What's Wrong with the Back of the Envelope? A Call for Simple (and Timely) Benefit-Cost Analysis

Christopher Carrigan
George Washington University, Trachtenberg School of Public Policy and Public Administration
ccarrigan@gwu.edu

Stuart Shapiro
Rutgers University, Bloustein School of Planning and Public Policy
stuartsh@rutgers.edu

Abstract:
Over the more than three decades that benefit-cost analysis has been a part of the regulatory process, it has been subjected to sometimes opposing criticisms from across the ideological spectrum. Nevertheless, proponents and detractors agree that benefit-cost analysis has regressed into a mechanism used by agencies to justify regulatory decisions after they are made rather than as an input to inform the process of making them. We argue that a noticeably simpler analysis of a larger number of alternatives conducted earlier in the regulatory process can resuscitate analysis as a tool to inform regulatory policy. Our call for reform is grounded in the principles that, to play a role in rulemaking, analysis should: 1) be completed well before the proposed rule and subject to comment; 2) be rough cut, eschewing the complex quantification that has made regulatory impact analyses inaccessible to even well-informed commenters; and 3) include several policy alternatives, not just the agency preference and one or two unrealistic options as is typically the case with benefit-cost analyses currently. Recognizing that simply requiring a procedure does not in and of itself ensure that regulators will follow it, we analyze the conditions under which an agency may attempt to sidestep our reform to hide its preference for a regulatory approach that would not survive public examination. We show that for those agencies that can replicate complex analysis easily, our requirement may be fulfilled only in letter like many of the procedural reforms that have preceded it. To mitigate this possibility, we offer a series of remedies, including relaxing or enhancing subsequent review of proposed and final rules, which either raise the cost to regulators of producing impenetrable analyses or lower the cost of following our reform. In doing so, our revised procedure can not only elevate benefit-cost analysis to its intended role in the rulemaking process, it can also reduce the analytical burden on both the public and OIRA by focusing attention on those proposed rules where the alternatives to the agency's preferred option may increase social welfare.

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Benefit-cost analysis has been integral to the regulatory process for more than three decades. Over this period, it has been the subject of criticism across the ideological spectrum. Supporters of analysis have bemoaned the fact that it has not led to more cost-effective regulatory policies. Opponents have accused it of undermining public health protections in the name of economic efficiency. However, both sides agree on one criticism, that benefit-cost analysis is often used to justify decisions already made for political reasons, rather than to inform those decisions.

Solutions to the perceived ineffectiveness of benefit-cost analysis tend toward one of two extremes. Opponents of analysis, not surprisingly, want to see it eliminated. Supporters often call for "deeper and wider cost-benefit analysis" (Hahn and Sunstein 2001). As presidents from both political parties have agreed that it should have a role in regulatory decision-making, benefit-cost analysis is not going away. Yet, if analysis is to hold an important position in regulatory decision-making, perhaps there is another way to structure it such that the results assist rather than justify bureaucratic decision-making. This paper is an argument for a leaner benefit-cost analysis requirement that can play more of a role in regulatory decision-making.

We argue that benefit-cost analysis has evolved into a complex tool that does little to inform decisions on regulatory policy. Analyses either omit consideration of meaningful alternatives or are so detailed that they become practically indecipherable (or often, both). And in either case they are often completed after a policy alternative is selected. Adding complexity

or judicial review may eliminate the naive studies but will also increase incentives for agencies to make them even more opaque. Yet, eliminating analysis abandons all hope that an analytical perspective can inform critical policy decisions.

We believe that a noticeably simpler analysis, which we call back-of-the-envelope (or BOTE) analysis, conducted much earlier in the regulatory process, can play a critical role in regulatory decisions. Such an analysis would have to be completed well before a proposed rule and be subject to public comment. It would also have to meaningfully assess alternative policy options. However, to ensure that it does not cripple the regulatory process, the examination could eschew the detailed monetization and complex quantification that bedevils most current regulatory impact analyses (and leads to much of the controversy about them).

We recognize that there are numerous institutional obstacles to making simple and timely analysis feasible. Specifically, if dense analysis is not costly to the regulator, then agencies could assess more alternatives earlier in the process without simplifying the benefit-cost analyses connected to them. They might appear to be placing the analysis before the decision when, in reality, they have simply more successfully hidden their decision in additional reams of analysis. Thus, in addition to proposing widespread use of back-of-the-envelope analysis, we assess mechanisms to incentivize agencies to comply with the spirit in which it is proposed.

The rest of the article proceeds as follows. In the next two sections, we review the criticisms of benefit-cost analysis in the regulatory process and existing proposals to deal with these perceived shortcomings. We then explain our proposal for back-of-the-envelope analysis. In the two sections that follow, we anticipate potential obstacles to implementation of BOTE analysis and propose ways to circumvent these obstacles. Finally, we recap our argument and position our recommendations in the context of the current regulatory environment.

Criticisms of the RIA Process

The requirement that agencies conduct a benefit-cost analysis (or Regulatory Impact Analysis (RIA) as it is formally known) for a subset of their regulations has been in place for more than thirty years. It has its origins in President Reagan's Executive Order 12291,[1] has since been reaffirmed by both Democratic and Republican presidents, and is currently institutionalized in Executive Order 12866 issued by President Clinton. With this demonstration of bipartisan support, one might think that the use of RIAs has become a universally accepted part of the regulatory process. One would be wrong.

Criticisms of RIAs originate from a diverse set of perspectives. There are those who have opposed the use of economic analysis in regulatory decision-making since its inception. Often strong supporters of regulation as an instrument for protecting public health, these advocates and scholars have put forth a variety of arguments criticizing RIAs. Most prominent has been the view that RIAs are hopelessly biased against regulation (Ackerman and Heinzerling 2004; Heinzerling 1997, 1999, 2000; McGarity 1987). Following the argument, because benefit-cost analysis relies on techniques such as discounting the future benefits of regulation and monetizing risk reductions, RIAs inevitably understate the benefits of regulation while potentially overstating its costs.

