Thinking Ahead, Looking Back: Assessing the Value of Regulatory Impact Analysis and Procedures for Its Use

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Abstract

Analysis is a tool for making important legislative and regulatory decisions but it is also a way of looking back to see whether decisions made in the past have been good ones. How well have legal rules actually worked in practice? Answering this question is crucial, not only for improving regulation and legislation in the future, but also for improving forward-looking regulatory impact analysis (RIA). This article was originally presented as the keynote address at the 22nd Anniversary International Conference of the Korea Legislation Research Institute in August 2012. It highlights what social scientists have told us generally about the role of analysis in decision making and about why prospective RIA has been adopted around the world. It contrasts prospective RIA with regulatory impact evaluation (RIE), showing that even procedures that require prospective RIA can be properly subjected to *ex post* evaluation and that such evaluation is the only way to determine the true value of prospective RIA. It also explains the crucial connection between looking back and thinking ahead, concluding that without more and better retrospective research – RIEs – prospective RIAs cannot achieve their full potential over the long term.

Key Words: Regulatory Impact Analysis; Regulatory Impact Assessment; Legislative Impact Analysis; Retrospective evaluation; Regulatory Impact Evaluation

I. Thinking Ahead, Looking Back

Making effective regulatory decisions is not literally rocket science, but the field of regulation can learn an important lesson from aeronautics about how to inform decision makers. Before an aerospace agency launches a rocket or a military department launches a new type of missile, its engineers undertake extensive analysis to ensure that the rocket or missile will function as it is intended. The launch, though, does not end the analysis. During and after a launch takes place, engineers also collect data on the performance, trajectory, and accuracy of the rocket or missile, all with the purpose of generating valuable information that will help improve the next launch. When it comes to regulation, the role of analysis should be much the same.

For many years, scholars and policy makers around the world have recognized the value of analysis as a tool to aid in the making of regulatory decisions, something to be deployed before the launch of a new regulation.[1] Yet, the role for analysis in evaluating regulations after they have been designed and implemented should be considered just as important.[2] Analysis is both a tool for making important decisions – "thinking ahead" – and a crucial way of "looking back" as well, to see whether decisions made in the past have been good ones. How well have regulations actually worked in practice? Answering this question by looking back is vital for improving regulations as well as improving forward-looking analysis.

In this article, I will first highlight what social science research has to say about the role of analysis in any kind of decision making. Then I will discuss the adoption and purpose behind the use of regulatory impact analysis (RIA),

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1.   *See, e.g.,* Kenneth J. Arrow *et al., Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation?*, 272 Sci. 221-22 (Apr. 12, 1996);OECD, *Regulatory Impact Analysis: Best Practices in OECD Countries* (1997), http://www.oecd.org/gov/regulatory-policy/35258828.pdf; Claudio M. Radaelli & De Francesco Fabrizio, *Regulatory Quality in Europe: Concepts, Measures, and Policy Processes*, *in* Eur. Pol'y Research Unit (Manchester Univ. Press 2007).

2.   Cary Coglianese & Lori Bennear, Nat'l Research Council, *Program Evaluation of Environmental Policies: Toward Evidence-Based Decision Making*, *in* Decision Making for the Environment: Social and Behavioral Science Research Priorities 246-73 (Nat'l Academies Press 2005); Michael Greenstone, *Toward a Culture of Persistent Regulatory Experimentation and Evaluation*, *in* New Perspectives on Regulation (David Moss & John Cisternino eds., The Tobin Project 2009), *available at* http://www.tobinproject.org/sites/tobinproject.org/files/assets/New_Perspectives_Ch5_Greenstone.pdf.

specifically addressing claims about the value of *thinking ahead* in regulatory decision making.[3] Contrasting *thinking ahead* with *looking back*, I will next explain some rudiments of *ex post* regulatory evaluation. I will show that even forward-looking analysis itself, and certainly procedures that require forward-looking RIA, are worthy subjects for *ex post* evaluation. Indeed, the only way to determine the true value of any kind of *ex ante* analysis - of thinking ahead - is by looking back. In the end, a crucial connection exists between the analysis of looking back and thinking ahead. Without additional and improved *ex post* evaluation, *ex ante* analysis will always remain limited. Globally, we need to put in much more effort to produce rigorous evaluation of regulations after they have been deployed.

II. Two Systems of the Human Mind

At its most foundational level, analysis is part of human cognition. Social psychologists, including Nobel Prize winner Daniel Kahneman,[4] distinguish between two modes of human judgment:

System 1: instinctive, reflexive, automatic, intuitive
System 2: conscious, deliberate, rational, analytic

A lot of the simple decisions that everyone makes throughout their daily lives are based on System1 intuition. However, sometimes our reliance on System 1 comes at a price, as intuition can succumb to a variety of cognitive biases.

