Chapter 2

REGULATION, PRODUCTIVITY, AND THE REAGAN ADMINISTRATION'S REGULATORY REFORM PROGRAM

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REGULATION AND PRODUCTIVITY

The subject of regulation and economic productivity is deeply paradoxical: In theory, regulation is supposed to make the economy more productive and efficient, but in practice it often seems to have the opposite result, so that "counterproductive regulation" is virtually a cliche. This paper explores the major reasons for the gap between regulatory promise and performance, and explains what the Reagan administration is doing to close the gap.

The rhetoric of regulation - including the arguments voiced in congressional hearings, the "findings" sections that introduce regulatory statutes, and the preambles to individual rules in the *Federal Register* - is filled with assertions that private markets are failing with respect to producers, consumers, or third-parties, and that government rules will correct the problem. Price regulations will prevent utilities and other monopoly producers from exploiting their market positions by restricting production, or will prevent "unfair" price increases without restricting production. Product standards and pre-marketing approval programs will protect consumers against hazards that are hard for them to detect, while forcing producers to invest in the better product designs consumers would demand if they were more knowledgeable. Environmental controls will protect all of us from the third-party effects of industrial processes by "internalizing" certain costs of production (the costs of pollution) that private markets do not account for. In every case, the claim is that regulation will make the private economy more productive by extracting more economic welfare from the limited available resources.

At the same time, we know that regulation has fallen well short of these claims in a large number of closely examined cases. There is substantial agreement among economists that federal regulation of our air, surface, and water transportation industries during the last fifty years has seriously retarded the development of an efficient national transportation network. In this case, and many others such as energy and

telecommunications, price controls have raised prices and restricted production rather than the other way around. Over the past twenty years, our most important premarketing approval program, that applicable to new drugs, has so retarded the introduction of new drugs that most assessments of net health effects have been strongly negative. Whether or not the Clean Air Act has reduced air pollution in the United States over the past decade (as opposed to other factors such as increased energy prices) is now a topic of lively debate among economists.

It is, however, difficult to go beyond program-specific assessments such as these to any comprehensive, quantitative verdict on regulation and economic productivity. Several recent studies, beginning with that of Edward Denison ("Effects of," 1978), have suggested that expenditures under health, safety, and environmental regulations have reduced productivity growth significantly in recent years - by perhaps .25 percentage points annually in the mid-1970s. However, the work by Denison and his successors is no more than highly suggestive, owing to two difficulties in defining economic productivity as measured output per unit input.

The first difficulty is that inputs and outputs, as measured by our national income accounts, do not capture important regulatory costs and benefits, and so may either overstate or understate regulatory effects by a large margin. This problem is usually stated in a narrower and more one-sided way: that economic measurements fail to measure important regulatory benefits. It is argued, for example, that measured productivity changes unfairly implicate environmental regulation in lost productivity, since expenditures on pollution controls are measured as inputs, while many of the benefits of cleaner air and water are not measured as outputs (unlike the private goods and the expenditures for pollution controls would otherwise produce). The point is correct as far as it goes. Some of the benefits of pollution control, such as sheer aesthetic improvements, are unmeasured on the national accounts but are nevertheless important to public welfare.

But many of the benefits of environmental regulation ought to show up as measured economic improvements. The statutory purpose of EPA's national air quality standards is to improve public health, and health improvements should produce important gains in measured economic output - resulting from fewer lost workdays due to illnesses, higher personal income, and innumerable other factors. Moreover, when we move beyond environmental regulation to health and safety regulation (such as workplace and consumer product standards), an even larger share of regulatory benefits ought to show up as measured productivity improvements. Safety standards for steel mills and automobiles have immediate effects on well functioning markets, and few if any non-pecuniary benefits. In principle, there is no reason why the lion's share of benefits from these regulations should not appear in the output numerator of aggregate productivity ratios.

The other, less remarked-upon part of the problem is that the national income accounts are also deficient in capturing important regulatory

costs. Regulations may produce non-pecuniary benefits that are not measured because they do not affect market production, such as purely aesthetic improvements from pollution control. But private markets also produce such benefits, and in profusion - what economists call producer surplus and consumer surplus. When these private economic surpluses are reduced by regulation, the losses, by definition, are not measured as productivity losses.