A related line of criticism is that benefit-cost analysis is ethically questionable. Steve Kelman's (1981) widely cited ethical critique of benefit-cost analysis specifically challenged its monetization of environmental goods and public health. Kelman argued that benefit-cost analysis inevitably supported some policy choices that were not moral including persecuting the

[1] Presidents Nixon, Ford, and Carter experimented with benefit-cost analysis of regulations, but the Reagan requirement is the first broad application of an economic analysis requirement (Tozzi 2011).

innocent and stifling dissent. He also argued that monetization of policy impacts was often impossible and devalued the things being monetized.

Finally, the argument has been made that analysis, along with more piercing review of regulations by the judiciary and other procedural requirements imposed upon regulatory agencies, have made it so hard for agencies to regulate that they will be dissuaded from doing so. This idea of the "ossification of the rulemaking process" was popularized by Thomas McGarity (1992) and can find its way into critiques of new proposals to strengthen RIAs. It is often dubbed "paralysis by analysis" by these scholars (Vladeck and McGarity 1995).

Still, it is not just those who oppose the very idea of benefit-cost analysis that have criticized the implementation of RIAs. Some of the biggest proponents of incorporating economics into regulatory decision-making have lamented the inability of the RIA requirement to turn this goal into reality. Robert Hahn has produced a number of works that denounce the quality of RIAs and describe the basic components of good economic analysis that are missing in them. These include the meaningful consideration of alternative policy choices, treatment of uncertainty, and discounting of future costs and benefits (Hahn and Litan, 2005; Hahn and Sunstein, 2001; Hahn and Tetlock, 2008). Moreover, in a series of recent articles, similar critiques have been levied by scholars associated with the Mercatus Center as well (Ellig and McLaughlin, 2012; Ellig, McLaughlin, and Morrall, 2012; McLaughlin and Ellig, 2011).

Interestingly, both detractors and supporters of benefit-cost analysis seem to agree on one criticism of the RIA process. Because analysis is often implemented only after a policy decision is made, the RIA serves more to justify the regulatory decision than to inform it. Wendy Wagner (2009) notes, "That the RIA offers nothing to policy analysis is in fact, precisely the point; in

other words the point is protect the rulemaking, not to open it up to attack."[2] Supporting this insight, Stuart Shapiro and John Morrall (2012) used a dataset of more than one hundred regulations to examine the relationship between RIAs and their political context. They found that the results of the RIA did not correlate with the quality of the RIA (implying that better analysis did not necessarily lead to greater net benefits) but did correlate with political factors such as the salience of the rule. This gives support to the argument that RIAs, while justified with technocratic language, largely function as political documents.

The idea that agencies make their policy decisions before meeting a requirement that is intended to be pre-decisional is not peculiar to the RIA process. Indeed this problem can also be found in studies of the notice-and-comment process. Notice-and-comment rulemaking, developed through the Administrative Procedure Act (APA) of 1946, requires agencies to publish a proposed rule, solicit public comment on that rule, and then consider those comments when finalizing the rule. The hope behind notice and comment was that it would imbue the public comment process with a sense of democratic accountability (Davis 1969).

But evaluations of the notice-and-comment process have found that agencies consider public comments only in limited circumstances and rarely make significant changes to their proposals (Golden 1998; Wagner, Barnes, and Peters 2011; West 2004). West (2009) argues that this is because agencies, faced with the prospect of defending a policy publicly at the proposed rule stage, settle on a preferred policy before issuing the proposal. The public comment process then becomes largely window dressing to satisfy a legal requirement, rather than a critical input to agency decision-making. This point is echoed by West and Raso (2012) who emphasize the importance of the agenda setting portion of the rulemaking process and note the privileged position held by businesses at this early stage.

[2] Olson (1984) made a similar point a generation earlier.

Like notice and comment, the RIA requirement was put in place with the hope of influencing bureaucratic decision-making. While the goal is quite different—economic efficiency for RIAs vs. democratic input for notice and comment—the effects that these two procedural constraints have had on rulemaking are similar. Both have had less of an impact than anticipated. In fact, some argue that the effects are negligible. The limited roles have been attributed to the tendency of regulatory agencies to make decisions earlier in the process so that they are harder to change when either public comments are received or economic analysis is conducted.

Existing Proposals to Reform RIAs

With these limitations in mind, over the past decade some of those critical of RIAs—both proponents of benefit-cost analysis as well as detractors—have proposed changes to how RIAs are generated and utilized. Some of these proposals have found their way into proposed legislation. In separate research, Revesz and Livermore (2008) and Harrington, Heinzerling, and Morgenstern (2009) made a series of recommendations designed to correct the perceived anti-regulatory bias in RIAs. They included:

- Incorporating a simplified listing of benefits and costs in a non-monetized manner.
- Greater and more transparent consideration of alternative policy options.
- Greater accounting of ancillary benefits.
- Decreased use of intergenerational discounting.
- Analyses of deregulatory options with the same rigor as regulatory ones.

These changes, particularly incorporating greater consideration of alternative policy options, would likely strengthen RIAs. But none of these suggested reforms deals with the issue raised

by West (2009) and others. These modifications to RIAs would leave unchanged the agency incentive to decide on their preferred policy option and then conduct an analysis to support it.

