals are being achieved at the lowest possible cost;
- ensure that existing rules rely on market forces rather than command-and-control requirements to the extent feasible; and
- ensure that regulations provide clarity and certainty to the regulated community and do not promote needless litigation.

To achieve these goals the agencies have been asked to refrain from issuing any new rules for 90 days (except for those regulations that have statutory deadlines, that would promote economic growth, or that are needed for health and safety emergencies) in order to focus their efforts on evaluating existing regulations.

As a first step, the President announced actions to begin the regulatory reform initiative. The goals of these specific actions are to increase the amount of credit and capital available to businesses and consumers, and to reduce the costs of regulation to small businesses. As the review of existing regulations proceeds further actions will be taken as well.

sumers place on the last unit of output of a good (or service) produced just equals the value that society forgoes in producing it.

Third, competition accommodates changes in consumer demand. If consumers demand more washing machines, store owners will quickly begin to run out of inventories. The price will increase to reflect the increased demand for the existing stock of washing machines. In turn, manufacturers will respond by producing more of them.

One of the roles of government is to establish an institutional framework that is conducive to competition and, when markets are

not performing well, to introduce regulation that accomplishes the goal of approximating competitive outcomes.

THE LEGAL SYSTEM

The law determines the ground rules under which market transactions take place. All legal rules, including regulations, impose costs and bestow benefits on different participants in a transaction and therefore alter their incentives. If an inventor knew that another person could copy an innovation and sell it to others, there would be very little incentive to invent in the first place. The legal system protects the inventor by creating specified rights to exclude others from the use of the invention for a fixed period of time, and therefore conveys the right to require compensation for its use. Besides defining and protecting a person's property rights, the legal system provides a method for enforcing contracts and for compensating people when they are victims of accident or injury.

Among its many benefits, the legal system provides a forum for resolving disputes and establishes the ground rules upon which market transactions take place. But resolving conflicts within the legal system also entails costs. A legal system can constrain economic activity if dispute resolution is slow, if the outcome is uncertain, or if the costs of litigation are high. Reform of the legal system, like regulatory reform, involves setting rules that achieve their aims in the most cost-effective way possible. The goal is to create rules and a system of adjudication that provides a fair and efficient system for settling disputes.

Property Rights, Contracts, and the Tort System

Ownership of a piece of land gives the owner the right either to exclude others from it or to give them access to the benefits or use of a resource on that property. The deed to a piece of land defines a property right, and the law protects that right by giving the owner access to the courts if someone tries to use the property without the owner's permission. Property rights are not defined in the abstract, however. Private property rights are determined by overall societal goals. In the case of land, local zoning laws limit property rights by restricting the types of buildings that can be constructed in a particular neighborhood.

Some regulations have been challenged as violating the Fifth Amendment prohibition against taking private property without just compensation (referred to as "takings"). In several recent cases, landowners discovered that newly enacted regulations intended to protect wetlands or endangered species prevented them from building on their property. They argued that although the public interest may be served by restricting land use, the landowners should be compensated for their loss. They also argue that the traditional justification for an uncompensated appropriation of pri-

vate property—the elimination of a "nuisance"—does not apply in these cases. If a court determines that a "taking" has occurred, it will consider the economic impact of the regulation on the value of the property and the extent to which the regulation has unreasonably interfered with investment expectations in determining compensation.

The *Lucas* case, now pending before the Supreme Court, presents these issues in the context of a claim that local restrictions on beachfront development, on a lot otherwise suitable for construction, deprived a property owner of all meaningful use of his land. The United States filed a brief in this case, emphasizing the narrow scope of the government's power to regulate nuisances without paying compensation. The Court's decision in the case will affect the value of land subject to regulation, the incentives of landowners to develop such land, and the incentives of political bodies to take such regulatory actions.

Property rights may also be granted in a form less tangible than a deed to a piece of land. A patent that allows an inventor to receive the profits from his work or a license from the FCC that gives the owner sole rights to use a part of the radio spectrum are also property rights. The licensee of a particular portion of the spectrum would have little incentive to invest in the frequency if any other person could broadcast on the same frequency. By defining what the license is and providing a forum to enforce that right, the legal system allows the license owner to capture the returns from the investment.

The rules of contract law provide for enforcement of agreements and establish remedies when contracts are breached. Even if a person could specify all outcomes when writing a contract, legal enforcement would still be necessary to ensure that people will honor the agreement. If a tire manufacturer, for example, has contracted to deliver tires to an auto manufacturer and then does not deliver them, the auto manufacturer can go to the courts to have the contract enforced. Without enforcement, people would have to depend exclusively on the good will of others to ensure that the agreement is carried out. The auto manufacturer can more easily plan production of new cars when the contract for tire delivery is clearly enforceable.

The legal system also includes a system of tort law, whose major goal is to provide victims of accidents and injury the opportunity to seek compensation for their losses. By awarding damages to victims, the tort law creates an incentive for individuals to behave responsibly. Because of the potential for being sued, people put more effort into preventing accidents and reducing the potential loss from accidents.

Proposed Reforms for the Legal System

Certain aspects of the process of enforcing civil law have been criticized for being costly, arbitrary, and unpredictable and for using unscientific standards. *Because of the way the rules for resolving legal disputes are currently written, parties to a legal case do not consider all of the costs of resolving a lawsuit.* For example, both sides to a legal dispute have almost unlimited ability to take sworn depositions of witnesses, request documents, and submit written questions to each other within the pretrial process called "discovery." Discovery is provided without payment from the requesting party, so there is virtually no incentive to limit the size of the request. As a result, more information than necessary is often gathered, adding substantially to the cost of litigation but providing little offsetting benefit.

Under the leadership of the Vice President, the President's Council on Competitiveness has proposed a comprehensive set of reforms to the civil justice system in its "Agenda for Civil Justice Reform in America." Many of the reforms are designed to accelerate the resolution of disputes and to discourage waste in litigation. The proposed civil justice reforms would establish rules to set quantitative limits on the amount of discovery provided without cost to the requesting party, encourage alternative methods of dispute resolution, place caps on punitive damages, and promote appropriate use of expert testimony (Box 5–2). In Executive Order 12778 the President directed all Federal agencies to implement several of these reforms, including changes in discovery procedures and in the use of expert witnesses, in civil proceedings in Federal courts to which the Federal Government is a party, to the extent feasible.

WHY AND HOW GOVERNMENTS REGULATE

Regulation, it is commonly argued, is intended to correct market imperfections, or "market failures." Imperfections in competition among firms are one type of market failure. For example, in an industry that is a "natural monopoly," where a single supplier can most efficiently meet consumer needs, regulation of prices and the number of competitors may be desirable. In a broader set of markets, no economic regulation is generally necessary. In those cases the antitrust laws exist as a check against the possibility of anticompetitive behavior.

A second justification given for regulation is the presence of "externalities," or third-party effects. An externality occurs when people do not account for all the effects of their actions on others. A manufacturer who dumps pollutants into a river, for example, does not consider the effects of those pollutants on fishermen who

Box 5-2.—Civil Justice Reform Proposals

In August 1991 the President's Council on Competitiveness recommended 50 specific changes to the civil litigation system. The major reforms include:

Loser Pays. The Council has proposed adoption of a modified version of the English rule in which the "loser pays." Under this proposal the person who loses a case would pay the winner's attorney fees. The amount of the payment would be capped at a level equal to the amount the loser spends on attorney fees. Knowing that the law establishes a penalty for losing would discourage a frivolous suit. The use of this modified English rule would be limited to cases involving State law brought under the Federal courts' diversity jurisdiction.

Punitive Damages. A victim may receive punitive damages over and above actual damages, but those awards are often distributed in a random and capricious manner. The Council proposes that the amount of the punitive damages not exceed an amount equal to the plaintiff's actual damages.

Expert Evidence. Often, "expert" testimony is unsupported by accepted professional practice or scientific knowledge. A principal recommendation would require experts to base their testimony on theories "widely accepted" by others in the field.

Voluntary Dispute Resolution. Most disputes are resolved through litigation, either at trial or in out-of-court settlements. The Council on Competitiveness recommends greater access to alternative mechanisms such as private mediation or arbitration to resolve matters without resort to the legal system.

also use the river. The presence of this type of harmful externality has been the rationale underlying most environmental regulation.

An externality can benefit rather than harm third parties. Information is one important example. Private organizations acquire information about product characteristics, such as the nutritional value of foods, which they then sell to consumers. However, it may be difficult for those organizations to capture all the benefits of supplying the information. Once the information is disclosed, consumers can benefit from the use of the information without compensating the provider for its use. In that event, the incentives to invest in supplying the information are diminished.

