ABOUT THE AUTHOR

JERRY ELLIG is a senior research fellow at the Mercatus Center at George Mason University and a former assistant professor of economics at George Mason University. He has published numerous articles on government regulation and business management in both scholarly and popular periodicals, including the Wall Street Journal, the New York Times, the Washington Post, the Administrative Law Review, and the Journal of Regulatory Economics. His most recent book, coauthored with Maurice McTigue and Henry Wray, is Government Performance and Results: An Evaluation of GPRA’s First Decade. Previously, Ellig was deputy director and acting director of the Office of Policy Planning at the Federal Trade Commission (FTC). He also served as senior economist for the Joint Economic Committee of the US Congress. Ellig received his MA and PhD in economics from George Mason University.
For nearly four decades, presidential administrations have required executive branch regulatory agencies to identify the problem they are trying to address and assess its significance, examine a wide range of alternative solutions, estimate the costs and benefits of the alternatives, and regulate only when the benefits justify the costs. In 1993, President Clinton’s Executive Order 12866 laid out the fundamental requirements that have governed regulatory analysis and review ever since.\(^1\) In January 2011, President Obama’s Executive Order 13563 reaffirmed the principles and processes articulated in the Clinton executive order:

Our regulatory system must protect public health, welfare, safety, and our environment while promoting economic growth, innovation, competitiveness, and job creation. It must be based on the best available science. It must allow for public participation and an open exchange of ideas. It must promote predictability and reduce uncertainty. It must identify and use the best, most innovative, and least burdensome tools for achieving regulatory ends. It must take into account benefits

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and costs, both quantitative and qualitative. It must ensure that regulations are accessible, consistent, written in plain language, and easy to understand. It must measure, and seek to improve, the actual results of regulatory requirements.²

Regulations, regulatory impact analyses (RIAs), and notices of proposed rulemaking (NPRMs) that reflect the following 10 principles have the best chance of accomplishing these goals. Regulatory agencies are permitted to follow these principles only to the extent that they do not conflict with the laws the agencies implement, so it would also behoove Congress to keep these principles in mind when it writes regulatory legislation.

1. Since regulations impose constraints that govern people’s behavior, a sensible regulation should solve a real, widespread problem that could reasonably be addressed by altering constraints. It should not just respond to anecdotes of bad behavior by bad actors.

• The very first principle enunciated in Executive Order 12866 is that “each agency shall identify the problem that it intends to address (including, where applicable, the failures of private markets or public institutions that warrant new regulatory action) as well as assess the significance of that problem.”³

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3. Ibid., sec. 1(b)(1). “Market failure” and “government failure” are both pieces of economic terminology that have specific meanings; they indicate situations when markets or the government fails to produce economically efficient results, for several well-defined reasons. For a highly readable and brief description, see Susan E. Dudley and Jerry Brito, Regulation: A Primer, 2nd ed. (Arlington, VA: Mercatus Center at George Mason University and George Washington University Regulatory Studies Center, 2012), 12–20.
• It makes sense that this is the first principle. Before regulating, regulators should ascertain whether they are dealing with a systemic problem that regulation could solve. And understanding the nature of the problem is vital to crafting a solution that will actually work.

• Circular A-4, the Office of Management and Budget (OMB) guidance on regulatory analysis for agencies, elaborates further:

  If the regulation is designed to correct a significant market failure, you should describe the failure both qualitatively and (where feasible) quantitatively. . . . For other interventions, you should also provide a demonstration of compelling social purpose and the likelihood of effective action. Although intangible rationales do not need to be quantified, the analysis should present and evaluate the strengths and limitations of the relevant arguments for these intangible values.4

• Agencies often fail to adequately identify or thoroughly analyze a systemic problem. The Mercatus Center’s Regulatory Report Card assesses the extent to which agency RIAs comply with the major principles in Executive Order 12866 and Circular A-4.5 Assessment of the systemic problem is the regulatory analysis criterion that earned the lowest score on the Regulatory Report Card in both the Bush and Obama administrations.6


### Ten Principles for Better Regulation

#### BEST PRACTICE

- An RIA explicitly defines a failure of market institutions, a failure of government institutions, or an overriding social need.
- An RIA outlines a theory of cause and effect that explains why the market or government may have failed, or why the social need may be met insufficiently.
- An RIA presents empirical evidence that the problem actually exists and is widespread—not just anecdotal.

