CATO HANDBOOK FOR CONGRESS

Policy Recommendations for the 108th Congress

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35. Health and Safety Policy

Congress should

- eliminate goals of zero risk in statutes governing occupational and environmental health and
- establish the purpose of safety and health agencies as the identification of opportunities to improve safety and health at costs that are much less than the market value of the benefits.

Before the 1970s, the health and safety regulations that we now take for granted were completely absent from the American economy, with the exception of selected regulations for food safety and prescription drugs. The rise of the consumer movement and environmental concerns led to the establishment of the National Highway Traffic Safety Administration in 1966, the Occupational Safety and Health Administration in 1970, the Environmental Protection Agency in 1970, the Consumer Product Safety Commission in 1972, and the Nuclear Regulatory Commission in 1974.

Scholarly assessment of the more than three decades of experience with regulation and government oversight concludes that health and safety regulations have largely failed to fulfill their initial promise, but many of the initial promises were infeasible goals. There continue to be major opportunities to improve regulatory performance by targeting existing inefficiencies and using market mechanisms (rather than strict command-and-control mechanisms) to achieve regulatory goals.

Why Should the Government Regulate Risk?

Government action in the health and safety arena can be justified when there are shortcomings in risk information. The goal of regulatory agencies that address health and safety risks should be to isolate instances in which misinformation about health risks prevents people from making optimal

tradeoffs and to isolate instances in which health risks are not internalized in market decisions.

The existence of a health risk does not necessarily imply the need for regulatory action. For example, as long as workers understand the risks they face in various occupations, they will receive wage compensation through normal market forces sufficient to make them willing to bear the risk; the health risk is internalized into the market decision.

In situations in which the risks are not known to workers, as in the case of dimly understood health hazards or situations in which the labor market is not competitive, market forces might not operative effectively to internalize the risk. Those cases provide an opportunity for constructive, cost-effective government intervention.

Zero vs. Optimal Risk

Unfortunately, the rationale of correcting market failures has never been a major motivation of regulatory intervention. The simple fact that risks exist has provided the impetus for the legislative mandates of the health and safety regulatory agencies. To this day, very few regulatory impact analyses explore in any meaningful way the role of potential market failure in the particular context and the constructive role that market forces may already play in that context.

The conventional regulatory approach to health and safety risks is to seek a technological solution either through capital investments in the workplace, changes in the safety devices in products, or similar kinds of requirements that do not entail any additional care on the part of the individual. Stated simply, the conventional view is that the existence of risks is undesirable and, with appropriate technological interventions, we can eliminate those risks. That perspective does not recognize the cost tradeoffs involved; the fact that a no-risk society would be so costly as to make it infeasible does not arise as a policy concern of consequence.

The economic approach to regulating risk is quite different. The potential role of the government is not to eliminate the risk but rather to address market failures that lead to an inefficient balance between risk reduction and cost. The task of government regulatory agencies is to identify cases in which regulation can generate benefits to society that are worth more than the costs that are incurred and to address market failures using a cost-effective approach. To achieve those goals, the focus should not simply be on rigid technological standards but on flexible regulatory mechanisms that meet the performance goals.

How Should Risks Be Evaluated?

Because government policies reduce risks of death rather than eliminate certain death for identified individuals, the correct benefit value is society's willingness to pay for the reduction in risk. For example, if a regulation would reduce risk by 1 in 1 million to everyone in a population of 1 million, then the regulation would save 1 statistical life. If the average willingness to pay for that risk reduction is $6 per person, then the value of a statistical life is $6 million.

Using detailed data on wages and prices, economists have estimated people's tradeoffs between money and fatality risk, thus establishing a value of statistical lives based on market decisions. For workers in jobs of average risk, the estimates imply that, in current dollars, workers receive premiums in the range of $600 to face an additional annual work-related fatality risk of 1 chance in 10,000. Put somewhat differently, if there were 10,000 such workers facing an annual fatality chance of 1 in 10,000, there would be 1 statistical death. In return for that risk, workers would receive total additional wage compensation of $6 million. The compensation establishes the value of a statistical life, based on workers' own attitude toward risks.

