

# **Risk and Regulatory Policy**

**Jonathan B. Wiener**

**Perkins Professor of Law, Environmental Policy & Public Policy, Duke University  
University Fellow, Resources for the Future (RFF)  
Past President (2008), Society for Risk Analysis (SRA)**

**Conference on “Regulatory Policy at the Crossroads”  
OECD, Paris  
29 October 2010**

# Risk

- “Risk” = combination of probability and impact:  $p(I)$
- No such thing as “zero risk.” We are mortal.
- Human capacity to assess and manage risks
  - Essential to survival (Peter Bernstein)
  - Unique ability to envision future scenarios and plan ahead (Dan Gilbert)
- We face many risks, e.g.:
  - Accidents
  - Air pollution
  - Chemicals
  - Climate change
  - Disease
  - Disasters
  - Food
  - Finance
  - Tsunamis
  - Terrorism

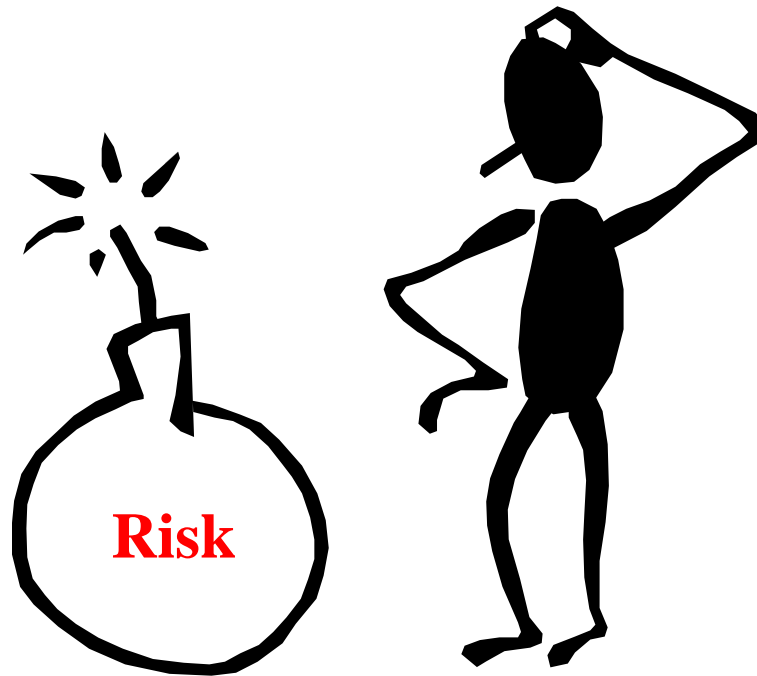
# Declining risks, but rising concern?

- The world appears to be getting generally safer over centuries
  - Rising human longevity (life expectancy)
- Why?
  - Increasing wealth = demand for safety (e.g. EKC)
  - Advancing science = better detection of risk
  - Better regulation = reduce risks
- But: public concern about risks continues to grow
  - Especially longer-term, lower-probability risks
- Why?
  - Increasing wealth
  - Advancing science
  - Greater awareness – news, internet, “availability”
  - Greater safety and longevity itself, so rare risks become more salient
  - Emerging risks

# Why should governments care about risk?

- Public well-being: goal to increase net benefits to society
  - Market failures: externalities, public goods (“tragedy of the commons”)
  - Government failures: costs, new risks created, hasty response to crisis
  - Responsibility to think through decisions
  - Thinking ahead -- crucial for prosperity, survival
- Political accountability: governments held responsible for:
  - Costs of regulation to prevent risks
    - Burden on businesses, consumers, innovation, competitiveness
  - Costs of failure to prevent risks
    - Terrorist attacks, e.g. Madrid train bombings
    - Natural disasters, e.g. Haiti earthquake, Hurricane Katrina
    - Systemic failures, e.g. 2008 Financial crisis
    - Diseases, e.g. H1N1, HIV/AIDS, BSE (Mad cow)
- Legal accountability: civil or criminal liability