#### WORST PRACTICE

- A rulemaking simply cites an authorizing statute, providing little or no definition of the problem the rulemaking intends to address.
- An RIA or NPRM defines the problem as the absence of a rule.
- An RIA or NPRM presents anecdotes of bad behavior, but no evidence of how widespread the behavior is.

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**Note:** For examples of actual RIAs that illustrate best and worst practices, see Jerry Ellig and James Broughel, “Regulation: What’s the Problem?” (Mercatus on Policy, Mercatus Center at George Mason University, Arlington, VA, November 2011), http://mercatus.org/sites/default/files/Ellig_broughel_Regulationwhatstheproblem.pdf.

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### 2. A regulation should be accompanied by proof that it is likely to make life better for citizens in a significant and tangible way.

- Regulators should specify the ultimate outcomes that benefit citizens—not just inputs, activities, or processes. Circular A-4 notes, “In constructing measures of ‘effectiveness,’ final outcomes, such as lives saved or life-years saved, are preferred to measures of intermediate results, such as tons of pollution reduced, crashes avoided, or cases of disease avoided.”

- Circular A-4 further instructs agencies, “Explain how the actions required by the rule are linked to the expected benefits. For example, indicate how additional safety equipment will reduce safety risks.”

- Good intentions are not proof that a regulation will achieve the desired results. Executive Order 12866 states,

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7. OMB, Circular A-4, p. 12.
8. Ibid., 2.
“Each agency shall base its decisions on the best reason-ably obtainable scientific, technical, economic, and other information concerning the need for, and consequences of, the intended regulation.”9 In other words, regulation requires evidence, not just assertions.

- In the Mercatus Center’s Regulatory Report Card, agencies receive a better score for analyzing outcomes than for other aspects of regulatory analysis. Nevertheless, the average score for analysis of outcomes is just 3.2 out of 5 possible points for regulations proposed in 2008–2012.10

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<tr>
<th>BEST PRACTICE</th>
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<tr>
<td>An RIA and NPRM define the intended results as outcomes that clearly improve citizens’ quality of life</td>
<td>An RIA or NPRM defines the goal as activities (e.g., adoption of a rule, improved enforcement of an existing rule or law) or outputs (e.g., more enforcement actions, reduced emissions) without identifying the proposed regulation’s ultimate effect on people’s lives</td>
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<tr>
<td>An RIA offers a theory of cause and effect, consistent with established economic and scientific theories, that shows how the regulation could produce the desired outcomes</td>
<td>An RIA offers no theory of cause and effect showing how the regulation could produce the desired outcomes, or the theory is inco-herent, or it is self-contradictory</td>
</tr>
<tr>
<td>An RIA presents empirical evidence that each step of the theory is likely to be correct, instilling confidence that the regulation is likely to produce the desired outcomes</td>
<td>An RIA simply assumes the regulation will produce the intended outcomes without providing any evidence to support this assumption; it regards good intentions as sufficient to produce good results</td>
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Note: For an example of an RIA that illustrates both some of the best and some of the worst practices, see the discussion of the Occupational Safety and Health Administration’s rule on cranes and derricks in Jerry Ellig and Patrick A. McLaughlin, “The Quality and Use of Regulatory Analysis in 2008,” Risk Analysis 32, no. 5 (May 2012): 7–8.

3. Regulators should define how they will know the problem is “solved” and no additional regulation is necessary.

- Presidents periodically require agencies to develop plans for retrospective review of existing regulations.\(^\text{11}\)
- The Government Accountability Office and independent scholars have found that few agencies engage in genuine retrospective analysis of regulations—that is, evaluations to ascertain the actual benefits and costs of regulations after they have been implemented.\(^\text{12}\)
- Agencies could greatly facilitate this kind of retrospective review by clearly explaining, when a regulation is implemented, what counts as “success.” When will the problem be considered solved? When will the proposed regulation no longer be necessary, or when will no additional regulation be necessary?
- In the Mercatus Center’s Regulatory Report Card, two of the criteria for which agencies earn the lowest scores are assessing whether they have articulated goals and measures to gauge the results of the regulation and indicating what data they will use to evaluate the regulation’s results after it is adopted.\(^\text{13}\)