The estimates suggest that in situations in which there is an awareness of the risk, market forces are enormously powerful and create tremendous safety incentives. Thus, we are not operating in a world in which there are no constraints other than regulatory intervention to promote our safety. Powerful market forces already create incentives for safety that should not be overridden by intrusive regulations. We should define the overall economic framework in which regulatory interventions can potentially complement the already significant market forces at work.

Assessing Regulatory Performance

Although many agencies use reasonable measures of the value of a statistical life for the purpose of assessing benefits, the cost per life saved by the regulations actually promulgated often far exceeds the estimated benefits. The restrictive nature of agencies' legislative mandates often precludes consideration of costs in the regulatory decision.

Table 35.1 lists various health and safety regulations and their estimated cost per life saved. The table also lists the cost per normalized life saved (in 1995 dollars), which accounts for the duration of life lost and the existence of discounting of future lives. Because the legislative mandate

Table 35.1
A Sample of U.S. Health and Safety Regulations and Their Cost per Life Saved

Regulation	Year	Agency	Cost per Life Saved (millions of 1990 $)	Cost per Normalized Life Saved (millions of 1995 $)
Unvented space heater ban	1980	CPSC	0.1	0.1
Aircraft cabin fire protection standard	1985	FAA	0.1	0.1
Seatbelt/air bag	1984	NHTSA	0.1	0.1
Steering column protection standard	1967	NHTSA	0.1	0.1
Underground construction standards	1989	OSHA	0.1	0.1
Trihalomethane in drinking water	1979	EPA	0.2	0.6
Aircraft seat cushion flammability	1984	FAA	0.5	0.6
Alcohol and drug controls	1985	FRA	0.5	0.6
Auto fuel system integrity	1975	NHTSA	0.5	0.5
Auto wheel rim servicing	1984	OSHA	0.5	0.6
Aircraft floor emergency lighting	1984	FAA	0.7	0.9
Concrete and masonry construction	1988	OSHA	0.7	0.9
Crane-suspended personnel platform	1988	OSHA	0.8	1.0
Passive restraints for trucks and busses	1989	NHTSA	0.8	0.8
Auto side-impact standards	1990	1990	1.0	1.0
Children's sleepwear flammability ban	1973	1973	1.0	1.2
Auto side-door supports	1970	NHTSA	1.0	1.0
Low-altitude windshear equipment	1988	FAA	1.6	1.9
Metal mine electrical equipment standards	1970	MSHA	1.7	2.0
Trenching and excavation standards	1989	OSHA	1.8	2.2
Traffic alert/collision avoidance systems	1988	FAA	1.8	2.2

Regulation	Year	Agency	Cost per Life Saved (millions of 1990 $)	Cost per Normalized Life Saved (millions of 1995 $)
Hazard communication standard	1983	OSHA	1.9	4.8
Truck, bus, and MPV side-impact standard	1989	NHTSA	2.6	2.6
Grain dust explosion prevention standards	1987	OSHA	3.3	4.0
Rear lap/shoulder belts for cars	1989	NHTSA	3.8	3.8
Stds for radionuclides in uranium mines	1984	EPA	4.1	10.1
Benzene NESHAP (original)	1984	EPA	4.1	10.1
Ethylene dibromide in drinking water	1991	EPA	6.8	17.0
Benzene NESHAP (revised)	1988	EPA	7.3	18.1
Asbestos occupational exposure limit	1972	OSHA	9.9	24.7
Benzene occupational exposure limit	1987	OSHA	10.6	26.5
Electrical equipment in coal mines	1970	OSHA	11.0	13.3
Arsenic emissions from glass plants	1986	MSHA	16.1	40.2
Ethylene oxide occupational exposure limit	1984	EPA	24.4	61.0
Arsenic/copper NESHAP	1986	EPA	27.4	68.4
Petroleum sludge hazardous waste listing	1990	EPA	32.9	82.1
Cover/move uranium mill tailings (inactive)	1983	EPA	37.7	94.3
Benzene NESHAP (revised)	1990	EPA	39.2	97.9
Cover/move uranium mill tailings (active)	1983	EPA	53.6	133.8
Acrylonitrile occupational exposure limit	1978	OSHA	61.3	153.2
Coke ovens occupational exposure limit	1976	OSHA	75.6	188.9

