HOW TO TALK ABOUT RISK: HOW WELL-INTENTIONED REGULATIONS CAN KILL

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INTRODUCTION

One of the principal goals of government regulation is to protect the public and save lives. But how efficiently does today's system of regulation achieve that goal? Federal agencies are criticized increasingly for imposing ineffective, costly regulations on individuals and businesses that do little to improve public health and safety. The criticism ranges from accusations of poor-quality science being used to estimate the magnitude of health risks, to the growing trend of agencies to regulate purely hypothetical health risks that likely pose no danger whatsoever. A seminal new study from Harvard University reveals that roughly 60,000 lives are lost every year due to the current command-and-control system, chiefly by squandering billions of dollars on eliminating risks that are negligible or nonexistent while failing to protect the public from others that are much more serious.

The traditional rhetoric of those who support the current regulatory system—that increased regulation saves lives—is simply wrong. Well-intentioned regulations can kill. Alarmists have succeeded in convincing the public that a reformed regulatory system would "roll back protection"—for example, that women would be denied life-saving mammograms and our food supply would not be safe from deadly *e.coli* bacteria. This is untrue. A reformed system would allow us to devote more resources, not less, to the types of activities which we know save lives.

Congress has been unsuccessful in its efforts to frame the issues clearly for Americans. But, rather than passively allow the assertions of alarmists and regulatory extremists to go unanswered, reformers can and should seize the moral high ground in the debate over risk regulation. They should point out that their reforms and solutions actually will save more lives. In effect, they can help Americans get "more bang for the regulatory buck."

Reformers must understand and effectively communicate five simple truths about risk regulation to convince the public that regulatory reform will result in more protection, not less:

❶ **Not every risk is avoidable.** While eliminating every risk from life is desirable, it also is impossible. People make decisions every day regarding the types of risk they choose to face, and accidents do happen. A 100 percent risk-free, accident-free society is an impossible goal, and it is unwise for regulators to act as if it were achievable.

❷ **All risks are relative.** Almost everything we do every day carries some degree of risk. But some risks obviously are greater than others. Some risks may sound catastrophic while actually being relatively trivial because the likelihood of harm is so low. For example, many Americans still

fear airplane flight despite clear evidence it is one of the safest modes of transportation available. By contrast, commonplace everyday risks such as driving to work pose a greater health hazard because they occur more frequently and the chance of accidents is greater.

❸ **Wealthier is healthier.** Higher incomes increase living standards which, in turn, improve health and increase life expectancy. As the standard of living improves, overall public health and safety improves. Conversely, actions which lower living standards typically increase risk and shorten life expectancy. Thus, the more burdensome the regulations, the greater the drain on the economy and on the prosperity and health of Americans. This cost must be balanced against any benefit from a regulation.

❹ **Regulations can have adverse side effects, thus creating more risk and less protection.** While some regulation saves lives, some federal regulations actually cost more lives than they save by discouraging innovation, decreasing incomes, destroying economic output and job opportunities, and creating other new risks in pursuit of policy objectives. For example, Food and Drug Administration (FDA) regulations meant to guarantee the safety of drugs or medical devices often delay the release of these products, placing millions more lives at risk.

❺ **More lives would be saved if risks were prioritized.** If federal regulators identified and prioritized risks more effectively, as many as 60,000 additional lives could be saved each year.

These truths constitute the foundation of how to talk about risk regulation. This study is intended to help policymakers communicate in clearer terms the problems underlying today's system of risk regulation and describe a framework for reform.

LIFE AND RISK

We face risks every day of our lives. It is risky to eat, breathe, and walk down the street. Tragedy can strike from unknown and improbable sources. The world is full of risk, and no one is free from its dangers. But we also put ordinary risks in perspective. Even though people are constantly exposed to potentially dangerous circumstances, few decide to live in seclusion merely to avoid a slight chance of harm. While people wisely avoid unacceptable risks, they also wisely ignore or take only minor precautions against the vast majority of potential dangers facing them.

Common sense tells us that risk is a relative matter. All other things being equal, less risk is better. But not all other things *are* equal—sometimes it is better to accept small amounts of risk because the rewards are so great. In fact, humans do this every day when they risk poisoning by eating food or taking medicine or when they drive to work. The reason: Even with reasonable government protections and private precautions, there is a risk. But while the possibility of, say, food poisoning, remains real, usually it is very small and the alternative is unacceptable to most people. People calmly accept commonplace risks everyday. Life is a series of prudent trade-offs.

Unfortunately, this is not understood by government bureaucrats who continue to craft regulations with the goal of eliminating all risk from society. These regulators, in an effort to be cautious and "safe," often impose great economic burdens on those they regulate to eliminate the slightest risk of death or injury. Even the smallest element of risk in society typically is deemed intolerable and unacceptable. The enormity of the cost often is irrelevant to regulators as they pursue a "zero-risk" or "no-risk" society.

Risk trade-offs and opportunity costs. While these policymakers are well-intentioned, they ignore the important point that risk is neither created nor eliminated in a vacuum. Every action has consequences. Any attempt to decrease or eliminate risk will entail a corresponding trade-off. Every action taken by an individual or organization means that other opportunities are closed off. Economists refer to

these lost opportunities as opportunity costs. More specifically, the opportunity cost of a given action refers to the forgone benefits that could have been obtained by employing resources in an alternative way.[1] For example:

- On an elementary level, most people enjoy watching television as well as reading books or magazines, but understand there is a trade-off between the two at any given time. The opportunity cost of watching television is the lost chance to read.
- On a more complex level, the opportunity cost of prohibiting a business from hiring and paying workers at whatever wage they can afford may be an overall loss in employment and income for the economy.[2]
- Likewise, federal Corporate Average Fuel Economy (CAFE) standards, which require increased fuel economy in American automobiles, undoubtedly have saved fuel. But this has come at the expense of many thousands of lives lost, because auto companies were effectively forced to manufacture much lighter-weight cars to meet the fuel economy standards, and these cars were not heavy enough to protect drivers and passengers as well in accidents.[3]

In each case, a trade-off is made, although the trade-off may not be consciously understood. Consequently, opportunity costs are incurred. Such costs can range from very expensive to fairly trivial; hidden to visible; extremely complex to easily understood. Whatever their magnitude, there are real costs and trade-offs associated with every regulatory decision.

