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

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Abstract

Benefit-cost analysis has been criticized by observers across the ideological spectrum for as long as it has been part of the rulemaking process. Still, proponents and detractors agree that analysis has morphed into a mechanism often used by agencies to justify regulatory decisions already made. We argue that a simpler analysis of more alternatives conducted earlier in the process can resuscitate it as a tool to inform policy. Our reform is based on the principles that benefit-cost analyses should: 1) be completed well before the proposed rule; 2) eschew the complex quantification that has made them largely inaccessible; and 3) consider realistic policy alternatives beyond simply the agency preference. Recognizing that requiring a procedure does not ensure regulators will follow it, we offer possible remedies, including intensifying or relaxing subsequent review of proposed rules, which raise the cost of circumventing the reform or lower the cost of following it.

Keywords

benefit-cost analysis, impact analysis, OIRA, regulatory procedure, rulemaking process

If you can't explain it simply, you don't understand it well enough. – Albert Einstein

Benefit-cost analysis has been integral to the regulatory process for more than three decades. Over this period, it has been subjected to criticism from 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 frequently 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 call for "deeper and wider cost-benefit analysis" (Hahn & Sunstein 2001, p. 1489). As U.S. 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 it is to hold an important place in the regulatory process, 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 assert that benefit-cost analysis has evolved into a 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 both). And in either case they are habitually 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 an important role in regulatory decisions. Such an analysis would have to be completed well before a proposed rule is issued and be subject to public comment. It would have to meaningfully assess alternative policy options. However, to ensure that it does not cripple the regulatory process, the analysis could eschew the detailed monetization and complex quantification that bedevils most current benefit-cost 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 complex analysis is not difficult for the regulator to produce, agencies could assess more alternatives without simplifying the benefit-cost analyses connected to them. They might appear to be placing the analysis before the decision when, in reality, their

decision is simply hidden in additional reams of analysis. Thus, in addition to proposing widespread use of BOTE analysis, we also present a variety of mechanisms to incentivize agencies to comply with the spirit in which it is proposed.

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

Criticisms of Benefit-Cost Analysis in the Regulatory Process

The requirement that agencies conduct a benefit-cost analysis as part of a broader Regulatory Impact Analysis (RIA) for a subset of regulations has been in place for more than thirty years. It has its origins in President Ronald Reagan's Executive Order 12291 from 1981,[1] has since been reaffirmed by both Democratic and Republican presidents, and is currently institutionalized in Executive Orders 12866 and 13563 issued by Presidents Bill Clinton and Barack Obama respectively. With this demonstration of bipartisan support, one might think 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 that 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 scholars have put forth a variety of arguments criticizing RIAs. Most prominent has been the view that RIAs are hopelessly biased against regulation (McGarity 1987; Heinzerling 1997; Ackerman & Heinzerling 2004). These critics argue that, 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 critique is that benefit-cost analysis is ethically questionable. Steve Kelman's (1981) widely-cited appraisal of benefit-cost analysis specifically challenged its monetization of environmental goods and public health. Kelman argued that benefit-cost analysis inevitably supports some policy choices that are not moral including persecuting the innocent and stifling dissent. He also argued that monetization of policy impacts is often impossible and devalues what is being monetized.

The argument has also been made that analysis, along with more piercing review of regulations by the judiciary and other procedural requirements connected to rulemaking, have made it so

hard for agencies to regulate that they are dissuaded from doing so. This notion of the "ossification" of rulemaking was popularized by Thomas McGarity (1992) and can find its way into critiques of new proposals to strengthen RIAs.

Still, it is not just those who oppose the very idea of 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 and various coauthors have produced multiple studies that denounce the quality of RIAs and describe the basic elements that are missing in the associated benefit-cost analyses. These overlooked components include consideration of alternative policy choices, treatment of uncertainty, and the discounting of future costs and benefits (Hahn & Sunstein 2001; Hahn & Litan 2005; Hahn & Tetlock 2008). Similar critiques can also be found in more recent studies (Ellig & McLaughlin 2012; Ellig *et al.* 2012).

