PERSPECTIVES

The Extortion Approach to Regulation

In a constitutional republic, when legislators believe that laws are necessary, they must vote to initiate them. At the federal level, the Founders meant lawmaking to be a slow process, requiring a broad consensus. Thus, for much of this country's history, laws and regulations were mostly made at the state and local level.

As the federal government grew, the legislative process proved too slow for corporate and welfare statists. In order to hasten the process, Congress has delegated or simply abrogated its authority to unelected bureaucrats. Thus, the new clean air standards and restrictions on the use of wetlands (there's not even a wetlands law on which these regulations are based) were never approved by Congress. But at least under the second approach, agencies must give notice of new rules, solicit comments, and hold public hearings. There remains a modicum of due process.

Now a third approach to regulations is emerging. When the road to regulation via legislation, bureaucratic process, or even court rulings is blocked, governments can use their powers to harass, threaten, and intimidate industries. The bullying might not lead to a formal change in laws or regulations. But the massive resources and open-ended authorities at the disposal of governments means that they can bleed businesses dry even when the businesses are winning the battles. Often such businesses find it necessary to "volunteer" to conduct themselves in accordance with standards desired by government. Due process or democratic procedures are replaced with state extortion.

TARGETING TOBACCO AND TV

The war by governments against tobacco is the cutting edge case of the extortion approach. Congress thus far has not acted to restrict cigarette use. Nor has the federal Food and Drug Administration been able to obtain clear recognition by courts of the legal authority that it claims over the tobacco industry. But President Clinton conducted a loud and demagogic campaign against the tobacco companies. He used one of the two wedges emerging as the most efficient for the new extortion approach; he claimed that the war on tobacco is being waged to protect children, even though all states have laws against selling cigarettes to minors.

In a free society, one's lifestyle, if not materially harmful to the lives and property of others, is not a matter for political debate or action. What one purchases with one's own money or the content of one's speech should be off limits to policy makers. But Clinton moves ahead, sacrificing free speech, property rights, and the rule of law for the sake of a society engineered in accordance with his vision. Unfortunately, his approach is working. No major political figures have arisen to oppose the war on tobacco.

State attorneys general have been carrying on the fight against cigarettes in tandem with Clinton. They have used the other wedge of the new extortion: suing manufacturers to recover the alleged public costs of cigarettes, in this case the smokers' medical expenses under Medicaid. But no jury has ever found a tobacco company liable. So the legislature of Florida simply passed a bill of attainder. Such bills target for punishment specific individuals or groups. They are banned by the Constitution. The Florida act deprived tobacco companies of the normal defenses granted them under due process. Initial appeals by tobacco companies failed. There was a good chance that they would fare better with future appeals. But to avoid future costs that might drive them out of business, tobacco companies have "volunteered" to sign on to an agreement that extorts hundreds of billions of dollars from their coffers, and limits both their free speech and property rights.

The television program ratings system is another example of extorted regulation. In that case, Clinton took up the tune of his former antagonist, Dan Quayle. Again, he claimed to be acting to protect children and maintained that violent or sexually oriented entertainment has social effects that, unlike private vices, are the concern of the government. He then let it be known in no uncertain terms that, if the media did not control themselves, the government would find some way to do so. Many conservatives were happy to ally with Clinton in that battle.

A White House summit produced the "voluntary" ratings system. Again, broadcasters might have been able to win battle after battle in court, based on the First amendment, but at a high financial and public relations cost. And, after all, communicating information to potential viewers concerning program content, if truly voluntary, is not a bad thing. Some channels, for example, the Family Channel and Disney Channel, advertise that their programming is appropriate for children. So most broadcasters—with NBC the notable exception—complied and developed a ratings system.

SHAPE OF REGS TO COME

The newly emerging approach to regulation holds promise for the statist. The Clinton administration claim that they are protecting children silences all opposition to new regulation. For example, the Kidcare program, pushed by the administration and supported by most Republicans, promotes medical care for children through government schools. The program, in fact, is a wedge that allows governments to intrude into family matters.

Claiming that regulations are needed to reduce the social costs of individual behavior has also been effective thus far. Of course, the costs usually are "social" only because governments have socialized them in part, as in the case of Medicare, Medicaid, and Social Security, and wish to socialize them further. And, of course, where government powers are open-ended, even if a particular law or regulation might not be sufficient to bring about the result desired by a politician, a demagogic campaign and war of attrition could bring about the desired results.