The second difficulty in measuring the effects of regulation on productivity is that many of these effects are dynamic. Where regulatory requirements delay, or deter altogether, private investment in beneficial new products and production facilities, the lost economic productivity cannot be measured directly. While we can measure productivity trends during a period when given regulatory requirements are in effect, we lack a true "baseline" to which to compare these productivity trends - the true baseline would be productivity trends during the same period without the regulatory requirements. It is possible to estimate these "lost opportunity" effects of particular programs using proxy measures (and this has been done in many cases, such as that of new drug regulation mentioned earlier), but the proxies will be more or less persuasive to different observers, and the difficulties of using proxy techniques become increasingly intractable as one moves to higher levels of aggregation.

Recently, a few economists - particularly Robert Crandall at the Brookings Institute - have attempted to take account of the two problems identified above by comparing productivity growth over time in industries facing relatively greater and smaller direct regulatory costs (Crandall, 1981). A fair summary of the work by Crandall and others is that the impact of regulation on productivity appears significantly greater than that measured in the original Denison study - but just how significantly remains a matter of disagreement and uncertainty. Crandall's work, however, suggests several pervasive features of regulatory programs that appear to have negative effects on productivity which aggregate economic measures would miss. These features may be called (with acknowledgment to Crandall but no implication he would approve of these terms or descriptions) the "soak-the-rich" and "status quo" biases of regulation. It will be useful to describe them in some detail, since so much of the Reagan administration's regulatory reform efforts (discussed in the next section) are aimed at correcting these biases.

"Soak the Rich" Bias

The "soak-the-rich" bias is the tendency of regulatory programs to seek out private producer and consumer surpluses and impose the greatest costs on those sectors of the economy creating the greatest costs on those sectors of the economy creating the greatest surpluses. No legislator or regulator wants to drive firms into bankruptcy, visibly destroying jobs, output, and tax base. Legislative language that includes terms such as "feasible" and "achievable," when applied to individual firms or industries,

encourages agencies to regulate on a financial rather than economic basis. Agencies are often reluctant to even consider costs in regulatory proceedings, but when they do they often prefer to compare costs to the industry's recent revenues, profits, or capital expenditures rather than to the benefits of the regulation or even to the costs of alternative regulations.

Regulated industries, such as electric utilities, tend to be less sensitive to costs of all kinds, so they are an easy target. High growth industries are more easily regulated as well, since firms are unlikely to go out of business. Note the trend in recent years away from regulating the auto and "smokestack" industries, and an emphasis on regulating the chemical industry (our most successful export industry and a leader in productivity growth) and the oil industry (with its "windfall profits"). New methods - "ultrafunds" modelled on "superfund" - are being invented for dipping into these deep pockets.

By imposing regulatory costs in excess of benefits and targeting those costs on high-productivity industries, regulatory agencies may inadvertently maximize drag on the productivity of the economy as a whole. This is not an effect we can afford to ignore. A relatively small decline in productivity growth can, over time, swamp the estimated direct costs of environmental regulation of $50-$60 billion annually.

"Status Quo" Bias

The "status quo" bias is the tendency (familiar to students of traditional entry-control programs of economic regulation, but no less important in the newer safety and environmental programs) of regulation to come down much harder on new or future products and production facilities than existing ones deemed the property of existing sources. The most common form the bias takes is a proliferation of permitting requirements, which have grown far more rapidly in recent years than have direct forms of regulation.

Construction permits, once primarily a local prerogative, are now a commonplace tool of federal regulators. And where local authorities managed to simplify the process by "zoning," federal regulators examine the myriad effects of each new project on air, water, land, flora, fauna, and scenic vistas in separate, and often sequential, proceedings. New products, as well as new facilities, receive greater scrutiny than existing ones. Prior federal approval is needed for new drugs, medical devices, food additives, pesticides, and chemicals. Strict safety, fuel economy, and emissions standards apply to new cars, but not to old ones. All this is not to say that prior approvals, permitting requirements, and grandfather clauses are always a bad idea. The cost of "retrofitting" is very often greater than the cost of designing new facilities to meet a standard, so a proper application of the cost-effectiveness principle will often lead an agency to conclude that new facilities should be more stringently controlled. But there are powerful forces at work that push agencies much too far in this direction.