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<tr>
<td>An RIA clearly indicates the size of the problem, and the benefit calculations show how much of the problem the regulation is likely to solve</td>
<td>An RIA repeats the same statistics on the size of the problem that were used to justify other regulations aimed at the same problem, suggesting that the agency never updated its assessment of the problem to reflect the effects of other regulations</td>
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<td>An RIA or NPRM specifies a baseline against which the agency will measure benefits and costs in the future and indicates what results will be considered a “success” or a “failure”</td>
<td>An agency commits to no goals or measures for the regulation</td>
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<td>An NPRM clearly indicates that the agency will assess the benefits and costs of the regulation at some reasonable time after it is implemented</td>
<td>An agency does not commit to any evaluation of the regulation’s effects after it is implemented</td>
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<tr>
<td>An RIA or NPRM indicates what data the agency has access to or will commit to gather for this assessment</td>
<td>The data in the RIA are so sparse that it is not even clear how the agency could project the benefits or costs, much less assess them after the regulation is implemented</td>
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4. Regulators should consider alternatives to regulation and alternative forms of regulation.

- Executive Order 12866 indicates that agencies should consider a variety of alternative solutions to the problem identified, including performance standards, economic incentives, provision of information, modification of existing regulations or laws, and not regulating.\textsuperscript{14}

- Circular A-4 provides a broader list of alternatives, such as fees, bonds, insurance, changes in liability rules, definition or redefinition of property rights, and information provision or disclosure.\textsuperscript{15} It also directs

\textsuperscript{14} Executive Order 12866, secs. 1(a), 1(b)(2), 1(b)(3), 1(b)(8).

\textsuperscript{15} OMB, Circular A-4, pp. 8–9.
agencies to consider alternatives outside the scope of current law, in order to inform congressional deliberations under the Congressional Review Act.\textsuperscript{16}

- Regulatory scholars suggest an even broader range of alternatives that can be effective in some situations, such as agencies requiring firms to analyze and plan for potential hazards or risks, or firms voluntarily adopting standards at the behest of customers or suppliers.\textsuperscript{17}

- In reality, agencies rarely consider innovative alternatives. One agency economist notes, “We do what we always do, just trotting out the same old thing. That’s why we don’t come up with better regulations; we just come up with the same regulations in different areas.”\textsuperscript{18}

\textsuperscript{16} Ibid., 17.


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<tr>
<td>Regulators consider alternatives to federal regulation, such as information</td>
<td>An RIA and NPRM fail to consider alternatives to federal regulation</td>
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<td>provision, liability through the legal system, state regulation, or the</td>
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<td>possibility that the evolving marketplace will solve the problem</td>
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<tr>
<td>Regulators consider a wide variety of alternative regulatory approaches</td>
<td>An RIA or NPRM offers alternatives that merely tweak the favored regulatory approach</td>
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<tr>
<td>An RIA comprehensively assesses the benefits and costs of a wide variety of</td>
<td>An RIA or NPRM offers a cursory discussion of alternatives without appearing to seriously consider</td>
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<td>alternative solutions</td>
<td>them</td>
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5. The regulatory alternative selected should provide the “biggest bang for the buck.”

- Executive Order 12866 directs agencies to “select those approaches that maximize net benefits . . . unless a statute requires another regulatory approach”19 and “propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs.”20

- Agencies are explicitly permitted to consider unquantified benefits or costs, as well as other values that are neither benefits nor costs, including “equity, human dignity, fairness, and distributive impacts.”21

20. Ibid., sec. 1(b)(6).
21. Executive Order 13563, sec. 1(c).
• During 2008–2012, agencies chose the alternative that maximized net benefits or explained why they chose another option for just 33 percent of proposed, economically significant prescriptive regulations.22

• Analysis of values other than benefits and costs is particularly sparse. For example, in the first round of regulations implementing the Patient Protection and Affordable Care Act, the RIAs characterized various results of the regulations as improvements in “equity” without ever defining equity or explaining how the regulation improved it.23

22. The percentage is calculated from the Mercatus Center’s Regulatory Report Card data, available at http://mercatus.org/reportcard. These are the prescriptive regulations that received a score of 4 or 5 points (out of a possible 5) on the question whether the agency chose the alternative that maximized net benefits or explained its reasons for choosing another alternative. A total of 36 out of 108 prescriptive regulations received a score of 4 or 5 in 2008–2012. A “prescriptive” regulation is a regulation that imposes mandates or prohibitions.