# The Traditional Challenge of Risk Policy

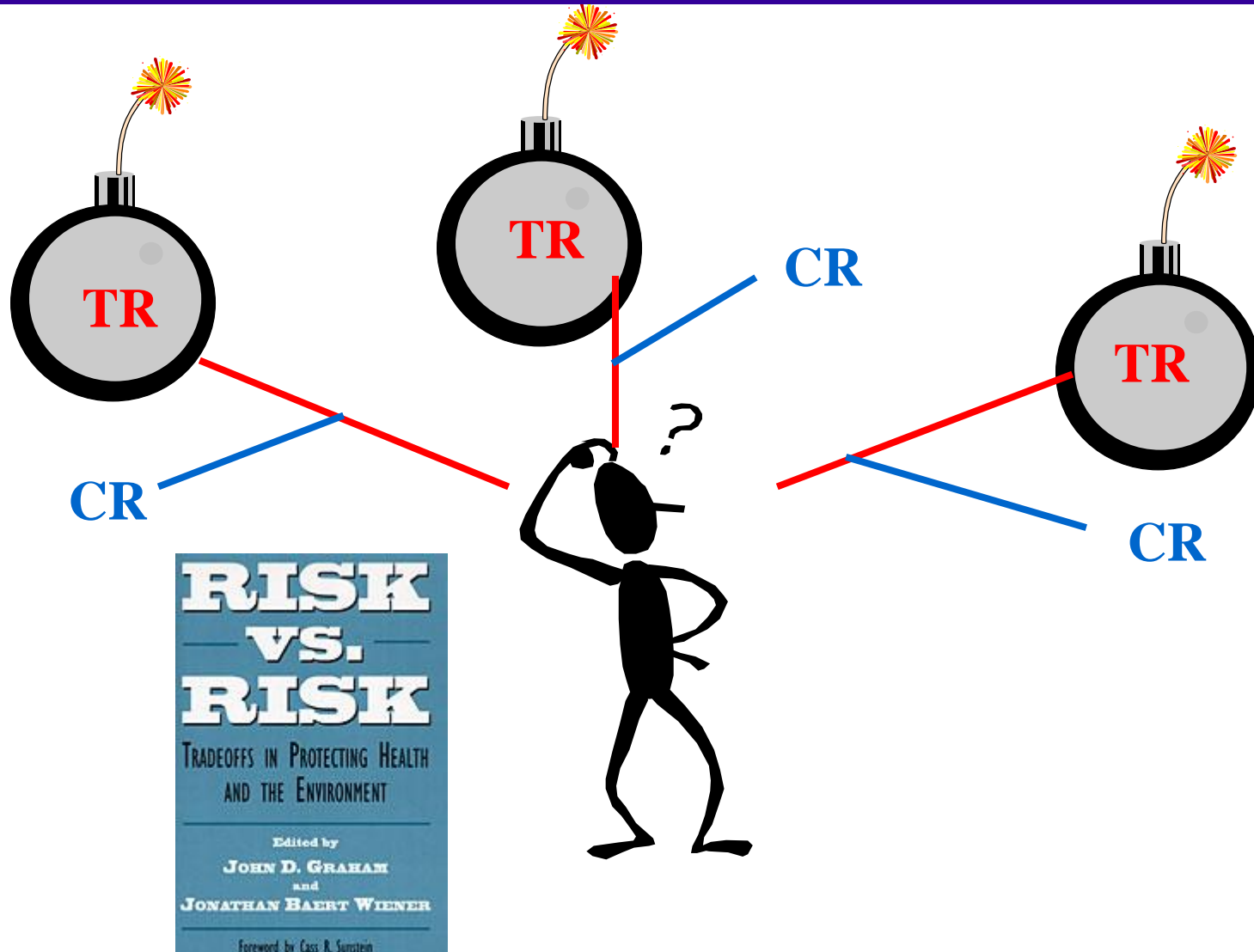


# Challenges for Risk Policy

- Triage: selecting risks to address – setting priorities
- Risk assessment
  - Science: biology, chemistry, climate, engineering
  - Social science: economics, psychology, decision science
  - Uncertainty
  - Latency
  - Errors – false negatives, false positives
  - Joint effects: the joint effect of multiple simultaneous risks may not be simply the sum of the individual risks
- Risk management
  - Precaution
  - Impact Assessment
  - Costs
  - Benefits
  - Dynamic effects on innovation, technology