Greater consideration of alternatives has to be a part of any reform designed to position RIAs to play more of a role in regulatory decision-making. Too often, the only alternatives considered by agencies are not regulating at all or imposing an unreasonably stringent level of regulation (Hahn and Tetlock 2008). This inevitably ensures that the benefit-cost analysis makes the agency's preferred policy appear to be the superior choice. Consideration of alternatives is already a requirement in Executive Order 12866. Unfortunately, this mandate has not, on its own, led to analysis of alternative policies that are actually realistic options for the agency.

This failure has led some critics of RIAs to call for judicial review of economic analysis (Hahn and Sunstein 2001). A number of recent proposed statutes before Congress include provisions that would require that benefit-cost analyses conducted by agencies be subject to more searching review by the courts.[3] The idea is that if agencies knew that their RIAs were subject to judicial review, they would take the benefit-cost analysis requirement more seriously and use it as part of the policy selection process.

However, two important counterexamples exist which suggest that judicial review may not help encourage good analysis. Agency responses to public comment are subject to judicial review, but as discussed above, this fact has not prompted agencies to utilize these comments in regulatory decisions. Experience with Environmental Impact Statements (EIS), required under the National Environmental Protection Act, is also discouraging. According to numerous scholars, EIS's are excessively detailed, and this detail conveys the false impression of precision while obscuring the ability of outsiders to evaluate the accuracy of the analysis. Courts have

[3] See, for example, The Regulatory Accountability Act of 2013 (H.R. 2122) and The Regulations from the Executive in Need of Scrutiny Act of 2013 (H.R. 367).

been reluctant to overturn decisions based on these EIS's that contain so much information. Rather, scholars hypothesize that the mass of the analysis signals to the court that the agency has comprehensively assessed the environmental impacts (Karkkainen 2002). Requiring judicial review may make RIAs more detailed but may do little to make them more accurate or useful.

Finally, some have argued that the problem is that regulatory agencies, with a vested interest in the policy outcome, conduct the analysis, and the Office of Information and Regulatory Affairs (OIRA), influenced by the politics of the presidency, reviews them. Agencies subvert analytical goals for their own mission-driven policy preferences (Wilson 1989), and OIRA makes them a secondary priority to the political preferences of the president (Shapiro 2005). These critics thus argue that moving economic analysis out of the executive branch is the solution to the problems with the RIA process (Niskanen 2003). The executive branch does have a monopoly on economic analysis of regulations and breaking up monopolies often does increase product quality. However, it is not clear that having outside parties, whether they be Congress or an independent body, analyze pre-decisional policies is either practical (would an outside party have the information necessary to conduct an RIA?) or constitutional.

Back-of-the-Envelope Analysis as the Solution

The current use of RIAs is thus plagued by a fundamental problem. The analyses are done largely after a policy decision has been made. The RIA is then used more to justify a decision that the regulatory agency has already reached rather than as an input to the policy decision, which is the role for which analysis was intended. RIAs tend to examine alternative policy choices only superficially and often eschew the examination of meaningful alternatives altogether. In particular, "marginal" alternatives—or alternatives that vary only a small amount from the chosen policy option—are rarely examined. Assessment of these marginal alternatives

would shed significant light on the policy decision. Since the RIA comes after the policy decision, one can argue that shedding light is not one of its goals.

The reforms discussed above do little to correct this problem. The most promising of these potential reforms, judicial review of RIAs, is likely to lead to analyses that are exceptionally dense and difficult for interested parties to understand and comment upon. This has been the experience with the aforementioned EIS requirement under NEPA (Karkkainen 2002). In addition to exacerbating the existing issue of RIAs that are already dense and unrealistically precise without pretense of being accurate,[4] judicial review is unlikely to lead to the overturning of regulations. EIS's have a long history of being upheld by the courts.

So how can we better incorporate economic analysis into the regulatory process? Any successful reform to the RIA process will have the following qualities:

1. It will increase the likelihood that analysis is conducted prior to the policy decision rather than after it.
2. It will increase the likelihood that agencies analyze meaningful alternatives to their chosen policy.
3. It will allow affected interests to weigh in on the analysis and suggest corrections to potential flaws.
4. It will not make the regulatory process more burdensome for agencies than the current process.

Wendy Wagner (2009) accurately captured the type of reform needed by suggesting that, "Ideally, agencies would be rewarded for conducting searching policy analyses or, at the very least, not penalized for self-critical and transparent consideration of alternatives."

[4] For example, a recent RIA by the Occupational Safety and Health Administration estimated the costs of compliance with its Hazard Communication standard to be $2,102,747,140 (Occupational Safety and Health Administration 2012).

With these considerations in mind, we propose that for regulations that have an economic impact above a certain threshold,[5] agencies be required to conduct a "back-of-the-envelope" or rough cut analysis well before they issue a proposed rule. The back-of-the-envelope (BOTE) analysis would have the following three qualities.

Simplicity: Agencies would be required to produce an analysis that does not attempt to analyze every possible impact of a regulatory policy option. The analysis would have as its goal approximating the potential effects of a regulation rather than generating a precise estimate of the economic impact. Enrico Fermi famously asserted that complex scientific equations could be approximated within an order of magnitude using simple calculations. If this is true for complex scientific equations, then surely it must also hold for economic analysis.

Completed Prior to the Selection of a Policy Option: A BOTE analysis would need to be done much earlier than the current RIA requirement. The BOTE analysis would also be made public well before the publication of a proposed rule. As noted above, agencies have regularly settled on a preferred policy by the time they issue a proposed rule (West and Raso 2012). To be useful, a BOTE analysis should be published with enough time for agencies to receive and digest public comment on the alternative policies prior to the publication of a notice of proposed rulemaking (NPRM). As discussed below, we acknowledge that ensuring that agencies do not make decisions until preparing a BOTE analysis is a particular challenge.