In principle, when the benefits to consumers of having the information outweigh the costs of requiring that it be provided, the government may want to supplement the role of the private market in supplying information. The government can provide information directly or require firms to provide it. People can then make more

informed choices about which products to buy. Examples of government-required information include food and drug labeling and energy-efficiency labels for household appliances.

Both the absence of competition and the presence of externalities represent imperfections in the market system. If government regulators were acting primarily to correct these imperfections, one would expect that the chief characteristic of regulation would be to simulate the features of the market by encouraging regulated businesses to produce efficiently. In practice, however, *the United States and other nations have too often relied on command-and-control mechanisms, which set a particular level of profits or require use of a specific technology, rather than on mechanisms that encourage firms to reduce their costs or to improve services.*

For example, EPA's 1979 rules for new electric power plants required costly limestone "scrubbers" to reduce sulfur emissions at virtually all new coal-fired plants. A better alternative would have been to set emissions targets and then allow firms to meet the targets by the most cost-effective means, such as by switching to lower sulfur coal. Other examples of command-and-control regulation include restricting price competition among ocean carriers, limiting the number of firms that can provide cable television service, and using administrative hearings to determine who gets the rights to new frequencies on the radio spectrum.

One reason that command-and-control regulations remain in place is that the decision to introduce regulatory reform or to deregulate an industry affects the distribution of wealth among consumers and regulated companies. *The outcome of the regulatory process may be determined by the strength of interest groups rather than by an assessment of whether the proposed regulatory action maximizes net benefits to society.* A regulated company that is producing inefficiently, for example, knows that competition will force the company either to go out of business or to invest in a more efficient production process. Such a company is highly likely to resist regulatory reform.

The Inefficiency of Monopoly

Sometimes an industry may not be competitive—either because a producer has a monopoly over production or because the industry consists only of a few large firms that can make decisions collusively. In these situations, producers tend to reduce the amount of production below what a competitive market would produce, causing prices and profits to rise at the expense of consumers. The desirable characteristics of markets are attenuated when competition is absent. In particular, the outcome is inefficient because some consumers would be willing to pay more for additional quantities of the good than the additional cost of its production. If competition were greater, producers' profits would decline, but by less than the

value of increased output, and all consumers would enjoy lower prices.

One way that the government discourages anticompetitive behavior is through antitrust enforcement. The antitrust laws are part of the institutional framework within which most businesses in the United States operate. The Federal Government enforces the antitrust laws through the Antitrust Division of the Department of Justice and the Federal Trade Commission. The primary focus of these agencies is to challenge mergers that significantly reduce competition and to prosecute businesses that collude to raise prices.

The Regulation of Prices and Competition

Economic regulation generally involves control over the prices a business can charge and limitations on the number of businesses that can provide a good or service. One goal of price regulation is to place a check on companies that have a monopoly in the market that they serve. Yet, price regulation has been imposed on competitive industries as well. Price regulation of initial natural gas sales was instituted in 1954, even though approximately 2,300 independent producers of natural gas were operating as of 1947. Because regulated prices were set too low in an industry that was already competitive, shortages of gas developed in the 1970s.

Another motivation for economic regulation is to protect existing companies from new competition. Regulation of interstate trucking by the Interstate Commerce Commission (ICC) in 1935 was partially stimulated by railroads' concern that unregulated trucking companies would be able to undercut rail prices in areas where regulated railroad rates were high relative to trucking costs. The ICC restricted the ability of trucking companies to offer discounts, and regulators were hostile to companies that wanted to extend service into new geographic regions and to the development of completely new firms. In fact, existing firms were allowed to protest proposed service by a new carrier. The Motor Carrier Act of 1980 changed all of that by limiting the ICC's regulatory authority. By 1990 the total number of licensed interstate carriers exceeded 40,000, compared with 17,000 in 1980. During fiscal 1987 truckers filed 1.2 million new rate schedules, compared with 394,000 in 1979. Because trucking services represent 75 percent of all expenditures on transporting goods, reduced regulation contributes to economic growth by cutting a major cost of production.

Price regulation and limitations on competition are generally justified in industries that are natural monopolies. These are industries where a single firm can produce all of a product at lower cost than several different firms can. Within a particular geographic area, electric utilities, local telephone companies, local distributors of natural gas, and similar industries have been considered natural monopolies.

If several electric utilities attempted to compete with each other to distribute electricity to customers in the same geographic area, each company, realizing that cost reductions in distribution come from having more local customers, would begin to lower prices to capture those customers. Eventually if it were less costly for one firm to provide all the service, only one local distribution company would survive this battle. Exactly this type of competition occurred in the late 19th century when several companies provided electric service in Chicago, with one company eventually emerging to serve the entire city. The expenditure on the overlapping electric lines was wasteful, since competing firms could not survive.

The usual policy response is to carve out a monopoly for an electric utility over a fixed geographic area and then to regulate its prices. This regulatory approach eliminates wasteful duplication while constraining the pricing of the monopolist, but it can also have drawbacks. As discussed below, *the way prices are regulated can diminish the incentive for the regulated company to minimize its costs. Government protection of a monopoly may also prevent new competitors from implementing technologies that do not have the cost characteristics of a natural monopoly.*

The Environment, Health, and Safety

Since World War II, the government has assumed an ever-increasing role in regulating the environment, health, and safety. Spurred by increasing public concern over risks, government agencies, for example, now regulate discharges of air pollutants, set safety standards for cars, and oversee the food that Americans eat.

A major goal of regulating the environment, health, and safety is to correct the problem of externalities. Externalities may take the form of something people want less of—like air pollution—or something they want more of—like information on safety. If one man's clothes are soiled by his rural neighbor's furnace, he may be able to reach an accommodation with his neighbor—for example, by offering to share the cost of switching to a cleaner fuel. In this way, the neighbor is led to take into account the external cost of his decision about which fuel to burn. But if the man's clothes are soiled by air pollution from a thousand furnaces and cars, then it is not practical to reach similar arrangements with, or even identify, all those who caused the harm. In this case, one person can pollute another's air without confronting the cost, and the result is too much air pollution. A regulatory approach can provide a corrective in such cases. Ronald Coase, the winner of the 1991 Nobel Memorial Prize in Economics, has emphasized the role of the cost of reaching agreements in determining the appropriate policy response to problems created by externalities (Box 5-3).

Besides protecting the environment, the government protects consumers by providing product information on health and safety

Box 5–3.—Ronald Coase, the Role of Transaction Costs, and the Definition of Property Rights

Professor Ronald Coase of the University of Chicago, the Nobel Laureate in Economics for 1991, is particularly known for his penetrating analysis of the role of transaction costs—the cost of effecting an exchange—in determining the characteristics of social institutions. Coase pointed out that, for example, whether an auto manufacturing company makes or purchases the seat belts it installs in the cars it produces depends upon the cost of making a product for which it may not be particularly well set up (the seat belts) compared with the cost of reaching a satisfactory supply arrangement with an external seat belt firm. In competitive markets, Coase noted, organizational forms that economize on transaction costs will tend to prosper and survive. Changes in the relative costs of such transactions, owing in part to the development of computers, are leading to major changes in the organizational structure of firms in market economies.

In a celebrated paper, Coase explored the role of transaction costs in determining how property rights ought to be defined. Should, for example, the property rights of an owner of a piece of land include the freedom to emit smoke that soils a neighbor's laundry, or, alteratively, should the neighbor's property rights include the option to ask a court to enforce a claim for damages against the emitter of smoke? Coase's answer is that how property rights in such cases should be defined depends on transaction costs. If, for example, it is easy to measure smoke emissions but hard to tell whether people are taking due precautions to do their laundry on smoke-free days, the better result may obtain if the property right includes the option to emit smoke! Launderers would then have an incentive to negotiate a satisfactory schedule with smoke-emitters (for example, smokeless Tuesdays).

A similar line of reasoning offers insights into the traditional legal doctrine that denies compensation for a "regulatory taking" to eliminate a "nuisance" and into the choices faced in several recent court cases that deal with new questions of regulatory taking. The Coase analysis emphasizes that in addition to the issues of equity, the courts should consider whether the net effect of a more or less stringent protection against taking in the definition of property rights will lead to the best use of land in the long run.

or requiring businesses to do so. To encourage disclosure, the President signed the Nutrition Labeling and Education Act of 1990, requiring the Food and Drug Administration (FDA) to establish rules that would make it easier for consumers to understand the nutritional content of foods. Among the proposals the FDA made in November 1991 is a requirement that food companies use standardized measures of a "serving" for more than 100 different foods, which would allow consumers to compare products easily. The FDA is also expected to rule on which specific health claims will be permitted on labels.