The long-term destruction caused by the extortion approach is unknown. Certainly, its success so far takes America even further away from a system based on limited government and the rule of law.

Edward L. Hudgins
Editor of Regulation *and director of regulatory studies at the Cato Institute*

Battering Big Tobacco: Nothing to Lose but Our Liberty

After four decades of litigation, the tobacco industry has disgorged not a single dollar of damages for a smoking-related injury. Jurors understand the fundamental principle that individuals are free to use legal products like tobacco; but if they assume that risk—absent force or fraud—they are responsible for the consequences of their acts.

Attorneys general from more than three dozen states do not seem to share that insight. Those states, through their Medicaid programs, have socialized the provision of medical services to the poor. Without adequate funds to cover illnesses purportedly caused by smoking, the states were left with three unpalatable alternatives. First, they could make tobacco illegal. Second, they could decline to participate in the Medicaid program or deny benefits to smokers with tobacco-related illnesses. Third, they could raise taxes to cover the Medicaid shortfall. None of those alternatives was politically feasible. So the states conjured up a fourth option. They decided to sue the unpopular but deep-pocketed tobacco industry to replenish their Medicaid coffers. To ensure victory, despite forty years of losses, the states simply changed the law and made the change retroactive. Never mind that tobacco companies, no less than other businesses, are constitutionally entitled to due process.

The implications of those Medicaid recovery suits are positively hair-raising. Under the new regimen, if a state sues for Medicaid reimbursement, tobacco companies can no longer point to the smoker's personal responsibility. The same company selling the same product to the same smoker resulting in the same injury is, magically, liable not to the smoker but to the state. Liability thus hinges on a smoker's Medicaid status—a mere happenstance totally unrelated to any misdeeds by the industry. Moreover, states are permitted to dispense with the usual showing that a particular person's illness was caused by smoking. The states need only produce generalized statistics indicating that certain injuries are more prevalent among smokers than nonsmokers. That means the industry can be held liable even if a Medicaid recipient fell asleep with a lit cigarette, even if he never smoked; indeed, even if he wasn't injured and simply defrauded the Medicaid program.

Not surprisingly, faced with dozens of lawsuits by states seeking multibillions in damages, governed by new rules applied after the fact, and deprived of the assumption-of-risk defense that had prevailed in court for nearly half a century, the tobacco industry "consented" to a proposed settlement. State attorneys general, their hired guns among the plaintiffs' bar, and representatives of various health groups negotiated the initial deal. Three months later, President Clinton weighed in, taking a tougher stance against the industry. So the details are yet to be finalized, but the basic scheme looks like this: The industry will fund a variety of health programs, pay monetary damages, subject itself to FDA regulation, and restrict certain sales and marketing practices. In return, tobacco companies will be exempt from punitive damages for their past conduct and immune from future class action lawsuits. The settlement also caps compensatory damages in suits by individuals and wipes out the states' Medicaid recovery litigation.

The settlement is nothing more than legalized extortion. No industry that had successfully defended itself from thousands of claims—without paying a dollar of damages—would ever "volunteer" to fork over $370 billion, unless it had a gun at its head. In this instance, the "gun" was the threat of Medicaid suits that would be litigated under a corrupt rule of law that nobody had ever imagined when the cigarettes were originally purchased.

Predictably, anti-smoking zealots like former FDA commissioner David A. Kessler and former surgeon general C. Everett Koop reject the settlement because the boot of government does not come down hard enough on the industry's neck. Kessler and Koop want tougher FDA control, stiffer penalties if the nation does not meet targeted declines in youth smoking, huge increases in cigarette excise taxes, removal of damage caps, tighter rules on smoking in public and work places, and export controls. In effect, Kessler and Koop want Prohibition without the label, and without the requisite tobacco equivalent of the Eighteenth Amendment to the Constitution.