System 2, on the other hand, can help overcome those biases. Moreover, we need it when faced with questions that overload System 1 or for which System 1 is not equipped to answer. As Kahneman has explained, "System 2 is mobilized when a question arises for which System 1 does not offer an answer, [such as] the multiplication problem 17 x 24."[5]

In his popular book, *Blink*, journalist Malcolm Gladwell focused on how

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3.   "RIA" also refers to regulatory impact *assessment*, which I treat as interchangeable with regulatory impact analysis.

4.   Daniel Kahneman, *Thinking Fast and Slow* (Farrar, Straus & Giroux 2011).

5.   *Id.* at 24.

much power System 1 thinking has over us.[6] It turned out that one of the biggest fans of Gladwell's book was Joe Gregory, the head of Lehman Brothers, who even invited Gladwell in 2005 to come speak to Lehman executives.[7] Gregory valued quick and intuitive judgments, but of course the stunning collapse of Lehman in 2008 raised the question of whether he and his company actually needed to rely more on analysis and less on quick judgment.

This was in fact the very kind of question Gladwell intended to pose in his book. Notwithstanding Gregory's and others' interpretation that Gladwell advocated greater use of System 1 thinking, Gladwell actually raised the same question regulatory officials are asking today: What is the value of analysis? According to Gladwell, "figuring out how to combine the best of conscious deliberation and instinctive judgment is one of the great challenges of our time."[8]

More recently, law professor Frank Partnoy has argued that the answer is clear: we definitely need more analysis.[9] "Our most important policy decisions," he writes, "require that smart people spend long periods of time thinking strategically."[10] For many years, this has been the ideal of rational policy making.[11]

III. Two Modes of Policy Decision Making

Long before cognitive and behavioral psychologists started using the terminology of System 1 and System 2, another Nobel Laureate, Herbert Simon, contrasted the ideal of rationality with a more prevalent "bounded rationality"

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6. Malcolm Gladwell, *Blink: The Power of Thinking Without Thinking* (Little, Brown & Co. 2005).

7. Megan Gambino, *Why Procrastination is Good for You*, Smithsonian, Jul. 13, 2012, http://www.smithsonianmag.com/science-nature/Why-Procrastination-is-Good-for-You-162358476.html (last visited Feb. 25, 2013).

8. Gladwell, *supra* note 6, at 269.

9. Frank Partnoy, *Wait: The Art and Science of Delay* (Pub. Affairs 2012).

10. *Id.* at 243.

11. Obviously the aspiration of thoughtful governmental decision making has roots much deeper than contemporary interest in RIAs. In Korea, the name of Sajeongjeon Hall, the king's executive office built in the Joseon Dynasty, indicates that it was the place "where the king should think deeply before deciding what is right or wrong." Cultural Heritage Administration of Korea, Gyeongbokgung Palace (2011).

that accounts for limits on individual and organizational cognitive process-ing.[12]

Political scientist Charles Lindblom[13] extended Simon's work by contrast-ing two modes of policy decision making:

1. *Synoptic,* or rational comprehensive, decision making follows perfect ra-tionality. The decision maker defines key values and goals, and then as-sesses all known alternatives to see which option will best maximize the stated goals.
2. *Incremental,* or boundedly rational, decision making follows a more relaxed rationality. Values and goals are not as clear and only a limited number of alternatives can be examined. Rather than making perfect pre-dictions, incremental decision makers proceed largely through trial and error.

As Lindblom noted, most decision making is incremental: "The most com-mon view…[is] that indeed no more than small or incremental steps – no more than muddling – is ordinarily possible."[14] In practice, it turns out to be just too hard for policymakers to be completely rational.

Although Lindblom seemed at times to celebrate incremental decision mak-ing, it is important to note that he did not deny that some types of incremen-tal decision making could be better than others. Incremental decision making can still be well thought out; that is, looking ahead and conducting analysis can be very helpful, even if it can never be conducted in as fully a rational way as to match the ideal concepts found in many public policy analysis textbooks.[15]

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12.   Herbert A. Simon, *Administrative Behavior: A Study of Decision-Making Processes in Ad-ministrative Organization* (Macmillan 1947).

13.   Charles E. Lindblom, *The Science of 'Muddling Through'*, 19 Pub. Admin. Rev. 79-88 (1959); Charles E. Lindblom, *Still Muddling, Not Yet Through*, 39 Pub. Admin. Rev. 517-26 (1979).

14.   Lindblom, *Still Muddling, Not Yet Through*, *supra* note 13, at 517.

15.   Of course, the best public policy analysis textbooks recognize that complete information and full rationality are seldom attainable. *See, e.g.,* Eugene Bardach, *A Practical Guide for Policy Analysis: The Eightfold Path to More Effective Problem Solving* (4th ed., CQ Press 2011); David L. Weimer & Aidan R. Vining, *Policy Analysis: Concepts and Practice* (5th ed., Pearson 2010).