(continued)

Table 35.1
(continued)

Regulation	Year	Agency	Cost per Life Saved (millions of 1990 $)	Cost per Normalized Life Saved (millions of 1995 $)
Lockout/tagout	1989	OSHA	84.4	102.4
Arsenic occupational exposure limit	1978	OSHA	127.3	317.9
Asbestos ban	1989	EPA	131.8	329.2
Diethylstilbestrol cattle feed ban	1979	FDA	148.6	371.2
Benzene NESHAP (revised)	1990	EPA	200.2	500.2
1,2-Dichloropropane in drinking water	1991	EPA	777.4	1,942.1
Hazardous waste land disposal ban	1988	EPA	4,988.7	12,462.7
Municipal solid waste landfills	1988	EPA	22,746.8	56,826.1
Formaldehyde occupational exposure limit	1987	OSHA	102,608.5	256,372.7
Atrazine/alachlor in drinking water	1991	EPA	109,608.5	273,824.4
Wood preservatives hazardous waste listing	1990	EPA	6,785,822.0	16,952,364.9

SOURCE: W. Kip Viscusi, Jahn K. Hakes, and Alan Carlin, ''Measures of Mortality Risks,'' *Journal of Risk and Uncertainty* 14 (1997): 213–33.

varies across regulations, one sees great variance in the cost per life saved. Indeed, the cost varies even within certain regulatory agencies. For example, EPA's regulation of trihalomethane in drinking water has an estimated cost per normalized life saved of $600,000, whereas the regulation of atrazine/alachlor in drinking water has an estimated cost per normalized life saved of $274 billion. A regulatory system based on sound economic principles would reallocate resources from the high- to the low-cost regulations. That would result in more lives saved at the same cost to society (or, equivalently, shifting resources could result in the same number of lives saved at lower cost to society).

The focus of policy debates should not be on whether regulations that cost $7 million per life saved or $12 million per life saved are desirable. Rather, policy debates should emphasize the enormous opportunity costs

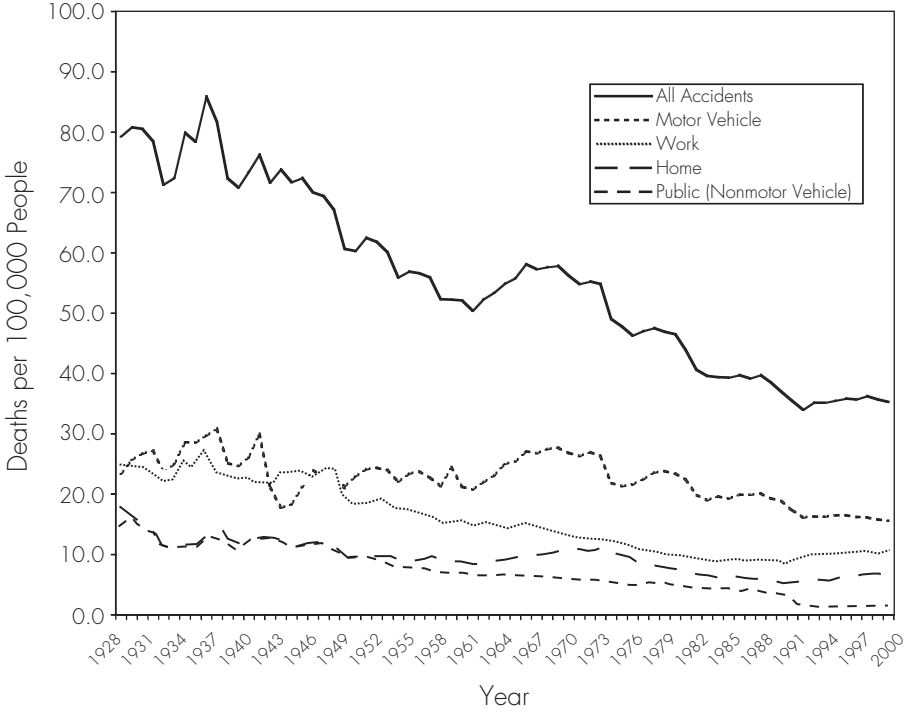
associated with regulations that cost hundreds of millions of dollars or even billions of dollars per statistical life saved.