In particular, Kessler and Koop object to requiring the FDA to show that new regulations will not spawn a black market in cigarettes. They probably understand that the unavoidable consequence of FDA nicotine restrictions will be to make cigarettes taste like rolled tree bark. With inflated retail prices to help pay for the settlement, the result will be a flourishing and pervasive black market. No doubt we will then embark upon another war like our endless and fruitless war on drugs. Rather than obliterate Colombian coca fields, government agents will comb the back-roads of North Carolina searching for tobacco farmers. Michigan, New York, California, and Maryland hiked their cigarette taxes and there was rampant smuggling—not just from low-tax neighboring states, but from military bases, Indian reservations, even exports to Mexico that were smuggled back to the United States. After Canada raised its excise tax, smuggled cigarettes accounted for an estimated 30 to 50 percent of

The EPSDT program already allows pediatricians to bill the government for counseling children (and their parents) about their manners, use of money, need for affection and praise, competitive athletics, place of child in family, and attitude of father (for some reason, the mother's attitude is not mentioned). That is a license to regulate families, and more money and personnel make the expansion of government power even more likely. Bureaucrats are making themselves coparents.

SMOKE AND FIRE

The pattern can be seen in the current government campaign against cigarettes. Already there have been cases of courts trying to take children away from parents because of the parents' smoking habit. Some courts have ordered parents not to smoke around children. In the state of Pennsylvania, legislation was introduced to bar parents from smoking in cars when accompanied by children under sixteen years of age.

Anti tobacco activist John Banzhaf maintains, "smoking is the most pervasive form of child abuse." Some of the language in the Kidcare program creates a new tool that activists like Banzhaf can use to pressure parents to stop smoking or face the possibility of having their children taken away from them. Whatever one's view concerning cigarettes, it takes little imagination to picture school-based health providers trying to dictate what kind of diets parents can provide for their children, what kind of discipline is appropriate, and whether certain forms of entertainment constitute psychological abuse.

MONEY AND POLICY

School-based health care for children has been strongly promoted by a number of foundations with strong ideological agendas that stand to benefit financially by becoming health care providers in schools. The Robert Wood Johnson Foundation, for example, already has granted to state and local governments $23.2 million to establish school-based health care. Those funds often require government funds to be spent as well. Pennsylvania, for example, spent $4.4 million on Johnson-backed efforts. The Annie E. Casey Foundation paid for a genital examination program in Kentucky. That foundation also helped foot the bill for the Strike for Independence report on how to establish school-based health care.

State legislators now face the strong temptation to seek federal Kidcare funds, which became available on 1 October, by designing or expanding school-based children's health care programs. Those lawmakers would do well to resist the temptation. Other innovative alternatives for covering uninsured children, such as vouchers or tax credits for private health insurance, could help provide for those with real problems. But the Kidcare program simply moves the United States closer to a system of socialized medicine that serves neither health care nor kids.

Sue A. Blevins
President, Institute for Health Freedom

SuYoung Min
Research Associate, Institute for Health Freedom

Unsafe for Any Species

Though the 1973 Endangered Species Act (ESA) expired in 1992, Congress continued to fund the program without statutory authority. Now Senators Dirk Kempthorne (R-Idaho) and John Chafee (R-R.I.) have introduced a reauthorization bill that offers neither reform nor relief for landowners who have had the use of their property restricted. Worse, the bill continues ESA policies that punish property owners who have protected endangered species habitats. The ESA has done little to protect endangered species and much to endanger civil liberties. Rather than reauthorize it, Congress should repeal it and replace it with something that works.

The ESA allows the federal government to prohibit the use of property by its owners if an endangered species is present, or even if one is not present but might be at some point in the future. Yet when farmers are ordered to abandon their plows or families are prevented from building their dream house, the government need not pay compensation. An indication that the proposed reauthorization bill is no reform at all is its strong support by Interior Secretary Bruce Babbitt, who is the chief ESA enforcer and has incurred the wrath of landowners throughout his tenure at Interior. "The Endangered Species Act," boasts Babbitt, "is the most innovative, wide-ranging, and successful environmental law that has been passed in the past quarter century."

The secretary is fond of telling the story of how God commanded Noah to "save the whole of creation" from diluvial extinction by building an ark. The ESA, according to Babbitt, is "the Noah's ark of our day," and if we are to uphold God's "covenant," we must never let it sink. The irony is that under the ESA, Noah could have gone to jail for taking endangered species without a federal permit. Possessing members of endangered species is a violation of the ESA. So is transporting or shipping them without the government's permission. Even building an ark in an endangered species' habitat is illegal without a federal permit. And the cost of obtaining such permits is usually high enough to dissuade most modernday Noahs from even trying. In the past, landowners have had to buy or give to the government as much as three acres of land for every one acre they were allowed to develop.