In an important new book, *Risk vs. Risk*,[4] John Graham, Director of the Harvard Center for Risk Analysis and President-elect of the Society for Risk Analysis, and Jonathan Baert Weiner, Associate Professor in the School of Law and the School of Environment at Duke University, develop a conceptual framework (referred to as "Risk Trade-off Analysis" or "RTA") to help policymakers and the public better understand the nature of risk trade-offs. Graham and Weiner argue that the best way to understand the dangers inherent in the risk assessment process is to plot on a chart the relationship between "target risks" and "countervailing risks." Target risks are those risks that regulations are designed to reduce. A countervailing risk is the unintended and undesirable consequence that results from attempts to reduce the target risk.

For example, consider Graham's and Weiner's hypothetical example of how someone might go about reducing the risk of a headache. To alleviate the target risk, the headache, the sufferer could take several aspirin. While taking several aspirin usually will lessen the headache, it often comes at the cost of a countervailing risk—a severely upset stomach. As the chart below reveals, if the recommended remedy for the target risk is merely to take several aspirin while ignoring any side effects, improvements can be made along the target risk axis. Yet alleviating the target risk may increase the risk of severe stomach problems, moving us backwards on the countervailing risk axis. Thus, both types of risks must be ac-

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1 For more information, see John C. Shanahan and Adam D. Thierer, "Can We Save Even More Lives? Understanding the 'Opportunity Costs' of Regulation," Heritage Foundation *F.Y.I.* No. 11, February 28, 1994.

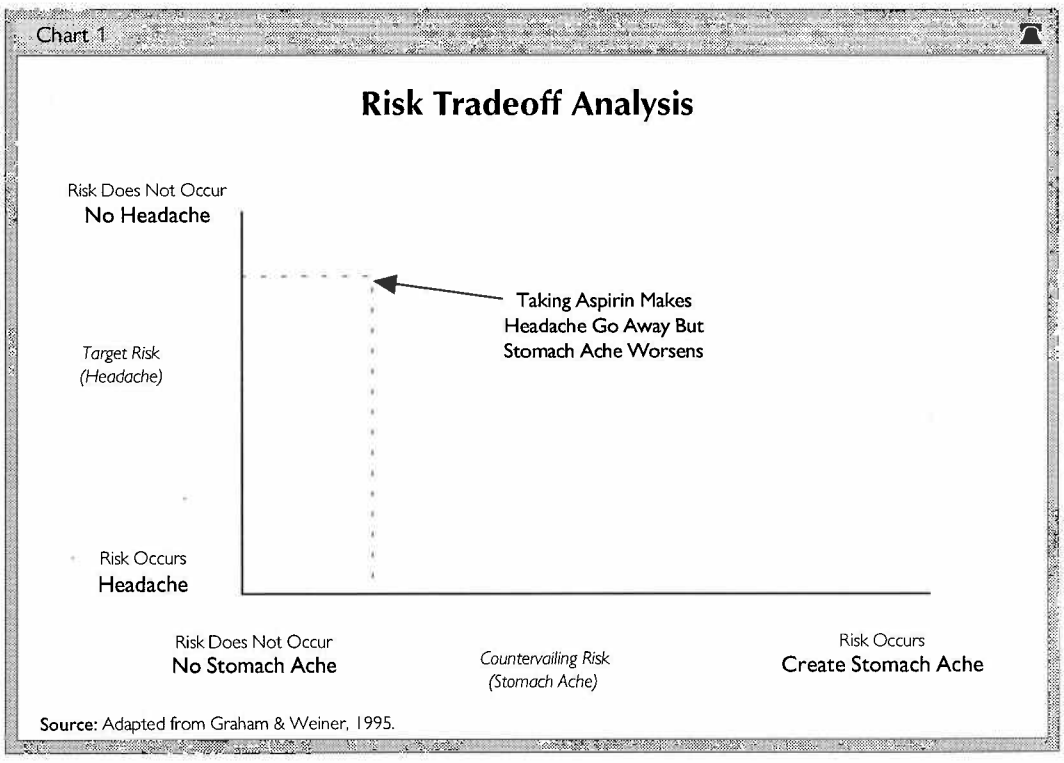
2 Such is the case currently with minimum wage regulation. Forcing employers to pay their workers a minimum wage of $4.25 an hour necessarily means fewer workers can be employed overall. See Mark Wilson, "Why Raising the Minimum Wage Is a Bad Idea," Heritage Foundation *Backgrounder* No. 1033, May 17, 1995; Donald Deere, Kevin M. Murphy, and Finis Welch, "Sense and Nonsense on the Minimum Wage," *Regulation*, No. 1 (1995), pp. 47-56.

3 Robert W. Crandall and John D. Graham, "New Fuel-Economy Standards, The Politics of Energy," *The American Enterprise*, March/April 1991, p. 68. See also John D. Graham, "Saving Gasoline and Lives," in *Risk vs. Risk: Tradeoffs in Protecting Health and the Environment*, ed. John D. Graham and Jonathan Baert Weiner (Cambridge, Mass: Harvard University Press, 1995), pp. 87-103.

4 Graham and Weiner, *Risk vs. Risk*, Chapter 1, "Confronting Risk Tradeoffs."

knowledged so that the proper balance can be struck or alternative treatments found to remedy the target risk without creating heightened countervailing risks.

Risk Trade-off Analysis, as developed by Graham and Weiner, simply draws attention to the inevitable trade-offs policymakers face when attempting to eliminate target risks. Actions taken to alleviate target risks may come at the expense of heightened countervailing risks. When legislators and regulators ignore the opportunity costs of such trade-offs, the results can be unfortunate and even deadly. A clear case of this is the CAFE standard mentioned earlier. Increased fuel economy in cars (the target risk) was achieved, but at the expense of increased highway fatalities (the countervailing risk).



