

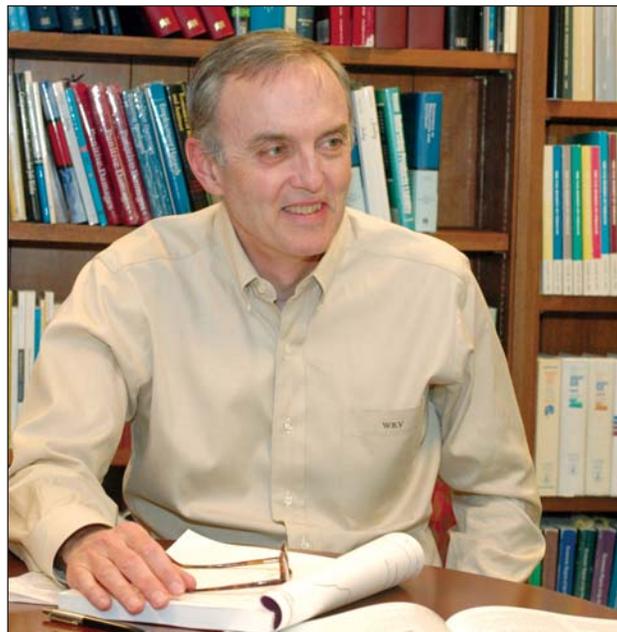
INTERVIEW

W. Kip Viscusi

Every day, people expose themselves to risk. Whether it's driving to work, crossing the street, or climbing a ladder to change a lightbulb, we engage in activities that have a small probability of injuring or even killing us. Some people — miners, construction workers, and firefighters, for instance — take jobs that are considerably more dangerous than the typical profession. Kip Viscusi has spent much of his career examining how individuals evaluate risk exposure and the public policies aimed at improving worker and consumer safety.

Viscusi has been a leader in the use of cost-benefit analysis to evaluate a wide range of regulations, having served as a consultant to the Environmental Protection Agency, the Occupational Health and Safety Administration, and the Federal Aviation Administration. He has also looked at unanticipated behavioral changes prompted by government mandates, which sometimes render those mandates ineffective or even counterproductive. In addition, he has carefully followed the multistate tobacco settlement, arguing that the agreement has done much to enrich plaintiffs' attorneys but little to discourage youth smoking, one of its ostensible goals.

Trained as an economist, Viscusi has taught in both the economics departments and the law schools of several leading universities, including Northwestern, Duke, Harvard, and now Vanderbilt, which has recently launched a Ph.D. program in law and economics. Viscusi has authored or co-authored more than 20 books, and his papers have appeared in leading journals such as the *American Economic Review*, the *Quarterly Journal of Economics*, and the *Journal of Legal Studies*. He is also the founding editor of the *Journal of Risk and Uncertainty*. Aaron Steelman interviewed Viscusi at his office at Vanderbilt on March 29, 2007.



RF: It seems that the public and its political representatives often do not fully appreciate the trade-offs and, in some cases, the unintended consequences associated with measures aimed at improving consumer safety. Could you give a few examples? And why do you think such regulations are viewed so positively when economists tend to be less sanguine about their virtues?

Viscusi: Congress tends to pass legislation that is supposed to rid the world of risk. "Let's get rid of pollution." "Let's make the workplace safe." That certainly sounds great in speeches. But very rarely do you see legislative mandates that permit a balancing of their costs and benefits. The U.S. Department of Transportation is arguably the main exception.

This doesn't mean the public doesn't care about the costs. In fact, when people are confronted with those costs directly, they are often opposed. But with most regulations, the costs are not explicit. There are no price tags attached to them. Also, the costs are often borne by different parties.

So, for instance, in the case of Superfund cleanups of hazardous wastes, the people who benefit from the cleanups are not paying the costs directly and thus demand the most stringent standards possible. The result is that the median cost per cancer case averted is about \$7 billion. It's off the charts because you are using the responsible parties' money to clean up the site. In contrast, if you look at the amount of money people are willing to pay for houses that are not exposed to hazardous waste risks, you don't observe that kind of large trade-off at all. It's more like \$5 million rather than \$7 billion. Similarly, the premium that workers require to work in relatively dangerous jobs is a lot less than what government agencies spend on regulations.

