

Regulatory Impact Analysis in the United States

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Regulatory Impact Analysis (RIA) Overview

- Economic vs Social Regulation
- Economic Regulation vs Social Regulation
- RIA and the “Policy Cycle”
- Legislative Evaluation and the Role of Congressional Budget Office (CBO)
- History of Social Regulation
- Guidelines for Regulatory Impact Analysis (RIA)
- RIA for U.S. Environmental Protection Agency
- RIA for U.S. Department of Transportation
- Value of a Statistical Life
- RIA Practice in the Trump Era
- Conclusions

Economic Regulations vs Social Regulations

Social Regulation	Economic Regulation
<ul style="list-style-type: none">• Consumer Product Safety Commission (CPSC)	<ul style="list-style-type: none">• Federal Communications Commission (FCC)
<ul style="list-style-type: none">• Food and Drug Administration (FDA)	<ul style="list-style-type: none">• Federal Energy Regulatory Commission (FERC)
<ul style="list-style-type: none">• Federal Aviation Administration (FAA)	<ul style="list-style-type: none">• Financial
<ul style="list-style-type: none">• National Highway and Traffic Safety Administration (NHTSA)	<ul style="list-style-type: none">• Comptroller of the Currency (OCC)
<ul style="list-style-type: none">• Occupational Safety and Health Administration (OSHA)	<ul style="list-style-type: none">• Federal Reserve System (Fed)
<ul style="list-style-type: none">• Environmental Protection Agency (EPA)	<ul style="list-style-type: none">• Securities and Exchange Commission (SEC)

RIA in the Policy Cycle

Ex Ante. Goal: To improve legislation or regulation before laws are passed and regulations are issued.

- Before legislation. Practice in most of the World
- After legislation but before regulatory implementation.
Practice in U.S

Ex Post. After ex ante evaluation to assist legislative change or regulatory reform.

RIA for new law/regulation versus deregulation.

Products of The Congressional Budget Office

- [Baseline Budget and Economic Projections](#)
- [Long-Term Budget Projections](#)
- [Cost Estimates](#), e.g., budgetary impact of legislation
- [Analytic Reports](#)
- [Analysis of the President's Budget](#)
- [Budget Options](#)
- [Analysis of Federal Mandates](#)
- [Monthly Budget Review](#)
- [Scorekeeping for Legislation](#)
- [Compilations of Unauthorized Appropriations and Expiring Authorizations](#)
- [Sequestration Reports](#)
- [Working Papers](#)
- [Data and Technical Information](#)

Example: Recent CBO score of health care legislation => budgetary impact and number of people who would lose health care coverage. No formal benefit-cost analysis done.

RIA in the US

- In the U.S., Regulatory Impact Analysis (RIA) is required for the evaluation of all “significant regulations.”
- RIAs performed by cabinet agencies, like the Environmental Protection Agency (EPA) and Department of Transportation (DOT). Office of Information and Regulatory Affairs (OIRA) of the Office of Management and Budget (OMB) in the executive branch provides guidance and reviews of agency-produced RIAs.
- Executive branch review is criticized by some for not separating the review enough from the interests of the agencies promoting the regulations. (Both agencies and OIRA are in the executive branch).
- RIA also exists in the U.K., Canada, Australia, and New Zealand.

History of RIA in US

- In the U.S., development of “Regulatory State” starting in the 1970s ultimately lead to the institutionalization of benefit-cost analysis for federal regulatory evaluation (known as Regulatory Impact Analysis (RIA)).
- 1969-1980, the US Congress passed nine major environmental laws that establish the legal framework for environmental policy as practiced in U.S. today. More than 25 other environmental statutes passed.
- Many laws also passed to improve transportation safety, occupational health and safety, and public health.
- In the U.S., regulatory agencies, such as EPA and the DOT, have “delegated rule-making authority.” Agencies promulgate regulations having the force of law in response to general statutory requirements.