First, as a legal matter, an agency imposing requirements on new entities is often viewed as placing conditions on a right that is the agency's to confer. So while no agency could shut down a plant or take a product off the market without complying with some minimum of "due process," it may find it quite easy to decline or indefinitely withhold permission to build a new plant or market a new product.

Second, since a new permitting requirement does not impose immediate costs on the economy, its economic impact is frequently underestimated, or treated as if it were zero. The economic impact of a tough pollution control requirement on an existing plant, for example, is relatively easy to measure in terms of the capital and annual expenditures required, or jobs and income lost if the facility does not comply and is shut down. This is not easy to do with a plant that is not yet even approved.

Third, no organized constituency has a strong interest in fighting permitting requirements on new facilities. Those most affected are would-be investors, job-holders, and consumers, who are typically unidentified at the time the requirement is imposed. Consequently, permits are among the easiest regulatory requirements to impose politically.

Fourth, existing firms and their trade associations often encourage agencies to be tougher on new entities because they may hope to gain some protection from new competition.

Fifth, environmental groups have been frustrated in many of their efforts to improve the environmental performance of the existing U.S. industrial plant, and have become determined at least to prevent deterioration of the status quo. This determination has been translated into extremely stringent permitting requirements for (and sometimes steadfast opposition to) any new facilities, which are comparatively easy targets.

Finally, environmental requirements may be imposed that are beyond state of the art, in the hope that they will be "technology forcing." Technology is not always able to meet the challenge, however, and worthwhile projects may be disapproved or made prohibitively expensive because they failed to meet unrealistic technological goals.

These are descriptions of tendencies. They do not tell the whole story of regulatory policy by any means. But they do describe important aspects that must be faced in any serious attempt to improve on the existing state of federal regulatory policy. We turn to this subject in the following section.

THE ADMINISTRATION'S REGULATORY REFORM PROGRAM

The Reagan administration's regulatory reform program is designed to confine federal regulation to its proper function of improving the efficiency and productivity of private markets. Additionally, it seeks to modify or eliminate rules that have proven counterproductive or seem likely to be counterproductive in the future. The centerpiece of the administration's reform program is Executive Order 12291, which the

President signed a few weeks after taking office. Under this order, thousands of inherited rules and new regulatory proposals have been reviewed according to the following economic requirements:

1. Administrative decisions shall be based on adequate information concerning the need for and consequences of proposed government action;

2. Regulatory action shall not be undertaken unless the potential benefits to society for the regulation outweigh the potential costs to society;

3. Regulatory objectives shall be chosen to maximize the net enefits to society;

4. Among alternative approaches to any given regulatory objective, the alternative involving the least net cost to society shall be chosen; and

5. Agencies shall set regulatory priorities with the aim of maximizing the aggregate net benefits to society, taking into account the condition of the particular industries affected by regulations, the condition of the national economy, and other regulatory actions contemplated for the future.

These "cost-benefit" and "cost-effectiveness" tests have sometimes been criticized as if they establish some kind of abstract accounting standards for regulations. This view implies that agencies and OMB simply tote up all imaginable costs and benefits of a given rule, and then compare the sums to see if the rule should be issued. These criticisms are misconceived. The underpinnings of the President's order are principles of economics, not of accounting. The primary inquiry under the order is whether federal regulation is needed: why the problem a regulation would address is not being adequately addressed by private markets, and whether the rule would actually improve on the functioning of the market. In may cases, such as price or production controls in competitive markets, it would be clear at the outset, that the social benefits of a regulation were most unlikely to equal its social costs. In other cases, such as controls on the emission of hazardous air pollutants, considerable economic and scientific analysis is required. But in all cases the "bottom line" of the Executive Order is whether a rule will benefit society as a whole, considering all of the available evidence of the rule's likely economic consequences.