Graham and Weiner provide many other examples of how RTA can be used to examine inefficient risk analysis:

- ✔ **Regulations aimed at decreasing solid waste in landfills from disposable diapers can decrease this target risk by encouraging increased use of washable cloth diapers.** Yet this produces a countervailing risk: more air pollution created by increased energy-intensive washing and household pickup services by high-polluting trucks.
- ✔ **Banning the pesticide EDB may have eliminated the very slight cancer risk it posed, but only at the expense of a more dangerous cancer-causing fungus** left on the food that used to be treated with the pesticide.
- ✔ **In 1991, Peru suffered a massive outbreak of cholera, which killed 7,000 people and afflicted over 800,000 others. This was caused by Peru's decision to ban the chlorination of drinking water, based on American risk studies** that had shown there might be a slight chance of developing cancer due to chlorine. But the chances of cancer death from chlorinated water turned out to be far less than the risk of death due to a contaminated drinking supply.
- ✔ **Asbestos abatement efforts actually pose a greater risk to human health than non-action, since the substance has been shown to be virtually harmless if left alone.** Thus, regulations requiring asbestos removal not only have wasted scarce public health dollars, but also have placed workers removing it and others at greater risk from dust stirred up once it was agitated.

Clearly, as shown by these examples, if Congress ever hopes to fix the grave problems of the current risk assessment and management systems, it must be aware of the opportunity costs that are inextricably entwined with all risk regulation trade-offs. While the benefits of some regulations may outweigh the cost, more often they do not. And that means lives are lost unnecessarily. Why is this the case?

How Well-Intentioned Regulations Can Cost Lives

Attempting to save lives by trying to eliminate every risk from life actually can increase the overall death toll for many reasons. The primary reason: Avoiding one risk necessarily implies accepting others. Even in the United States, with a gross national product of $7 trillion, there are limited resources that can be devoted to reducing risk. At the very least, policymakers should acknowledge that saving lives by taking one action precludes using those same resources to save other—and perhaps more—lives. In many cases, if the private resources used in complying with federal mandates were left to the individuals affected, or used in other ways in the economy, Americans would benefit more. The country cannot afford to eliminate all risk, since trying to do so can reduce safety.

As Supreme Court Justice Stephan Breyer noted in his 1993 study of risk regulation, *Breaking the Vicious Circle*, while it would be wonderful to eradicate every last bit of risk from life, trying to "go that last mile" can be pursued "to the point where it brings about more harm than good."[5] Few additional gains are made in terms of public health and safety when such a strategy is followed, Breyer argues, since "[r]emoving that last little bit can involve limited technological choice, high cost, devotion of considerable agency resources, large legal fees, and endless argument."[6] To better understand Justice Breyer's point, critics of the onerous current system must learn to speak in terms of "wealthier is healthier."

Assuming the moral high ground: Why a higher standard of living keeps people safer. Increasingly, academics, expert analysts, and even government officials argue that large increases in regulatory spending can result in more lives lost than saved. But while true, this is counter-intuitive for most people. After all, regulation ostensibly is designed to protect people, and this usually would be true if the benefits of regulation existed in a vacuum with no costs, including opportunity costs. Regulation neither exists in a vacuum nor necessarily corresponds with more protection; yet it always entails costs. When the cost of well-intentioned risk regulations is a corresponding decrease in the overall economic welfare of average citizens, the net result can be lost lives.

There is an old saying that health is wealth. The converse is also true: Wealth is health. As Chart 2 and Appendix 1 suggest, comparing average national income levels to life expectancy and infant mortality in 132 surveyed countries reveals a strong correlation. More children survive and adults live longer in countries with higher incomes. Why does this occur? There are many reasons.

One reason is that increases in economic production make possible innovations such as medical technology, antibiotics, weather-resistant shelter, and safer modes of transportation. These factors in turn increase life expectancy. Another is that wealthy, robust economies encourage job creation, which also lowers deaths by reducing the ranks of unemployed workers, who suffer from higher mortality rates. Moreover, increased wealth extends life expectancy for those already fully employed by giving them opportunities to buy better food and shelter, purchase more health insurance, drive safer cars, and otherwise live a less stressful life. Furthermore, a healthier population produces even more wealth, so the wealth-health cycle becomes self-perpetuating.

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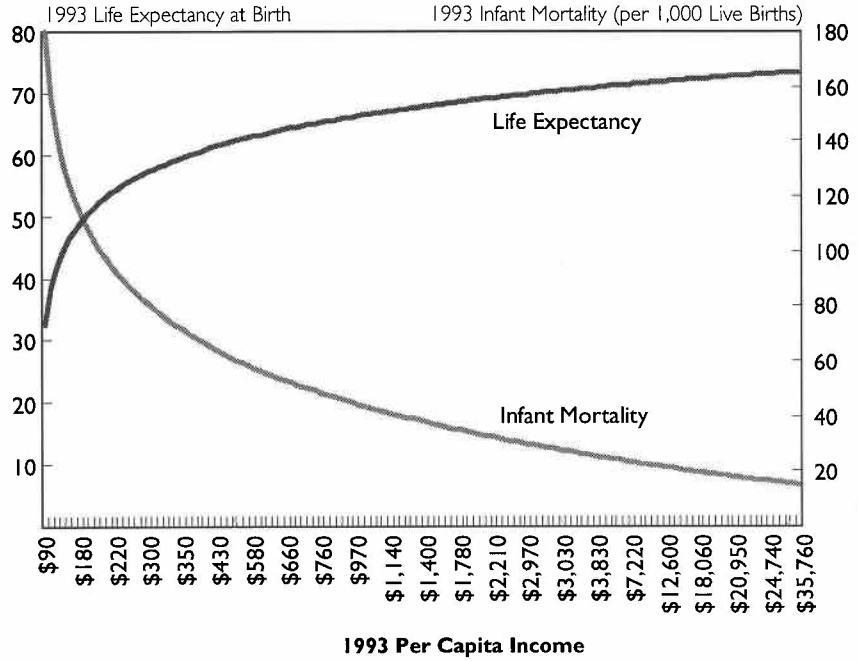
5 Stephen Breyer, *Breaking the Vicious Circle* (Cambridge, Mass: Harvard University Press, 1993), p. 11.

6 *Ibid.*

These advances have done more to reduce the very real everyday risks Americans face than the great majority of risk regulations currently on the books. Despite "Chicken Little" claims by some alarmists, life is getting less risky all the time. The easiest way to see this is to compare turn-of-the-century life expectancy figures with today's. Total life expectancy in the year 1900 was just 48 years; today, it is 76 years. This remarkable 60 percent jump is due primarily to the ever-increasing standard of living enjoyed by Americans over the span of this century. Steadily rising incomes have allowed individuals and families to make ongoing investments in risk-alleviating measures that increase their health and that of their families. In fact, two scientists in the early 1980s estimated that for every 1 percent change in income, mortality is reduced by approximately 0.05 percent.[7] Again, wealthier is not only healthier, but highly risk-reducing.