IV. Components of Policy Analysis

Those same policy analysis textbooks, however, do provide valuable aspirations and guidance for real-world decision makers. Even if the ideals of rationality can never be fully met, the basic structure of policy analysis forms a useful and widely accepted framework for regulatory impact analysis in practice. At its core, regulatory impact analysis, like policy analysis more generally, comprises five main components:

1. *Understanding the problem*. What kind of problem is it? What is causing the problem? How serious is it? Is it growing worse?
2. *Specifying Alternative Solutions*. What options might best address the underlying causes of the problem? Usually, policy analysis considers only about five to seven options at most – a general rule of thumb articulated by Eugene Bardach, who has written a leading text on policy analysis.[16]
3. *Selecting Criteria*. These may include not only *effectiveness*, *cost-effectiveness*, or *efficiency* (benefit-cost), but also *equity*, *administrative costs*, *political feasibility*, and *legality*.
4. *Assessing Each Alternative Against Each Criterion*. This is the heart of analysis. It calls for making predictions about how each alternative will fare when judged against each criterion. Predictions are based on other experiences, knowledge, and theory.
5. *Making a Decision*. Finally, a decision or a recommendation is made based on what was learned from undertaking the four previous steps.

Whether in its ideal form or in a more incremental application, the essence of policy analysis follows these five elements. These five elements also comprise the rudiments of what is meant by regulatory impact analysis, or RIA.[17]

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16. Bardach, *supra* note 15.

17. These core elements always exist, although sometimes the steps collapse or are expanded for elucidation. For related accounts, *see* Office of Info. & Reg. Affairs (OIR), Office of Mgmt. & Budget (OMB), *Regulatory Impact Analysis: A Primer* (2011), http://www.whitehouse.gov/sites/default/files/omb/inforeg/regpol/circular-a-4_regulatory-impact-analysis-a-primer.pdf (last visited Jan. 28, 2013); OECD, *Introductory Handbook for Undertaking Regulatory Impact Analysis* (RIA) (2008), http://www.oecd.org/gov/regulatory-policy/44789472.pdf (last visited Feb. 23, 2013).

V. Reasons for RIA

These basic elements of policy analysis are increasingly used to support regulatory decision making around the world. As Figure 1 shows, the use of RIA by governments in OECD countries has grown dramatically over the last several decades.[18] Indeed, the OECD continues to recommend its use. In 2012, the OECD Council issued a recommendation that its member countries "integrate Regulatory Impact Assessment (RIA) into the earliest stages of the policy process for the formulation of new regulatory proposals."[19]

Figure 1: RIA Adoption in OECD Countries (1974-2008)[20]
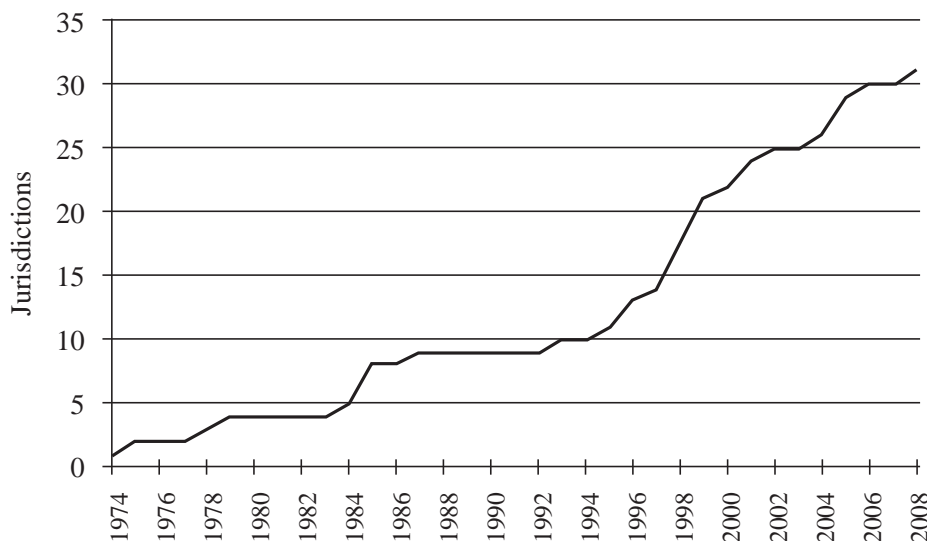
Why have officials at the OECD and in other countries recommended the

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18.   *See* Jonathan B. Weiner, *The Diffusion of Regulatory Oversight*, *in* Cost Benefit Analysis Goes Global: Weighing the Pros and Cons of Environmental Protection in Developing and Emerging Economies (Michael A. Livermore & Richard L. Revesz, eds., Oxford Univ. Press, forthcoming 2013); Scott Jacobs, Jacobs & Assoc., *Current Trends in Regulatory Impact Analysis: The Challenges of Mainstreaming RIA into Policy Making* (2006), *available at* http://regulatoryreform.com/images/stories/PDFs/Jacobs_Current__Trends_and_ Processes_in_RIA_May_2006.pdf (last visited Feb. 24, 2013).