Although increased nutritional information benefits consumers, it is important to consider its cost when writing regulatory rules that implement legislation. Businesses will incur costs to develop the new information and to alter the food labels. Some of these costs will be borne by consumers in the form of higher food prices. Also, any restrictions on health claims should be balanced against the possibility that potentially useful information will not be disseminated. Furthermore, the presence of an externality does not mean that information on nutrition will be provided only when it is required by the government. Some information will still be supplied by other means, such as through consumer magazines.

For certain risks, the government goes beyond requiring that information be provided. In the case of automobiles, workplace safety, or a doctor's services, it may be costly for each person to invest in assessing the relative quality or safety of the goods provided. The government can play the role of gathering the information and then regulating the risks directly. Thus, all automobiles sold in the United States must satisfy safety regulations established by the National Highway Traffic and Safety Administration (NHTSA). Some products, such as certain pesticides, are banned entirely. The government, however, is not the only entity that can assist the consumer in evaluating product performance. Product manufacturers may be able to assure quality by providing product warranties. *Industry-established standards and companies' investments in their own brand names also demonstrate that the private market plays an important role in ensuring safety and quality without help from the government.*

Many actions have some external or third-party effects that could justify government intervention. But government action itself has third-party effects, and *government intervention to correct the market failure of an externality carries with it the risk of unintended outcomes because of "government failure."*

Government failure in regulation may occur for at least three reasons. First, it can be difficult to determine who is affected by an externality and to what extent. This is particularly true where the scientific consensus about an externality is still evolving. For ex-

ample, the scientific consensus on air pollutants and toxic substances has changed often enough to impede sound regulatory decisions, as the scientific debates surrounding asbestos, dioxin, and global climate change all illustrate.

Government failure in regulation may also occur when regulatory solutions impose large unintended costs on innocent third parties. Thus, long delays in the approval of new drugs harms those forced to use the older, often less effective, substances. The Administration has proposed using outside review organizations to complement the FDA's function of evaluating the safety and effectiveness of new drugs. The goal of contracting out some of the approval function is to reduce the time needed to approve new drugs, especially those that have the prospect of extraordinary benefits in reducing morbidity or mortality.

Third, as explained in the next section, government failure may occur when regulation becomes the mechanism that allows one group of people to take advantage of another.

Interest Groups and Regulation

Regulation creates winners and losers. Firms know this and spend considerable time and money trying to capture the benefits of regulation. New regulations rarely affect all firms equally. New firms may face higher costs than existing firms; large firms may be able to finance costly changes demanded by new regulations; some firms may be able to gain exemptions from the existing rules.

In each case the effect of a new regulation is to transfer income from one group to another. The government, for example, does this by creating or protecting a firm's position as a monopolist or by restricting a market to a small number of firms. Protected firms enjoy higher profits than competitive firms; these higher profits become the prize sought by others. Thus, as explained above, truckers used the ICC to block entry of new competitors.

But gaining a protected position from the government can involve large expenditures. Firms hire lobbyists and lawyers and even alter their business plans in order to acquire a protected position. *Because all interest groups must make similar expenditures to seek government favor, the regulatory process tends to favor those groups or businesses that can capture the greatest benefits from a protected position. Once achieved, a protected position must be defended against competitors trying to dislodge the incumbent firm.*

Before deregulation in 1978, for example, the Civil Aeronautics Board (CAB) granted effective monopolies to airlines on many routes. The CAB held hearings in which the airlines attempted to persuade the board members to award them exclusive franchises and to keep out competitors. Although the deregulated domestic airline industry continues to use lobbyists to gain a favorable hear-

ing for its views, the industry no longer has protected domestic monopolies to spend time and money defending.

The U.S. Department of Agriculture's agricultural marketing orders are another illustration of protection from competition. These orders restrict supply in markets for lemons, oranges, and other crops (Box 5–4). For decades farmers have made investments in the belief that the orders would protect their profitable position. Although in the long run, expansion by farmers dissipates these profits, some farmers resist proposals that would eliminate these orders because doing so would reduce the value of their investment.

Box 5–4.—Agricultural Marketing Orders

The current Federal marketing order for California-Arizona navel oranges has been in effect since 1958. Under the present order, the maximum quantity each handler (first buyer) may ship to the domestic fresh market is set weekly. Harvested oranges not sold in the domestic market are sold abroad or to the domestic processing industry. By limiting the quantity of oranges that may be sold in the high-valued fresh market, domestic fresh orange prices are raised and total revenue to growers may be increased.

Although farmers may gain in any one year from the higher farm income, such gains are dissipated as growers plant additional trees to earn some of the increased revenues brought about by regulation. The marketing order also penalizes growers who produce oranges at lower cost by limiting the volume of fresh oranges they may sell. Consumers of fresh oranges lose as well because of higher prices.

What are the costs and benefits of such regulation? A recent study by the Department of Agriculture suggests that eliminating the marketing order would cost producers about $13 million annually, while saving consumers about $30 million. On a per capita basis, however, each consumer would gain about $.12, while each grower would lose about $3,150.

Not only firms, but other interest groups as well, benefit from protected positions. The Advisory Commission on Regulatory Barriers to Affordable Housing found that many local land use controls (including zoning laws and building codes) are designed to restrict the availability of housing for families with incomes somewhat lower than current residents. By limiting the supply of affordable housing, local regulations drive up the cost of housing, particularly for moderate and lower income families.

The problem of entrenched protected interests can be avoided by arrangements that discourage expenditures solely to defend the special position. Auctioning public property, for example, not only gives the auction winners control of the property but also an incentive to make the best use of it. Currently, the FCC uses a lengthy process of hearings or a purely random lottery system to assign new licenses to the radio spectrum. The Administration has proposed legislation to permit competitive bidding for newly available portions of the radio spectrum to ensure that licenses will be assigned to those parties who value them most. Competitive bidding would also simplify the application process and bring in revenue to the government.

THE REGULATORY PROCESS

Regulation has become pervasive at the local, State, and Federal levels. Local regulation typically involves such matters as setting zoning restrictions and building codes, regulating sewer and water prices, and granting cable television franchises. In some cases local municipalities own the local electric utility, buying the needed power from generators of electricity. States regulate utilities through regulatory commissions, which set retail rates for local telephone calls, electric power, and natural gas. States also issue regulations in a broad range of areas including insurance, energy, transportation, health, safety, and the environment.

Federal regulation is concerned primarily with goods and services that are sold in interstate commerce. The Congress has responded to economic and social problems by creating regulatory agencies or by expanding the role of an existing Cabinet department. In health and safety, for example, 9 separate Federal agencies write regulations under the authority of 26 major statutes. In a process called a "rulemaking," agencies propose rules to conform with the requirements of the legislation (Box 5–5 describes the rulemaking mechanism). They are then published in the *Federal Register* and finalized only after a period for public comment.

As shown in Chart 5–1, researchers estimate that the administrative costs of enforcing and writing Federal regulations have increased almost threefold since 1970. *The administrative costs shown in Chart 5–1, however, do not include additional costs imposed on firms from regulation—costs that are ultimately borne by consumers. These additional costs result when regulation raises production costs and product prices, makes products unprofitable to provide, or retards product innovation.* Recent estimates put these costs in the hundreds of billions of dollars.

To make regulations more cost effective and to create some consistency in the way regulations are formulated in each agency, a system of regulatory oversight has been established within the Ex-

Box 5-5.—Writing the Rules: The Clean Air Act

The Congress legislates regulation broadly but leaves to the regulatory agencies the task of filling in the details. Each agency is charged with implementing certain laws. As an illustration, the Clean Air Act Amendments of 1990 contain 9 major titles running to 300 pages and require the Environmental Protection Agency (EPA) to issue at least 55 separate regulations in the first 2 years alone.

Consultation and Public Comment. On November 15, 1990, the President signed the Clean Air Act Amendments. In late 1990 the EPA began work on the first set of rules to be drafted, meeting formally and informally with affected industries, environmental groups, and other outside organizations. In early 1991 the EPA published in the *Federal Register* the first of a series of notices of proposed rulemaking, soliciting public comment. At several stages of the rule-writing process, the EPA must solicit public comments to be considered as the regulations are finalized.

Reg-neg. Recently, some rules have been formulated through negotiated regulations or "reg-negs," which are designed to bring all parties affected by the regulation together to reach a consensus on its design. The regulation is then drafted by the responsible agency in a way that balances the welfare of the affected parties, including that of the general public. When successful, reg-negs are able to reduce the time and resources (including litigation) that might be expanded under the conventional rulemaking process.