# The “New” Reality: Multiple, Interconnected Risks

(TR = target risk, CR = countervailing risk)



# Challenges for Risk Policy in an Interconnected World

- Spread: risks move rapidly across networks and borders
  - Pollution
  - Disease
  - Terrorism
  - Financial crisis
- Risk-risk tradeoffs: policies also face interconnectedness
  - Confront the tradeoff
  - Weigh the tradeoff
  - See “risk-superior” policy options that reduce multiple risks in concert
- Learning: borrowing and testing ideas
  - Over time: *ex post* impact assessment
  - Across countries: “hybridization”
  - Toward a global policy laboratory



**Comparing,  
and  
learning.**

## THE REALITY OF PRECAUTION

*Comparing Risk Regulation  
in the United States and Europe*



*Edited by*

Jonathan B. Wiener, Michael D. Rogers,  
James K. Hammitt, and Peter H. Sand

**(RFF Press /  
Earthscan,  
November  
2010)**

# **The Reality of Precaution**

*Edited by J.B.Wiener, M.D.Rogers, J.K.Hammitt, P.H.Sand  
(RFF Press / Earthscan, 2010)*

## **I. Introduction**

**The Rhetoric of Precaution – Wiener**

## **II. Case Studies of Specific Risks**

**Genetically Modified Foods – Lex & Cantley**

**Beef Hormones and BSE – Gray et al.**

**Smoking Tobacco – Blanke**

**Nuclear Power – Ahearne & Birkhofer**

**Automobile Emissions – Walsh**

**Climate and Strat. Ozone – Hammitt**

**Biodiversity – Saterson**

**Marine Environment – Freestone**

**Chemicals – Renn & Elliott**

**Medical Errors, new drug approval and patient safety – Miller**

**Terrorism and WMD – Stern & Wiener**

## **III. Information Systems**

**Information Disclosure – Sand**

**Risk Analysis Methods – Rogers & Charnley**

**IV. Quantitative Empirical Analysis of Comparative US and EU Precaution – Swedlow, Hammitt, Wiener, Kall & Zhou**

## **V. Explanations?**

**Political Systems – Majone**

**Legal Systems – Bergkamp & Smith**

**Perceptions and Culture – Weber & Ancker**

**Perceptions and Selection – Sunstein**

## **VI. Conclusions**

**The Real Pattern of Precaution – Wiener**

# Parity and Particularity in Precaution

**EU**



**1970s – 80s:**

- **Marine environment**
- **Guns**

**1990s - present:**

- **Hormones in Beef, rBST**
- **GM foods / crops**
- **Climate**
- **Toxic Chemicals**