19.   OECD, *Recommendation of the Council on Regulatory Policy and Governance* (2012), http://www.oecd.org/gov/regulatory-policy/49990817.pdf (last visited Feb. 25, 2012).

20.   OECD, Regulatory Policy Committee, *Indicators of Regulatory Management Systems* 62 (2009), http://www.oecd.org/gov/regulatory-policy/44294427.pdf (last visited Feb. 25, 2013).

use of RIA? What might be its value? The advantages of RIA can be distilled into two main types.[21]

First, and perhaps most obviously, RIA is widely advocated as a tool for improving policy decisions.[22] Not only is it assumed that RIA will lead to better outcomes – whether better is measured in terms of effectiveness, cost-effectiveness, efficiency, or other criteria – but it also may help prevent some of the worst outcomes from happening. It can help decision makers avoid the errors that come from hasty decisions or the biases that can afflict System 1 decision making.

Second, RIA is seen to promote democratic legitimacy.[23] It offers a kind of transparency of reasoning, better informing members of the public of the basis for a government's regulatory decision. In addition, the RIA can provide a basis for oversight of regulatory authorities by courts and legislative bodies.

Of course, not everyone is a fan of RIA or accepts these two primary theoretical advantages of RIA. RIA's critics postulate three disadvantages that counsel against RIA, especially against the imposition of requiring regulatory officials to conduct RIAs before adopting new rules.

First, critics allege that RIA can lead to worse decisions if it generates biased results, such as by inflating the costs of regulation relative to its benefits.[24] The existence of an RIA may lull decision makers into a false sense of precision by masking uncertainty and making policy choices appear synoptic when in reality they are only incremental.[25] Furthermore, there is the concern that RIA is so malleable that it can be manipulated and become merely a rationalization used to bolster decisions made on other, more intuitive or ideo-

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21. For a richly developed philosophical defense of the reliance on benefit-cost analysis in policy decision making, *see* Matthew D. Adler & Eric A. Posner, *New Foundations of Cost-Benefit Analysis* (Harvard Univ. Press 2006).

22. The OECD, for example, has noted that "Korea has legislated Regulatory Impact Assessment (RIA) as a tool for improving the quality of new regulations." OECD, *Korea: Progress in Implementing Regulatory Reform* (2007), http://www.oecd.org/korea/41399033.pdf. *See generally* OECD, *supra* note 17, at 4.

23. Bruce Ballantine, Eur. Policy Ctr., *Regulatory Impact Analysis: Improving the Quality of EU Regulatory Activity* (2001), http://ec.europa.eu/dgs/secretariat_general/admin_burden/docs/enterprise/files/epc_paper_en.pdf (last visited Feb. 24, 2013).

24. *See, e.g.,* Frank Ackerman & Lisa Heinzerling, *Priceless: On Knowing the Price of Everything and the Value of Nothing* (The New Press 2004).

25. *See, e.g.,* Lisa Heinzerling, *Regulatory Costs of Mythic Proportions*, 107 Yale L. J. 1981-2070 (1998).

logical grounds.

Second, critics argue that RIA demands too much of scarce governmental resources and that it may delay valuable decision making.[26] This concern about delay is often characterized by the phrase "paralysis by analysis."[27]

Finally, RIA is sometimes attacked for reducing democratic legitimacy. When this occurs, it is not usually because RIA is a form of analysis per se, but rather RIA is criticized for the criteria selected, in particular the criterion of efficiency which is used in benefit-cost analysis. A major concern is that RIA illegitimately commodifies human life when it requires mortality avoidance benefits to be monetized.[28] Of course, a full consideration of the moral objections to benefit-cost analysis is beyond the scope of this paper, but suffice it to say that the objections to benefit-cost analysis are almost always objections to "benefit-cost" – not to "analysis." *Analysis* neither depends upon nor necessarily requires the reliance on a benefit-cost test. It just calls for "thinking ahead."

VI. Two Types of Regulatory Analysis

Up to this point, I have referred to *analysis* as the deployment of the five basic elements of RIA *before* an official makes a regulatory decision. I will now distinguish RIA – analysis conducted *ex ante*, before a decision is made – from what I will call RIE, that is, regulatory impact *evaluation*, which is a type of analysis conducted *ex post*, or after the implementation of a regulation. Evaluation involves looking back to see if a regulation worked as it was intended.

What does it mean to ask if a regulation "worked"? Figure 2 presents a "simple" causal model of how a regulation is generically supposed to work. At the far right of this causal chain are the conditions of the world that motivate regulation in the first place: too much pollution, too much fraud, or any number of other problems in the world. These problems are the ones that

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26. Thomas O. McGarity, *A Cost-Benefit State*, 50 Admin. L. Rev. 7-79 (1998).