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<tr>
<td>An RIA comprehensively assesses the benefits and costs of a wide variety of alternative solutions</td>
<td>An RIA offers a cursory discussion of alternatives that do not appear to be seriously considered or merely tweak the selected regulatory approach</td>
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<tr>
<td>An agency selects the alternative that maximizes net benefits, OR</td>
<td>An RIA is so incomplete that the net benefits of alternatives are unclear</td>
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<tr>
<td>If the agency does not select the alternative that maximizes net benefits, it presents a clear, evidence-based explanation of other factors that motivated its decision</td>
<td>An NPRM cites unquantified benefits or costs as a motivation for the decision without presenting evidence that these benefits or costs are real and that the regulation will affect them</td>
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<tr>
<td>If values other than benefits or costs (such as equity) motivated the decision, the agency clearly defines those values and presents evidence that the regulation will substantially advance those values</td>
<td>An NPRM merely asserts that the regulation is justified because it advances a value that is only vaguely defined, and the agency presents no evidence that the regulation will in fact advance that value</td>
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6. Regulation should respect consumers’ freedom of choice.

- Executive Order 12866 rightly focuses regulatory agencies’ attention on remedying failures of market or government institutions that allow people to harm each other, rather than trying to correct every “mistake” fallible individuals might make that harms themselves. The government is more likely to be able to remedy institutional failures than to change fundamentally people’s preferences or decision-making methods. Experimental evidence shows that market institutions often produce sensible results even when individuals appear to be behaving

irrationally.\textsuperscript{25} Focusing on institutions also helps regulators avoid a tempting analytical error: when people appear to be making “irrational” decisions, they may be doing so because they see some source of value that the regulatory analyst did not think to include in the analysis.

- When individual irrationality is proffered as a justification for regulation, there is no reason not to apply the same evidence-based standard of analysis that applies to other claims of market or government failure. The agency should have actual empirical evidence of irrational consumer decisions based on a study of consumer behavior in the market that would be affected by the regulation, not just speculation, analogies, or anecdotes.

- Executive Order 12866 also specifies that a regulation should be no more restrictive than necessary to correct the problem the agency identified. It directs each agency to consider a wide variety of alternatives (including economic incentives and information provision),\textsuperscript{26} “design its regulations in the most cost-effective manner to achieve the regulatory objective,”\textsuperscript{27} and “tailor its regulations to impose the least burden on society.”\textsuperscript{28}

- Nevertheless, many significant regulations assume, without rigorous evidence, that individuals—and sometimes businesses—make the “wrong” decisions because they have “irrational” preferences. Most of the benefits ascribed to energy-efficiency and fuel-efficiency standards, for example, stem from the assumption that for many people, the value of future cost savings from

\begin{itemize}
\item Executive Order 12866, sec. 1(b)(3).
\item Ibid., sec. 1(b)(5).
\item Ibid., sec. 1(b)(11).
\end{itemize}
reduced energy usage is lower than the regulatory agency’s analysts think is rational. The RIAs have not tested an alternative, equally plausible explanation: that consumer decisions reflect some aspect of quality that the analyst has not taken into account. The bulk of the estimated benefits for these regulations come from correcting these “irrational” choices, not from reduced pollution.29

• Other regulations limit consumer choice in ways that are broader than necessary to fix the genuine problem. If consumers lack information or process it incorrectly, the appropriate remedy is not to ban products or services, but rather to make the relevant information available or provide it in ways that are more understandable. As Circular A-4 notes, “A regulatory measure to improve the availability of information, particularly about the concealed characteristics of products, provides consumers a greater choice than a mandatory product standard or ban.”30


30. OMB, Circular A-4, p. 9.
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<td>The benefits claimed in an RIA stem from the correction of genuine institutional failures, not merely the correction of consumers’ “irrational” decisions</td>
<td>Most of a regulation’s claimed benefits stem from the fact that the agency assumes with little or no evidence that people have the “wrong” preferences</td>
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<tr>
<td>The agency regulates to protect consumers only if consumers are vulnerable to monopoly, are poorly informed, or make decisions that impose significant costs on third parties</td>
<td>The regulation overrides consumers’ freedom of choice by mandating or banning a product, service, or feature, even though consumers are reasonably well informed and experience all or almost all the benefits and costs of their decisions</td>
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<tr>
<td>The RIA or NPRM supports claims that consumers lack information or process it incorrectly by empirical research on the market that would be affected by the regulation</td>
<td>The RIA or NPRM theorizes that consumers lack information or process information incorrectly, but provides no empirical evidence that this is true</td>
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<td>The regulation imposes a remedy that is no more restrictive than necessary to correct a well-documented problem; for example, it corrects consumers’ lack of information by improving consumer information</td>
<td>The regulation imposes a remedy that is much more restrictive than necessary to fix an identified failure of private markets; for example, it mandates or bans a product because consumers lack adequate information</td>
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7. **Regulation should be technologically neutral.**