Consideration of Meaningful Alternatives: While the BOTE analysis should be much simpler than an RIA, it will need to be conducted on multiple policy options. Ideally, the agency would not indicate its preferred policy option in a BOTE analysis and all alternatives would be given a

[5] Currently agencies are required to conduct an RIA for any regulation with an economic impact of more than $100 million in any given year according to Executive Order 12866. This would be a logical threshold for our proposal as well. Alternatively, it could be piloted at a higher threshold and then expanded if it proves to be successful.

roughly equivalent level of consideration. A minimum number of alternatives could be specified, but most importantly, a subset of the realistic alternatives would differ from each other in small ways so that the tradeoffs in more stringent and more lenient policies could be seen (how are costs and benefits affected by a slightly more stringent emissions standard or a slightly more lenient one?).

The BOTE analysis would move consideration of the tradeoffs between alternatives to an earlier stage in the agency decision-making process. It would force agencies to obtain public input on realistic policy alternatives. Finally, when issuing a proposed rule, the prior issuance of a BOTE analysis would place the burden on the agency of defending its chosen policy in light of both the earlier analysis and the public input received in response to that analysis. This is likely to increase the transparency of agency decisions and would lead to better policy choices.

The specific design of the BOTE requirement will need to be carefully considered. On the one hand, agencies have proven expert at continually moving their decision points earlier in the regulatory process in the wake of procedural requirements intended to influence their thinking (West and Raso 2012). The requirement for a BOTE analysis would need to be structured in such a way that agencies are dissuaded from doing so. We turn to this question in the next section. On the other hand, we also want to ensure that the BOTE analysis does not add to the overall burden of the regulatory process. We feel that the BOTE analysis can also be used to reduce the amount of time that regulatory agencies spend promulgating significant regulations. These two concerns—that agencies might shift decisions earlier and that the requirement may lengthen the regulatory process—may even have a mutual solution. We discuss the possibility of implementing BOTE analysis via incentives for the agency that would reduce the time spent on other parts of the regulatory process below.

When Can Additional Requirements Make a Difference?

While the steps we propose to enable benefit-cost analysis to play its intended role in rulemaking are simple and concrete, this simplicity may limit how effective our recommendation can be in accomplishing its objective of encouraging real change among regulatory agencies in the ways they prepare and use analysis. President Reagan's Executive Order 12291 was explicit that the directive to conduct benefit-cost analysis would apply to proposed rules as well. As a result, one might think that the combination of the procedural requirements embodied in the APA, and the executive orders of President Reagan and his successors to use benefit-cost analysis as a decision-making tool would have encouraged agencies to do exactly that.

As we have highlighted, the procedural and analytical requirements have resulted in the RIA being utilized more often as a mechanism to justify the regulator's preferred course of action rather than a true evaluation tool. Thus, why should we think that adding an additional layer of procedure would encourage analysis to now function as it was intended? In other words, if regulators are able to use the current system—which was intended to promote benefit-cost analysis as a decision-making instrument—to justify their preferences, it may be dubious to think that refinements to that system could make benefit-cost analyses "living" documents.

In many respects, this issue is ubiquitous. Regulators face the same conundrum with respect to their regulated entities. As quickly as regulators are able to promulgate rules controlling certain firm actions deemed to be detrimental to the public good, those same firms are, quite rationally, finding ways to manipulate those requirements for their benefit. Agencies can be just as capable as private entities of manipulating or undermining requirements designed to curb their discretion.

The principal-agent problems that apply at all levels of government are certainly applicable to efforts to encourage regulators to implement RIAs as they were intended as well. In describing the perils of adding more analytical requirements to the rulemaking process, Don Arbuckle (2012) notes, "Old impact statement requirements meet a lonely and doleful demise—their once proud aspirations dulled and forgotten; their exaggerated promise relegated to the impact analysis dust bin." As discussed above, the notice-and-comment process has also been plagued by this problem.

Although it is sensible to be skeptical of the extent to which adding layers of procedures can truly invigorate the role that RIAs play in the regulatory process, such concerns rest on at least one important assumption. Specifically, whether prompting agencies to engage in rough cut analysis earlier in the process can actually produce RIAs that aid in the selection of the appropriate regulatory option depends on how burdensome it is for agencies to undermine them. If, like other requirements that end up in the "analysis dust bin," mandating that regulators disclose a basic analysis of a larger number of alternatives can be reasonably assimilated into existing processes for producing benefit-cost analyses, these reforms will do little to improve regulatory decision-making. In contrast, if our proposed requirements force agencies to conduct and disclose analyses that are fundamentally different than what they currently do, regulators will have difficulty subverting them, and our proposal has the potential to bring positive change.

To see how this might be the case, we simplify the rulemaking process into four stages. These time periods, which we label T1 through T4, reflect important steps in the rule writing process by which an agency:

T1 = Recognizes that it needs to write a rule;

T2 = Assesses the regulatory alternatives;

T3 = Develops the NPRM;

T4 = Drafts the final rule.

In the context of this timeline, our reform would mandate that agencies disclose their analysis during time period T2 instead of the current requirement that they do so when the proposed rule is released for public comment in period T3. Again, the argument is that if benefit-cost analysis is to play a role in informing the regulatory decision-making process, it should be made public during T2, not simply after the agency has decided on its preferred strategy during T3.

Yet, although we may mandate that an agency divulge benefit-cost results at T2, how can we know whether it is following the requirement? While claiming that it is still assessing regulatory alternatives, internally, a regulator may have already identified its preference for one option, independent of the implications for economic efficiency. This preference might not even be driven by subversive external influence on the regulatory process. Rather, an agency might prefer certain regulatory approaches simply because its mission has caused the organization to view the world in particular ways (Wilson 1989). It would not even need to be true that agency employees were aware of any bias toward specific policy responses.