Regulatory Impact Analysis (RIA)

RIA differs from the benefit-cost analysis of infrastructure:

- (a) The evaluation contexts differ (“on” versus “off-budget costs”)
- (b) Benefits from regulations often do not have market prices;
- (c) Input-output relationships for regulations – the regulations’ effects -- are hard to identify;
- (d) Regulatory baselines are difficult to specify

RIA Guidance From Office of Management and Budget

- OMB Circular A-4 provides a blueprint for benefit-cost analysis conducted at all federal agencies.
- EPA provides departmental guidance for BCA conducted for EPA regulations.

Specific Guidelines

- A justification for the regulatory intervention, and the consideration of less constraining alternatives, e.g., information provision when asymmetric information motivates the rulemaking.
- The establishment of a reasonable counterfactual to the regulatory action, and projection over the regulatory time horizon, as needed, to reflect market and regulatory trends.
- The establishment of a credible link between the regulatory intervention and the expected outcomes of the regulation.
- The use of standard willingness to pay (WTP) and willingness to accept (WTA) measures for benefit and cost valuations.

Specific Guidelines (continued)

- The use of the value of statistical life (VSL) to monetize the value of mortality risk reductions. The value of the VSL is left to agencies to determine.
- The use of real discount rates of 3% and 7%.
- The use of net-benefits as the decision criteria.
- A consideration of alternatives, and a default recommendation to choose the alternative which maximizes net-benefits.
- A characterization of relevant uncertainties, and the requirement for Monte Carlo simulation for rules having an annual impact of a billion dollars or more on the economy.

Specific Guidelines

- An evaluation of distributional effects, including the incidence of benefits and costs over subpopulations of particular concern, and the way payments affect the incidence of effects on stakeholders.
- A requirement that the analysis be transparent and reproducible.
- A requirement to solicit the opinions of knowledgeable experts as the analysis.
- Satisfy requirements of Administrative Procedures Act

EPA Air Pollution Rules

- EPA regulations account for 63%–82% of the total monetized benefits of all federal regulations in the U.S; air pollution regulations account for 98% to 99% of benefits from EPA rules (entirely from reducing Pm2.5).
- All air pollution regulations operate in the same way: they reduce air pollution exposures, reducing the risk of premature mortality and morbidity in large populations.
- This uniformity enables a standard platform for the evaluation of air pollution regulations.

Economic Analysis Framework, EPA

Projected demographic/economic conditions, baseline incidence, future regulations, emissions controls, exposures

Projected Emissions Inventories

- Baseline
- Control Case

Emissions Model (e.g., SMOKE)

- Baseline
- Control Case

Air Quality Model (CMAQ)