- Regulation should focus on establishing performance goals that create tangible results for the public—not picking the means by which businesses, states, local governments, or individuals have to achieve those results.

- Executive Order 12866 reflects this concern: “Each agency shall identify and assess alternative forms of regulation and shall, to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt.”

31. Executive Order 12866, sec. 1(b)(8).
• It also instructs agencies to consider the alternative of providing economic incentives for desired behavior, such as user fees or marketable permits.32

• But actual regulatory policy often picks winners and losers by favoring some technologies over others. Federal spectrum policy, for example, has for decades favored certain technologies over others (such as broadcast over broadband), instead of merely preventing signal interference and requiring all users of spectrum to bid for it so that spectrum can be allocated to the uses consumers value most highly.33

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<tr>
<td>A regulation establishes an objective rather than mandating the method of compliance</td>
<td>A regulation requires a particular method of compliance</td>
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<td>The objective is proven to produce significant public benefits or prevent significant public harm</td>
<td>An agency defines its regulatory objective as compliance, without any link to benefits for the public or with a link between compliance and benefits that is speculative</td>
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<td>All potential users of a federally managed resource have the opportunity to bid for its use, regardless of their technologies or business models</td>
<td>Regulators plan the development of technologies or business models and allocate federal resources to carry out their vision</td>
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8. Regulation should be competitively neutral.

• Regulation should focus on creating tangible benefits for the public—not on singling out particular competitors to be winners or losers.

32. Ibid., sec. 1(b)(3).

• The emphasis in Executive Order 12866 on performance objectives and economic incentives\(^{34}\) helps facilitate regulation that is competitively neutral as well as technologically neutral.

• The analysis of effects on small businesses required under the Regulatory Flexibility Act reflects a concern that regulatory burdens could disproportionately disadvantage small businesses, to the benefit of their larger competitors.

• Well-known economic research demonstrates how regulation can entrench some businesses at the expense of competitors and consumers.\(^{35}\) The most obvious examples were the government-enforced cartels in the transportation and securities industries, which were largely dismantled by a bipartisan congressional coalition in the late 1970s.\(^{36}\) But even well-intentioned social regulation can harm consumers by shielding some firms in an industry from competition.\(^{37}\)

• The debate over public safety communications provides a striking example. More than a decade after 9/11, the FCC still has not managed to enable construction of a public safety communications network that would allow all first responders to communicate with each other. The reason is that the FCC tried to create a single monopoly provider governed by a politically appointed committee,

\(^{34}\) Executive Order 12866, secs. 1(b)(8) and 1(b)(3).


instead of simply auctioning public safety spectrum to competing providers and requiring that their networks be interoperable.38

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<tr>
<td>Regulators avoid imposing price controls or quotas in competitive markets and avoid creating barriers to entry that inhibit new competition</td>
<td>A regulation explicitly bars new firms from entering a market and/or enforces cartels</td>
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<td>A regulation establishes an objective, but leaves all competitors free to find ways of meeting the objective</td>
<td>Regulators try to design or engineer the creation of a new firm or industry</td>
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<td>An RIA documents costs to consumers that arise when a regulation creates market power, and regulators take these costs into account when they make decisions</td>
<td>Regulators ignore costs to consumers that arise when a regulation creates market power</td>
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9. Regulation should be based on the best available evidence, not merely on assumptions, good intentions, or wishes.

- Executive Order 12866 directs agencies to base their decisions on “the best reasonably obtainable scientific, technical, economic, and other information concerning the need for, and consequences of, the intended regulation.”39
- Regulatory analysis is about understanding reality as it is, not as regulators wish it to be. To provide an accurate understanding of reality, a good regulatory analysis must start with facts and evidence, not arbitrary assumptions.