27. For a history of the use of this phrase in critiquing regulatory analysis, *see* Cary Coglianese, *The Rhetoric and Reality of Regulatory Reform*, 25 Yale J. on Reg. 85-95 (2008).

28. *See, e.g.*, Steven Kelman, *Cost-Benefit Analysis: An Ethical Critique*, 1981 Am. Enterprise Inst. J. on Gov't. & Soc'y Reg. 33-40.

regulation aims to solve, so at the far right of the causal chain is what I call the ultimate outcome of concern (UOC).

Figure 2: Generic Causal Map of Regulation and its Impact[29]
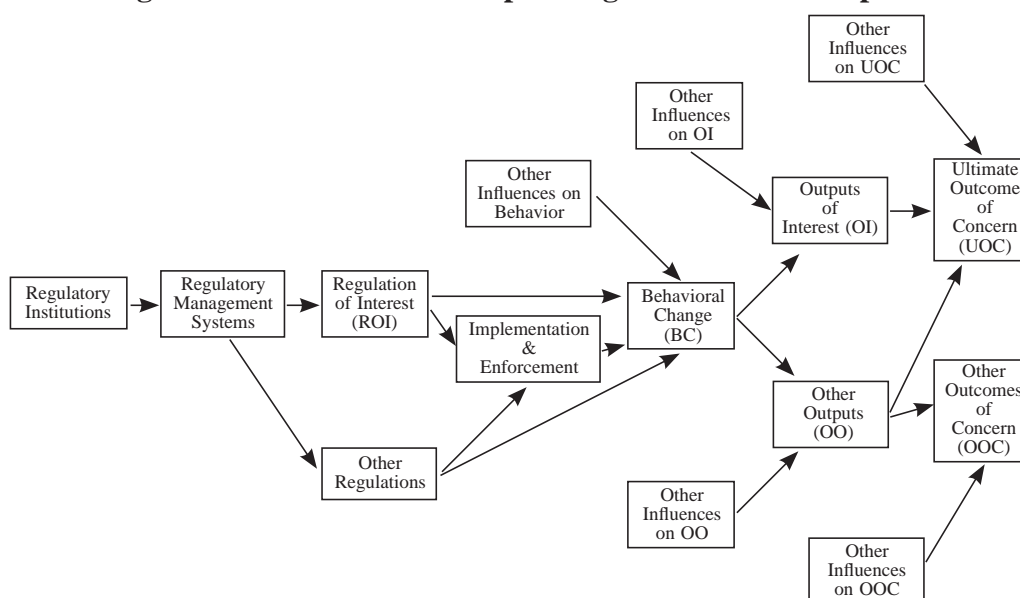
Everything to the left of the chain should be leading to improvements in the UOC. The chain begins, on the far left, with the institutions establishing regulation and with the procedures for their development, which then leads to a law or regulation, leading next to behavioral change by those individuals and organizations targeted by the law or regulation. If every thing works as planned, the behavioral change induced by the regulation will ultimately lead to improvements in the conditions in the world, the UOC.

RIE "looks back" at how this chain has operated. However, it can look back in three different ways, leading to three types of *ex post* evaluation:

1. *Regulatory Administration*. How well have regulations been implemented?
2. *Behavioral Compliance*. How closely does behavior by the regulated targets comply with the rules?
3. *Outcome Performance*. How much did the outcomes in the world

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29. Cary Coglianese, OECD, Expert Paper No. 1, *Evaluating the Performance of Regulation and Regulatory Policy* (Aug. 2012), *available at* http://www.oecd.org/gov/regulatorypolicy/1_coglianese%20web.pdf (last visited Feb. 25, 2013).

change? In other words, does society have less pollution? Does it experience less fraud?

These three types of *ex post* evaluation focus on three main parts of the causal chain shown in Figure 2.[30] A regulatory administration evaluation focuses on the left side of the chain, while a behavioral compliance evaluation zeroes in on the box in the center (behavioral change). The most important type of evaluation, outcome performance, focuses on the right side of the causal chain.

Outcome performance evaluation is ultimately the most important because whether a regulation has "worked" truly depends on whether it led to improvements in conditions in the world. However, the other steps in the chain are important to understand too. If a regulation turns out *not* to work, we need to understand why. Was it because behaviors did not change? Or was it because the administration or implementation of the regulation was inadequate?

VII. "Lookback": Good, But Not Enough

Analysis that looks back to see whether a regulation has worked turns out to be absolutely vital for improving laws and regulations. Fortunately, governments around the world are starting to recognize the importance of *ex post* regulatory impact evaluation. The OECD reports that most of its members have some kind of mandatory "review" of regulations after their implementation.[31] The terms and types of such reviews can vary across the three kinds of *ex post* evaluation. Often the terminology used to describe these evaluations also varies from country to country: lookback, stock-taking, benchmarking, process audits, performance management, and strategic budgeting, among other terms.