Regardless of the reason, because the stages we have identified are fluid, it is difficult to detect whether or not the agency has internally reached stage T3. The issue is complicated by the fact that the regulator has an incentive to withhold the truth in order to avoid violating the requirement that it release its analyses during T2. If the agency has already identified its preferred regulatory alternative prior to disclosing the initial RIA, it can easily replicate the same analyses when it issues the NPRM. As support for this possibility, one has to look no further than a survey of RIAs associated with NPRMs and final rules produced within the context of the current process for promulgating rules. Although, in theory, the two sets of analyses should

deviate especially under the weight of extensive public comments, very often the two documents are identical to each other.

Still, as described in the previous section, our recommendation does not simply consider the timing of agency disclosure. Our proposal also requires that the agency consider a broader set of alternatives, including those that differ on the margin from the agency's preference. It may be that this aspect of our recommendation—that agencies consider more alternatives—will burden agencies sufficiently that they cannot put forth analyses that simply justify preordained choices. When that preference is not the option that maximizes net benefits under a reasonable set of assumptions, a dense and effectively impenetrable analysis becomes one mechanism that allows such policy alternatives to survive (Wagner 2009). In such cases, opacity becomes the regulator's ally in that it hides the controversial assumptions. In much the same way that firms may use their superior resources to unduly impact the regulatory process, regulators may face incentives to use their privileged access to data and research to burden a potential critic in similar ways, thereby obfuscating the ability of that evaluator to question the regulator's choice. This is exactly what has occurred with the EIS requirement (Karkkainen 2002).

If an agency now has to consider more alternatives, unless it releases similarly dense studies for all options, the benefit-cost analyses will serve as an obvious signal regarding which option the agency favors. An agency cannot easily present a detailed and opaque analysis for one option while presenting the required BOTE studies for the other possibilities. However, the additional cost and time associated with producing similarly incomprehensible analyses for all options can potentially stretch a regulatory agency such that it is forced to release more transparent rough cut analyses in an effort to promulgate a rule within a reasonable period of time. Specifically, the agency will choose to generate the required transparent analyses when the

private benefit derived by the agency from its preferred option relative to the socially optimal regulatory strategy is exceeded by the additional cost of producing opaque analyses for all options.

In this case, a regulator is no longer able to justify its preference by making it difficult for an evaluator to unearth the important assumptions that drive the results. Since transparent analyses reduce the costs that the public must bear to participate in the process, agencies know that any bias will be revealed. As a result, rule writers will produce analyses with reasonable assumptions. The mandate for more options thus significantly reduces the ability of agencies to unilaterally implement their preferences using a "manipulated" study to justify the choice. Regardless of whether its preference is to avoid disclosure, the requirement that the agency provide more regulatory alternatives essentially prompts the release of the benefit-cost analyses at time T2 instead of T3. In effect, the new procedures corresponding to the timing and breadth of options studied act to reinforce each other in bringing about the desired change.

Importantly, this outcome rests on the assumption that agencies cannot put together dense analyses on all options. Success of the reforms relies on the conclusion that the costs of additional analysis exceed the benefits to the agency of implementing its private preference rather than the socially optimal policy. Instead, what if significant economies of scale exist in generating dense analyses? If it is simply a case of copying and pasting, additional opaque studies (with minor changes for alternative policy options) might be produced at little extra cost. In fact, our recommendation—which would mandate that agencies include analyses for those options that are marginally different than the agency's preferred choice—might actually make the regulator's efforts to duplicate, for the alternatives, the detail connected its benefit-cost

analysis for the preferred option easier. The assumptions that present the regulator's choice in the most favorable light will be, by definition, those that make the other options look worse.

In this case, the requirement that agencies put forth more options will not aid the goal of positioning analysis to play a more constructive role in the rulemaking process. In fact, our reform may actually make it more difficult to penetrate the justifying assumptions because now the public is faced with several opaque benefit-cost analyses. Instead of reinforcing each other, our recommendation for more alternatives undermines our desire to encourage disclosure earlier in the process by making it easier for the agency to publicly assert they are in stage T2 when in fact they have reached stage T3 in the rulemaking process. In this case, the requirement that agencies present more options has made it easier for them to divulge information only after they have made up their minds on the preferred course of action.

Altering Agency Incentives to Encourage BOTE Analysis

The end result is that when the cost of producing detailed analyses of additional options is large, the simple three-part recommendation for encouraging more useful benefit-cost analysis will work well. However, mandating a simpler analysis of more options earlier in the rulemaking process will not produce the desired results in all cases. Specifically, when preparing additional benefit-cost analyses that are technically dense and potentially misleading is not costly, an agency—intent on implementing its own preference—will use the requirements to its advantage. Multiplying the size of the benefit-cost analysis supporting its recommendation, the regulator can more easily hide controversial assumptions which undermine the ability of that analysis to act as an aid to decision-making in the public interest.

To solve this problem, one must provide incentives to the agency to disclose a simple and impartial set of analyses, even when that regulator has reason and the wherewithal to avoid being

transparent. To provide those incentives, it is tempting to simply rely on a mandate. In fact, for government procedures, this is the most common remedy. Regulators are already showered with procedural and analytical requirements, some which directly flow from the APA, but others find their origins in various laws including the Paperwork Reduction Act, Unfunded Mandates Reform Act, Regulatory Flexibility Act, and Plain Writing Act, as well as numerous executive orders (Arbuckle 2012). Yet, as we described in the last section, mandates are likely to fail to achieve their purpose when regulators have the desire and opportunity, as is the case with low cost production of complex benefit-cost analyses, to avoid the requirements in the mandate.

Perhaps one step removed—although similar in spirit to simply mandating that the agency follow the new procedures—is to utilize benchmarks that can provide evidence that the regulator is adhering to the requirements. One possibility might be to insist that agencies explicitly disclose their assumptions and a summary of their methodology in a separate section of the document. Alternatively, one could require that the BOTE analysis not exceed a certain number of pages.