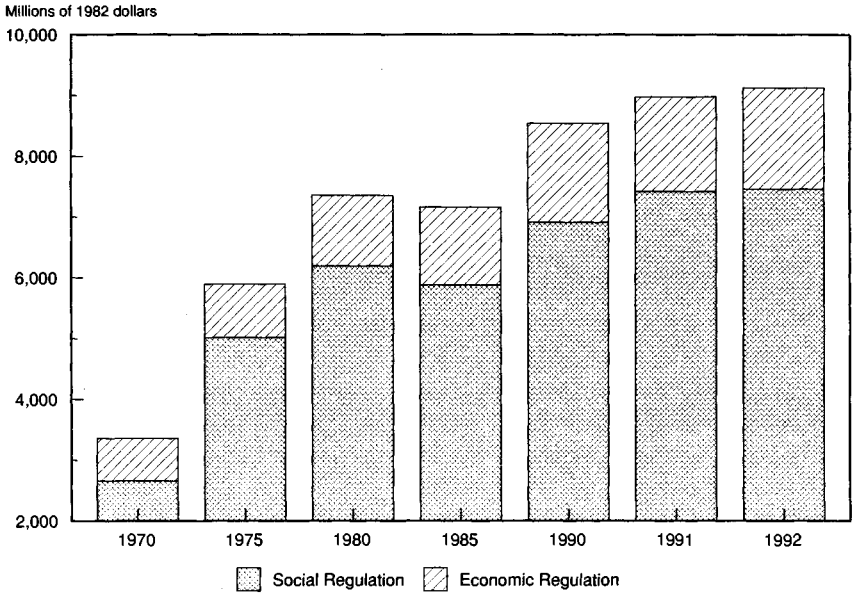
Agency Review. The Office of Management and Budget (OMB) and other agencies have the opportunity, and in some cases the statutory obligation, to review proposed rules, generally for 30 to 60 days.

Final Rule. After a last round of public comments, and clearance from OMB, the EPA Administrator signs the final rule, which is promulgated in the *Federal Register*.

ecutive Office of the President. In 1981 President Reagan issued Executive Order 12291, which authorizes the Office of Information and Regulatory Affairs (OIRA) within the Office of Management and Budget (OMB) to work with the various regulatory agencies to develop more effective and less costly regulations. The Executive order directs all agencies proposing new regulations, reviewing old ones, or developing legislation to estimate costs and benefits and to demonstrate that the potential benefits outweigh the potential costs to society. OIRA reviewed more than 2,100 rules in 1990 to

Chart 5-1 **Administrative Costs of Federal Regulation**

The administrative costs of Federal regulation have increased greatly since 1970.



Note: 1991 and 1992 figures are projected.
Source: Center for the Study of American Business, Washington University.

ensure that the principles of Executive Order 12291 were applied. In addition, some major issues are reviewed by the President's Council on Competitiveness.

Federal vs. State Regulation

One barrier to increasing the overall effectiveness of regulation is the dual system of Federal and local regulation. Local governments often can respond more effectively to problems that arise in their communities. Federal involvement in local zoning laws, for example, would require knowledge of local conditions that would be very costly to accumulate. Overlapping jurisdictions can sometimes create problems. For example, State regulations that impose food labeling laws distinct from FDA rules force businesses to develop differently labeled products for these States. The inevitable increase in production costs is likely to lead to higher food prices for all consumers. *In cases where local regulation interferes with economies of production, a uniform system of Federal regulations could reduce the burdens on firms and their workers and lower prices for consumers.*

SUMMARY

- A system of competitive markets creates the discipline that encourages firms to produce efficiently and directs resources to their best use.
- A well-functioning legal system increases the efficiency of economic activity by appropriately defining and protecting property rights, ensuring that the terms of contracts are fulfilled, and facilitating compensation for the victims of injury. The Council on Competitiveness has proposed reforms that would improve the efficiency of the legal system and reduce unnecessary litigation.
- Government intervention to correct the market failure of an externality carries with it the risk of creating other unintended market failures.
- Once a regulatory goal is established, policies that incorporate market incentives are superior to command-and-control solutions.

THE BENEFITS OF ECONOMIC DEREGULATION

The primary purposes of deregulation are to allow competition to determine the amount of goods and services that are produced and the prices consumers are charged for those goods and services. Competition would also encourage innovation and the development of new products. For example, before deregulation, the CAB determined the number of airlines that could serve each air route and the air fares they could offer. Since deregulation in 1978, fares have decreased on long-distance routes and increased on short-distance routes, but average air fares overall have declined 20 percent in real terms. Half of all passenger trips are now in markets served by three or more carriers, double the percentage before deregulation. Also, once freed from regulation, airlines developed "hub-and-spoke" systems, an innovation that has given passengers a much greater range of flight choices.

New technologies mean that some industries may no longer be natural monopolies, but regulation can mask that fact by keeping the new technologies out of the marketplace. Instead of perpetuating the monopoly, deregulation would allow new firms to enter. The market would then determine how the service should be provided and at what price.

This is especially true in telecommunications where technology is changing rapidly. For many years most supporters of regulation considered long-distance telephone service to be a natural monopoly. Now firms have set up fiber optic and microwave networks that compete directly with AT&T in long-distance service. The Administration proposed in November 1991 to permit competition with the

International Telecommunications Satellite Organization (INTELSAT), the consortium that provides international long-distance telephone service by satellite. Under the new policy, international satellite companies would immediately be permitted to provide additional services, with the goal of opening the market to full competition by 1997.

Even when unfettered market competition is not feasible, there are better and worse ways to regulate. Under recently developed approaches, prices can be set in a manner that gives regulated firms greater incentives to reduce costs and to innovate. Currently, monopolies, such as local electricity distributors, are often regulated using traditional "cost-of-service regulation." The regulator tries to determine the cost of providing the service, and sets prices to cover those estimated costs, including a return on the capital that is invested in the regulated company. This method is used to ensure that the company will not lose money and that it will not be able to charge prices above its costs.

The problem with cost-of-service regulation is that it does not give the regulated firm the incentive to reduce its costs or provide better service. An attempt to reduce costs will eventually be followed by a reduction in allowed revenues, leaving the firm no better off. If new services lead to increases in profit, prices will eventually be reduced to bring revenues in line with costs. The incentive for firms to develop the new services are thereby diminished.

New regulatory approaches, commonly labeled "incentive regulation," are being tried as alternatives to cost-of-service regulation. In the transition from regulation to unregulated competition in long-distance telephone service, the FCC has tied some of AT&T's rates to an index that is adjusted for inflation minus a correction for expected productivity improvements. If AT&T reduces its costs or improves its products, it is allowed to keep some of the profits. The FCC and many States have also instituted this incentive regulation for local telephone companies. And in its National Energy Strategy, the Administration has proposed instituting incentive regulation for natural gas pipelines. In this way regulators limit monopoly profits while giving the regulated company incentives to produce efficiently and to innovate.

The following sections analyze proposals for further reductions in regulation that are now being considered to improve performance in the natural gas, electric power, and cable television industries. Regulatory reform will bring more competition to natural gas delivery and the generation of electric power. The benefits of deregulating cable television will be fully realized only when entry barriers to new competitors, possibly using alternative technologies, are removed. *The goal of deregulation is to promote general prosper-*

ity by creating a more efficient allocation of resources. That goal can be achieved by eliminating price regulation and barriers to entry where markets can be competitive.

NATURAL GAS

Regulation in the natural gas industry provides a good example of the problems that can arise when regulators set prices incorrectly. Before 1978 the price paid for the natural gas extracted from the ground, often called the "wellhead" price, was regulated by the Federal Energy Regulatory Commission (FERC). Unfortunately, the regulated prices were set too low, reducing the incentive to extract more natural gas. Because demand at the regulated price was greater than the amount being produced, Federal regulators were forced to ration the use of natural gas. To alleviate this problem, the Natural Gas Policy Act of 1978 began the process of decontrolling prices. The Natural Gas Wellhead Decontrol Act of 1989 set a timetable for completing wellhead deregulation. By January 1, 1993, all Federal regulatory control over wellhead prices will be eliminated.

The Current Status of Natural Gas Regulation

The process of transporting natural gas to a residence or a commercial user remains regulated by FERC and the States, however. Once natural gas is extracted from the ground, it is transported by pipeline, often over long distances and across State lines, and then sold to local distribution companies, electric utilities, and industrial users. FERC regulates the prices charged for interstate transportation of natural gas and the prices that pipelines charge for the gas they sell to local distributors and others. Pipeline companies must provide FERC with information on the costs they incur. These include the prices paid to producers for gas and the cost of building pipeline facilities to transport natural gas. FERC then sets rates to cover those costs.