Another example of the kind of thing that legislators do not fully consider is the effect of regulation on behavior. In the case of safety caps, which was one of the first risk behavior case studies I examined, there were mandatory

safety cap requirements on aspirin and other potentially dangerous products that children might try to get into. So what happened? Because parents thought the safety caps made them risk-free — in fact, they were first called “childproof” caps by the Consumer Product Safety Commission — people started leaving the bottles around in the open rather than storing them, giving kids greater access. In some cases, people left the caps off altogether because they were so hard to grapple with every time you wanted to open the bottle.

As I said earlier, the main agency that seems to care about trade-offs is the Department of Transportation. The costs of the mandates they issue are quite evident in product price. If you require more safety features on cars, that will raise the price, and consumers will see that. But the link is not as direct with environmental or worker safety regulations. Economists see the costs and benefits from the economy-wide standpoint but the consumer doesn't engage in that type of analysis, and I think that's why many regulations are not subject to strict public scrutiny.

RF: How much discipline does the market impose on companies to act in a responsible way with respect to worker safety?

Viscusi: There are three major sources of financial incentives for job safety. By far the most important is the market. Workers on dangerous jobs generally perceive that they are dangerous. This drives up their wages and gives the company an incentive to make the workplace safer. If you look at it empirically, this dwarfs everything else that is going on. The number two player is workers' compensation. The premiums for workers' compensation are now in the \$30 billion a year range. Particularly if you are a large enterprise, your workers' compensation bill goes up if you have a bad accident record. We found that in the absence of workers' compensation, worker fatality rates would go up by one-third. So that's a very large effect. Then, third, we get to the Occupational Safety & Health Administration (OSHA), which issues health and safety regulation for the Department of Labor. You are looking at zero effect in the early years of the agency, and maybe something like a 1 percent to 2 percent total effect on safety in recent years. It's very small.

So, overall, the market exerts the most discipline on companies to protect workers. Every death on the job generates significant wage premiums in effect. But if a worker falls to his death because the scaffolding is poorly constructed,

OSHA goes in there and imposes negligible fines compared to this. It is just not a big player. Workers' compensation is a different case. In general, I think it is a very good program. The question is who pays for workers' compensation? Even though companies pay the bill directly, that bill is passed down to workers who receive lower wages.

What we found is that workers are willing to accept a wage cut that exceeds the costs of the premiums because they value the insurance more than the actuarial costs of the insurance. It's similar to people who pay more than the expected payout for auto insurance because they value having that protection. Also, workers' compensation is a highly efficient insurance program. It has very low administrative costs, so it pays out something like 80 cents on the dollar, which is tremendous. In addition, companies get value from the program because it protects them from being sued by their employees in case of an accident. They avoid a lot of litigation as a result, and I think that is a significant benefit.

RF: How does one properly derive an estimate of the value of a statistical life for use in cost-benefit analysis? How can those estimates be used to improve public policy?

Viscusi: The main technique used by economists is to look at the money-risk trade-offs reflected in the decisions that people actually make. One context is the labor market, where workers are paid more for dangerous jobs. Another context is the product market, where people pay less money for a relatively unsafe product or more money for a relatively safe product. I have looked at both contexts. But most of my work has focused on the labor market because we have a lot of data on workers' wages, which we can match to the risks of those jobs.

Controlling for other aspects of the job, we find that workers are in fact paid more if they work in hazardous jobs. This is not a new theory. Adam Smith developed this in 1776. But it was only in the 1970s that economists started estimating the relationship. My current estimate puts the value at \$7 million per statistical life. What that means is that if you face an annual risk of death on the job of one chance in 10,000, on average you get paid about \$700 extra per year.

During the Carter administration, I worked in the Regulatory Analysis Review Group and was the Deputy Director of the Council on Wage and Price Stability, which was responsible for regulatory oversight at that time.

W. Kip Viscusi

► Present Position

University Distinguished Professor of Law, Economics, and Management, Vanderbilt University

► Previous Faculty Appointments

Northwestern University (1976-1981 and 1985-1988), Duke University (1981-1985 and 1988-1996), and Harvard University (1996-2006)

► Education

A.B. (1971), M.P.P. (1973), A.M. (1974), Ph.D. (1976) Harvard University

► Selected Publications

Author or co-author of such books as *Risk by Choice: Regulating Health and Safety in the Workplace* (1983); *Reforming Products Liability* (1991); *Fatal Tradeoffs: Public and Private Responsibilities for Risk* (1992); *Punitive Damages: How Juries Decide* (2002); and *Smoke-Filled Rooms: A Postmortem on the Tobacco Deal* (2002)

I suggested to OSHA that they use statistical estimates such as these to value the benefits of OSHA regulations. They said, “No. It would be immoral to put a dollar value on human life. Absolutely not.” Then in 1982, OSHA proposed a hazard communication regulation that for the first time would have required the labeling of dangerous chemicals in the workplace and sent it over to the Office of Management and Budget (OMB) for review.