Although each of these attempts to curb the agency's efforts to undermine the spirit of our proposed requirement if the cost of doing so is low, they are blunt ways to try to do so. In fact, they are not unlike the traditional "command-and-control" approaches that regulators themselves utilize to control firm behavior. Similar to means-based regulation—in which the regulatory agency decides what technology firms are to use to mitigate production of the unwanted side-effect—mandating that agencies lay out their assumptions or describe their analysis in a certain way announces what "technology" is needed to make the documents transparent. Analogous to performance-based regulation—where the regulator stipulates for the firm the required end state such as a certain quantity of pollution emitted—a limit on the number

of pages that the rough cut analysis can include imposes a similar mechanism for policing the agency.

One of the important challenges connected to enforcing both means-based and performance-based regulations is that they require regulators to have or be able to gather substantial amounts of information about the regulated entities in order to set the standard correctly (Carrigan and Coglianese 2011). Technology standards compel the regulator to gather detailed data about firm operations to determine how best to satisfy the regulatory objective. Although somewhat less burdensome, performance standards similarly require that the agency know enough to both set a meaningful standard that will achieve the regulatory objective and have sufficient means to be able to monitor whether it is achieved by the regulated firms.

Not surprisingly, the informational burdens and challenges are very similar for those approaches that would promote meaningful benefit-cost analysis through mechanisms that look like "command-and-control" approaches to regulation. One must know a substantial amount about the agency's operations to be confident that the elements included in the mandate—in our example, up front disclosure of the assumptions and methodology for the analysis—are the levers that the agency would otherwise use to manipulate its analysis. Similarly, the party setting up the controls on the agency must be able to determine how many pages are sufficient to declare an analysis impenetrable. Although likely correlated, it is not the case that all dense analyses are voluminous, and all voluminous analyses are dense.

More importantly, if they are required to limit their analysis to a certain number of pages or explicitly disclose their methodology and assumptions, agencies—whose preferences support particular regulatory approaches that may not survive transparent analysis of a legitimate set of options—will have incentives to look for other levers to manipulate the outcome in their favor.

Much like the aforementioned game played between regulators and agencies who try to control their behavior through "command-and-control methods, these types of solutions perpetuate a cat-and-mouse game, where the agency is loosening the bonds on its ability to implement its preference at the same time those concerned about agency discretion are implementing fixes to counteract these acts by the regulator. Insisting that agencies explicitly disclose their assumptions, describe the methodology used, or adhere to page limits is likely to do little to counteract motivated agencies from relegating analysis to window dressing.

As a result, rather than rely on mandates, we recommend considering two levers for manipulating the incentives of agencies that may be inclined to produce impenetrable analysis. The first involves raising the cost to the regulator of concealing information through opaque analysis, and the second focuses on lowering the cost of or providing a benefit to the agency for producing the intended BOTE analysis. If the agency would otherwise produce multiple, detailed benefit-cost studies in an effort to conceal their preference, implementing mechanisms that make that approach more expensive can encourage the agency to make a different decision. Alternatively, to reach the same outcome, one can make it more attractive to the agency to adhere to the requirement for a more transparent appraisal of a variety of realistic regulatory options by lowering the cost of doing so.

Addressing the issue using this framework may seem obvious to many, and we would not argue differently. In fact, the approach amounts to nothing more than using "carrots" and "sticks" by offering rewards to those who comply while, at the same time, punishing those that do not. Even so, we note that, in some cases, procedural mandates can do exactly the opposite. That is they can perversely impose costs on agencies for following the rules while simultaneously making them less difficult to circumvent.

In fact, this is precisely the case with the "command-and-control" approaches that we outlined that attempt to force agencies to present usable benefit-cost studies. Mandating that agencies add another section to their analyses to describe their assumptions and methodology raises the cost to the agency of doing what was intended by the regulatory procedure. On the other hand, using page limits with the goal of limiting opaque analyses might have the unintended effect of making it less costly to produce them, simply because it provides a roadmap for how to avoid detection. While true rough cut analysis is unlikely to be affected, regulators intent on subverting the requirement for BOTE analysis are alerted to exactly how compliance will be assessed.

A wide range of possibilities exist to raise the cost to agencies of continuing to produce opaque analyses that oppose the essence of the BOTE requirement. Moreover, a similarly diverse set of options are available to lower the cost to encourage truly informative benefit-cost analyses. While our intention is not to provide an exhaustive list, we offer three strategies to provide a flavor for the types of measures that might effectively induce agencies to comply. Perhaps not surprisingly, in many cases, options that raise the cost of engaging in the subversive activity can be adapted to alternatively reduce costs of producing good BOTE analysis.

One alternative would be to subject agencies who continue to produce opaque analyses to more stringent review when they submit their proposed or final rule to OIRA. Based on evidence that the regulator did not present transparent analysis or included insufficient or unreasonable alternatives, simply subjecting the RIA to a more critical assessment would raise the cost of attempting to sidestep the requirement for rough cut analysis.

Rather than subjecting those who evade implementing true BOTE benefit-cost analysis to more stringent OIRA evaluation, one could just as easily lower the standards of review for those

that do comply. At the extreme, agencies that generate transparent studies of a variety of viable options might be completely exempt from having to prepare detailed RIAs to accompany their NPRMs or final rules. Although this may seem rather extreme, as we have described, RIAs are currently used more as advocacy documents than as useful tools for review. If the goal is to select the best regulatory alternative, eliminating the analyses that accompany proposed and final rules is likely to do little to undermine that objective.