• Nevertheless, many authors of regulations and decision makers believe that economists and other regulatory analysts can construct an analysis justifying any decision by “making assumptions” plucked from thin air. One former FDA economist elaborates:

When FDA was promulgating the seafood Hazard Analysis Critical Control Points (HACCP) regulation, it was obvious to both epidemiologists and economists from the beginning that there would be very few benefits. . . . Later on, when it became apparent that the costs were higher than benefits by about 10 to 1, the pressure was put on me as the chief economist to change the numbers. At one point, on a Friday, I was told not to bother coming back to work if I could not agree to change the benefits and costs.

After the initial estimates showed very few benefits, the dictated solution from senior managers was to allow two scientists (one retiring and another from a completely different agency who was unfamiliar with the details of the rule) to “estimate” that 50 percent of all illnesses caused by seafood would decrease following imposition of the rule—an estimate that has not come true.40

• Regulatory Report Card data show that for 108 prescriptive regulations proposed in 2008–2012, 34 percent failed to document at least some data sources, and 33 percent cited no research supporting the models or assumptions used in the analysis.41

41. These are regulations that scored 2 or fewer points (out of a possible 5) on questions related to documentation of data and documentation of models and assumptions. Percentages are calculated from data available at http://mercatus.org/reportcard.
An RIA bases input values that provide a starting point for calculations of benefits, costs, etc. on peer-reviewed publications or other credible research

An RIA merely assumes input values or bases them on “agency estimates” with no further documentation

An RIA employs theories of cause and effect that are coherent, logical, and substantiated by empirical research

An RIA simply assumes that benefits, costs, or a problem exists, without any supporting evidence

An NPRM’s justification for the regulation is consistent with findings in the RIA

An NPRM makes statements about the problem, benefits, or costs that contradict findings in the RIA

10. Regulation should acknowledge uncertainty.

- Many of the facts in a regulatory analysis are not known with certainty; there is a greater or lesser chance that they are true. Similarly, input values used to estimate benefits or costs are not known with certainty, but often fall within some plausible range. An accurate RIA accounts for these uncertainties by calculating ranges of possible results and informing readers about the likelihood of different results.

- Omitting this information misinforms decision makers about what is really known and not known. If, for example, the upper-bound cost estimate for a regulation exceeds the lower-bound benefit estimate, decision makers might make a different decision than they would if they were just given the two most likely numbers for benefits and costs. Alternatively, if decision makers know there is a great deal of uncertainty about the likely outcomes, they might decide to gather more information before making the decision.

- Circular A-4 contains detailed guidance on how regulatory agencies should deal with uncertainty. RIAs
should acknowledge statistical variability, incomplete knowledge, and the extent to which the results of the analysis change when input values change. For rules involving more than $1 billion in annual economic effects, the agency must prepare a formal, quantitative analysis of uncertainty that shows the probability of different outcomes.\(^{42}\)

- Nevertheless, Regulatory Report Card data indicate that RIAs often engage in little or no analysis of uncertainty. For prescriptive regulations proposed in 2008–2012, 58 percent had little or no analysis of uncertainty about the systemic problem, 23 percent had little or no analysis of uncertainty about benefits, and 34 percent had little or no analysis of uncertainty about costs.\(^{43}\)

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<tr>
<td>An RIA identifies a systemic problem, presents evidence that the problem exists and is significant, and assesses the likelihood that the problem exists and is significant</td>
<td>An RIA and NPRM assume the problem the regulation seeks to solve exists with certainty, but provides no evidence of its existence or significance</td>
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<tr>
<td>An RIA presents cost and benefit figures as ranges of possible results</td>
<td>An RIA presents cost and benefit figures as single numbers, implying that each number is “the” correct answer</td>
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<tr>
<td>An RIA provides evidence about the likelihood of each possible result</td>
<td>An RIA does not consider the likelihood of each possible result</td>
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<tr>
<td>An RIA cites empirical research that justifies the input values used to assess the range and likelihood of different results</td>
<td>An RIA makes arbitrary assumptions about the input values used to assess the range and likelihood of different results</td>
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\(^{42}\) OMB, Circular A-4, pp. 38–42.

\(^{43}\) These are regulations that scored 0 points or 1 point (out of a possible 5) on the three Regulatory Report Card questions about uncertainty analysis. Percentages are calculated from data available at http://mercatus.org/reportcard.
FURTHER READING