President Reagan had just set up this group within OMB that looked at new regulations and required that the benefits be greater than the costs. OMB looked at this and said this is all very interesting but the costs are greater than the benefits. Because OSHA had argued that putting a dollar value on life was immoral, they instead said that when calculating the benefits of improved safety due to the regulation, they were only going to estimate the cost of death. The cost of death was the present value of lost earnings plus your medical costs after you are killed on the job. Well, you can call it the cost of death or you can call it the value of life, but it’s still the same thing. OSHA appealed the decision to the vice president, who was in charge of all such appeals. He said it was a technical issue and needed to be settled by an expert.

I was asked to settle the dispute between the two agencies over the regulatory impact analysis. It was pretty easy. What I did was adopt every one of OMB’s assumptions with the analysis except for one thing: I used my value of life number instead of the cost of death number. Doing that increased the benefits by a factor of 10. Once you used the economic value of life numbers, the regulation had benefits greater than the costs, and the regulation was issued. So after that, regulatory agencies started using the numbers. Part of the reason was that it was good economics. But a big part was that it often made their benefits look large, and that’s what carried the day.

A related issue I have been working on recently is whether old people’s lives are worth less than young people’s lives. I was at a conference and suggested that the answer was yes, because of shorter life expectancy and lower quality of life. This generated a lot of discussion. Since that time, I have looked more closely at how the value of a statistical life varies with age. It turns out that it doesn’t really drop off the table as you get older. In fact, workers at age 60 have a higher value per statistical life than workers at age 20 because they are richer and can do more things that they enjoy. To take one example, I buy cars with all these additional safety features while my son drives around in a topless Jeep Wrangler. Why would this make sense if his value per statistical life was higher than mine?

RF: What is your opinion of the compensation policy toward the families of the victims of the terrorist attacks of Sept. 11? That policy generated much criticism, but did it conform to sound economic reasoning?

Viscusi: First of all, you would not want to use the value per statistical life to compensate people because these are the

values from the standpoint of prevention — for instance, how much we should pay to prevent the small probability of death. Instead, we’re trying to figure out what is the optimal insurance of the losses of the families. So this situation is much more analogous to a wrongful death case in the courts. If you are killed by a drunk driver, what should the compensation be? Generally, it’s the present value of lost earnings minus some deduction for consumption of the deceased. I think you would want to do the same thing with the victims of Sept. 11. What they didn’t do, which the courts would do, was to continue the compensation up the income ladder. Instead, they capped the compensation at a particular amount. If you really wanted to provide income replacement and handle it the way the courts do, there would be no cap at the top. So in some ways, what they did was institute a program more similar to workers’ compensation, which also has caps.

As to whether the families of the victims should have been compensated at all, that is a society-wide decision. But it’s important to consider that the people who were killed on Sept. 11 were not engaged in any moral hazard. They did nothing to put themselves at any known risk. So compensation does not create any incentive effect that would cause concern.

RF: Setting aside the issue of the wars in Iraq and Afghanistan, how would you assess the public policy response to the threat of domestic terrorism post-Sept. 11? Are we thinking about the issues in a way that is roughly correct and weighing the costs and benefits in a generally rational way?

Viscusi: One problem is that economists think about these things a lot differently than other people. We are always thinking about trade-offs and balancing competing concerns. In the case of responding to terrorism risks, you have two classes of concerns that tend to be considered sacred by some people: civil liberties on one hand and people’s safety on the other. You have people in each camp who say they are willing to do nothing to compromise those values. Neither one wants to admit that these things do have a finite value and that you might have to strike some sort of trade-off. The real issue is what type of trade-off you want to strike, or how much you are willing to give up to increase safety.

The reason this is tricky is we don’t have very good numbers on what these risks are. We just don’t have a lot of data — unlike, say the risk of being in an automobile accident. We know the probability of that with relative precision. But the estimates of the probability of a terrorist attack or the number of people who are going to die in the coming year are all over the map. So if you can’t assess the likelihood of a terrorist attack or how deadly it is going to be, it is really hard to say how much you should spend to try to prevent it.