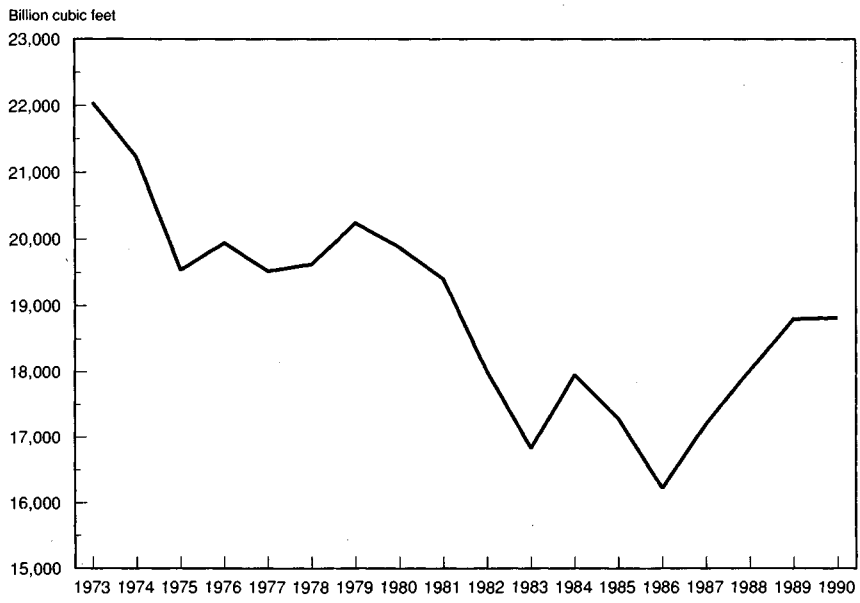
The local distribution segment of the industry, which distributes the gas to residential, commercial, and industrial users, remains largely a regulated monopoly. Generally, the least costly method of distribution is for a single company to deliver the gas to all homes within a market, although a small number of areas have competing distributors for nonresidential customers. Because distribution has natural monopoly characteristics, local distributors generally have franchised service areas in which they are the monopoly provider of service for most or all customers. States regulate the rates distributors may charge.

Despite the fact that most wellhead prices have been deregulated, the electric generation and industrial sectors have actually reduced their use of natural gas over the last two decades. *Although natural gas is a relatively clean fuel with abundant domestic sup-*

plies, total domestic consumption has declined more than 10 percent since 1973 (Chart 5-2). One primary barrier to increased use is the process of granting permits for construction of new natural gas pipelines. FERC approval must be obtained before any new interstate pipeline can be constructed. Often, an administrative hearing is held in which outside parties, including competitors, can object to the application. Several years may elapse before a construction permit is granted, sometimes prompting consumers to turn to alternative, more expensive fuels. Legislation based on the Administration's National Energy Strategy would streamline the process of reviewing applications for pipeline construction.

Chart 5-2 **Consumption of Natural Gas**

Domestic consumption of natural gas has declined from 1973 levels.



Source: Department of Energy.

Consumption may also have declined because local distribution companies, electric utilities, and industrial users were limited in their ability to negotiate directly with natural gas producers. Before 1985, when FERC initiated open access to natural gas pipelines, almost all natural gas was actually purchased by pipeline companies and then resold to distributors, utilities, and industrial users. In 1982, for example, only 3 percent of the natural gas transported by the pipelines was owned by others. Consequently, for most users the only source for natural gas was the monopoly pipeline that served their plant. With a monopoly over gas transporta-

tion, a pipeline company may not offer the lowest priced natural gas, prompting the user to consider other fuels.

Open Access to Natural Gas Pipelines

The FERC initiatives have significantly changed the position of pipeline companies by creating incentives for them to transport gas that is owned by other companies. Pipelines that market their own gas, as well as provide transportation services for gas owned by others are called "open access" pipelines. These pipelines are required to provide gas transportation services to owners of natural gas not affiliated with the pipeline that are comparable to those it provides for its own gas sales. Because of this policy, gas owned by firms other than pipelines now accounts for about 80 percent of the interstate sales of natural gas transported by pipelines.

The effect of the open access policy is that electric utilities, industrial users, and local distribution companies can now contract to purchase gas directly from gas producers and marketers as well as from pipeline companies.

Although open access has dramatically expanded, the extent to which competition can be fully realized in the market for gas delivered by pipelines has been questioned. When a pipeline sells its own gas, it is actually selling a bundled commodity consisting of the gas and various transportation, storage, and other services. Other gas sellers pay for the transportation services separately, but the price they pay and the quality of service they receive may not be comparable to the rate and service implicitly provided for the pipeline's own gas sales. If there is no other competing pipeline through which the natural gas can be delivered to a particular customer, the nonpipeline seller will be at a disadvantage relative to the pipeline's own gas sales. Discrimination of this type could reduce the benefits of competition.

One of the goals of the Administration's National Energy Strategy is to eliminate that potential for discrimination. In July 1991 FERC proposed that pipelines be required to separate their business of selling gas from their business of transporting gas for others. After this restructuring, gas would be sold unbundled from the various transportation services, as on an "a la carte" menu, making the comparability of transportation rates and services much easier to monitor.

FERC has proposed to relax regulation of pipeline gas sales once this unbundling occurs. This relaxation would mean that the competitive natural gas sales market will determine which transactions take place and at what price. Because local distributors and other gas consumers may still be captive to a single pipeline, the rate the pipeline charges for transporting the natural gas would remain regulated.

Mandatory unbundling may not always be necessary, however. If a customer has access to competing pipelines, then the likelihood of discrimination is reduced. In that case a competitive gas sales market could flourish without unbundling. Mandatory unbundling can also impose costs on producers. With unbundling, pipelines may lose the ability to coordinate and manage gas shipments. Mandating unbundling would deny pipelines the benefit of these "economies of scope." These economies of scope cannot be recaptured by simply allowing buyers to purchase the services together. The potential loss of productive efficiency needs to be considered before unbundling is mandated on a blanket basis.

ELECTRIC POWER

Similar to the natural gas industry, the electric power industry consists of three different segments: the generation of power, the transmission of power from generators to local utilities, and the distribution of electricity to homes and businesses by the local utility company. Unlike the natural gas industry, however, the same firm frequently performs all three functions: it produces and transmits its own power and then distributes that power to retail customers. A small but growing number of firms specialize in one particular segment, such as generating electric power that is sold wholesale to utilities.

Currently, all three segments of the industry are subject to State and Federal regulation to some extent. Competition in the distribution of electricity has generally been considered infeasible because of the natural monopoly characteristics of these services. Instead, local utilities are granted monopolies over the markets they service, and States or local municipalities regulate the rates they can charge customers. FERC regulates the prices charged for use of interstate transmission facilities, which also have natural monopoly characteristics, and the price of interstate sales of wholesale power. But competition has emerged among firms that generate wholesale power. Regulators now face the problem of determining when to step aside and allow the market to determine the price at which that power is sold.

Promoting Competition in Electricity Generation

The ability to buy and sell electric power allows utilities to make more efficient use of existing capacity. By buying power from other companies, for example, a local utility can satisfy an extraordinary demand for electricity, such as that which occurs on an unusually hot day, without having to build the additional capacity itself. When utilities purchase power, however, the Federal Power Act of 1935 requires FERC to ensure that prices charged for any interstate sales are "just and reasonable." The seller must provide cost information to FERC, and significant delays in determining the

rates can occur. With the emergence of a more competitive generation market, however, the need to regulate all sales on a cost-of-service basis has been questioned.

One major step in developing competition in the sale of electric power was the Public Utilities Regulatory Policies Act of 1978 (PURPA). PURPA exempts "qualifying facilities," such as cogenerators of steam and electricity, from FERC rate control and relieves them of other financial requirements. PURPA has been successful in encouraging the development of nontraditional sources of power. In the 1980s qualifying facilities that sell power to utilities added 13,000 to 15,000 megawatts of capacity to the national market, while utilities that produce their own power ordered only about 9,500 megawatts of new capacity. Other independent power producers that do not qualify under PURPA have also begun to emerge. *The availability of alternative power sources has encouraged 13 States to use competitive procurement, rather than cost-of-service regulation, when a utility needs generating capacity.* FERC has also adopted, for some power sales, the use of rates arrived at through competitive bidding.

A major barrier to the further development of a wholesale electricity market is the Public Utility Holding Company Act of 1935 (PUHCA). The original intent of the 1935 law was to curb financial abuses by electric utility holding companies. Its effect today, however, is to restrict the development of independent generating sources. For example, certain holding companies are barred from owning more than 10 percent of a power producer whose sole purpose is to sell power in the wholesale market. Legislation supported by the Administration as part of the National Energy Strategy would amend PUHCA to eliminate obstacles to entry by new independent power producers and barriers to the development of new sources of wholesale power affiliated with utilities.