Chart 2

Life Expectancy and Infant Mortality vs. Income: Wealthier is Healthier



Note: Curves are power regressions of data from 132 countries.
Source: United Nations, *World Development Report*, 1995.

It is also worth noting that these large gains in human health and longevity occurred just as rapidly before the onset of most federal regulatory programs in the early 1970s as they have since. In fact, from 1900 to 1969, life expectancy at birth rose by an average of 0.8 percent per year (see Chart 3). By way of comparison, from 1970 to 1990, life expectancy grew by only 0.3 percent per year. Policymakers need to ask themselves how these amazing gains were made prior to 1970 without federal health and safety rules. The answer, of course, lies in the wealth-health phenomenon.

Regulation: The other side of the story. Regulations, including those that ostensibly are supposed to reduce risk, can cause fatalities whenever they destroy wealth, confiscate property, or discourage employment and product innovation. This should be taken into account whenever a regulation is proposed. Jobs are lost and wealth is destroyed when output is restricted, resources are used inefficiently, or entrepreneurialism in general is discouraged. Product innovation likewise is suppressed whenever government too strictly regulates the development, distribution, and use of products with life-saving potential.[8]

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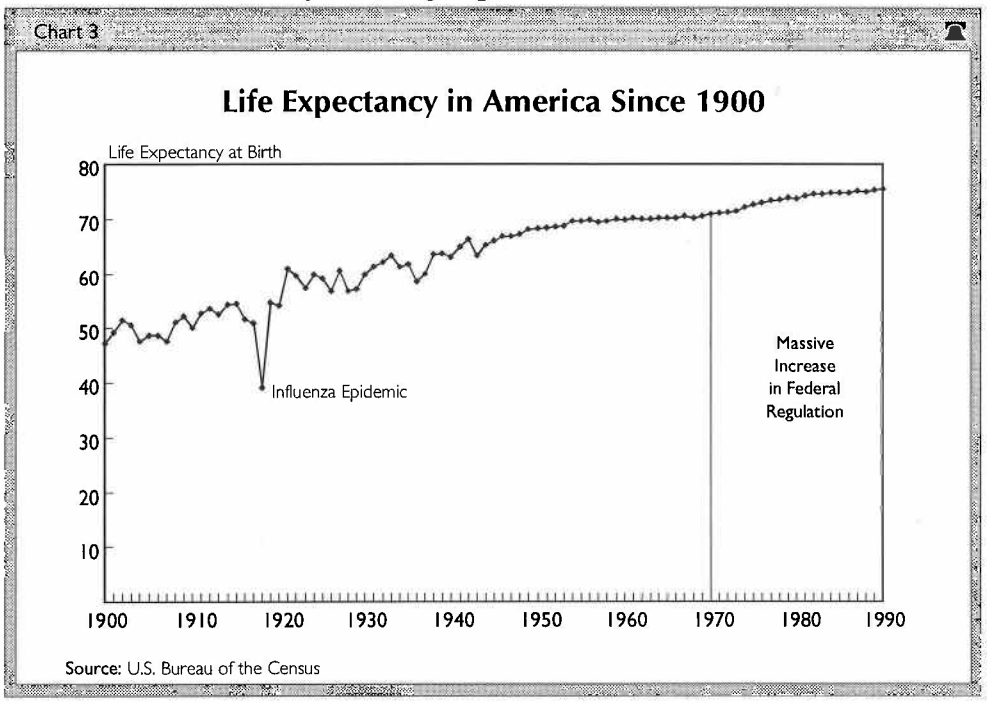
7 Jack Hadley and Anthony Osei, "Does Income Affect Mortality? An Analysis of the Effects of Different Types of Income on Age/Sex/Race-Specific Mortality Rates in the United States," *Medical Care*, Vol. 20, No. 9 (September 1982), pp. 901-914.

8 Risk experts Richard J. Zeckhauser and W. Kip Viscusi argue that "overreaction to very small risks impedes the kind of technological progress that has historically brought dramatic improvements in both health and material well-being." Richard J. Zeckhauser and W. Kip Viscusi, "Risk Within Reason," *Science,* Vol. 248 (May 1990), p. 559.

Several recent regulatory and judicial decisions support this concept. For instance, the White House Office of Information and Regulatory Affairs (OIRA) has noted that for each additional $7.5 million increase in the regulatory burden imposed on Americans, one human life is lost.[9] According to OIRA, the reduction in economic activity due to the burden of regulation itself actually increases risk because living standards are reduced, and this causes mortality rates to rise. This increased mortality, however, reflects only the heightened risk caused by the economic effects of regulations and is separate from reduced risks that could be achieved by devoting expenditures to other uses.



Using this estimate:

- **Instead of spending $119 billion** to avert just one death under an OSHA-based formaldehyde occupational exposure limit, 331 new drugs could be developed and brought to market.[10]
- **Instead of spending $168 million** to avert one death under an EPA-based benzene regulation, 3,064 police officers could be placed on the street.[11]
- **Instead of spending $653 million** to avert one death under an EPA-based dichloropropane water standard, 4,353 new fire trucks could be purchased—equivalent to 10 per congressional district.[12]

The late risk expert Aaron Wildavsky made clear exactly why regulation can have such counter-productive effects. He explained that the quest for a no-risk society through overzealous regulation "is the highest risk of all"[13] because it prohibits or interferes with the enormously beneficial trial-and-error process that weeds out unsafe products or processes and replaces them with superior alternatives. As

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9 See Ralph Keeney, "Mortality Risk Induced by Economic Expenditure," *Risk Analysis*, Vol. 10, No. 1 (1990); letter from James MacRae, Acting Administrator and Deputy Administrator, Office of Information and Regulatory Affairs, Office of Management and Budget, to Nancy Risque-Rorbach, Assistant Secretary for Policy, Department of Labor (DOL), March 10, 1992.

10 Based on a drug development cost of $359 million per drug in 1990. Source: Pharmaceutical Manufacturers Association.

11 Based on a per officer sworn operating expenditure of $54,900 for fiscal year 1990. Source: Bureau of Justice Statistics.