ADVERSE INCENTIVES

While Kempthorne and Chafee seem satisfied with the ESA as it stands, some environmental groups acknowledge the law's shortcomings and adverse incentives. In *Rebuilding the Ark: Toward a More Effective Endangered Species Act for Private Land*, six authors with the Environmental Defense Fund admit the ESA is "punishing good stewardship." As EDF's analysts explain, landowners "are afraid that if they take actions that attract new endangered species to their land or increase the populations of endangered species that are already there, their 'reward' for doing so will be more regulatory restrictions on the use of their property." That, the authors add, "has prompted some landowners to destroy unoccupied habitats of endangered species before the animals could find it."

Because no good deed goes unpunished under the ESA, the law is turning wildlife assets into costly liabilities, thus undermining its very purpose. That the ESA creates perverse incentives is not news; advocates of reform have been pointing that problem out for years. The news is that prominent environmentalists are finally acknowledging that fact.

Michael Bean, Chairman of EDF's wildlife program and coauthor of *Rebuilding the Ark*, was probably the first to break the silence. Bean's confession was uttered behind closed doors, at a 1994 Training and Education Seminar sponsored by the Fish & Wildlife Service for government employees. (The only reason his speech became public is because a copy of the videotape was obtained through the Freedom of Information Act.) In his speech, Bean admitted that private landowners are "actively managing their land so as to avoid potential endangered species problems." The problems Bean spoke of are the regulations imposed on the habitats of endangered species. "They're trying to avoid those problems by avoiding having endangered species on their property," Bean said.

To his credit, Bean acknowledged that the responses to the ESA's land-use regulations are "not the result of malice toward the environment." Rather, they are "fairly rational decisions motivated by a desire to avoid potentially significant economic constraints. In short, they are really nothing more than a predictable response to the familiar perverse incentives that sometimes accompany regulatory programs. . ."

Bean told his audience that, "after close to twenty years of trying to make the Endangered Species Act work . . . on private lands at least, we don't have very much to show for our efforts other than a lot of political headaches." Yet not until 1996 did Bean repeat such sentiments in public. Curiously, in 1993, Bean was asserting publicly that "the act's many successes have been achieved with few major conflicts," and that "the act has succeeded because it is flexible and sensitive to economic concerns." Bean even maintained in 1995 that "The ESA is a remarkable success, a model for the rest of the world," and as recently as 1996, a few months before the EDF released its report, he said that "the act has helped put many species back on the road to recovery."

NO SPECIES SAVED

Given the ESA's adverse incentives, it is no surprise that the act has done virtually nothing to actually save species. Said the EDF report, "According to the most recent assessment by the [Interior Department's] Fish and Wildlife Service, fewer than a tenth of all listed species for which it is responsible are actually improving in status." The report concludes that "Nearly four times that number are declining. And for about a third, the Fish and Wildlife Service simply lacks the resources to determine how they are faring."

Thus, over two-thirds of listed species are either declining or their status is unknown. Of the species found exclusively on federal land, only 18 percent are improving. Of the species found exclusively on private lands, only 3 percent are improving. Yet, "even the low number included in the 'improving' category represents a stretch, for the category includes several species whose progress has been modest at best," say the EDF's David Wilcove and Michael Bean. That is a curious admission, since only seven months earlier, Wilcove told *Audubon* magazine: "Opponents think that this twenty-two-year-old act should have repaired the damage of centuries. A much better measure is the number of species that are stable or increasing in number." By the end of the year, Dr. Wilcove was saying that, at best, the ESA "is only holding the line on losses and it doesn't even do that very well."

As gloomy as *Rebuilding the Ark's* assessment is, it still overstates the act's success. The EDF analysts claim, for example, that "a few species have fully recovered" due to the ESA. That is not the case. Since the law was enacted in 1973, only twenty-seven species have been removed from the endangered species list. Seven of those were "delisted" because they went extinct. Nine of them, according to Interior's Fish & Wildlife Service, were "data errors," meaning that they never should have been listed in the first place. The Fish and Wildlife Service claims to have "recovered" the remaining eleven species. But eight of those species were never threatened or endangered. For example, after the Rydberg milk vetch was listed as endangered, biologists found three hundred thousand of these plants that Interior officials had overlooked. The remaining species, the eastern brown pelican, the arctic peregrine falcon, and the California gray whale, were indeed in trouble, but were helped by measures other than the ESA. For example, the ban on the insecticide DDT was the major factor in the recovery of pelicans.