Transmission Access

The control of access to transmission services by firms that sell wholesale power raises the possibility that power sales will not take place at competitive prices. A utility may be captive to a single provider of transmission who also sells power. The owner of the transmission capacity could deny other power producers access to the lines, allowing it to charge prices above competitive levels for its own power. The presence of a monopoly provider of transmission forces FERC to keep a close watch over the prices charged for wholesale power.

A seller of power who also controls transmission cannot always set rates above the competitive level, however. A purchaser may have several alternative sources of supply. It could generate power itself, it could purchase power produced by others in its own service area, or it could purchase power produced outside of its service

area by firms that have access to the necessary transmission. *When the purchaser of power has a number of alternative sources, a competitive market can develop. Prices that arise from competitive markets can take the place of prices based on cost-of-service regulation.*

When there are no alternative sources of power, denial of access to transmission would leave the utility captive of a single supplier. In that case a requirement that the transmission owner give a buyer access to alternative sellers, while being compensated for the opportunity costs of transmitting that power, would increase competition in wholesale markets and ensure that power can be purchased at competitive rates. At present, FERC has limited legal authority to require owners of transmission to provide access. Legislation may be needed to expand FERC's authority to order a transmission owner to provide access to a power supplier when such access would enhance competition in the wholesale power market.

CABLE TELEVISION

Cable television is now available to more than 90 percent of all homes with television, and more than 60 percent of these households subscribe to cable service. Cable television normally includes television stations that are broadcast over the air, as well as services such as CNN and ESPN, that are delivered by satellite to the cable operator. Consumers in most communities can obtain these services only by subscribing to the local cable television service. The operator typically charges subscribers a monthly fee for delivering these services. The problem now facing policymakers is how to encourage competition that will restrain local cable systems from setting fees too high.

The Effects of Cable Deregulation

By virtue of their control over permits to string cable along and across public rights-of-way, local communities established the right to regulate cable television. Many communities decided that having more than one cable system was inefficient. Multiple systems would have meant duplicating all of the cable connected to each household and business. Most cable television companies were thus granted a monopoly franchise over the market they serve. A local authority regulated the rates of "basic service," a package that usually includes both broadcast channels and satellite-delivered programs.

By the early 1980s the availability of alternatives to cable brought into question the necessity of continued regulation. Possible alternatives included purchasing satellite dishes, using videocassette recorders (VCRs), or simply opting to limit viewing to channels available via broadcast antennas. The Cable Communications Policy Act of 1984 (Cable Act) barred regulation in communities where there was "effective competition," which the FCC de-

fined as communities that receive at least three over-the-air broadcast channels. The effect of this rule was to leave only 3 percent of all cable franchises regulated by the end of 1989, down from 63 percent before deregulation.

Cable television rates increased substantially between the end of 1986, when the Cable Act took effect, and the end of 1990. Over that period, the average rate for the lowest priced basic service increased 32 percent in constant dollars. Cable operators explain the increase by arguing that they now include more channels and a greater variety of programs in the basic service. But others blame deregulation, noting that the alternatives of watching broadcast television or renting video tapes do not provide enough competition to restrict the prices charged by cable operators.

Introducing Competition for Cable

Responding to that criticism, the FCC changed its effective competition standard in 1991. Now local communities may regulate rates in those areas that receive fewer than six over-the-air broadcast channels. Although there have been calls to increase the scope of rate regulation even further, *the Administration has supported a policy whose ultimate goal is to introduce new competition for cable operators, encouraging both price competition and alternative sources of television programming.* Although cable television has been traditionally perceived as a natural monopoly that requires limitations on competition and regulated prices, new transmission technologies such as satellite-delivered services are emerging. Reliance on rate regulation and restriction on entry prevents those technologies from being fully implemented. Rather than perpetuating the existing monopolies, competition among video providers will determine how the services should be provided and at what price.

The emergence of competition will depend on whether a second company finds it profitable to install the necessary wires and other equipment or to use a different technology to compete with the incumbent cable operator. One possible competitor that has already invested in some of the fixed equipment is the local telephone company, although it would have to install fiber optic cable to provide a service comparable to that provided by existing cable companies. Currently, however, FCC regulations and the Cable Act prevent direct competition from the local telephone company.

Under one reform proposal, local telephone companies would be permitted to transmit television or other video signals provided by both the telephone company and other companies. Critics of this plan worry that because telephone rates in some States are still determined by cost-of-service regulation, the telephone companies might seek to transfer the costs of their video operations to the regulated telephone sector, thereby inflating the costs of telephone

service and putting competing video program providers at a disadvantage. This practice is commonly called "cross-subsidization." There are also concerns that telephone companies might use their control over the telephone lines to discriminate against competing programmers simply by designing the network to favor their own product.

The problems of discrimination and cross-subsidization are legitimate concerns. The FCC has developed rules that could be used to minimize the risk of cross-subsidization and discrimination in video services. If problems arise, these rules can be strengthened further. Even with the proper rules in place, full participation by telephone companies in providing video content cannot occur until the Cable Act is changed. As an interim step, *competition for existing cable operators could be enhanced by permitting local telephone companies to carry television and other video services that are controlled by independent companies.* The FCC began to ask for comment on such a policy in November 1991. The alternative policy would be to continue banning the most likely competitor for incumbent cable operators. Such a policy is untenable in the face of unregulated rates and monopoly franchises.

SUMMARY

- Implementation of the National Energy Strategy would enhance competition in the generation of electric power and the delivery of natural gas.
- In the long run, removal of the barriers to competition for existing cable operators, rather than price regulation, will benefit consumers by lowering rates and providing alternative services.
- By limiting competition, economic regulation may be inhibiting the introduction of innovations that would benefit consumers.
- The economies of producing in both a regulated and unregulated market should not automatically be sacrificed to eliminate problems of discrimination and cross-subsidization.

REFORMING REGULATION OF THE ENVIRONMENT, HEALTH, AND SAFETY

Environmental, health, and safety regulation is directed in part toward remedying externalities or third-party effects. During the past two decades, *the Federal Government has significantly widened the scope of regulatory activity in these areas, generally using a command-and-control approach. As a result, costs to the economy have increased substantially,* because legislation in these areas has rarely required regulators to balance the costs and benefits of their actions. Recent initiatives have attempted to improve on tradition-

al regulation by allowing more flexibility and by balancing benefits and costs. These initiatives offer significant cost savings compared with traditional command-and-control regulation.

IMPROVING THE ENVIRONMENT

By requiring firms to account for the costs they impose on others through pollution, the Clean Air Act, the Clean Water Act, and the Resource Conservation and Recovery Act have dampened the incentives for the excessive use of environmental resources.

At the same time, their costs have been significant. Just one new initiative, the Clean Air Act Amendments of 1990, when fully implemented in 2005, will cost an estimated $25 billion to $30 billion per year or more. The EPA estimates that expenditures to reduce pollution were at least $115 billion in 1990, more than in any other major industrialized country, and one of the highest as a percentage of gross national product (GNP). Between 1972 and 1990, pollution control costs tripled (in constant dollars), rising from 0.9 percent to 2.1 percent of GNP; the EPA expects this total to rise to 2.6 percent by 2000. By some estimates, indirect costs of compliance add significantly to this total; to comply with a regulation, for example, firms may turn to higher cost inputs as substitutes or produce lower quality finished goods.

Acid Rain

Significant uncertainties surround many environmental issues. This was seen in the scientific controversy that resulted in the National Acid Precipitation Assessment Program (NAPAP), a 10-year, $550 million effort authorized by the Congress because of concern that acid rain might be harming the environment. When the NAPAP study began in 1980, the consensus view held that acid rain caused acidic lakes; the study demonstrated, however, that soil and other conditions had a far greater influence than acid rain on the acidity of lakes. Other studies have also suggested that simple mitigation strategies would be far more cost effective than the technology-based command-and-control regulation usually favored by the Congress.

In the recent past, scientific consensus has shifted abruptly on several other important issues as well, including the risks associated with dioxin, asbestos, and radon. These examples should serve as reminders not to rush into expensive new regulatory regimes on the basis of incomplete evidence. But once a policy decision has been made to correct an externality associated with the environment, then market-based incentive programs usually can accomplish their objectives at a lower cost than traditional command-and-control approaches.

The Clean Air Act Amendments of 1990 institute the first large-scale emissions trading regime for a pollutant. This program sets a

maximum national level of sulfur dioxide that can be emitted annually from coal-fired power plants. Firms must possess an emission allowance for each unit of SO_2 they emit or face heavy fines (Box 5–6). To comply, firms are allowed to buy and sell allowances; the maximum level of emissions will be attained efficiently because firms self-select, purchasing or selling allowances to minimize costs. The same level of emissions could be achieved under command-and-control regulation, but the cost of compliance, which falls ultimately on the consumer through increased electricity prices, would be greater, in some cases much greater.