Effect of Regulation on Accident Rates

What has been the overall effect of health and safety regulations since the early 1970s? One yardstick of performance is to see whether accident rates have declined. Figure 35.1 summarizes fatality rates of various kinds, including motor vehicle accidents, work accidents, home accidents, public no-motor-vehicle accidents, and an aggregative category of all accidents.

Since the 1970s, accidents of all kinds have declined. Improvements in safety over time typically lead to annual press releases on the part of the regulatory agencies in which they take credit for the improvements and attribute the gains to their regulatory efforts. There are exceptions, as

Figure 35.1
Accidental Death Rates



SOURCE: National Safety Council, *Accident Facts* (Itasca, Ill.: NSC, 2001), pp. 34–35.

there are some years in which accident rates increase—and regulatory officials typically blame cyclical factors for such trends.

The basic message of Figure 35.1 is that accident rates have been declining throughout the past 100 years. The improvement in our safety is not a new phenomenon that began with the advent of regulatory agencies commissioned to protect the citizenry. There is, for example, no significant downward shift in Figure 35.1's trend for job fatality risk after the establishment of OSHA.

Perhaps the main exception has been motor vehicle accidents, but assessments of annual death rates associated with motor vehicles are complicated by the fact that many more people drive than did in previous years, and there have been considerable changes in the amount of driving, traffic congestion, and highway design.

Figure 35.2 provides an explanation of motor vehicle accident rates that attempts to adjust to some of the aspects of driving intensity rather than simply tallying the motor vehicle fatality rate per person. As can be seen from the figure, deaths per 10,000 motor vehicles as well as deaths per 100 million vehicle miles have declined steadily throughout the last 100 years. As in the case of the other accident statistics, there is no evidence of a sharp, discontinuous break in the downward trend occurring with the advent of regulatory policies.

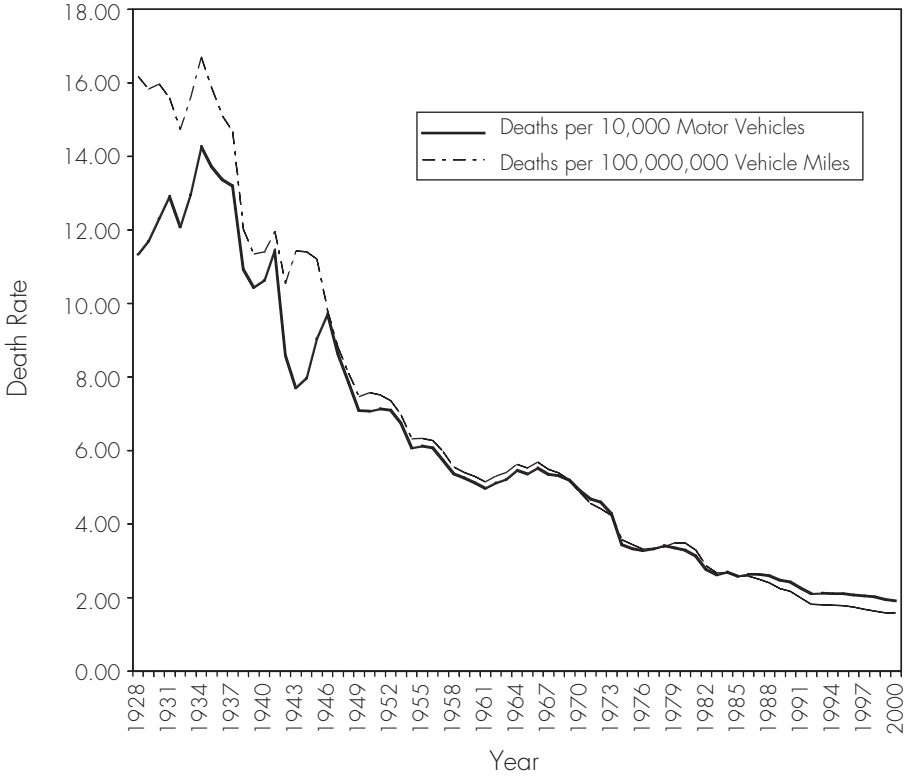
Although regulation may play a beneficial safety-enhancing role, the steady decrease in risk throughout the century supports the hypothesis that improvements in societal wealth have greatly increased our demand for safety over time. Coupling that wealth with technological improvements—many of which have been stimulated by the greater demand for safety—has led to dramatic improvements in our individual well-being. Market forces rather than regulatory policy have likely been the most important contributor to safety improvements since early last century.