**US**



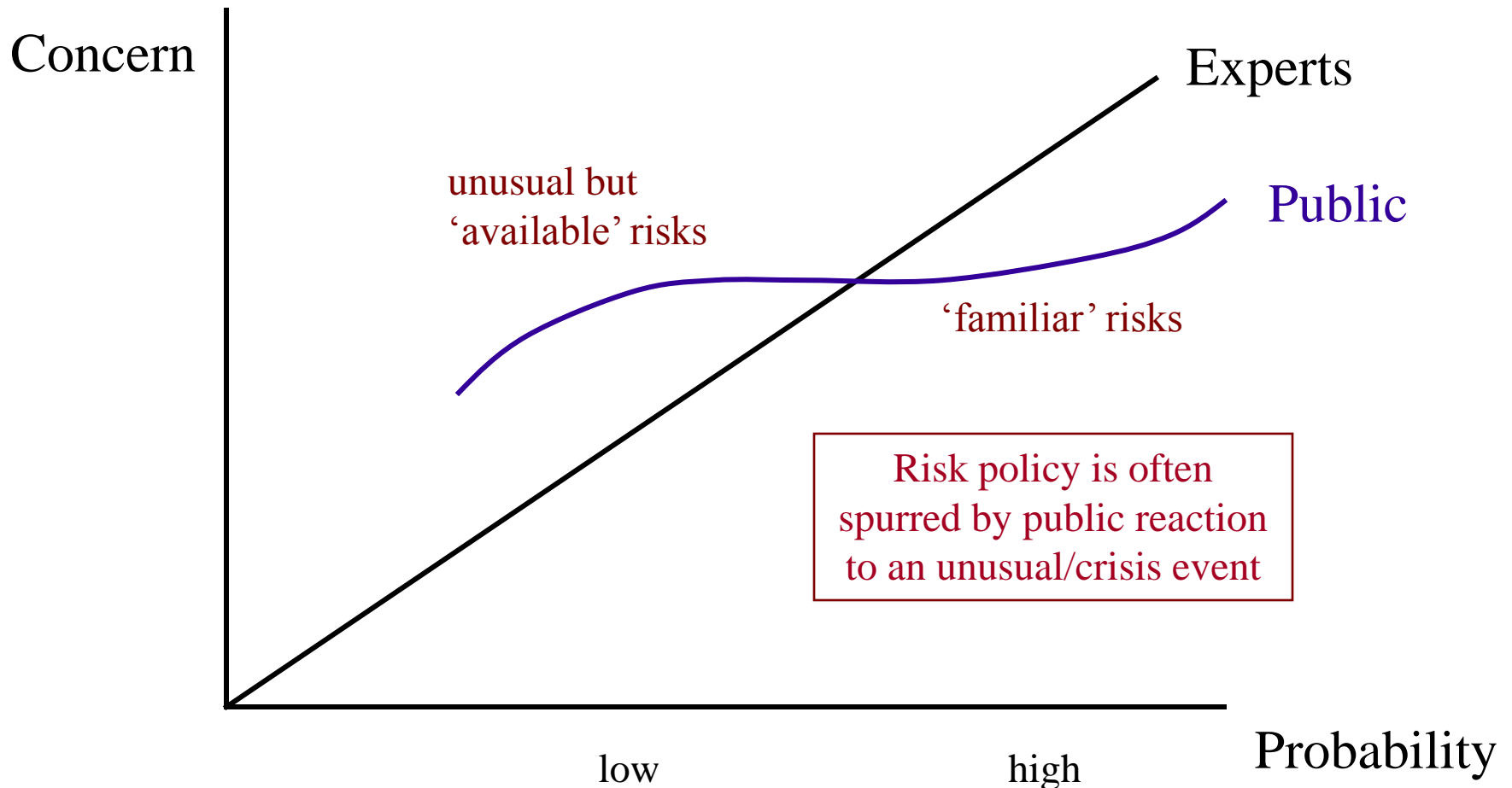
**1970s – 80s:**

- **New drug approval**
- **Strat. Ozone (CFCs)**
- **Nuclear power**
- **Endangered species**
- **Lead (Pb) in gas/petrol**

**1990s - present:**

- **BSE/vCJD in Beef, Blood**
- **Smoking tobacco**
- **Particulate Matter (PM)**  
air pollution
- **Terrorism**