- Baseline
- Control Case

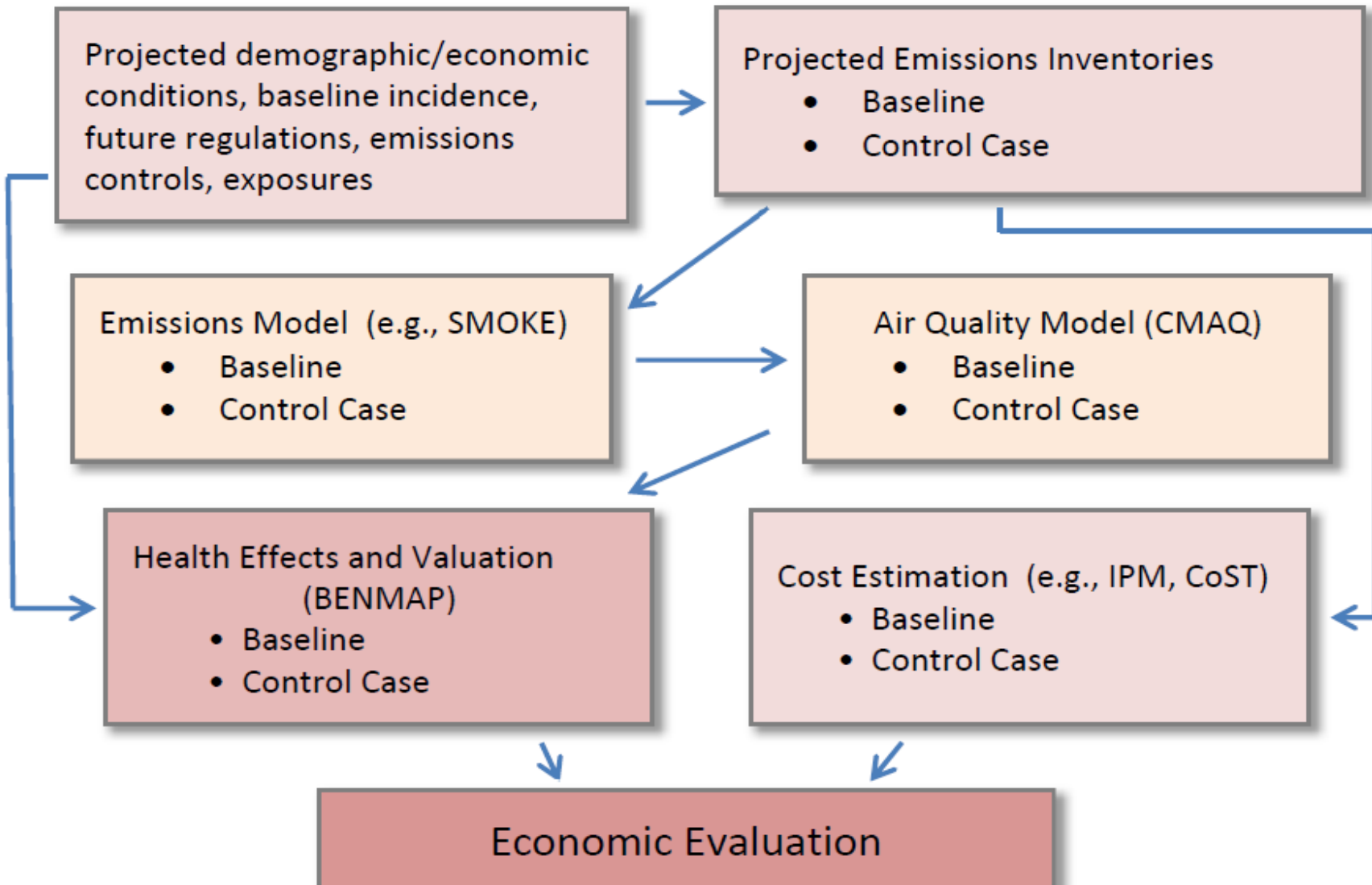
Health Effects and Valuation (BENMAP)

- Baseline
- Control Case

Cost Estimation (e.g., IPM, CoST)

- Baseline
- Control Case

Economic Evaluation



Main Benefit Categories for EPA Rules

Premature Death Avoided (monetized using VSL)

Morbidity Benefits (Monetized as cost savings)

- Chronic bronchitis
- Non-fatal heart attacks
- Hospital admissions-respiratory
- Hospital admissions-cardiovascular
- Emergency room visits for asthma
- Acute bronchitis
- Lower/Upper respiratory symptoms
- Asthma exacerbation
- Lost work days
- Minor restricted activity days

DOT Rules

- DOT rules also provide significant benefits in the U.S. regulatory program.
- Annual vehicle fatalities have declined from over 50,000 in 1970 to around 33,000 in 2014, before rising again to nearly 40,000 in 2016.
- Vehicle miles traveled have nearly tripled over the same period.
- Both market-driven manufacturing improvements in vehicle safety and regulations have caused traffic fatalities per mile driven to decline.

DOT Regulations

- Technology rules. Require new technology for new vehicles, e.g., air bags, seat belts, improved braking systems, rear-window cameras, etc.
- Behavioral Rules. Require changes in behavior such as limitations on work hours or rules for workplaces, e.g., “hours of service” rules for truckers; workplace safety standards for railroad operators.
- Certification. Requires certification of technology or training, e.g., small air plane engines, medical examiners for truckers.
- These regulations are targeted to particular market segments and population subgroups, e.g., new passenger cars, small trucks, railroad operators, small airplanes, etc. This heterogeneity means there is no standard evaluation platform. Each regulation must be evaluated uniquely.