RF: What do you think of the proposal to establish a prediction market to help assess the likelihood of a terrorist attack?

Viscusi: One problem with that proposal is that people can affect the probability of that outcome. If you can bet on it and make a lot of money, then people may have an incentive to launch a terrorist attack so they can collect on their bet. Also, I'm not sure the information you would get would be refined enough to help you devise a defense strategy. It wouldn't help you much to know that the probability of an attack has gone up if you don't know the target. So the markets would need to be very specific, such as the probability of the Holland Tunnel being blown up in the next month.

RF: What do we know about the economic and legal effects of the 1998 settlement between state governments and tobacco companies? And how, if at all, should that settlement be modified?

Viscusi: I don't think there is much I can say that is good about it. From the standpoint of the industry, the idea was that if they made this settlement, they would be putting all the tobacco litigation behind them. Instead, what they did was hand out billions of dollars to plaintiffs' attorneys who have used that money to finance future litigation. So there has been a wave of lawsuits after the settlement. I would have rather seen them play out the court cases. If they lost and were responsible for all the health-care costs generated by smokers, then they would have paid up. But that was never really decided.

So this was a fairly novel legal concept: If people use a dangerous product that leads to health-care costs in the Medicaid program, you can recoup the costs. That's not true of every product. People are injured in car accidents, for instance, which generate health-care costs also. The trigger here to warrant making the cigarette industry pay the bills is that consumers have to be deceived or victims of fraudulent behavior. If there is no wrongful conduct on the part of the companies, you can't nail them. But, of course, people have known for a very long time that cigarettes were dangerous.

In 1964, the Department of Education, Health, and Welfare issued a report stating that smoking caused lung cancer. Two years later, mandatory warnings were placed on packs of cigarettes indicating that they were dangerous. This is the first mass-marketed consumer product that did not kill you immediately when used as intended which had on-product warnings. A lot of things you take for granted as having warnings, like power tools and household cleaners, did not have warnings back then. What did have warnings were really dangerous chemicals like sulfuric acid and hydrochloric acid, prescription drugs, pesticides and insecticides, and that's just about it. So it's not a state secret that cigarettes are dangerous. In fact, when asked, people vastly overstate the likelihood that a typical smoker will get lung cancer.

None of the cases went to trial. The settlement appeared to be a good idea to executives because whenever there was a rumor of a settlement, stock prices would go up. What they did not anticipate was that they would be funding a lot of other lawsuits against them.

From the standpoint of society, the main selling point was, "We need this for the kids. We are going to take the money and use it to combat youth smoking." The settlement led to what is in effect a 40-cent tax on each pack of cigarettes. The money has flowed to the states, but

only a negligible amount has been used for programs aimed at preventing youth smoking. So that's the reality of what has happened, and I think the anti-smoking groups would agree with that.

Also, part of the settlement restricted the advertising of cigarettes and some have argued that has led to anticompetitive effects. The reason is that if you can't

advertise your product, it's hard to introduce new brands, and that serves to lock in the existing market shares in an industry that is already highly concentrated. One of the plaintiffs' experts, Joseph Stiglitz, has attacked the agreement, arguing that it is part of a great conspiracy to limit competition. So even those on the antismoking side concede that there are some problems with the way they structured the agreement. On the one hand, they want to limit advertising. On the other hand, they don't want to restrict competition. But you can't do both.

RF: What does your work on jury analysis tell us about jurors' risk beliefs? And how do those views compare to judges' views? Also, what can be done to reform the compensation process to better align what juries award in punitive damages with what would be consistent with mainstream risk analysis?

Viscusi: Jurors are subject to a variety of behavioral anomalies in terms of how they perceive risk. One of the most important is hindsight bias. That's important for accident cases where jurors will say, "Well, they should have known that doing this would have caused the accident." They fail to perceive that at the time you take the action, there is a probability that something bad will happen, but it's not definite the person will get injured. This comes up in a variety of contexts. For instance, car companies do corporate risk analysis. They analyze the risks associated with a car and the costs associated with improving the safety, and if the costs are greater than the benefits, they don't do it. If you do that analysis and decide not to take the extra safety precautions, juries generally find you to be reckless because you have thought about the risk and decided the preventive measures weren't worth making.

You can't just wave a magic wand and eliminate risk for free.

