



# **Economic Analysis in Regulation Development at EPA**

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# Overview

- Authority for EPA
- Purpose of Economic Analysis
- Components of Analysis
- Requirements for Economic Analyses
- Implications for nanomaterials
- Resources



# Basis for EPA Regulation

- Mission: To protect human health and the environment.
- Multiple regulations administered by EPA can address chemicals including:
  - Toxic Substances Control Act (TSCA)
  - Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
  - Clean Air Act (CAA)
  - Clean Water Act (CWA)
- TSCA is the main authority in the Office of Pollution Prevention and Toxics



# Toxic Substances Control Act (TSCA)

- TSCA provides EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures.
- Covers organic, inorganic chemical substances, and nanoscale materials. It does not include pesticides, food, food additives, drugs, cosmetics, and nuclear materials
- Chemical manufacture, use, import, or disposal in the U.S. may be banned, controlled or restricted
- Covers new and existing chemicals





# Purpose of Economic Analysis

- In accordance with Executive Order 12866, an Economic Analysis (EA) of proposed or existing regulations should provide decision makers with information on the consequences of their actions and help craft regulations that are more efficient
- Identify market failure (e.g. externality or incomplete information)
- Example: Reporting requirements intend to reduce uncertainty and inform decision making, addressing market failure
- Provide a useful comparison between the expected benefits and costs of regulatory actions
- Show the magnitude and likelihood of the distributional effects on various sub-populations



# Common Components of EA

- Description of the problem and the market failure
- Market information- industry profile, uses, substitutes, production
- Policy options
- Benefit-cost analysis
- Distributional analysis- children's health, small business, environmental justice, etc.



# Costs

- Cost per firm to comply with regulation (burden hours x wages)
  - Control equipment, production changes, substitution, reporting, etc.
- Cost per firm X Universe of affected entities = Industry cost
- Industry cost + Government cost + Other Social Costs = Total Social cost



# Benefits

- Identify all potential benefits
- Quantification where possible
  - May be a combination of risk analysis and economic analysis
- Monetization where possible
  - Use of benefits transfer, cost avoidance, cost of illness are common approaches
  - Original survey work infrequent
- Qualitative description of other benefits





# Economic Efficiency

- The efficient solution is the one that maximizes the net benefits

$$\text{Net Benefits} = \text{Benefits} - \text{Costs}$$

- Always with the challenge of unquantified, non-monetized, and limited benefits and costs information
- The results of the EA are inputs into the decision-making process. They do not dictate the decision.



# Statutory and Executive Order Requirements

- E.O. 12866 Regulatory Planning and Review requires agencies to perform benefit-cost analyses of rules deemed to be "significant"
  - Consideration of alternatives, costs and benefits, distributional effects
- Unfunded Mandates Reform Act requires assessment of effects on state, & tribal governments and private sector of \$100 million or more



# Statutory and Executive Order Requirements

- E.O. 12898 - consideration of environmental justice.
- Paperwork Reduction Act requires consideration of paperwork burden (Information Collection Request).
- Regulatory Flexibility Act (RFA) of 1980 as amended by the Small Business Regulatory Enforcement and Fairness Act (SBREFA) of 1996 requires consideration of significant impact on a substantial number of small entities.



## RFA/SBREFEA

- Economic Analysis under SBREFEA includes:
  - Definition of small entity
  - Number of small entities directly affected
  - Impact on small entities
  - Economics contributes to the certification of a Significant Impact on a Substantial Number of Small Entities (SISNOSE)
  - If Agency cannot certify, then Small Business Advocacy Review Panel is convened



## Implications for Nano

- Nanomaterials in certain uses fall under review of TSCA
- Economic analysis is performed for nano regulations in the same way as for any other regulation: costs, benefits, distributional effects
- Nanomaterials industry is considered: firm size, benefit of uses, potential harm, issues with substitutes



## Additional topics

- Are there unique challenges to assessing economic impact of applied nanomaterials?
  - Industry size
  - Number of nanomaterials on the market
- What is not currently being captured by metrics that should be?



# Resources

- Guidelines for Preparing Economic Analyses
  - <http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/Guidelines.html>
- Economic Analysis of Federal Regulations Under Executive Order 12866
  - <http://www.whitehouse.gov/omb/inforeg/riaguide.html>
- SBREFA Documents
  - <http://www.epa.gov/sbrefa/>
- National Center for Environmental Economics
  - <http://www.epa.gov/economics>
- Control of Nanoscale Materials under TSCA
  - <http://epa.gov/oppt/nano/>
- Nano Program, Chemical Control Division, US EPA
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# Thank you!

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