12 Based on an average cost per new fire truck of $150,000. Source: Fire Apparatus Manufacturers Association.

13 Aaron Wildavsky, "No Risk Is the Highest Risk of All," in *Readings in Risk*, ed. Theodore S. Glickman and Michael Gough (Washington, D.C.: Resources for the Future, 1990), pp. 120-127.

Wildavsky noted in his influential work *Searching for Safety*, proponents of a no-risk society demand "trial *without* error," which in reality is more deadly, since "[i]f you can do nothing without knowing first how it will turn out, you cannot do anything at all....[I]f trying new things is made more costly, there will be fewer departures from past practice; this very lack of change may itself be dangerous in foregoing chances to reduce existing hazards....[E]xisting hazards will continue to cause harm if we fail to reduce them by taking advantage of the opportunity to benefit from repeated trials."[14]

Those who support the current regulatory system apparently want policymakers and the public to believe that thousands of pages of new rules and hundreds of additional bureaucrats would do more to improve human health and safety than more police on the beat, more fire trucks in local communities, or more pharmaceutical drugs on the market.

In summary, because regulatory policy often requires that private resources be employed in sub-optimal ways, enormous costs are imposed on businesses and individual Americans alike.[15] Unfortunately, as critics of the current system can now argue, these costs may often include the loss of human life.

A real world example: CLIA. Take the case of CLIA, the Clinical Laboratory Improvement Amendments of 1988. Despite little evidence that any serious problems existed with current laboratory testing methods, Congress became fixated on a few highly unusual cases in which laboratory testing error contributed to the death of a patient. Congress felt that even a single fatality caused by testing error was one death too many. With truly noble intentions, legislators set out to insure lab tests would be perfectly safe from that point forward—again, the creation of a "no-risk" society was the theme. Yet, despite these good intentions, the results have been less than encouraging and have placed the lives of average Americans at even greater risk.

The eight-page law led to 1,600 pages of regulations as well as thousands of pages of additional guidelines. Faced with enormous paperwork costs and threatened with fines for non-compliance with this needless paperwork, tens of thousands of small private medical practices have been forced to stop administering basic patient tests or have shut down their operations altogether.[16] As a result, the cost of routine laboratory tests for things such as strep infection, cholesterol levels, pregnancy, and Pap Smears has risen dramatically. With fewer patients (especially those who are poor) therefore able to obtain basic clinical tests, the overall quality of care has been reduced, and more lives are now at risk than before

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14 Aaron Wildavsky, "Trial and Error Versus Trial Without Error," in *Searching for Safety* (New Brunswick, Conn: Transaction Books, 1988), p. 38. Wildavsky referred to "those opportunities to reduce *existing* harms that society forgoes when it decides to delay or deny the introduction of a new substance of technology" as "opportunity benefits" since "opportunity costs" refers only to goods or services that might have been purchased with the same resources. "Opportunity benefits," on the other hand, focuses on the beneficial results that could have come about if a different path had been followed. *Ibid.*, p. 39.

15 Although almost all risk experts agree this relationship holds over the long run, the short-run effects of economic wealth and personal health are disputed. That is, as "permanent income" (average income over the long run) increases or decreases over time, health risks and mortality generally decrease. See generally Wildavsky, "Richer Is Sicker Versus Richer Is Safer," in *Searching for Safety* , pp. 59-75. However, fluctuations in "transitory income" (short-term income changes during business cycle upturns and downturns) do not always exhibit a similar correlation. In fact, some scholars have noted that a perverse relationship exists between health/mortality risks and short-term increases in income brought on by improving economic conditions. For example, some ailments such as heart attacks, accidents, and cirrhosis tend to increase with improving economic times since they often are the result of an increased tendency and ability among individuals to consume greater quantities of luxuries that may have adverse health effects. See John D. Graham, Bei-Hung Chang, and John S. Evans, "Poorer Is Riskier," *Risk Analysis*, Vol. 12, No. 3 (1992), pp. 333-337. In general, though, these are health risks that individuals accept despite the side effects associated with them. More important, permanent income is generally a more important gauge of overall societal well-being and is hurt by federal policies that generate enormous costs and produce few benefits.

16 For more information about the effects of CLIA, see Sandra Mahkorn, M.D., M.P.H., "Cutting Red Tape on Clinical Labs: Why Congress Should Deregulate Doctors," Heritage Foundation *Backgrounder* No. 1056, October 10, 1995.

CLIA was passed. Good intentions have led to disastrous results. Thus, like many other regulations whose stated purpose is to reduce risk to society, CLIA is likely costing more lives than it is saving.

This real-world example provides several important lessons that apply to all risk regulation:

- ✔ **First, it illustrates that every regulation involves trade-offs and corresponding opportunity costs, including the cost of human life.** In the case of CLIA, trying to make labs completely safe is placing individuals at even greater risk.
- ✔ **Second, it shows that "two wrongs don't make a right."** A few chance accidents do not justify overzealous regulatory initiatives that actually create more problems than they solve. Again, it is not possible to avoid every single risk in life, and attempting to do so can lead to more harm than good.
- ✔ **Third, and most important, as economists Richard J. Zeckhauser and W. Kip Viscusi note, "When thinking about these tradeoffs, one should remember that improvements in mortality and morbidity have come primarily from technological progress and a higher standard of living, not from government regulation or private forbearance."**[17] Innovation, trial and error, acquired knowledge, and the corresponding benefits of progress and wealth expansion are the true keys to a safer, healthier society — not a more onerous regulatory regime.
- ✔ **Finally, where command-and-control tactics are used, whether by the FDA, the Occupational Health and Safety Administration (OSHA), the EPA, or other regulatory agencies, fewer lives are being saved than many policymakers and average Americans have been led to believe.** In many cases, as with CLIA, lives may be lost because countervailing risks are being ignored.

When federal policymakers accept the validity of regulations such as CLIA without carefully considering the costs they impose, they fail to understand that resources are being used inefficiently and people often are dying as a consequence. Tammy O. Tengs of Duke University summarizes this phenomenon: "[W]hen we spend resources on interventions that save lives at a high cost, we forego the opportunity to spend those same resources on interventions that save lives at low cost."[18] With federal regulatory spending growing without restraint,[19] the conclusion is clear: The pursuit of a "no-risk" society through expensive and inefficient federal regulatory activity is killing Americans.