So I ran a series of jury experiments and asked what they would decide if the companies acted the way economists would suggest, using the value per statistical life employed by the Department of Transportation. The results actually got worse. Before, they were awarding punitive damages of about \$1 million. But when they found out that the company was valuing a statistical life at \$4 million, they awarded punitive damages of \$10 million. So the more responsible the companies get in how they value life, the worse they fare, because juries want to send a message and top the dollar value that the companies are using in their analysis. Juries tend to resist the whole idea of looking at what the costs are and what the benefits are and then making a rational decision based on the numbers.

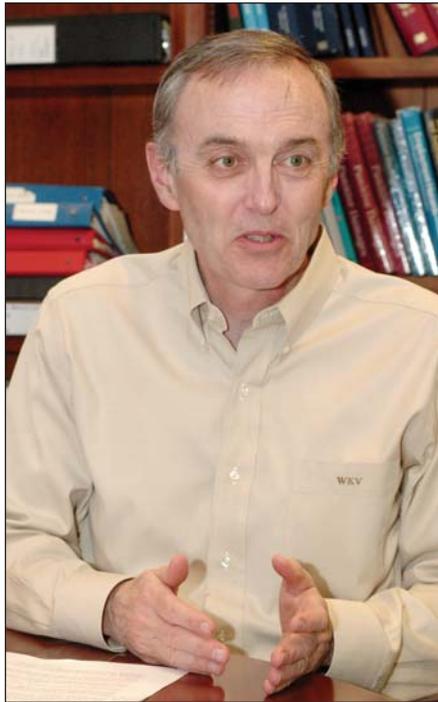
I have also run surveys on judges, and judges do much better than juries in terms of how accurate their risk beliefs are with respect to the major causes of death. Jurors tend to overestimate small risks much more than judges do — even though judges overestimate as well. Judges are more cognizant of benefits and costs, and less subject to hindsight bias because they have seen lots of cases and know that not everything is preventable.

I think one reform we should have is turning over the setting of punitive damages to judges. Jurors do a much better job of evaluating whether conduct is bad than assigning a dollar value to the bad conduct. I don't particularly fault jurors for that. When you look at jury instructions, there is no guidance about how you should come up with a punitive damages number. The result of this is that the plaintiffs' attorneys will try to give them an anchor, which is often totally irrelevant, such as what the company spent on advertising last year. They are just trying to get a big number out there for jurors to latch onto because there is no methodology for coming up with a dollar value. As a result, you often get ridiculously large awards, which later are reduced by the courts.

RF: How have people's preferences for the consumption of environmental health and beauty changed over time?

Viscusi: There is no question that our valuation of the environment has gone up, and I think much of that has to do with increased wealth. We can afford to enact stricter environmental standards now. When you look around the world, the poorer countries do not have as stringent environmental standards. If you really want to get a sense of what pollution is, you have to leave the United States.

I think the effect of wealth on preferences is interesting



from the standpoint that a lot of proposals have been made saying we should not import goods from countries where the job safety standards are not as strong as ours or the environmental standards don't meet our criteria. The net effect of these proposals would be to keep those countries poor. So these protectionist measures would not do us any favors — and they certainly wouldn't do them any favors. Also, we should remember that the United States did not have such a pristine environment 100 years ago, when we had much lower per-capita income. In fact, most of the major environmental regulatory agencies — the Environmental Protection Agency and the Nuclear Regulatory Commission, for instance — were not created until the 1970s.

RF: How has economic analysis affected the way lawyers, judges, and regulators have looked at policy issues over the past 35 years? Do they take economic analysis more seriously now?

Viscusi: Yes, they are heading in the right direction, but they still have a long way to go. In 1985, I testified before Congress on Superfund. I was talking about costs and benefits and one of the representative's questions was: "Costs and benefits? Isn't it just common sense that you want benefits greater than costs?" I was taken aback. I had never heard a congressman say something so sensible. So I think some of the basic ideas have been adopted.

Also, if you look at the curricula of law schools, you can't get through those three years without knowing something about the Coase theorem. In fact, I would say that there are law-and-economics scholars on the faculty of virtually every major law school in the United States today. So some core ideas in law and economics are now routinely taught. In addition, there are some justices on the Supreme Court, such as Justice Scalia and Justice Breyer, who know a lot of economics. And, increasingly, law clerks are coming to their jobs equipped with the basic tools of economic analysis, which judges rely on when doing research for their opinions. So times have changed. I think there is no doubt that the law-and-economics movement has been the most important intellectual development to hit law schools in the last half century.