Box 5–6.—Are Emission Allowances Licenses to Pollute?

Some have opposed the implementation of emission allowance trading systems on the ground that the allowances give their holder a license to pollute. By that standard, however, any environmental regulation that does not hold pollution to zero also constitutes a license to pollute. The costs of pollution abatement become prohibitive compared with benefits as emissions are reduced toward zero, making some tradeoffs inevitable. Consequently, regulatory regimes should be chosen that protect the environment to some desired level while minimizing losses in economic growth.

An allowance trading system is merely a method of allocation; it does not confer new licenses to pollute. Under command-and-control regulation, firms pay nothing for residual emissions after they install the required equipment. An allowance trading system, on the other hand, requires firms to pay for each unit of pollution they emit.

Economic incentives decrease firms' compliance costs by offering them the flexibility to make the best use of information regarding their production process. In contrast, efficient command-and-control regulation requires the regulating agency to collect detailed, firm-specific information on pollution control costs, alternative production processes, and the value of capital stock in place—an impossible task. *With economic incentives, regulators merely lay down ground rules and allow firms to make their own production choices; the government—and the Nation—benefits from the firm's internal information without having to discover it.*

Fuel Economy Standards

The transportation sector accounts for two-thirds of U.S. petroleum consumption, with more than half going to gasoline for cars, trucks, and buses. Gasoline consumption imposes at least two kinds of externalities on society: vulnerability to oil shocks and pollution. Reducing oil consumption, and in turn the demand for imported

oil, was the original justification for corporate average fuel economy (CAFE) standards in 1975. Proponents also claim that the standards improve air quality, particularly in cities, by reducing ground-level ozone.

Current CAFE standards require each auto manufacturer to meet a target of 27.5 miles per gallon for both its domestic and imported fleet. Recent proposals would increase CAFE standards by varying amounts. Proponents argue that higher standards would reduce both oil imports and consumption.

Government can correct the externalities associated with gasoline consumption by several means. The Clean Air Act Amendments of 1990 address those pollution externalities in provisions covering new car tailpipe emissions, reformulated gasoline, and enhanced inspection and maintenance programs. Fuel and vehicle taxes also correct these externalities. The most direct solution would be for regulators to determine the damage caused by gasoline consumption and then set a fee on its use equal to that damage. (State and Federal gasoline taxes, which now average 32 cents per gallon, already correct 32 cents worth of externalities in this way.)

Higher CAFE standards would be a poor substitute for the use of fees, because they fail to address the externalities directly. First, higher CAFE standards might reduce pollution, because drivers would burn less gasoline per mile. However, because higher mileage cars generally cost less to drive per mile, motorists would drive more, offsetting a portion of the gain from the higher standards. (More driving makes road congestion worse, meaning that CAFE standards are themselves responsible for a negative externality.) Second, although higher CAFE standards would indeed reduce oil imports, they may not reduce U.S. vulnerability to oil shocks, which depends not only on the level of imports, but also on the flexibility provided by alternative energy sources and on economic responses to the shock.

Much of the CAFE debate has centered on engineering feasibility, on what mileage targets the automakers *could* achieve. But consumers, who are the ultimate decisionmakers, do not base vehicle purchase decisions on engineering feasibility or on fuel efficiency alone. Size, options, and performance are also important. Indeed, engineering feasibility does not itself establish value to society; it does so only in conjunction with economic feasibility. Manufacturers can produce cars with high fuel economy ratings, but if consumers will not buy them, then such cars should not be produced.

Proponents of higher CAFE standards generally overlook the indirect effects of their proposals, which would tend to offset many of the purported benefits. First, to comply with higher CAFE standards, firms would probably produce fewer large cars and more

small cars. This would raise the price of large cars and likely cause consumers to respond by holding onto their older, less fuel-efficient vehicles. Second, because small cars, all else being equal, are less safe than large cars, higher CAFE standards could significantly increase deaths and injuries on the Nation's highways.

Higher CAFE standards pose other problems as well. The requirement that manufacturers divide production into a "domestic" and an "import" fleet ignores the realities of a globalized auto industry and forces them to make less-than-efficient input choices to meet the standard in each category. Moreover, current proposals would penalize firms whose technology gives them a comparative advantage in the production of larger cars. They could be forced to abandon these competitive technologies in order to comply. Finally, as with other forms of regulation, CAFE standards could be coopted by political forces and used by some firms to gain an advantage over others. *The shortcomings of the CAFE program serve as a reminder of the dangers of an ill-designed regulatory program. A successful regulatory program must first define the externality it intends to address, then design incentives to address these externalities without introducing any new ones.*

Global Climate Change

Global climate change is another example of an environmental externality. The presence of "greenhouse gases" such as carbon dioxide, methane, and water vapor in the atmosphere helps to maintain surface temperatures at historic levels. If these gases were wholly absent, the temperature of the earth would be about 33° C lower. These gases retain and reflect some of the heat given off by the earth back to its surface, providing a sort of blanket over the planet. Some production processes such as the burning of fossil fuels result in the emission of greenhouse gases. These additions to the earth's natural supply of such gases have raised concerns over possible effects on global climate. Those who emit greenhouse gases do not account in their production decision for the climatic effects they may cause. A negative externality is present if these emissions cause harmful ecological or economic effects.

As with many global environmental issues, much of the research regarding the effects of greenhouse gas emissions is in its preliminary stage. Indeed, the Intergovernmental Panel on Climate Change (IPCC), under the aegis of the United Nations, estimated that it may take a decade or more to ascertain whether human-induced climate change has indeed occurred. In part, this uncertainty is caused by growing evidence that certain factors counteract a potential increase in global temperature. The 1992 IPCC Supplemental Science Assessment states that the cooling effect of sulfur emissions may have offset a significant part of greenhouse warming in the northern hemisphere.

Most scientists agree that additions to the earth's natural supply of greenhouse gases through fossil fuel burning, deforestation, and other human activities have a warming effect on the climate. By most estimates, the concentration of CO_2 in the atmosphere will have doubled worldwide from preindustrial levels by the middle of the next century. Concentrations of most other greenhouse gases are also projected to increase.

At issue is the timing and magnitude of the potential warming caused by such increases. As stated above, coincident offsetting factors could mitigate the effects of greenhouse gas emissions. Additionally, other recent work cited by the IPCC indicates that most warming is likely to occur at night rather than during the day, and in winter rather than summer. These and other recent studies generally discount the severe effects (such as dramatic sea level increases, major changes in precipitation patterns, and significant threats to certain species) predicted in some preliminary work a few years ago.

From an economic perspective, the following questions must be addressed: First, do greenhouse gas emissions from human activities constitute a significant externality? Second, if so, is it negative (such as an increase in sea level), positive (such as a longer growing season in Canada and the former Soviet Union), or both (a mix of effects that benefits some regions and harms others)? The scientific consensus is by no means clear on this point. If a negative externality is determined to exist, the next step is to identify the major sources, from natural as well as human activities, of all greenhouse gases and to determine their relative contributions to potential warming. At the same time, materials that absorb greenhouse gases ("sinks"), such as forests, should also be identified. One must then determine if it is better to reduce emissions now, perhaps using economic incentives, or to wait and respond later to the observed effects.

In choosing among alternative courses of action, the scientific uncertainty surrounding climate change should be considered along with estimated costs and benefits of action. Although immediate large-scale actions in anticipation of global warming have been suggested, a prudent course would include taking those actions that would be desirable on their own merits, while deferring costly steps that should properly await resolution of key scientific uncertainties. Rational policy requires balancing the costs of delay with the benefits of information that will be available later.

The potential effects of climate change are generally long term, and the initial costs of proposed remedies may be high. One proposal aims to stabilize global greenhouse gas emissions at 80 percent of 1985 totals by 2010. Studies put the eventual cost of achieving this goal at 1 to 5 percent of world gross domestic product per year,

with most of the cost attributed to the reduction in output needed to achieve the emission reduction. In today's world economy, this would be $200 billion to $1 trillion per year ($1 trillion is considerably more than the GNP of China and India combined). Hasty attempts to remedy the externality imposed by greenhouse gas emissions could have small benefits relative to these very large costs. A better understanding of the science of global climate change is needed before agreeing to policies with potentially large costs.