Writes Dr. Stephen Edwards of the World Conservation Union, "In other words, there is an equal probability that a species listed on the Endangered Species Act will recover or go extinct." In fact, by the numbers, an endangered species is actually more likely to go extinct (seven out of twenty-seven) under the ESA than it is to be saved. The EDF insists that only three of the seven extinct species vanished under the ESA's watch. Even so, that is three more than have recovered. After so many years of celebrating the ESA's purported success, perhaps it is understandable that the EDF would have such a hard time admitting the depth of its failure.

NO REAL REFORMS

Saving the Endangered Species Act will not save endangered species. Even the EDF's Michael Bean has admitted that "some new approaches . . . desperately need to be tried, because they're not going to do much worse than the existing approaches." Yet most of the EDF's recommendations and the small changes in the Kempthorne-Chafee-Babbitt bill would do little to improve the current situation.

Often, on the death of a landowner, the heirs must harvest timber, mine, or sell developers virgin habitat that is not restricted by the ESA but could provide refuge for various species. Heirs must do that to pay federal estate taxes, which range from 37 percent to 55 percent. The Senate is proposing to allow such heirs to defer part of the estate taxes by entering into a management agreement with the Department of the

Interior. But if the landowners decide to harvest some timber or build a home on the land, back taxes would be owed, presumably with interest. For people who have sunk their life savings in a piece of property or depend on their land to make a living and send their kids to college, the proposal does nothing. Those owners have the otherwise lawful use of their property restricted and their rights to use their own land taken away from them, with no compensation from the government.

The Clinton administration, urged especially by the EDF, has developed a "safe harbor" policy that might help landowners who do not yet have endangered species on their land. This policy could protect the property rights of those who successfully implement management programs that attract endangered species to their land. The Kempthorne-Chafee-Babbitt bill would codify that policy. The EDF claims the approach has been successful where it has been tried. But of the first twenty-two safe harbor agreements, ten have been with golf courses, which typically plant or maintain trees around greens and fairways for aesthetic reasons anyway. It is desirable to have trees lining the fairways, and they are unlikely to be logged even without such agreements.

Such proposed policies merely sprinkle "positive incentives" atop a regulatory regime that is replete with negative incentives. Worse, the Kempthorne-Chafee-Babbitt bill will strengthen the mitigation requirements for those who seek permission from the federal government to use their own property. That will mean that owners will have to surrender control or title to even more land. Kempthorne-Chafee-Babbitt also will give the Interior Department more leeway to "take action earlier" and regulate ecosystems. Under the current law, a species must be listed as endangered or threatened before the Interior Department can impose land use regulations. With the proposed changes, Interior could take more preemptive action to regulate land use before a species is even in peril.

The EDF would take species protection even further, moving policy from its "current focus on individual species" into "an ecosystem approach." Ecosystems are, by definition, everywhere. Thus, protecting ecosystems could easily translate into a legal excuse for Interior to regulate private property anywhere and everywhere it wants to stop development. That is one of the few EDF proposals that the Kempthorne-Chafee bill omits.

PRESERVING FREEDOM

On net, the Kempthorne-Chafee-Babbitt bill reauthorizes the ESA without real reforms. Indeed, it incorporates most of EDF's proposals. The Fifth Amendment to the U.S. Constitution states "nor shall private property be taken for public use without just compensation." Yet under the ESA, an owner's land in effect can be made into a nature preserve or park without a penny in recompense being paid. "Compensation is imperative for our members," says John Hosemann, policy director of the American Farm Bureau Federation. "At the end of the day, the bottom line for us is whether our members are going to get paid for their losses when they can't use their land because of the ESA." Yet the Kempthorne-Chafee-Babbitt bill, S1180, does nothing to protect property rights and provides no compensation.

The ESA basically is theft by government that, in the end, does not actually help preserve species. Secretary Babbitt, who likes to repeat the story of Noah, might well look to another verse from the same source: "Thou shall not steal."

Ike C. Sugg
Fellow in wildlife and land-use policy at the Competitive Enterprise Institute.

Market Masked Regulation

Since the late 1960s, economists have been advocating tradable emission allowances as a regulatory tool to achieve environmental goals at lower costs than command-and-control regulation. Tradable allowances reward firms that reduce emissions at a lower cost than other firms by allowing these efficient firms to sell any unused emission allowances for profit. Meanwhile, the firms with higher costs of emissions control can buy allowances to avoid having to reduce their own emissions. In theory, market forces, instead of a costly agency, regulate the assignment of emission control responsibility.

