

# Topic: Safety Regulation

## Overview

- Are risks properly weighed?
- How safe is "safe enough?"

# Measuring the Economic Value of Safety

What economic value should be assigned to the loss of a human life?

Should we say that it is infinite?

Clearly not, because we are willing to take risks for "frivolous" things.

For example, we drive cars for frivolous activities, even though we might kill ourselves or someone else.

# How to estimate the economic value of life

## A. Discounted Future Earnings Approach

- Often used in lawsuits
- Add up present value of future earnings

# How to estimate the economic value of life

## B. Required Compensation Approach

Idea: Some jobs have higher risks of dying.

Hold education, experience, etc. constant and see how much extra the riskier jobs have to pay.

# Required Compensation Approach

Suppose Job 1 and Job 2 are equal in all things except:

|               | Job 1    | Job 2    |
|---------------|----------|----------|
| Risk of Death | 1/10,000 | 2/10,000 |
| Salary        | \$30,000 | \$30,500 |

Apply formula:

## 4 Reasons the Required Compensation Approach may undervalue life

1. Info

2. Externalities

3. Selection bias

4. Increasing marginal aversion to risk

# Values used by Government Agencies in 2008 (Washington Post, July 19, 2008)

## "Value of a Statistical Life," by agency

*Decreased this year, from \$8.04 million*

Environmental  
Protection Agency



Department of  
Transportation



Consumer Product  
Safety Commission



# Implications

# RC Estimates by Age (VSL = value of a statistical life)

Resources for the Future

Aldy and Viscusi

**Table 1. Age Group-Specific Values of a Statistical Life (VSLs), Annual Cross-Sections, 1993–2000**

| Year | 18-24<br>Age Group | 25-34<br>Age Group | 35-44<br>Age Group | 45-54<br>Age Group | 55-62<br>Age Group |
|------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 1993 | \$0.64             | \$9.92             | \$8.36             | \$2.04             | \$2.36             |
| 1994 | \$3.97             | \$7.73             | \$7.75             | \$3.86             | \$4.87             |
| 1995 | \$4.87             | \$7.31             | \$6.16             | \$5.02             | \$4.46             |
| 1996 | \$5.13             | \$8.08             | \$8.45             | \$4.67             | \$3.39             |
| 1997 | \$4.60             | \$8.08             | \$8.98             | \$5.64             | \$4.47             |
| 1998 | \$5.65             | \$6.76             | \$8.61             | \$4.69             | \$4.55             |
| 1999 | \$2.18             | \$7.18             | \$8.41             | \$8.35             | \$3.95             |
| 2000 | \$3.16             | \$9.03             | \$9.85             | \$7.97             | \$3.77             |

NOTES: VSLs are expressed in millions of year 2000 dollars based on age-specific wages.

# Principles of Safety Regulation

1. **Expected value standard:** Any safety precaution that reduces the expected value of the loss by more than the cost should be considered worthwhile.
2. Once value of safety is established, it should be **consistently applied** to all categories of risk

# Not done in practice

Law

Cost per life  
saved

Ban on unvented space heaters \$100,000

1972 asbestos standards: \$8.3 million

1986 Asbestos standards: \$74 million

# Why is Safety Regulation so Inconsistent?

Because of vicious circle of regulatory failure

It contains 3 elements:

# 1. Distortion of public perceptions of safety risks

Individuals tend to overestimate likelihood of mathematically unlikely events

- Individuals react differently according to how well risk is understood

- Individuals dislike “dread risks,” which are:

## 2. Congressional Reactions to Perceptions

### 3. Bureaucratic Procedures are Faulty

# Evaluation of Safety Regulation

- **Efficiency:** Already showed it's not efficient
- **Equality:** safety is a normal good. Should we make low income pay more for higher safety?
- **Liberty:** Should we be able to choose between safe and less safe products?