# The Politics of Risk Policy – and Public vs. Expert risk perceptions



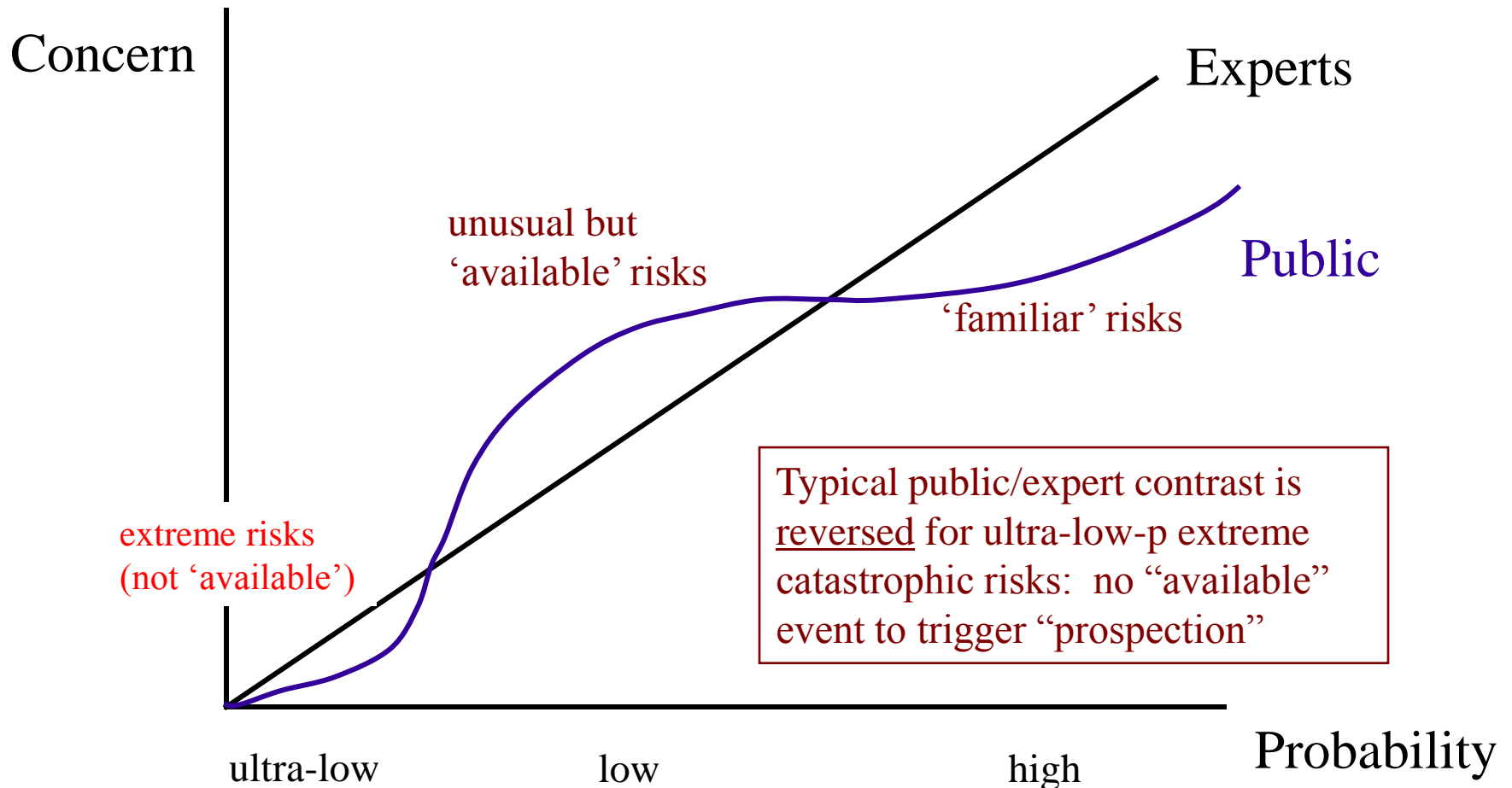
# The “Tragedy of the Uncommons”

- As society gets safer and more prosperous, rare extreme (“tail”) risks become relatively more important
- But public perception may not spur policy to address rare extreme tail risks
  - Ultra-low-probability (but catastrophic): may be a one-time event. Thus, psychologically “unavailable”: no crisis/warning event to trigger public “prospection” and political response (Slovic & Weber 2002; Gilbert & Wilson 2007)
  - Overwhelming: “mass numbing” (Slovic 2007)
  - Short-termism: lack of near-term financial or political rewards
  - Underdeterrence: bailouts yield moral hazard; or, institutions may be wiped out
- Still, cannot become obsessed/paralyzed by uncommons risks.
  - Priorities: as the cognizable ‘p’ declines, the scenarios proliferate
  - Risk-risk tradeoffs: catastrophe-catastrophe ...

# Some possible Tragedies of the Uncommons

- Global financial collapse
  - Neglect of tail risk
  - Moral hazard (anticipated bailouts; “too big to fail”)
  - Short-termism (bonuses paid before performance)
- Extreme climate change
  - “Tail” risks of emissions, concentrations, temperature, sea level, waves, winds, ... (e.g. Schneider 2009, Parry et al. 2009, Weitzman 2009, Borthwick 2009, Cooke & Kousky 2009, Bender et al. 2010)
- Global pandemic plague / bioterrorism
- Strangelet / black hole
- Asteroid collision
- “Back contamination” from outer space
  - NASA Apollo Project, 1960s  
(Johnston et al. 1975; Robinson 1971, 2005)
  - Future space exploration