After several decades of debate and small-scale programs, Congress finally authorized use of the market approach to regulation on a large scale. The centerpiece of the 1990 Clean Air Act is a tradable allowance to ease the pain of cutting nationwide annual sulfur dioxide (SO_2) emissions, a source of acid rain, from about 19 million tons in 1980 to about 9 million tons in 2010. Under the act, rights were not sold on the open market but, rather, distributed to coal-fired utilities, the major emitters of $S0_2$, basis of past levels of emissions.

The potential savings from those tradable allowances have been estimated in the billions of dollars. Unfortunately, the annual allowance auctions that Congress and the EPA implemented to "help signal price information to the allowance market early in the regulatory program" have provided misleading price signals. The rules invented by the EPA for the auction probably handicapped the development of the market.

AUCTIONS AND INCENTIVES

The act instructed the EPA to conduct annual sealed-bid/sealed-offer auctions to ensure the availability of allowances. In addition to distributing the allowances to the users most in need of them, the auctions would supposedly provide clear price signals to the evolving allowance market. The first auctions were conducted in March of 1993 at the Chicago Board of Trade, and have continued annually each March. The EPA withholds between 2 percent and 3 percent of all available allowances from firms. Those are sold in the annual auctions with proceeds distributed to the firms that had ownership rights to the withheld allowances. The problem has been that the rules under which the auctions are conducted make little economic sense and create more confusion about prices than clarity.

The EPA auction determines prices using what is known as

the discriminative price rule. Firms wishing to purchase allowances submit sealed bids indicating the quantity desired and the price they are willing to pay. In a true market, those bids would reflect the costs it would take the firms to reduce SO_2 emissions, costs that firms wish to forego by purchasing emissions rights. All successful bidders pay their bid price. But the discriminative price rule creates an incentive for potential buyers to submit bids that they believe are high enough to secure emission rights but below their opportunity costs of emissions control. That allows them to realize a profit.

The truly odd feature of the EPA auction concerns the selling side of the ledger. In a true free market, sellers would part with their emission rights for prices that reflect their costs of reducing the next unit of emissions. Some sellers, with high costs, would part with emission rights only for high prices. Other sellers with lower costs of reducing emissions would part with their rights for a lower price. In the EPA auction, sellers receive the bid price of a specific buyer, not some average market price. In other words, the EPA matches particular buyers and sellers.

But the EPA matches the lowest price sellers with buyers making the highest bids, and sellers asking the highest prices with buyers making the lowest bids. According to auction theory, that creates an incentive for potential sellers to submit offer prices below their true cost of emissions control. After all, if a seller needing a high price knows that asking a high price will guarantee that the EPA matches him with buyers making the lowest bid, that seller will understate his price in order to be matched with a buyer offering the highest prices. Since both buyers and sellers have an incentive to submit bids and offer below their true abatement costs, equilibrium prices in this EPA auction are biased downward.

Congress and the EPA selected rules without detailed consultation with theoretical and experimental economists. By contrast, when the Federal Communications Commission (FCC) recently designed the highly successful auctions of the broadcast spectrum, top auction theorists and experimental economists were consulted in the design phase. The FCC needed to invent a new auction for complex spectrum licenses, primarily because the value of a license for a firm depends on their acquisition of licenses in geographically related markets and because the value of those licenses was very uncertain. Top auction theorists such as Paul Milgrom and Robert Wilson at Stanford University and Preston McAfee at the University of Texas suggested specific auction rules. The rules were then tested and refined in a Caltech laboratory by the prominent experimental economist Charles Plott and his colleagues before implementation in the field.

WHY NOT USE WHAT WORKS?

In comparison to the FCC spectrum allocation, the allowance market is substantially less complicated. Instead of inventing a new auction, Congress and the EPA could have selected an alternative uniform price sealed-bid/sealed-offer auction. The uniform price auction is used, for example, by specialists on the New York Stock Exchange to set daily opening prices based on orders submitted by traders prior to the opening. The auction aggregates the buyers' bids into a revealed "demand curve," and aggregates the sellers' offers into a revealed "supply curve." The uniform price is set where supply equals demand, and all successful traders buy and sell at the common, uniform price. That auction is used on financial exchanges because it works; and in theory, it would create the incentive for most potential traders to reveal their true emission control cost because only the marginal traders affect the uniform price. Consequently, equilibrium prices in the uniform price auction accurately reveal true underlying market conditions.