How to Manage Resources Better to Reduce Risk

The central question facing policymakers and regulators is how to obtain "more bang for the buck" when trying to reduce risk. Since economic resources in society are scarce, it is essential that policymakers examine the cost-effectiveness of measures designed to reduce risk. This requires a common reference point to measure benefits. In the scholarly literature on risk analysis, this is often done in terms

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17 Zeckhauser and Viscusi, "Risk Within Reason," p. 562.

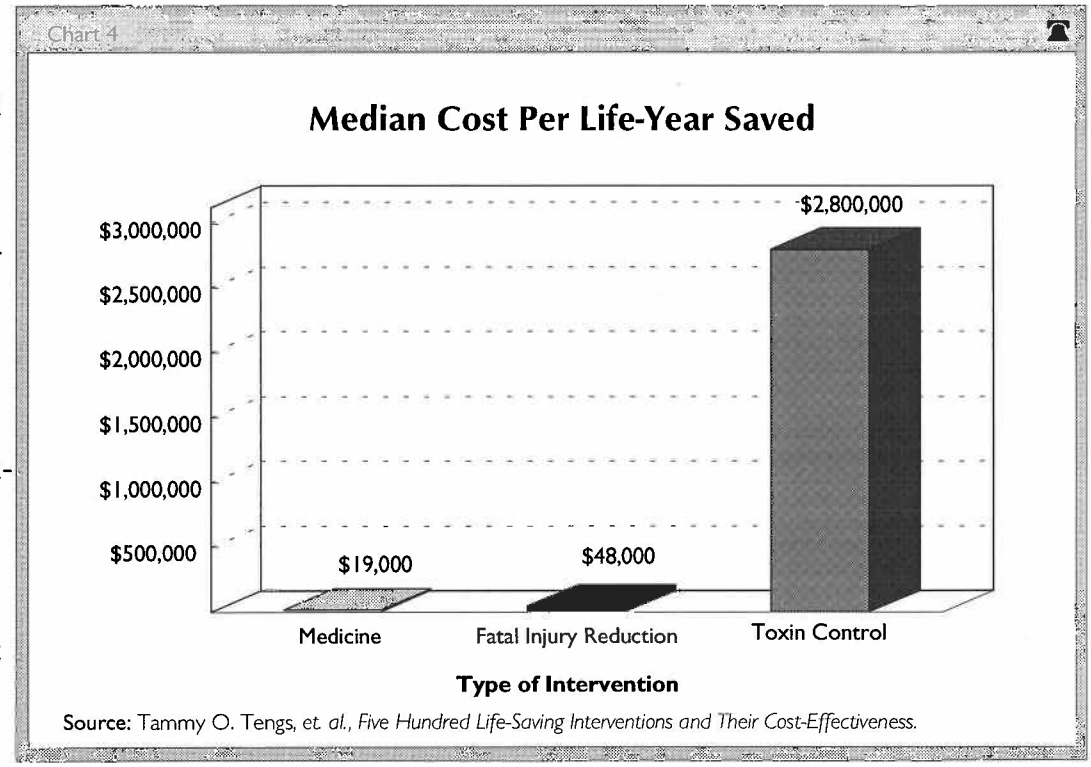
18 Tammy O. Tengs, *Optimizing Societal Investments in the Prevention of Premature Death*, doctoral dissertation, Harvard School of Public Health, June 1994, p. 3.

19 1996 spending on regulatory programs is estimated at $16.6 billion, a 6.3 percent increase over regulatory spending during 1995. In inflation-adjusted constant 1987 dollars, it will grow by 3.3 percent, which, according to Melinda Warren and Barry Jones of the Center for the Study of American Business, represents "the largest increase in federal regulatory spending since President [George] Bush's 1992 budget. Absent congressional budget cutting, a new peak in regulatory spending at the federal level will be reached in fiscal 1996." Melinda Warren and Barry Jones, "Reinventing the Regulatory System: No Downsizing in Administration Plan," Center for the Study of American Business *Occasional Paper* No. 155, June 1995, p. 4. Of this total, spending on environmental and job safety regulations is scheduled to grow the most.

of how many "life-years" are saved by a particular measure. Assuming an average woman's life span of 80 years of age, a measure that prevented her premature death at age 50 would save 30 "life-years."

In examining the cost-effectiveness of various kinds of risk-alleviating measures, recent studies using life-year analysis generally have grouped the measures into three categories: 1) medicine and medical treatments, 2) fatal injury reduction efforts, and 3) toxin control. Although rules and methods can be found in each category that save lives very efficiently, medical treatments typically generate the greatest life-year benefits for the least cost while toxin control measures produce few benefits at the highest cost.

What generally saves the most lives? The most cost-effective way to save lives generally is to increase medical treatment and, to a somewhat lesser degree, to curb fatal injuries. Trying to save lives by regulating pesticides or other toxins, on the other hand, generally uses up far more resources and saves fewer lives—meaning that shifting resources from toxin regulation to medical testing on balance typically would save lives. While it is true that some toxin regulations do save lives (for example, restrictions on the release of nuclear wastes), most do not fit into this category. A seminal study that recently surveyed 587 risk-reducing methods, programs, and rules reveals that the median cost per life-year saved—or extending a single life by one year—for toxin control measures is $2,800,000. In contrast, the median cost per life-year saved is $19,000 for medical treatments and $48,000 for fatal injury reductions.[20]



Just how cost-*ineffective* are the great majority of these toxin control measures? To put the numbers in perspective, Graham notes, "the median toxin control program costs 58 times more per year of life saved than the median injury prevention program and 146 times more than the median medical program (see Chart 4)."[21]

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20 Tammy O. Tengs, Miriam E. Adams, Joseph S. Pliskin, Dana Gelb Safran, Joanna E. Siegel, Milton C. Weinstein, and John D. Graham, "Five-Hundred Life Saving Interventions and Their Cost-Effectiveness," *Risk Analysis*, Vol. 15, No. 3 (1995), p. 369-390.

21 John D. Graham, "Comparing Opportunities to Reduce Health Risks: Toxin Control, Medicine, and Injury Prevention," National Center for Policy Analysis *Policy Report* No. 192, June 1995, p. 5.