These principles are an important counterbalance to traditional regulatory biases against productivity growth discussed in the previous section. In particular, it is possible to derive from the order's principles several specific policies for reducing the adverse economic impacts of regulatory programs. The remainder of this paper describes six major

policies the Reagan administration has developed under Executive Order 12291, and explains how they are being applied to minimize the counterproductive tendencies of proposed regulatory programs.

1. **Regulation of prices and production in competitive markets should be avoided. Entry into private markets should be regulated only where necessary to protect health or safety or to manage public resources efficiently.**

Many older federal regulatory programs control price, production, and entry in certain industries, either to protect consumers from "natural monopolies" or producers from "excessive competition." Whatever their original purpose, experience has shown that they result in generally higher prices, retarded innovation, inefficient management, and large swings between excess capacity and shortages. More recently, price controls have been applied to oil and natural gas in an effort to preserve "historic" price levels in the face of increasing costs. The effects have been similar to those of the older economic controls: reduced production, rationing, undesirable side-effects such as strengthening the OPEC oil cartel, and, as an ironic final result, higher prices than without regulation.

During the last several years, the federal government has taken significant strides toward eliminating many of these programs. Controls over entry, rates, and capacity in the airline industry have been eliminated, and the Civil Aeronautics Board has gone out of business. Similar steps have been taken toward deregulating the railroad, motor carrier, and bus industries. President Reagan ended petroleum price controls shortly after taking office. The Depository Institutions Deregulation Committee has eliminated most interest rate ceilings on bank and savings accounts, the Securities and Exchange Commission has removed controls from stockbrokerage commissions, and the Federal Communications Commission has dismantled a variety of restraint on entry and pricing in competitive telecommunications markets. In each of these cases, there is strong evidence of new competitive vigor and productivity growth following the return of basic economic decisions from the government to private enterprise.

Today, natural gas, some agricultural commodities, and some transportation and telecommunications services remain subject to traditional economic controls at the federal level. In addition, important segments of the broadcasting and financial services industries remain subject to federal market allocations. This is a form of entry control where certain firms are permitted to compete in some markets but not others. These regulatory programs, like the ones that have been abolished, may be profitable to particular groups at the expense of others in the short run, but their effects on the economy as a whole are harmful. The administration is strongly committed to passage of natural gas deregulation legislation, and is phasing out entry restraints and unnecessary production controls under the

agricultural marketing order program. The administration is also working for passage of a financial institutions deregulation bill that would remove many artificial barriers between banking and related financial services.

2. Regulations should not prescribe uniform quality standards for goods or services, except where products are needlessly unsafe or product variations are wasteful, and voluntary private standards have failed to correct the problem.

The private economy produces a wide variety of goods and services in response to differences in consumer tastes. However, standardizing the safety or other quality features of products may be beneficial where products have subtle but important features that are difficult for consumers to assess. This applies in the case of technically complex products such as many agricultural commodities. In these cases, standardization reduces information costs. Standardizing the products of different suppliers may also promote economic coordination, as in the case of sizes of tools, batteries, and automobile tires.

Where standardization is good for consumers, it will often be good for producers as well. It may help expand the markets of individual sellers, or minimize product liability. The American economy is "regulated" by thousands of safety and other product standards established privately by trade associations and independent standards-setting bodies. These standards do not need to be enforced by a government agency, because sellers have strong private incentives to follow them. Ignoring these standards could leave sellers open to ruinous tort liabilities, or to eroding sales because their products are incompatible with other products or with consumers' expectations.

There are circumstances where private markets, standards setting procedures, and liability law will fail to provide products and services that are in the best interest of consumers. Where the health effects of products become apparent only over long periods of time, and where causality from the product of a given producer is difficult to determine, product quality standards may be too lax. In other instances producers may adopt quality standards that are too strict, because of their effect in suppressing competition from the "low end" of the market. In cases such as these, government product standards may promote economic welfare.