To allay policymakers' healthy distrust of pure economic theory, Charles Plott and I conducted laboratory experiments comparing the performance of the EPA auction to the uniform price auction. Our experiment clearly indicates that human subjects understand the differing incentives between the two auction institutions. In the EPA auctions conducted in our laboratory, buyers, and especially sellers, consistently priced their allowances well below the true value of the allowances to either party. By contrast, in the uniform price auction, the buyers and sellers submitted bids and offers that more accurately revealed their values and costs. Consequently, prices in the EPA auction were significantly lower and less accurate than prices in the uniform price auction. The EPA auction is clearly inferior to the uniform price auction both in theory and in laboratory tests.

RESULTS OF THE INITIAL EPA AUCTIONS

Though the EPA conducts auctions through the Chicago Board of Trade each March, electric utilities can also trade among themselves outside the EPA auction by privately negotiating prices. For at least the first three years, the prices in the EPA auctions were substantially below those observed in the nonauction market. For example, for nearly all of 1995, average prices for allowances traded on the nonauction market remained above $120; however, in the March 1996 auction prices plummeted to $68. The downward price bias is exactly what is predicted in theory and observed in the laboratory experiments.

Potential sellers of allowances observed the price differences and did the sensible thing. Instead of taking their chances in the EPA auction and selling at lower prices than they could obtain in the nonauction market, they simply avoided the EPA auction altogether. Consequently, virtually no private sellers traded in the EPA auction. The only reason that transactions occurred at all in the auction is because the EPA withheld some of the allowances and forced trade. The EPA hailed those initial auctions as great successes, but they could hardly have been less successful. The volume of trade has continued to grow in the nonauction market during the past two years, but virtually no private sellers have sold allowances in the annual EPA auctions yet.

When confronted with those theoretical and empirical findings, officials in the Acid Rain Division of the EPA emphasized that the wording of the act required use of a discrimina-

tive price auction. The act states that "allowances shall be sold on the basis of bid price, starting with the highest price bid and continuing until all allowances for sale at such auction have been allocated." However, in late 1994, the General Accounting Office issued a report critical of the EPA auction based on the surprisingly low observed auction prices as well as the theoretical and laboratory findings. Attorneys at the GAO concluded that the wording is sufficiently vague to permit the EPA to modify the auction rules, and they recommended that the EPA, "change the design of the auction so that it is a single [uniform] price auction." In response, in June 1996, the EPA formally proposed changing the rules of their auction to a uniform price auction.

THE LESSON

Allowance trading potentially offers billions of dollars in savings when compared to traditional command-and-control regulation. It is therefore not surprising that regulators have embraced that approach in recent years to reduce the pain of achieving specific environmental objectives. The story of the EPA auction highlights the fact that policymakers must recognize that the devil is in the details, and that several intermediate steps are necessary when translating plans and schemes from the theorist's blackboard to regulatory policy.

The allowance market is now maturing, hundreds of nonauction trades have undoubtedly reduced the cost of cutting $S0_2$ emissions. Unfortunately, the use of an inferior auction mechanism in the early years of the program provided the wrong price signals to the market, possibly slowing its development. Moreover, firms were denied an effective, centralized auction market with lower transaction costs than decentralized, nonauction trading. Consultation with theoretical and experimental economists who study the performance of specific trading rules and institutions prior to implementation is more likely to result in successful regulations.

Timothy N. Cason
Associate Professor of Economics
University of Southern California

MISPRICED PLANET

The 15 May 1997 issue of *Nature* published a paper on the estimated value of the world's ecosystem. Robert Costanza and his coauthors attempt to gauge the contributions of ecosystems to human well-being. Using measures that they describe as consistent with the economic concept of "willingness to pay," their midrange estimate of the aggregate, annual value for seventeen of the earth's ecological systems was $33 trillion, an estimate they describe as still "incomplete." That figure is about 1.8 times the authors' world GNP estimate of $18 trillion.

The Costanza paper has received considerable media attention. Few dispute that our global ecosystems, taken together, sustain life and are therefore essential to continuing human activities. However, the Costanza et al. estimates are seriously flawed. While the authors provide a litany of caveats, their results should not be used in any form—whether as measures of the importance of changes in natural resources to human welfare; as yardsticks for future project appraisals; or as sources of a road map for future research.