This is ironic since, intuitively, most policymakers and ordinary Americans assume that toxin control is perhaps the most cost-effective method of reducing risk. Many Americans generally have come to believe that federal regulations banning or severely curtailing the use of products that sound very dangerous are extremely cost-effective and represent wise public policy. It turns out that nothing could be further from the truth. For example, the following list of five federal toxin control regulations reveals the enormous costs that would have to be incurred by society in trying to save just one life-year for each of these regulations.

If citizens were forced to incur these expenses to save one life-year per regulation, and if the regulatory costs for these five regulations were totaled, it would cost society roughly $189 billion for just five life-years saved. By way of comparison, spending $189 billion on developing new life-saving drugs typically would allow an additional 526 new drugs to be developed and brought to market.

Table 1

5 Sample Toxin Control Regulations

	Cost Per Life-Year Saved
Asbestos Ban in Diaphragms	$1,434,478,000
Benzene Emission Controls (At Rubber Tire Factories)	$19,865,323,000
Radionuclide Emission Controls (Uranium Fuel Cycle Facilities)	$33,750,000,000
Sickle Cell Screening (For Non-Black Low-Risk Newborns)	$34,239,773,000
Chloroform Emissions Standard (At 48 Pulp Mills)	$99,351,684,000

Source: Tammy O. Tengs, *et al., Five Hundred Life-Saving Interventions and Their Cost-Effectiveness.*

It should be noted that this does not mean the nation is now actually spending $189 billion to alleviate the risk posed by these five toxins. Rather, this is how much would have to be spent to save just five life-years. The numbers are extraordinarily large precisely because the risks being regulated are so small, perhaps even illusory. In reality, the nation now spends much less on implementing these five rules but does not buy five years of life for that amount.

Current policies = 60,000 extra deaths per year. As noted earlier, an important new study by Tammy Tengs estimates the magnitude of this resource misallocation. In her doctoral dissertation at Harvard, Dr. Tengs notes that from a survey of 185 life-saving interventions:

> Results indicate that we incur opportunity costs of approximately $31.1 billion, 60,200 premature deaths, or 636,000 years of life lost every year in order to maintain our present pattern of investments in these 185 life-saving interventions. At our current level of resource consumption, we could double the survival benefits of our expenditures. Alternatively, we could retain our present level of risk reduction and, in addition, save billions of dollars. This could be accomplished by simply attending to the cost-effectiveness of investment options.[22]

22 Tengs, *Optimizing Societal Investments in the Prevention of Premature Death*, p. 2.

Furthermore, Dr. Tengs notes, "[W]e pay a large price for this pattern of investments and policy makers would be well advised to examine whether retaining the status quo results in non-survival benefits that are worth the cost and loss of human life."[23] John Graham observes bluntly, "This perverse pattern of investment amounts to 'statistical murder' of American citizens. Policy makers need to ask harder questions about whether our public health and environmental protection dollars are well spent."[24]

The bottom line: If the current pattern of regulation and structure of costs continues, risks actually will increase for average Americans.

WHAT SHOULD BE DONE?

Given this misuse of resources and the corresponding costs of current federal policies and priorities, policymakers and regulators should reconsider how to reduce real risks to Americans. The aim should be to provide more protection at less cost. A better distribution of scarce societal resources to achieve this goal would:

❶ **Improve risk decision-making and minimize inefficient federal spending.** Risk assessment methods need to be improved (for example, by using sound science), and agencies need to establish a clear distinction between assessing risks and deciding how to manage them. Federal agencies should work closely with the scientific community to improve risk assessment guidelines. Today, agencies too often allow policy decisions about how risk should be managed to influence how risk is determined. When a risk is identified, a policy decision is made about how to handle it. If certain federal toxin control efforts produce little or no benefit for society, however, they should be abandoned, since they waste resources that could be used better elsewhere. Other programs, such as fatal injury programs, also would be scrutinized to ensure that resources could not be used better elsewhere, such as for medical treatments.

❷ **Require that decisions about how to manage risks be made with due consideration for scientific, economic, and constitutional concerns.** In those cases where governmental solutions are viewed as inevitable, regulators should be required to take into account all possible outcomes and potential side effects of their actions. Scientific, economic, and constitutional concerns all must be given due consideration in this process. Moreover, Congress should demand that regulators meet stringent standards of proof before allowing them to overrule individual action and choice. External peer review mechanisms and judicial review opportunities also should be established to guarantee accountability. Proper prioritization of serious risks will aid in this process.[25]

❸ **Encourage market-based solutions that produce incentives to reduce risk.** Achieving a wealthier citizenry would do more to decrease risks and reduce mortality than most public programs. Better use of market pricing and strict enforcement of property rights claims through the common law system would produce risk-alleviating incentives. For example, by applying property rights to water usage in Scotland, river users have reduced pollution by others in the waterways since they have an economic incentive to conserve and keep clean the natural

23 *Ibid.*, p. 15.
24 Graham, "Comparing Opportunities to Reduce Health Risks."
25 See John D. Graham, "Making Sense of Risk: An Agenda for Congress," in *Risks, Costs, and Lives Saved: Getting Better Results from Regulation*, ed. Robert W. Hahn (Washington, D.C.: AEI Press, 1996), pp. 181-205.

resources they now own.[26] Fundamental reform of tort law that results in a fairer compensatory system and better deters harmful conduct without over-punishing behavior also would help achieve this goal.[27]

❹ **Improve both public and private risk information efforts.** The public needs to understand the types of familiar risks they face everyday, such as being struck by lightning, and how these compare with unfamiliar risks, such as exposure to a particular chemical in the community. This would ensure that individuals possess the maximum amount of information to make wise, safety-conscious decisions on their own. For example, smoking, alcohol abuse, poor dietary standards, sun tanning, dangerous recreation activities and vehicles, and other potentially hazardous lifestyle habits are among the most risky activities engaged in by most Americans, according to experts. However, government regulation is rarely the solution and traditionally has not been the approach in these areas. An informed citizenry, with the liberty to make personal decisions, is the optimal goal.

❺ **Give states and localities the flexibility to target resources more effectively to address the risks they face.** States and localities can target resources more precisely to the needs of their communities, such as sanitation, hazardous waste cleanup, and traffic safety. Moreover, they are more likely to know and be more responsive to the unique needs and concerns of their citizens than are distant federal regulators. Restricting federal efforts to clearly interstate and national concerns in those cases where private, state, and local efforts fail would be a much more effective division of responsibility.