Reform Agenda

Almost from its inception, health and safety regulation has been the target of proposed reform. Some policy improvements have occurred, such as elimination of some of the nitpicking of safety standards, the increased use of informational approaches to regulation, and enhanced enforcement efforts. However, health and safety regulations have fallen short of any reasonable standard of performance.

The underlying difficulty can be traced to the legislative mandates of the regulatory agencies. Instead of focusing regulations on instances of

Figure 35.2
Motor Vehicle Death Rates



SOURCE: National Safety Council, *Accident Facts* (Itasca, Ill.: NSC, 2001), pp. 108–9.

market failure, the emphasis is on reductions of risk irrespective of cost. The regulatory approach has also been characterized by an overly narrow conceptualization of the potential modes of intervention. The emphasis has been on command-and-control regulations rather than performance-oriented standards. More generally, various forms of injury taxes that would parallel the financial incentives created by workers' compensation or various environmental tradable permits programs could establish incentives for safety while at the same time offering firms leeway to select the most cost-effective means of risk reduction. A glaring omission from the regulatory strategy has been adequate attention devoted to the role of consumer and worker behavior and the potential for exploiting the benefits that can derive from promoting safety-enhancing actions by individuals rather than relying simply on technological controls.

Defenders of the current regulatory approach have long seized the moral high ground by claiming that their uncompromising efforts protect individual health; less consequential concerns such as cost should not interfere with that higher enterprise. The fallacy of such thinking is that high-cost, low-benefit safety regulations divert society's resources from a mix of expenditures that would be more health enhancing than the allocations dictated by the health and safety regulations. Agencies that make an unbounded financial commitment to safety frequently are sacrificing individual lives in their symbolic quest for a zero-risk society. It is unlikely that this situation will be remedied in the absence of fundamental legislative reform.

Suggested Readings

Adams, John. ''Cars, Cholera, and Cows: The Management of Risk and Uncertainty.'' Cato Institute Policy Analysis no. 335, March 4, 1999.

Hahn, Robert W., and Jason K. Burnett. ''A Costly Benefit.'' *Regulation* 24, no. 3 (2001).

Kniesner, Thomas J., and John D. Leeth. ''Abolishing OSHA.'' *Regulation* 18, no. 4 (1995).

Miller, Henry I., and Peter VanDoren. ''Food Risks and Labeling Controversies.'' *Regulation* 23, no. 1 (2000).

Niskanen, William A. ''Arsenic and Old Facts.'' *Regulation* 24, no. 3 (2001).

Scalia, Eugene. ''OSHA's Ergonomics Litigation Record: Three Strikes and It's Out.'' Cato Institute Policy Analysis no. 370, May 15, 2000.

Viscusi, W. Kip, and Ted Gayer. ''Safety at Any Price?'' *Regulation* 25, no. 3 (2002).

Wilson, Richard. ''Regulating Environmental Hazards.'' *Regulation* 23, no. 1 (2000).

_____. ''Underestimating Arsenic's Risk.'' *Regulation* 24, no. 3 (2001).

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