Moreover, current benefit-cost analyses prepared as part of RIAs infrequently reveal that net benefits are close to zero. In their study of the RIAs accompanying 109 rules, John Morrall and Stuart Shapiro found that less than 15% were expected to generate between $0 and $100 million (Shapiro and Morrall 2012). In contrast, 27% anticipated net benefits *exceeding* $1 billion. For those predicted to produce net benefits close to zero, Morrall and Shapiro report that they tended to be accompanied by less complete analyses, typically omitting more critical factors. They argue that this provides further evidence for the politicization of RIAs.

These results suggest that rough-cut analysis may be enough to determine if a particular regulatory approach is likely to yield net benefits. Since many analyses report very high net benefits, even a BOTE analysis will show that the regulation has net benefits. For this majority of regulations, the primary value of BOTE analysis will be in the comparison between policy options. And for the small number of regulations that have net benefits near zero, BOTE analysis should help in deciding whether regulatory policy is a good idea from an economic perspective.

Instead of (or in addition to) exempting those agencies that perform true rough cut analysis from having to prepare RIAs later, one could alter regulators' incentives by modifying the length of either OIRA review or the notice-and-comment period for those that comply. The

current requirement in Executive Order 12866 stipulates that OIRA should complete its review within 90 days. Shortening this period to 60 or even 45 days may entice agencies, especially those pressured by statutory deadlines, to produce good-faith BOTE analysis. Alternatively, reducing the notice-and-comment period from the current 60 days as specified in Executive Order 13563 to 45 or 30 days for those rules whose agencies have performed approved BOTE analysis may have similar effects.

One may argue that shortening either executive or public review of rulemaking may be a step in the wrong direction, in that it would permit less time to ferret out agencies intent on disguising their preferences through their RIAs. However, the expedited timeframe for review would only apply to those proposed rules which have true rough cut benefit-cost analysis attached to them. By definition, these would be more transparent and so would take less time to critically analyze. Moreover, given their transparency, more meaningful public comment and executive review would occur at the earlier BOTE phase, lessening the need at the NPRM and final stage for critical review. Especially if coupled with the previously described "carrot" exempting those agencies from producing detailed RIAs as part of the NPRM or accompanying the final rule, the demands on any reviewer would almost certainly be reduced. Not only would the intellectual capacity needed to comprehend the benefit-cost analysis be reduced, but also the time required to actually conduct the review would decrease as well.

A third alternative might be to submit agency regulations that do not comply with the spirit of the BOTE requirement to a more stringent standard of judicial review. Under the APA, agency rulemaking is subject to review by the courts, which can set aside rules that are "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law" or "without observance of procedure required by law" (see 5 USC § 706). Although RIAs are

typically considered to be exempt from judicial review, this exemption would not carry over to rough cut analysis conducted earlier in the rulemaking process. For those that produce opaque studies not consistent with the requirement to perform BOTE analysis, the agency might be subject to stricter review by the courts simply because they did not follow the mandated procedure. Opening up such rulemaking to more critical review by the courts would certainly impose costs on an agency that would like to use incomprehensible analysis to hide their preferences.

Nevertheless, in our view, this option is somewhat less compelling because it may require the simultaneous exemption of compliant rough cut analysis from judicial review. Exposing poor BOTE analysis to more stringent review by the courts may have the unintended consequence of subjecting even good analysis to greater exposure based on the "arbitrary" and "capricious" standard. In fact, some have suggested that in order to convince an agency to perform and disclose the type of analysis we propose, that analysis must be exempted from judicial review explicitly (Wagner 2009). Such a recommendation is consistent with our efforts to lower the cost to agencies of engaging in BOTE analysis. However, since excusing good BOTE analysis from judicial review is close to a necessary condition to be able to subject dense benefit-cost analysis to more stringent review, we find this option less appealing.

Although the possibilities we have outlined to either raise the cost of agency evasion or lower the cost of transparent analysis would likely convince some potential violators to produce genuine simplified benefit-cost analyses, each requires some entity to judge whether that analysis meets the criteria. Stated differently, implementing the procedure requires naming a review body to actually study the analyses. In addition to the burden this may place on an existing organization saddled with the responsibility, having any entity make a judgment regarding the

quality of a rough cut analysis opens the process up to the potential for arbitrary and politically motivated decisions.

We acknowledge this limitation and would prefer a mechanism to encourage BOTE analysis that required no outside evaluator. However, much like the “command-and-control” approaches outlined earlier, instruments that would fulfill this condition must be accompanied by an appropriate measure of what constitutes a good BOTE analysis. For example, one might consider implementing the equivalent of a market-based regulatory instrument used to regulate firm behavior such as a tax or subsidy. However, setting aside the issue of whether it would be practically feasible, to institute a tax to encourage agencies to provide transparent analysis, one must determine to what output measure the tax will be attached. The most obvious choice would be the number of pages associated with the analysis. However, once that metric is chosen, the same limitations of the “command-and-control” approaches now apply. Not only might this not be the right measure of good BOTE analysis, but even if it is an appropriate metric, the requirement is likely to simply encourage agencies to use other methods such as manipulating the assumptions and methodological approach to conceal their preferences. Only by assigning an organization to evaluate agencies’ rough cut benefit-cost studies can the difficult question of what characterizes good transparent analysis be addressed adequately.

Fortunately, identifying an appropriate evaluator is fairly straightforward. As the agency assigned to review RIAs connected to NPRMs and final rules, OIRA is certainly equipped with the analytical capabilities to evaluate BOTE analysis. The agency has pushed for more interaction with regulators earlier in the rulemaking process and so would likely welcome a role in evaluating analysis when the regulatory agency has not defined its course of action. If the assignment were coupled with less critical review of RIAs at later stages as proposed, the

additional responsibility of evaluating BOTE analysis would unlikely require additional resources either.[6] We do note, however, that involvement of OIRA does raise the potential of politicization of the BOTE analysis.