RF: How, if at all, does recent work by "behavioral economists" — which claims to show that consumers are often irrational and make systematic errors — complicate risk analysis, which generally assumes that people are rational given certain constraints?

Viscusi: I have documented a lot of systematic errors myself. But the fact that you observe systematic errors does not mean that markets necessarily don't work, because not everyone has to understand what is going on for the market to function pretty well. Also, the fact that you find an error doesn't mean it's a big deal. You can construct a lot of these experiments that have nothing to do with the real world and find an anomaly, but that doesn't mean actual decisions will be off. In addition, the fact that there is an error doesn't mean it's a market failure and the government needs to do more. Sometimes, it means the government needs to do less. One error is that people tend to overestimate small risks. If that's true, they won't be taking enough small risks. So it doesn't mean you want to regulate some things more stringently. In fact, you may want to regulate them less stringently.

One anomaly that I find interesting is that people are really adverse to ambiguous losses. This has an effect on government policies. Instead of looking at the mean risk associated with something, they look at the worst-case scenario. So if it's an imprecisely understood risk, they focus on how bad it possibly could be, rather than how bad it probably will be. This is true throughout the federal government, where the upper bound is used as the risk number. This really distorts all the risk numbers coming out of the government. An example is the Superfund cleanup efforts. What's the concentration of the chemical at the site? They take the upper bound for that. What's the exposure level at the site? They take the upper bound for that. What's the frequency of exposure? They take the upper bound for that. So they multiply four or five upper-bound numbers, which vastly exaggerates the estimate by the time you are done.

RF: In your view, is there a role for normative analysis when working on issues involving risk? For instance, should we place some value — even if, ultimately, it is merely symbolic — on the notion that people have an obligation to behave safely and that legislators and regulators have a duty to try to make them act in that manner?

Viscusi: I have some limited sympathy for that type of argument. We do care about individual health. That's why we spend a lot of money on various government health-care programs. We don't want our fellow citizens to be ill. So that's a legitimate concern. On the other hand, let's say I decide that I don't think anyone should endanger his life by working in a steel mill. In that case, you are imposing your own preferences on someone else and in the process lowering his perceived welfare. That's a type of paternalism that I think is really hard to justify.

When it comes to these types of things, most people really don't understand economics. I was at a conference that was attended by one of the leading health policy experts in Europe — he's even knighted — and he said that we should give health care to everyone. My response was: Would you

require cars to be as safe as they possibly could be? And he said yes. But that would mean that even the cheapest cars would cost a lot of money and many people would not be able to buy them. You can't just wave a magic wand and eliminate risk for free, which is what people want to do. If you restrict people from taking jobs, if you restrict the foods that they eat, if you place limits on how much they can weigh, all of these things will reduce their welfare as they perceive it. The proper role of government is to give people enough information so they can make reasonable decisions, and after that step aside and allow them to make their own choices.

RF: There are some law schools where economic analysis is an important part of the curricula and many economics departments where one can work on similar issues. What is the market that you wish to satisfy with the new Ph.D. program in law and economics at Vanderbilt?

Viscusi: Even though most law schools teach law and economics, as we discussed earlier, they don't teach it at the graduate level. Ours is a much more high-powered program than anything I have seen. Students have to take micro theory and the standard econometric sequence and then we bolster it with additional behavioral techniques and more empirical methods. So our students are going to be better geared up, technically, than the typical J.D./Ph.D. student, who takes the J.D. courses in the law school and then is sent over to the economics department to complete those courses. So the two programs are not really integrated in a meaningful way, and we attempt to bridge that gap with the program at Vanderbilt. Our first entering class will arrive this fall, and within six years they will leave with both a J.D. and a Ph.D. We want our students to be skilled enough to get jobs in economics departments, but the program is really designed to place graduates in teaching positions at law schools where they can apply the integrated skill set that they have acquired.

RF: Which economists have influenced you the most?

Viscusi: The people I am going to mention are the three members of my dissertation committee. And I picked them for a reason, so it wasn't just by accident that they had a big influence. The chairman of the committee was Kenneth Arrow. Even though I am not the same type of theorist that he is, he sets a very high standard and is an inspiration. Also, he did a lot of work on risk and uncertainty that I thought was clever and innovative at the time. Another member was Richard Zeckhauser, who was also my undergraduate thesis adviser. I have worked with him over basically my whole career and we continue to co-author papers. The third member was Richard Freeman, a labor economist, who continues to do inventive things with data and is always moving on to new and interesting topics. **RF**