Main Benefit Categories for DOT Rules

Premature Deaths Avoided (monetized using VSL)

Other Benefits (monetized as cost savings)

- Property damage
- Medical costs
- Travel delay
- Legal costs
- Insurance administrative costs
- Household productivity
- Market productivity

Statistical Life

- Air pollution and transportation safety regulations reduce the risk of premature deaths in populations, e.g., among people who breathe air, or drive cars.
- These deaths are “statistical” in the sense that the particular individuals whose lives the regulations will save are not known.
- How do you value the benefit of reducing mortality rates in large populations?
- The value of statistical life accomplishes this objective conceptually by finding out how much the affected population would be willing to pay collectively to reduce the risk of death in the population.

Value of Mortality Reduction (VMR) or “Value of Statistical Life” (VSL)

VSLs used in the RIAs for several agencies.

- United States Environmental Protection Agency (EPA). Fatality risks from air pollution and water pollution.
- National Highway Traffic Safety Administration (NHTSA/DOT). Transportation-related fatalities.
- Occupational Health And Safety Administration (OHSA). Workplace fatalities.
- Department of Homeland Security. The risk of fatalities from catastrophic attacks.

Value of a Statistical Life

- How much are people willing to pay for small reductions in their risks of dying?
- Suppose each person in a sample of 100,000 people were asked how much he or she would be willing to pay to reduce their individual risk of dying by 1 in 100,000?
- This risk reduction would give one less expected death among the sample of 100,000 people over the next year “on average” (a “statistical life”).
- Suppose the average response to this hypothetical question is \$100.
- Then the total dollar amount that the group would be willing to pay to save one statistical life in a year would be \$100 per person \times 100,000 people, or \$10 million.
- The “value of a statistical life” is not an estimate of how much money any single individual or group would be willing to pay to prevent the certain death of any particular person.

Value of Statistical Life (continued)

- VSLs measured from a combination of stated preference surveys and revealed preference surveys, e.g., , hedonic wage equations, which show the extra salary that are paid to workers who voluntarily take on particularly risky jobs like oil drilling.
- The VSL used by both EPA and DOT currently is about \$U.S. 10 million.
- VSLs are much higher than “lost earnings”, which were used to value lifesavings before VSL. Many regulations issued by the EPA and DOT pass a benefit cost test using the VSL measure.

Value of Statistical Life (continued)

- Like any valuation measure, VSLs are positively related to income. Therefore, VSLs are lower in less developed countries.
- The health economics literature uses cost-effectiveness analysis, to avoid monetary valuation of lifesavings.
- VSLs likely differ by context. WTP for cancer risk reduction might be different than WTP for reducing risk of airplane crashes.
- Many methodology debates and questions about VSL estimation techniques.
- Despite debates, the use of VSLs to value mortality risk reductions is standard in Regulatory Impact Analysis in U.S. VSL values used are not differentiated by income, age, or any other factor.

RIA in Trump Administration

Executive Order 13771 of January 30, 2017

“ Reducing Regulation and Controlling Regulatory Costs”

* first 18 months of the Trump administration: (August 2018(

- 70% fewer new regulations compared to the Obama administration
- 66% fewer than The Bush Administration

Deregulatory actions go through the same steps as new rules:

- They must be proposed for public comment and then finalized.
- have to articulate a reasoned basis for their proposed deregulatory changes.

Conclusions

RIA practice is well Institutionalized in the United States.

Benefits:

- Raises the profile of decision-making opportunity costs, encouraging the thoughtful consideration of trade-offs;
- Assures that alternatives are fully considered;
- Records impacts on stakeholders;
- Increases decision-making transparency and accountability.

Costs: more formal decision-making imposes time and other opportunity costs.

- Possible Reforms:
 - RIA be conducted by Independent Agency
 - written more clearly