Determining the benefits of government product standards is usually complicated for the same reasons that market and liability systems failed to correct the problem in the first place. Causality and long-term health effects may be highly uncertain, or trade-offs between the costs of product purchase, operation, and repair may vary widely among consumers. At the same time, the costs of standardization (suppressed market competition and reduced consumer choice) will be even greater than in the case of private standards, since the government standards will be more broad and mandatory. Thus, the risk of "freezing" technology at the standard level is

much greater in the case of government standards. These considerations suggest that government-mandated standards should be adopted with great caution, especially at the federal level where they will be applied nationwide.

President Reagan's regulatory reform program has resulted in the elimination of many federal product standards that restricted consumer choice while providing little or no protection against safety or other risks. Examples are the administration's proposed or final revisions to federal minimum property standards for housing (where local building and housing codes are more appropriate); energy efficiency standards for buildings, appliances, and automobiles (where markets are competitive, prices generally reflect efficiency differences, and uniform standards would seriously limit the choices available to consumers); and "dent resistance" standards were found to increase overall consumer costs). Where product standards have been adopted, they have been in terms of general performance criteria rather than design specifications wherever possible. When the Food and Drug administration issued "tamper-resistant packaging" standards for over-the-counter drugs in response to the Tylenol poisonings in 1982, the standards did not prescribe how drug packages were to be designed; they merely required that packaging be tamper-resistant in some conspicuous way that would make tampering apparent to consumers.

3. Health, safety, and environmental regulations should address ends rather than means.

Regulations to limit environmental pollution, or to protect the health or safety of workers or consumers, frequently dictate the exact engineering methods for achieving their intended results. Under the Clean Air Act, for example, some "new source performance standards" for controlling air pollution adopt extremely narrow definitions of what constitutes a "new source" of pollution, and effectively prescribe how each "new source" must be designed and operated. As a result, individual manufacturing plants often contain many separate "sources" of a single air pollutant. Modernizing a single production facility within a plant may create a new pollution "source" even when the net effect is to reduce pollution by replacing an older and less efficient facility. And every such new "source" in the nation may be required to meet the same federal design and operating specifications, regardless of whether other approaches would reduce pollution at less expense.

Regulations that impose precise engineering requirements are generally cost-ineffective, especially when applied on a uniform nationwide basis. The best means of accomplishing a given environmental end varies from firm to firm, region to region, and over time. Imposing engineering uniformity on these natural variations almost always results in too much economic cost for a given environmental benefit, or too little environmental benefit for a given economic cost. Moreover, government-prescribed

uniform technology retards productivity growth by dampening market competition and reducing incentives for innovation in both production and pollution control markets.

For these reasons, regulatory standards should be adopted in terms of results or performance rather than specifying the means employed to achieve the results. With performance-oriented standards, regulated firms are responsible for meeting some regulatory target, but are free to choose or invent the easiest or cheapest methods to reach the target. The Food and Drug Administration's "tamper-resistant packaging" regulation is a good example of this approach.

In practice, the distinction between performance standards and design standards is a continuum rather than a simple dichotomy. Regulatory policymaking usually involves selecting a point on a spectrum running from pure design standards to pure performance standards. Performance standards should also be applied as broadly as possible without creating too much variation in regulatory benefits. An example is the Environmental Protection Agency's "emissions bubble" policy, which effectively regulates existing air pollution sources on a plant-wide (sometimes even firm-wide) basis rather than source-by-source. Under this policy, plant managers can exceed emissions standards at any one source where control costs are relatively high, so long as they achieve equivalent reductions at other sources where control costs are lower. EPA is actively considering ways to apply this approach to new sources as well.

Performance standards are also an important counterweight to the "soak-the-rich" regulatory tendencies that appear to be particularly damaging to productivity growth. For example, under the Clean Air Act and Clean Water Act, EPA is to set technology-based pollution-control standards; in various sections of the Acts, the technology is to be the "best technology" that is "economically feasible," (and other similar formulations). While the importance of control costs under these standards is often less than clear, one interpretation with some support in Congress and strong traditional support at EPA is that controls are to require the best technologies affordable by the industries to which they apply. Until recently, EPA analyses of the economics of its rules placed heavy emphasis on industries' financial situations and other "affordability" factors, and little emphasis on cost-effectiveness. This, as we have seen, is a formula for loading disproportionate costs on the most productive sectors of the economy, thus squandering both environmental protection and potential productivity growth. The result has been wide variations in the cost-effectiveness of pollution controls from industry to industry.