# Public vs. Expert risk perceptions - of rare extreme catastrophic risks ?



# “Mass numbing” (Slovic 2007)

Expected value:

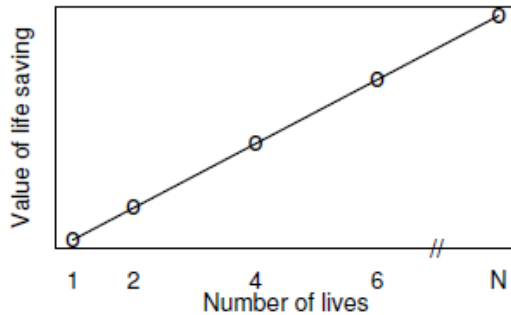


Figure 2: A normative model for valuing the saving of human lives. Every human life is of equal value.

Catastrophe premium:

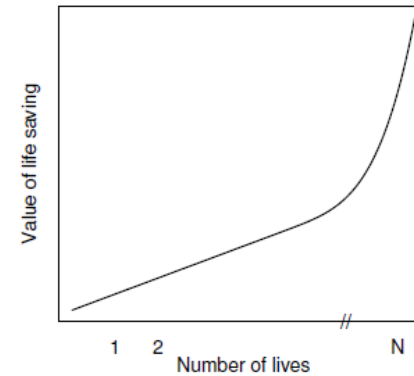


Figure 3: Another normative model: Large losses threaten the viability of the group or society (as with genocide).

Diminishing marginal concern:

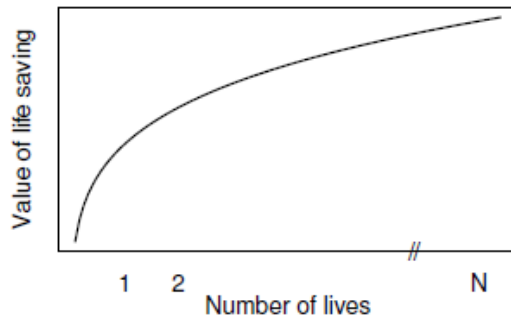


Figure 4: A psychophysical model describing how the saving of human lives may actually be valued.

Mass numbing:

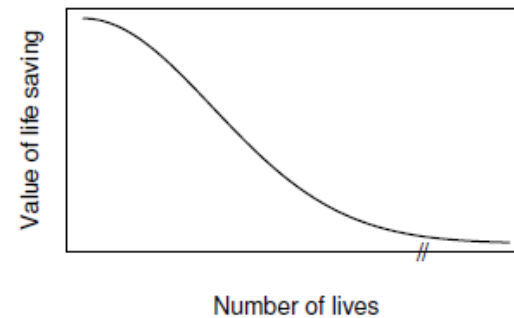


Figure 11: A model depicting psychic numbing — the collapse of compassion — when valuing the saving of lives.



# Lessons for Risk Policy

- Crucial role for expertise in risk policy
  - Risk assessment
  - Risk management
  - Correcting market failures (“tragedies of the commons”)
  - Correcting the political failure to address “tragedies of the uncommons”
- Crucial role for center-of-government oversight bodies
  - e.g. U.S. OIRA, E.U. IAB
  - Impact Assessment of proposed policies (ex ante, and ex post)
  - Confront, weigh, and reconcile “Risk-risk tradeoffs,” especially across units
  - “Return” proposals that would not improve social well-being
  - “Prompt” actions to address uncommons risks – both research and policy.
- Crucial role for learning: exchange of ideas, experience
  - Toward a global policy laboratory



Society for Risk Analysis

**Thank you.**



[www.law.duke.edu/fac/wiener](http://www.law.duke.edu/fac/wiener)

[www.sra.org](http://www.sra.org)

ANNOUNCING THE WORLD CONGRESS ON RISK III  
SYDNEY – AUSTRALIA – SUMMER 2012



Co-chairs:

Professor Alison Cullen – University of Washington  
Professor Jonathan Wiener – Duke University  
Dr Daniela Leonte – University of New South Wales

Contact the SRA Secretariat to join the  
organizing effort: [ddrupa@burkinc.com](mailto:ddrupa@burkinc.com)