In 2011, for example, President Barack Obama launched a major "lookback" initiative in the United States. President Obama instructed all the federal regulatory agencies to review their existing rules to identify those that might

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30. *Id.*

31. OECD, *supra* note 20.

be "outmoded, ineffective, insufficient, or excessively burdensome."[32]

The resulting effort undertaken by U.S. regulatory officials across the federal government has been helpful.[33] But it is also far from sufficient. For one, the emphasis of the U.S. "lookback" initiative has so far been centered largely on regulatory costs and not as much on corresponding benefits (or even on computing net benefits). Another limitation is that the kind of analysis deployed in the U.S. lookback initiative has been very soft, just like most lookback efforts around the globe. Practices of lookback and stock-taking do not investigate cause and effect in any rigorous manner. Rather, they rely on expert judgments by regulatory officials combined perhaps with input from the relevant regulatory community. They do not try to assess statistically whether the regulation has caused any observable changes in the world.

Lookback, as currently pursued in most countries including the U.S., is akin to asking patients and doctors whether they think a new medication is working, rather than actually subjecting the medicine to double-blind clinical trials. We have seen in recent years how rigorous statistical evaluation of medical therapies can yield information that diverges from clinical judgments. One need only think of recent results from studies of hormone replacement therapy or screenings for prostate cancer which have profoundly contradicted much conventional medical wisdom.[34]

For the same kind of reasons why careful statistical research is and should be conducted on the safety and efficacy of medical therapies after they are put into use, countries similarly need to undertake careful research – what I call *attributional evaluation* – in the realm of regulation. Attributional evaluation is designed to answer the question of how well a regulation is working by investigating rigorously what effects the regulation is *causing* in terms of the ultimate outcome of concern and other relevant policy criteria. Attributional evaluation seeks to discern whether changes in behavior or changes in

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32. Exec. Order No. 13564, 76 Fed. Reg. 6309, 3821-23 (Jan. 31, 2001), *available at* http://www.gpo.gov/fdsys/pkg/FR-2011-02-03/pdf/2011-2577.pdf.

33. Cass R. Sunstein, *"Lookback" Progress*, White House blog (June 04, 2012, 12:05 PM EDT), *available at* http://www.whitehouse.gov/blog/2012/06/04/lookback-progress (last visited Feb. 25, 2013).

34. *See generally* Virginia A. Moyer, *Menopausal Hormone Therapy for the Primary Prevention of Chronic Conditions: U.S. Preventive Service Task Force Recommendation Statement*, 158 Annals Internal Med. 47-54 (2013); Virginia A. Moyer, *Screening for Prostate Cancer: U.S. Preventive Services Task Force Recommendation Statement*, 157 Annals Internal Med. 120-135 (Jul. 17, 2012).

the world can be causally attributed to a regulation or a law.

Attributional research does not simply fulfill an abstract, intellectual desire for knowledge for its own sake, but helps sort out what action needs to be taken by determining if a regulation is really making a difference. At times, we may think the answer is obvious. For example, if a disaster occurs, it may be obvious to think that a regulation failed. However, that may not necessarily be so. Hindsight is one of the biases of System 1 that social psychologists have thoroughly documented. Thus, when it comes to low-probability, high-consequence events, regulation typically seeks to *manage* risk but not eliminate it altogether. Hence, inferring regulatory failure from a single disaster can sometimes prove to be a mistaken conjecture.[35] On the other hand, it is possible that regulations themselves can create new problems, such as when automobile safety standards led to the installation of devices that would sometimes deploy prematurely and kill children who would not otherwise have been killed in automobile accidents.[36]

We need to investigate whether it is possible to attribute, causally, both the good and bad outcomes to regulations. Fortunately, there are a number of techniques for doing rigorous attributional evaluation. Controlled experiments are the techniques that natural scientists use, and there are probably some opportunities in law and regulation to rely on randomized experiments.[37] But most attributional evaluation of regulations probably will need to be conducted through the deployment of observational studies, or the analysis of non-experimental or quasi-experimental data. Empiricists have developed a variety of techniques that permit causal inferences about policy interventions, including:

・ Multivariate regression

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35. Christopher Carrigan & Cary Coglianese, *Regulatory Breakdown: The Crisis of Confidence in U.S. Regulation*, *in* Oversight in Hindsight: Assessing the U.S. Regulatory System in the Wake of Calamity 1 (Cary Coglianese ed., Univ. of Penn. Press 2012), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2186529.

36. John D. Graham, Sue J. Goldie, Maria Segui-Gomez, Kimberly M. Thompson, Toben Nelson, Roberta Glass, Ashley Simpson & Leo G. Woerner, *Reducing Risk to Children in Vehicles With Passenger Airbags*, 102 Pediatrics e3 (Jul. 1998), *available at* http://pediatrics.aappublications.org/content/102/1/e3.full.pdf+html.