Under EO 12291, the administration has placed major emphasis on making technology-based pollution controls more effective. EPA now calculates incremental removal costs as part of all air and water pollution control rulemaking proceedings. To facilitate cross-industry comparisons in its water program, the Agency has established a formal weighting scheme for the toxicity of various pollutants, using the toxicity of copper as a "numeraire"; the "copper-equivalent cost-effectiveness" of every new water

effluent guideline is now gauged against those of existing guidelines. Similar cost-effectiveness benchmarks are being introduced into the air pollution standards. While the Clean Air and Water Acts remain strongly biased towards the adoption of uniform engineering standards, cost-effectiveness approaches such as these are helping to select engineering controls with as much attention to ultimate performance as the statutes permit. This will reduce the needless productivity costs of pollution controls and also produce greater benefits for the nation's environmental investments.

4. Licensing and permitting decisions and reviews of new products should be made swiftly and should be based on standards that are clearly defined in advance.

Regulatory programs requiring review or approval of new products and new production facilities have expanded considerably in recent years. New drugs, new medical devices, and new food additives require approval of the Food and Drug Administration. New pesticides and new chemicals must be reviewed by the Environmental Protection Agency. New powerplants and transmission lines, factories, pipelines, ports, and other major construction projects may need federal approval for air and water discharges, rights-of-way, or effects on navigable waters, in addition to a long list of state and local approvals. Virtually any economic activity on the vast federal landholdings (including the outer continental shelf as well as most of the land in the western states) requires the approval of the managing agency. A facility that crosses several jurisdictions, such as an interstate oil pipeline, may require hundreds of government permits.

On top of the system of federal permits is an additional layer of "cross-cutting requirements." Depending on the nature of a project, the issuance of even a narrow federal permit may trigger additional programs for environmental impact assessment, archaeological and historic preservation review, endangered species protection, coastal zone management planning, and other requirements.

While these permitting systems have doubtless reduced the chance that a needlessly unsafe product will be introduced or an excessively obnoxious facility be built, they have also increased the likelihood of the opposite error: that a worthwhile product or facility will not be approved. One reason is simply inevitable errors of judgement. But the problem runs much deeper than this, for regulatory agencies face systematic incentives to err on the side of disapproval and delay. An agency charged with assuring that all new products are "safe" is likely to be quite cautious in granting approval, since it will get none of the credit for good products but a large share of the blame for bad ones. Moreover, there is bound to be substantial uncertainty about which is which before a given product is actually marketed. To the regulator, the hazards of an erroneous approval must seem far more immediate than the hazards of depriving the public of a new

drug or chemical or factory that could be better than the old. Finally, representatives of the "old" products and facilities will supply the regulator with reasons aplenty why new ones would probably not be improvements. So, there is a natural bias to disapprove or, more often, to delay a decision pending receipt of more information.

The tendency of the whole approval process to discourage potential applicants from even beginning an initiative may be more costly than unwise disapprovals. The costs of applying and assembling all the required information, and of redesigning a project to meet the concerns of reviewing officials, are only a part of the hurdle. Delays that may run into several years can be even more costly for an applicant. Perhaps the greatest discouragement is the uncertainty faced by an applicant seeing several hundred officials who have the power to veto a project, and none who have the power to give it a comprehensive approval.

Several major reforms have been made in this area in the past two years. The Food and Drug Administration has proposed new regulations to reduce and define more precisely the requirements for obtaining approval of new drugs; in the meantime, the FDA compiled back-to-back record years in 1981 and 1982 in its approvals of new drugs. The Environmental Protection Agency has proposed several major exemptions from its "premanufacture review" requirements for new chemicals, eliminating or reducing requirements for types of chemicals that pose no environmental risk, and has streamlined its permitting requirements under its air and water quality programs. The Army Corps of Engineers has proposed important clarifications to its review requirements for obtaining permits for dredging or filling in U.S. waters.