CONCLUSION

Eliminating every risk from life is impossible. But in pursuit of the mirage of a "risk-free" society, regulators oftentimes pursue quixotic and unattainable goals that place the lives of ordinary Americans at even greater risk. The traditional rhetoric surrounding the debate over risk—that increased regulation saves lives—is fraudulent. Regulations can kill, especially when they are formulated as a rash response to hypothetical risks and divert resources from other activities that would reduce real risks. The new rhetoric of risk regulation must be based on sound science, prioritization, and an understanding of the wealth-health trade-offs government regulations force on society.

Clearly, not all federal risk regulations can be eliminated. But those that regulate illusory risks can and should be eliminated. Moreover, other regulations that alleviate small amounts of risk often can be crafted in better ways or carried out at the state or local level to ensure that they are cost-effective and truly beneficial. Obviously, there is no one panacea that policymakers can rely on in determining whether federal intervention is necessary. Judgment is needed. But if the proper tools and concepts are applied consistently when contemplating legislation or regulation of risk, those judgments would be much more sound than they are today. In the end, many more Americans would live longer, healthier, and more productive lives.

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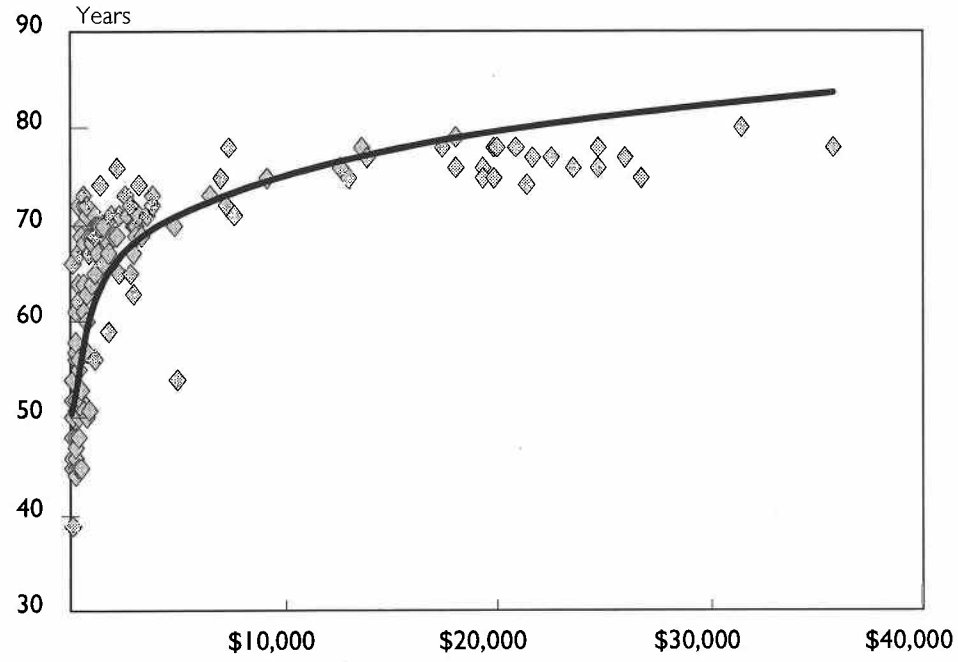
26 Terry L. Anderson and Donald R. Leal, *Free Market Environmentalism*, Pacific Research Institute for Public Policy Research, 1991, p. 112, citing Ed Zern, "By Yon Bonny Banks," *Field and Stream*, Vol. 86 (September 1981), p. 120.

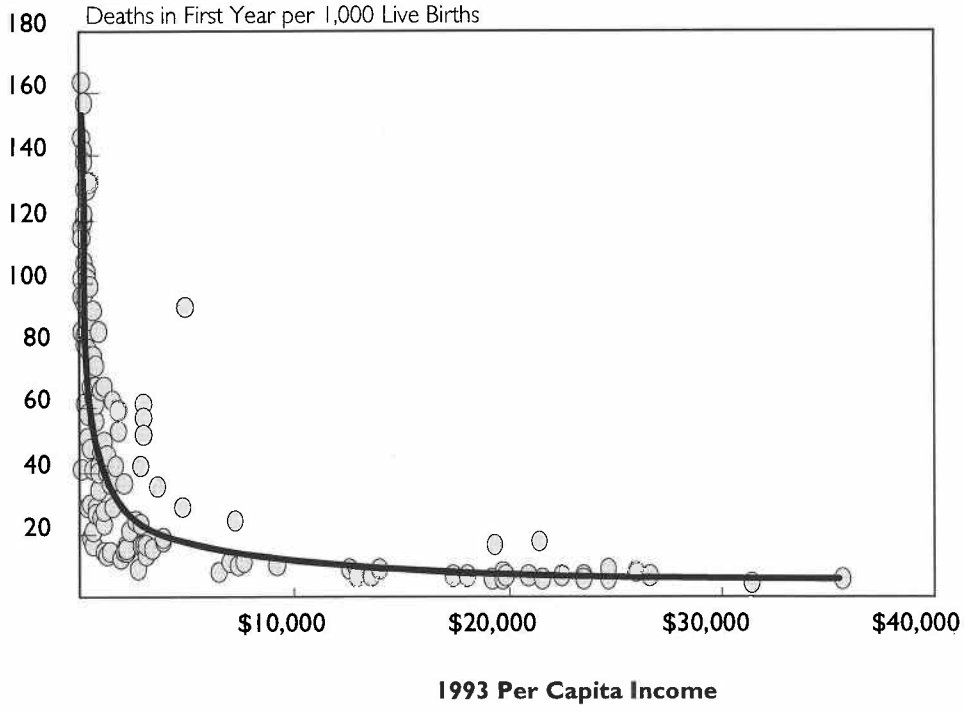
27 See Michael J. Horowitz, "The Case for Fundamental Tort Reform," Hudson Institute *Hudson Briefing Paper* No. 176, May 1995.

Appendix 1

Life Expectancy at Birth: 1993



Infant Mortality : 1993



Note: Curves are power regressions of data from 132 countries.
Source: United Nations, *World Development Report*, 1995.