37. Michael Abramowicz, Ian Ayres, & Yair Listokin, *Randomizing Law*, 159 U. Pa. L. Rev. 929-1005 (2011), *available at* http://www.pennumbra.com/issues/pdfs/159-4/Abramowicz.pdf.

- Matching estimators/propensity scoring
- Differences-in-differences
- Instrumental variables, and
- Regression discontinuity.

A considerable and growing body of research uses these techniques to make attributional judgments about policy interventions, including regulatory interventions.[38]

Unfortunately, the production of such research has largely proceeded outside of government and not in any systematic way. We have yet to see in any country anything close to the kind of systematic procedures for the development of *ex post* attributional evaluations as we do with the production of *ex ante* regulatory impact analysis. Governments have, thus far, devoted far more effort to producing and requiring *ex ante* RIA than to investing in *ex post* RIE.

The lack of comparable attention to *ex post* evaluation as to *ex ante* analysis is troublesome because evaluation is vital for improving regulation. If policymakers can learn how regulation really is (or is not) solving problems, causing harm, or otherwise changing outcomes, they will be able to make better decisions in the future. Anyone who favors analysis before adopting new regulations should clearly favor attributional evaluation after a regulation has been implemented. And yet, much more progress is needed.

VIII. Evaluating RIA Mandates: Assessing the Value of Analysis

In addition to generating helpful information about regulation, evaluation after the fact can also be used to assess better the value of procedures that require RIA. According to the OECD, only "eight countries [have] reported that they undertake *ex post* comparisons of actual [versus] predicted impacts."[39]

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38. For a non-technical overview of the use of these techniques in regulatory evaluation, *see* Coglianese, *supra* note 29.

39. OECD, Regulatory Policy Committee, *supra* note 20. The OECD report also stated that "[o]nly Korea, Switzerland, the UK and the EU reported that they assess the effectiveness of RIA in leading to modifications of initial regulatory proposals undertaken." *Id*.

And yet governments' procedures requiring the use of RIA are themselves a form of regulation. They are regulations imposed inside government, ways of "regulating the regulators," as economist Kip Viscusi has phrased it.[40]

RIA mandates are a type of regulation that, in other contexts, I have called "management-based regulation."[41] This approach to regulation has been used in a variety of contexts, from food safety to financial regulation. The basic idea is that instead of telling the regulated entity exactly what to do or what outcomes to achieve, management-based regulation requires regulated entities to think, plan, and analyze.

As a form of regulation itself, a management-based regulation like an RIA mandate can be evaluated just like any other regulation. Some research has begun to examine how well governments have implemented RIA requirements. For example, researchers have shown that there exists considerable variation in the quality of RIAs produced by different U.S. and European regulatory authorities.[42]

Only by evaluating RIA can we better answer the question posed at the beginning of this paper, namely, what is the value of analysis. To be sure, in answering such a question, the causal chain portrayed in Figure 2 gets extended a bit more towards the left, with the consideration of how a regulation *imposed on regulators* affects governmental behavior.[43] In other words, the question becomes: Does mandated RIA actually improve regulators' decisions? Do regulations developed under mandated RIA procedures turn out in practice to yield better compliance or better ultimate outcomes?

Theory would indicate that RIA mandates will only "work" when three conditions are met.[44] First, regulators need to use good analytic techniques. Second, the analyses produced by regulatory officials using these techniques need to generate accurate predictions and valuations. Finally, regulators' deci-

40. W. Kip. Viscusi, *Regulating the Regulators*, 63 U. Chi. L. Rev. 1423-61 (1996).

41. Cary Coglianese & David Lazer, *Management-Based Regulation: Prescribing Private Management to Achieve Public Goals*, 37 Law & Soc'y Rev. 691-730 (2003).

42. Fabrizio De Francesco, Claudio M. Radaelli & Vera E. Troeger, *Implementing Regulatory Innovations in Europe: The Case of Impact Assessment*, 19 J. Eur. Pub. Pol'y 491-511 (2012); Robert W. Hahn & Patrick M. Dudley*, How Well Does the U.S. Government Do Benefit-Cost Analysis?*, 1 Rev. Envtl. Econ. & Pol'y 192-211 (2007).

43. Coglianese, *supra* note 29.

44. Cary Coglianese, *Empirical Analysis and Administrative Law*, 2002 U. Ill. L. Rev. 1111-37 (2002).

sions need to be influenced for the better by the analyses that are conducted. After all, even the most accurate analyses produced with state-of-the-art techniques will be meaningless if they are simply ignored by policy decision makers.