5. Qualifications for receiving government licenses should be the minimum necessary and should be clearly defined in advance. Where there are more qualified applicants than available licenses, the licenses should be allocated by auction or random lottery rather than by administrative procedures.

Many regulatory programs operate by licensing entry into particular markets. Licensing may be used to promote health or safety, or simply to manage the use of scarce resources controlled by the government. In the former case the qualifications of individual applicants are important to the regulatory program, but in the latter case they are not. Approving new drugs for safety and new pesticides for environmental effects requires careful case-by-case review, but licensing federal land for grazing does not require government appraisal of the personal characteristics of individual ranchers. Sometimes both kinds of licensing take place in the same agency. The Federal Aviation Administration must assure that commercial airlines and airline pilots meet demanding safety qualifications. But when the FAA allocates scarce airspace around congested airports, it need not decide which airlines use the number of safely available "slots."

Where licensing requires case-by-case evaluation, the criteria for granting or denying licenses should be clearly specified in advance, and should not exceed those necessary to the goals of the regulatory program. Frequently, regulatory agencies tend to leave licensing standards vague and subjective (in order to increase their discretion in individual cases) or to add administrative standards of their own (in order to achieve purposes, worthy or not, that were never mandated by Congress).

Where licensing is undertaken simply to allocate government controlled resources, there is no need at all for quality standards, case-by-case reviews, or administrative proceedings. Direct use of the price system, through auctioning licenses or charging fees, is all that is necessary to allocate the resources to those who can use them most productively. Where auctions or fees are prohibited by statute, random lotteries at least avoid the costs and potential abuses of allocating rights by administrative procedures. When combined with liberal policies towards private marketing of rights, lotteries also ensure that the resources in question are put to their most valuable economic use.

The most established use of pricing policies is the Department of the Interior's approach to allocating rights on federal lands, both onshore and offshore. Federal grazing rights are allocated through fees, offshore oil exploration rights by auction, and onshore oil by lottery. The use of these systems is by now so familiar that no one suggests replacing them with administrative investigations into the "quality" or "need" of individual license applicants. Among the many areas where the auctioning approach could replace existing administrative mechanisms is the allocation of airspace and airport landing rights and fishing rights where total harvests must be limited.

On occasion, regulatory agencies have confused licensing to allocate resources with licensing to protect consumers or the environment. A virtue of auctions, fees, and lotteries over administrative allocation is that they force a clear distinction between the two purposes, and prevent inappropriate expansion of the government's regulatory powers through vague and subjective licensing standards. For example, the original legislative purpose of radio and television licensing was to promote efficient use of the electromagnetic frequency spectrum. The Federal Communications Commission's licensing procedures have long been used, however, to scrutinize in detail the "quality" of individual applicants. This is not only unnecessary to efficient spectrum management, but has raised serious problems under the nation's primary deregulation policy, the First Amendment. With the emergence of new communications technologies competitive with broadcasting, the FCC has been cutting back substantially on the administrative procedures required to obtain or renew broadcast licenses. And several proposals have been introduced in the Congress to take the further step of allocating the broadcast spectrum directly by auction.

6. Where regulations create private rights or obligations, private exchange of these rights or

obligations should be encouraged. Regulatory policies frequently create rights or obligations with substantial value in private markets. A license to use a certain portion of the broadcast frequency spectrum, a permit to land at a certain airport, and a permit to explore for oil on a certain tract of the outer continental shelf, are valuable rights secured through regulation. Requirements to limit pollution from certain kinds of products or production facilities are costly obligations imposed through regulation.