There are at least three reasons to question the estimates. The first concerns a basic misunderstanding of the economic concept of willingness to pay. Willingness to pay is a measure defined for a change in something. It reflects both people's desires for the change and their ability to pay for it. As a result, it makes no sense to suggest that an individual or a society is willing to pay more than they have. When we consider an individual's willingness to pay for one good or service, it is possible for the willingness to pay to exceed the total expenditures made on that good or service (when the good has a fixed unit price), as Costanza et al. suggest. However, those expenditures are a portion of income. It does not follow that we can simply extrapolate this argument to consider all things that are valued by people and conclude that total willingness to pay can exceed total income.

Willingness to pay is defined for one or more specific changes in something that affects human well-being. It assumes that other factors influencing people's decisions are unchanged. If we compute a willingness to pay for one set of ecosystems, others are held constant. Altering previously unchanged elements yields a different willingness to pay. But the whole is not necessarily the sum of its parts. Willingness to pay estimates are not necessarily additive. The relationship between the two willingness to pay measures and the composite value of the change in the two ecosystems depends on how they are related and on income effects. For small changes, where the monetary commitments are modest, the income effects associated with doing each in isolation versus the two together may be modest, but for large changes they are not.

The second reason for doubting the Constanza et al. estimates is that the authors have defined a situation where society's willingness to pay is expressed as payment to maintain the seventeen ecosystems in their current status. That implies an all or nothing choice for the seventeen ecosystems' annual services. Understanding how that follows from their methods requires more careful scrutiny of how they used willingness to pay. In general, willingness to pay measures the amount of money an individual or society would be willing to spend for a specific change in some object of choice. While an object of choice can be anything, one must specify both the baseline amount of the object of choice (without the proposed change) and the new amount. Economic models of individual choice do not require that the object of choice be measurable in divisible physical units like hectares. Thus, the willingness to pay assumes people are offered a well defined object of choice and that they recognize the object has a cost.

The Costanza et al. measures for willingness to pay for each ecosystem (or subcomponent) implicitly define the baseline condition for each ecosystem as a situation with none of the annual services currently provided. Does knowing the eco-

nomic value of the earth's ecosystems when the alternative is no ecosystems inform any decision? The answer seems clear. We would probably commit everything short of what is needed to sustain human life. That would be less than world GNP, only because there is nothing left to give. Answers to such questions do not inform the types of decisions that must actually be made to protect the earth's ecosystems. Those choices are incremental allocations that are delineated in time and by spatial location. They require a detailed understanding of the interactions between economic activities and environmental systems that help to support them.

The Costanza et al. analysis defined ecosystems as "essential" by considering choices that entail "all or nothing" outcomes as annual flows. In that context, they are not the only essential input to the process of sustaining human well being. At such a level of generality, an institutional system that defines norms of behavior and provides some rule of law is also essential. The social system, conditioning interpersonal interactions, is also essential, and depending on how each scholar defined the composition of categories, we could readily identify other systems essential to sustaining human activities. Evaluating any one of them relative to the complete absence of law, social structure, or the like, would yield comparably large numbers. However, none of those computations is informative.

Third and finally, willingness to pay for any object of choice is influenced by the character and availability of substitutes. By transferring estimates developed for specific changes in specific resources to per hectare equivalents, Costanza et al. implicitly ignore the change that was analyzed originally in each valuation study used for their analysis. They assume all hectares within each ecosystem category are perfect substitutes for the one with the available valuation estimate. Instead of being conservative (as Costanza et al. suggest) the practice is equally likely to overstate the economic values.

Perhaps more surprisingly, given the background of most of the authors, it violates a key ecological principle found throughout the literature. That is, ecosystems respond to changes through a variety of physical, biological, and chemical feedback cycles. The feedback cycles are central to the processes that link all species to each other and to their respective habitats. A linear aggregation rule for the valuation estimates such as the one used in Costanza et al. treats each change as if it could be made independent of the other constituent elements in the seventeen ecosystems. The approach assumes independence within and across the ecosystems being considered. As a result, it ignores all feedback cycles.

Overall, their analysis seems to combine bad economics with bad ecological science.

V. Kerry Smith
Arts and Sciences professor of environmental economics, Duke University and University Fellow, Resources for the Future, Washington, D.C.