The Administration has taken the view that a successful climate change strategy must be comprehensive, incorporating all relevant greenhouse gases, their sources and sinks. It must be flexible, built on many diverse actions, and readily adjustable as knowledge improves; and it must be integrated, designed to involve all nations. Integral to the U.S. climate change strategy is the world's largest program of research. For fiscal 1993 the President's budget contains $1.4 billion for global change research, including $17 million for research in the economics of global change.

HEALTH AND SAFETY REGULATION

Decisions to wear a seat belt, to take a job as a telephone lineman, or to fly a small plane all involve balancing exposure to risk against other objectives. In the United States, government addresses risk indirectly, by providing the legal framework for the market and the tort system, and directly, by an extensive and growing program of safety regulation. A 1967 NHTSA rule sets safety standards for automobile steering columns, for example, a 1979 EPA rule regulates chemicals used to treat drinking water, a 1985 Federal Aviation Administration rule sets fire protection standards for aircraft cabins, and a 1990 EPA decision lists certain wood-preserving chemicals as hazardous wastes.

Proponents of a larger government role in health and safety assert that in these areas, people are not able to make proper decisions about risk bearing. Some also argue for intervention on equity grounds. If a certain risk is exceptionally high or prohibitively expensive for an individual to bear, society will sometimes assume the burden through regulatory intervention or public funding, as it does for neonatal intensive care, and burn and trauma centers.

The Congress has expanded budgets, staffs, and the regulatory scope of the agencies regulating these areas, almost tripling administrative costs of health, safety, and environment regulation between 1970 and the present. The *Federal Register* chronicles official actions of the regulatory agencies, including those that regulate health and safety. Its size gives an idea of the regulatory burden on the economy. The *Register* occupied 26 inches of shelf space for

1956, 36 inches for 1966, and more than 10 feet at its apogee in 1978; in more recent years it has been somewhat thinner.

Public perceptions have fueled this regulatory growth. The public believes, according to surveys, that life is becoming more risky. In fact, life is becoming safer, as demonstrated by the steady increase in life expectancy, from 70.8 years in 1970 to 74.9 years in 1988; by the steady decrease in age-adjusted death rates from most diseases; and by the steady decrease in death rates on highways and in the workplace.

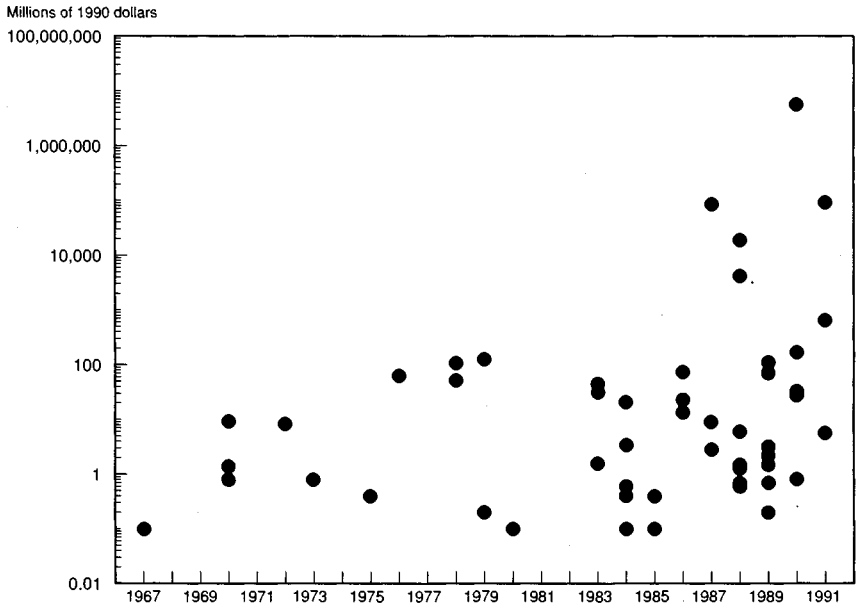
Public concern over risk has sometimes given rise to legislation requiring that all risk be eliminated. The Delaney Clause of the Food, Drug, and Cosmetics Act prohibits the use in food of any "substance shown to cause cancer in animals or humans." Courts have interpreted this clause to mean that such substances are automatically prohibited at any dose no matter how small. Further, a ban may be based on animal studies showing carcinogenicity in any amount, even if the animals were fed unrealistically large doses. In the Clean Air Act, the Congress set a slightly more flexible standard when it instructed the EPA to fix primary air quality standards that "protected the most sensitive group in the population with an adequate margin of safety." Similarly, the Congress charged the Occupational Safety and Health Administration with ensuring that "insofar as possible, no employee will suffer diminished health, functional capacity, or life expectancy as a result of his work."

Just as individuals must balance risks and benefits in making their individual decisions, so must government regulators. Commercial air travel, for example, is relatively safe; at some cost, though, it could be made still safer. Yet each extra safety-related increase in ticket prices makes some travelers decide to drive instead, which is up to 20 times more dangerous per mile traveled.

As Chart 5-3 indicates, *regulations issued during the 1980s were, on average, far more costly per unit of safety achieved than earlier ones had been.* (The vertical axis is logarithmic; each grid line represents 100 times more cost per unit of safety than the one below it.) In part, this cost increase is due to congressional mandates placed on agencies. Before 1985 only two regulations exceeded a cost of $100 million per death averted. Eight such regulations have been enacted since that time. EPA's rule regulating wood-preserving chemicals, while not large in total costs, is estimated to avert only one case of cancer every 2.9 million years, and cost at least $5 trillion dollars per death averted; that is 10 million times more costly per unit of safety than a number of earlier rules. In this example and elsewhere, *regulation often targets expensive risks and passes over those where greater reductions are possible at the same cost.*

Chart 5-3 **Cost per Premature Death Averted of Federal Health and Safety Regulations**

Federal regulation of risk has become less cost-effective.



Note: Dots represent Federal regulations.
Source: Office of Management and Budget.

Recent initiatives often impose high total costs as well as high per-unit costs. For example, several laws including Superfund, which are designed to reduce damage from hazardous wastes, were formulated when little was known about the environmental benefits or economic costs of the requirements. Recent evidence indicates that these laws will cost $500 billion to $1 trillion (in 1991 dollars) over the life of the programs. While no definitive estimate yet exists, benefits to public health and the environment from these programs are not likely to approach the magnitude of the costs.

Market failure may justify government intervention only if the government can improve on the market. Cost-benefit analysis can be a useful tool for setting appropriate goals when regulating risk, even though precise estimates of costs and benefits may not exist. Several regulatory agencies, including EPA, have recently attempted to establish risk regulation priorities as part of the Federal Government's larger initiative to develop a risk-based regulatory agenda. In regulating risk, as in regulating other areas, *government policies should strive to maximize net benefits, enacting only those regulations in which benefits to society outweigh costs. To do otherwise di-*

verts resources from more important risks and impedes economic growth.

SUMMARY

- Market-based solutions are the most efficient means of allocating a given level of pollution.
- Increased CAFE standards are potentially costly, would encourage consumers to maintain their older, less fuel-efficient automobiles, and could decrease highway safety.
- In addressing the possibility of global climate change, the economic effects of proposed policies must be carefully evaluated before deciding which policies to implement.
- In regulating health and safety risks, government policies should maximize net benefits, promulgating only those regulations whose benefits to society outweigh their costs.

CONCLUSION

The government plays a crucial role in facilitating competition through the establishment of a legal system that governs contracts, defines and protects property rights, and compensates people who have been injured. The Administration's proposed reforms to the legal system would lift the burden of litigation on economic productivity, while maintaining a fair system for settling disputes. Regulation can also play a direct role in improving the performance of the market system. *Any proposal to regulate the market, however, should be tempered by an understanding that regulation can be at least as imperfect as the market it is trying to improve.* The goal of the Administration's regulatory reform initiative is to have all regulatory agencies, to the maximum extent allowed by law, reexamine existing regulations, eliminate or revise those that clearly impose costs that exceed their benefits, and ensure that other regulations are implemented in a cost-effective manner.

The government must constantly reevaluate the need to intervene in markets. The necessity of continuing to regulate industries should be reconsidered whenever innovations or technical changes allow a natural monopoly to be replaced by competition. The National Energy Strategy would accelerate deregulation in the markets for pipeline sales of natural gas and in the generation and sales of electric power, benefiting consumers with lower energy prices. Environmental protection is also an important goal of this Administration, but measures should reflect the costs of shifting resources away from other uses to meet this challenge. Tradable allowances are an efficient tool for meeting strict pollution standards at minimum cost. Current regulations to reduce risk sometimes fail to strike the proper balance between costs imposed and benefits re-

alized. To improve on this performance, the effectiveness of resources spent to reduce one type of risk must be weighed against the effectiveness of using those same resources to reduce other risks.