While ultimately an empirical question, it is reasonable to assume that evaluating rough cut analysis would reduce OIRA's analytical burden relative to deciphering RIAs built to conceal information. By substituting BOTE for in-depth benefit-cost analysis, we anticipate that, despite having to consider more alternatives, the new process would reduce the time and cost of review. Moreover, we would recommend making adjustments to the definition of what constitutes "BOTE" based on an assessment of the relative costs of reviewing such analyses after implementing the new procedure.

Finally, in addition to reducing the demands of review, our proposal would enable OIRA to focus its attention specifically on the rules most likely to reduce social welfare. As described, by subjecting those agencies who fail to produce transparent BOTE analysis to more stringent review later in the process, the costs to those who might otherwise hide their preferences through impenetrable analysis are raised. Even so, to the extent that some regulators still do not adhere to the requirement, OIRA would receive a useful signal that the agency's analysis is more likely to be misleading. Coupling the requirement to produce BOTE analysis with a standard of review that is either ratcheted up for opaque analysis or ratcheted down for transparent analysis would thus provide the added benefit of pointing OIRA to the exact rules where it is likely to make the biggest positive impact as regulatory gatekeeper.

[6] Although we would not necessarily object to locating BOTE review elsewhere in the federal government, absent legislation creating such an entity, OIRA would seem the most logical placement. Still, several bills have been proposed during the 113th Congress which would create a new agency in Congress to review proposed rules. The new entity would serve the same function for Congress that OIRA does for the executive.

Conclusion

This paper began with the observation that RIAs, in practice, do not serve the purpose for which they were originally intended. Instead of informing the selection of the appropriate regulatory alternative, RIAs and the benefit-cost analyses attached to them have come to be used by agencies as advocacy documents, serving primarily to support the regulator's preferred option after that course of action has been decided upon. To encourage analysis to play a role in policy formulation, we have proposed a three-part reform to the existing procedures by which the agency promulgates a rule. Our call for back-of-the-envelope (BOTE) analysis is based on the premises that the analysis should: 1) be rough cut, avoiding the complex quantification that has made RIAs inaccessible to even well-informed commenters; 2) be completed and made available prior to the NPRM; and 3) contain several viable possibilities, not simply the agency preference plus one or two unrealistic alternatives as is typically true of RIAs.

Because current RIAs are often used primarily to support the regulator's inherent preference, their complexity becomes the agency's ally, providing a vehicle to hide key assumptions and controversial methodological decisions. Recognizing that simply mandating a new procedure does not ensure that agencies will comply, we have demonstrated that the extent to which our BOTE requirement raises the cost of utilizing analysis to promote a particular approach largely defines whether the procedure will produce the intended results. If it is prohibitively expensive for an agency to prepare several complex analyses along the lines of what they currently do for one alternative, the elements of our reform will serve to reinforce each other. The mandate to analyze several possibilities will force agencies to prepare transparent studies while simultaneously encouraging broader participation, enabling analysis to become more central to rule formulation. On the other hand, if an agency can easily replicate the

impenetrable analysis supporting their preferred regulatory approach for the alternatives, not only will our approach fail to produce analysis which can inform policy formulation, it may achieve exactly the opposite result, making it easier for an agency to conceal its objectives through the analysis.

This latter possibility may not accurately reflect reality for most, or even an important subset of agencies and rules. However, given the possibility that it does, we focus attention on mechanisms to reduce regulators' incentives to simply replicate complex analyses for more alternatives. Demonstrating that the application of "command-and-control" approaches to regulation in this context will likely be undermined by ill-intentioned agencies, we focus on mechanisms that either lower the cost of performing good BOTE analysis or raise the cost of implementing impenetrable analyses as a way of subverting reform.

Altering the stringency of OIRA review, or manipulating either the timeframe for OIRA to analyze the rule or the length of the notice-and-comment period provide promising levers to influence agencies' costs. If the BOTE analysis is prepared according to the principles outlined in our reform, the agency would be subjected to less stringent or completely exempted from OIRA review of the NPRM or final rule at little cost since RIAs are largely ineffectual anyway. Alternatively, an agency that subverts the BOTE requirement could be exposed to more searching OIRA review of its RIA. Instead of manipulating the stringency of review, shortening the notice-and-comment period or the length of OIRA review for complying agencies would provide the same incentives for regulators to comply with our reform, even if they could replicate impenetrable benefit-cost analyses for the range of alternatives relatively easily.

Recognizing that any of these possibilities requires an oversight mechanism to ascertain whether the agency's analysis meets the spirit of the BOTE requirements, we argue that OIRA—

at least in the current institutional context—presents the most logical choice. Not only is the agency capable and likely willing, adding this function to OIRA's overall responsibilities is unlikely to increase their overall burden if review times at later stages are reduced or eliminated. Importantly, it would also encourage OIRA to focus its critical attention on exactly those rules where alternative policies to those preferred by the agency may increase social net benefits.

In the wake of a series of disasters in heavily regulated industries including the Gulf oil spill and the financial crisis coupled with a lethargic economic recovery that has made little headway in reducing high levels of U.S. unemployment, it may not be surprising that the regulatory enterprise is under the microscope. A series of proposals being debated in the 113th Congress would make important changes to the process by which rules get finalized as well as when they can and cannot be promulgated. President Obama's Executive Order 13563 is consistent with a number of these proposals, stipulating that the regulatory system, among other things, must "allow for public participation and an open exchange of ideas," "identify and use the best, most innovative, and least burdensome tools for achieving regulatory ends," and "ensure that regulations are accessible, consistent, written in plain language, and easy to understand." Our call for back-of-the-envelope analysis performed on a wider set of alternatives conducted earlier in the rulemaking process would present a significant step forward in realizing these objectives.

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