Although more research is needed that evaluates RIA mandates, the early evidence suggests that, so far, these three conditions are not widely met. In practice, too many regulatory officials seem to treat the RIA process lightly by merely going through the motions. Most RIAs are not very rigorous. The OECD has found that, "[d]espite procedural requirements, many RIAs typically list just a qualitative analysis of the expected costs and benefits of regulation."[45] Most strikingly, the OECD announced that "a major challenge is to ensure that RIA goes beyond a simple 'box checking exercise.'"[46]

Some research studies to date have attempted to assess how well the monetary estimates in RIAs accurately predict the actual costs and benefits of a regulation after implementation. For example, one *ex post* study has shown that the *ex ante* cost estimates for compliance by U.S. firms with the phasing out of chlorofluorocarbons have significantly overstated actual costs.[47] In another study, researchers compared *ex post* costs of twenty-eight U.S. regulations with *ex ante* estimates, finding that, in about half of the rules, the total costs were overestimated (although the unit cost estimates were more accurate).[48] Of course, these studies to date have examined only a tiny fraction of all regulations, and they also have tended to focus on comparing the cost estimates in RIAs with costs calculated *ex post*. It is possible, of course, that actual benefits could also be over- or under-stated in RIAs.

Furthermore, in terms of the impact of RIAs on policy decision making, what little evidence exists, at least in the U.S., would seem to suggest that RIAs have yet to make a substantial positive impact.[49] Regulations with nega-

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45.   OECD, *supra* note 20.

46.   *Id.*

47.   James K. Hammitt, *Are the Costs of Proposed Environmental Regulations Overestimated? Evidence from the CFC Phaseout*, 16 Envtl. & Resource Econ. 281-302 (2000).

48.   Winston Harrington, Richard D. Morgenstern & Peter Nelson, *On the Accuracy of Regulatory Cost Estimates*, 19 J. Pol'y Analysis & Mgmt. 297-322 (2000).

49.   For a review of the (sparse) literature, *see* Winston Harrington & Richard D. Morgenstern, Resources for the Future, *Discussion Paper 04-04: Evaluating Regulatory Impact Analyses* (2004), *available at* http://www.rff.org/documents/rff-dp-04-04.pdf (last visited Feb. 24, 2013).

tive net benefits are still adopted, although it is always possible that unmonetized factors play a decisive role in such circumstances. In a recent review, though, Robert Hahn and Paul Tetlock provocatively concluded that "there is little evidence that economic analysis of regulatory decisions has had a substantial positive impact."[50] Admittedly, regulators do continue to operate in an environment with many political and legal constraints that can, at least at times, make an RIA have relatively little influence over their decision making. That said, some case studies have indicated that RIAs can inform decision makers and, at times, influence the decisions that they make.[51]

The existing statistical research on the regulatory review process in the United States also suggests that RIAs have few predicted downsides, such as paralysis by analysis. Although the RIA process is widely assumed to contribute to delays in rule-making, no systematic evidence yet exists, at least not in the United States, showing that RIAs have imposed any significant delays in the regulatory process, notwithstanding several studies that have examined the question using both matched case studies as well as analysis of large data sets.[52] Indeed, one recent study by political scientists Susan Yackee and Jason Yackee found precisely the opposite outcome, namely, that the RIA review process conducted by the U.S. Office of Management and Budget actually appears to have sped up the federal rulemaking process for those rules subject to this oversight.[53]

IX. Conclusion

Of course, in considering the complex, bureaucratic processes by which governments craft and implement regulations, I have by now travelled quite some distance from the psychological workings of the human mind, System 1 and System 2. Clearly, as with many decisions people make in their everyday lives, analysis of some type will be important in regulatory and legal decision

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50.   Robert W. Hahn & Paul C. Tetlock, *Has Economic Analysis Improved Regulatory Decisions?*, 22 J. Econ. Persp. 67-84 (2008).

51.   Richard D. Morgenstern, *Economic Analysis at EPA: Assessing Regulatory Impact* (Richard D. Morgenstern ed., Resources for the Future 1997).

52.   Coglianese, *supra* note 27.

53.   Susan Yackee & Jason Yackee, *Administrative Procedures and Bureaucratic Performance: Is Federal Rule-making 'Ossified'*, 20 J. Pub. Admin. Research & Theory 261-82 (2009).

making. After all, the same kinds of biases that psychologists find influence System 1 thinking can also afflict regulatory policy making. The expanded use of RIA has been one major reform thrust around the world which seeks to counteract the errors of policymaking based on intuition and ideology, and thereby also to improve the quality and legitimacy of government regulations.[54]

The real challenge lies in ensuring that regulatory agencies produce high-quality analysis that will actually make a positive difference in the design of regulations. The only way to know if that challenge will ever be met, as well as the only way to inform future RIAs and hopefully thereby improve future regulations, is to generate more and better attributional evaluation of regulations after they have been implemented. Without such *ex post* regulatory impact evaluations – RIEs – policymakers can only continue to make their best guesses about what to do in the regulatory realm, making judgments based all too often on theory, intuition and ideology rather than on evidence.

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54. Cass R. Sunstein, *Cognition and Cost-Benefit Analysis*, 29 J. Legal Stud.1059-1103 (2000).

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