"Perfect" regulation would allocate such rights and obligations precisely to those firms and individuals who could use or meet them to produce the greatest benefits to society as a whole. But regulation is never perfect, and rarely as good as private markets in allocating rights and obligations. A government agency, no matter how expert, is unlikely to beat the market in determining the "best" technology for controlling a certain kind of pollution in a certain locale, which airline has the best management and market position in a certain city, or which program formats television viewers like most. Even if such determinations are made correctly in the first instance, subsequent changes in technology, relative costs, and consumers' demands will be too subtle and various for the government to accurately assess. Moreover, regulatory standards and procedures often misallocate rights and obligations at the outset. Environmental standards are imposed with little regard for the relative cost effectiveness of pollution control in different firms and industrial sectors, and valuable rights are given away through desultory administrative proceedings that never require individual applicants to "put their money where their mouth is."

The best insurance against regulatory error and obsolescence is the use of private markets in the exchange of rights and obligations that regulations create. Frequently, private exchange of regulatory rights and obligations occurs so naturally that it does not require a formal "policy" at all. Drug companies have the unquestioned right to sell licenses to produce and market drugs approved for marketing by the FDA. When a manufacturing plant is purchased, so is the obligation to continue meeting OSHA health and safety standards (which reduces the plant's price by the cost of meeting these standards).

In other cases, marketing rights have been uncertain without the blessing of the regulatory agency itself. In the early years of the FCC, there was doubt whether broadcasting licenses could change hands privately when stations were sold. The issue has long since been resolved in favor of free exchange with minimal FCC review. The marketability of airport landing "slots" was a contentious issue in the airline industry after the 1981 air traffic controllers' strike limited control capacity at several major airports. Free marketing of slots was permitted for a period during 1982, and numerous private slot transactions eased shortages in both large and

small communities. Slot marketing was recently reinstituted on a permanent basis.

Probably the greatest potential for allowing private markets to reduce the costs of regulatory policies is in the area of pollution control. The Environmental Protection Agency's Emission Trading Policy, permitting firms in the same air quality region to buy and sell emission levels according to their varying control costs, will reduce the costs of air pollution control by billions of dollars each year while improving air quality. EPA is studying the feasibility of extending this policy to other areas, such as water pollution and motor vehicle emissions. In 1982, the President's Productivity Advisory Committee recommended expanding the Emission Trading Policy to a program of Fully Marketable Emission Control Permits (a change that would require statutory amendments).

Trading in regulatory rights and obligations is sometimes opposed on grounds that it permits businesses to "profit from regulation" and results in higher prices to consumers. These objections are mistaken. When the government gives away valuable rights through administrative procedures, the firms that receive the rights "profit" simply by receiving something of value without charge. Subsequent sales of these rights merely reveal the monetary amount of these "profits," which otherwise would have been earned by the firms' using the rights directly. Similarly, when the government allocates pollution-control responsibilities in a way that is cost ineffective, some firms gain and others lose on account of the misallocation. Subsequent transactions among these firms to correct the initial misallocation do not "create" the gainers and losers, but merely reveal who they are and how much they gained or lost. Private trading in regulatory rights or obligations reduces rather than increases ultimate consumer prices, because productive resources have been traded to those who can use them more efficiently than those who initially got them.

A virtue of the approaches described here is that they reveal the costs of regulatory policies that would otherwise be hidden. By observing the price paid privately for airport landing rights, the FAA can discover the value of additional landing slots. The costs of pollution control, their regional incidences, and their variations over time will become much more apparent as active emissions markets develop.

CONCLUSION

These six policies are the building blocks of the Reagan administration's regulatory reform effort. By focusing on ends instead of means and evaluating benefits instead of revenues, less restrictive, more effective regulation can finally emerge. This, in turn, will reduce unnecessary drags on future productivity by eliminating costly restrictions which can not accomplish their intended purposes anyway. New, creative approaches to regulation such as bubbles and marketable permits/licenses will benefit the public in two ways. First, there are economic advantages in the form of lower costs which translate into lower prices for goods and

services and increased productivity which adds to economic growth. Second, broad social goals such as clean air and water can be more efficiently and effectively attained through the use of market type incentives and performance standards. Regulatory reform will not come about quickly or easily, but the Reagan administration initiatives represent a significant milestone in a process that is now more than a decade old.

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