Interestingly, detractors and supporters of benefit-cost analysis seem to agree on one criticism of the RIA process. Because analysis is often produced only after a policy decision is made, the RIA serves more to justify the regulatory decision than to inform it. Wendy Wagner notes, "That the RIA offers nothing to policy analysis is, in fact, precisely the point; in other words, the point is to protect the rulemaking, not to open it up to attack" (2009, p. 78).[2] Supporting this view, Stuart Shapiro and John Morrall (2012) used a dataset of more than 100 regulations to examine the relationship between RIAs and their political context. They found that the results of the associated benefit-cost analyses correlated with factors such as the salience of the rule, supporting the argument that RIAs, while justified with technocratic language, largely function as political documents.

RIAs are also criticized for their complexity. If they are produced after the regulatory approach is decided, agencies have little incentive to work to make them comprehensible. Alternatively, they may even have reason to conceal any uncertainty about the net benefits of their preferred policy alternative. They can accomplish this objective by ignoring marginal alternatives to their preferred policy or by making the analysis sufficiently complex that it is difficult for an outsider to understand the calculation of net benefits. Both of these approaches are common in RIAs. Shapiro and Morrall (2012) note that in 60% of RIAs, agencies fail to monetize the costs and benefits of alternative policy options.

Potentially more troubling is the fact that RIAs appear to be becoming more complex. To demonstrate, we collected data on the length of individual RIAs since 2000. Table 1 shows that these documents have been growing longer over an extended period. Relative to 2000, RIAs prepared during the period from 2009 through 2012 were over four times longer on average.

While length does not always perfectly correlate with complexity (a point we make below), it can be a reasonable proxy for it. And the trend toward more complicated and intricate RIAs is clear. The problems of complexity have been described by other scholars in related contexts including law and policy (Sunstein 2013) and judicial opinions (Posner 2013). For these scholars, simplicity is seen as a way toward greater transparency and compliance.

Table 1 – Average Length of Published Regulatory Impact Analyses, 2000 – 2012

Years	Average Number of Words
2000	31,072
2001-04	68,746
2005-08	111,646
2009-12	128,289

All RIAs with monetized costs and benefits that were available on Regulations.gov were used to compute average RIA length for each time period.

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. Indeed, studies of the notice-and-comment process also point to this problem. The Administrative Procedure Act (APA) of 1946 requires agencies to publish a proposed rule, solicit public comments on that rule, and then consider those comments when finalizing the rule. The hope behind notice-and-comment rulemaking was that it would imbue the public comment process with a sense of democratic accountability (Davis 1969).

But evaluations of the process have found that agencies consider public comments only in limited circumstances and rarely make significant changes to their proposals (Golden 1998; 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 reinforced by West and Raso (2012) who emphasize the importance of the agenda setting portion of the rulemaking process.

Like notice and comment, the RIA requirement was put in place with the hope of improving bureaucratic decision-making. While the goal is somewhat different—economic efficiency for RIAs as opposed to democratic input for notice and comment—both have had less of an impact on rulemaking than anticipated. These limited roles have been mainly 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

Given these limitations, over the past decade some of those critical of RIAs, including both proponents of benefit-cost analysis as well as detractors, have proposed changes to how they are generated and utilized. Some of these proposals have found their way into proposed legislation. In separate research, Revesz and Livermore (2008) and Harrington *et al.* (2009) made a series of recommendations designed to correct the perceived anti-regulatory bias in RIAs. They proposed including a simplified listing of benefits and costs in a non-monetized manner; broader and more transparent consideration of alternative policy options; greater accounting for ancillary benefits; decreased use of intergenerational discounting; and analyses of deregulatory options with the same rigor as regulatory ones. Some of these changes, particularly those incorporating greater consideration of alternative policy options, would likely strengthen RIAs. But none of these suggested reforms addresses 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 encourage RIAs to play a more important 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 & Tetlock 2008). This inevitably ensures that the benefit-cost analysis makes the agency's preferred policy look like the superior choice. Consideration of alternatives is already a requirement under Executive Order 12866. Unfortunately, this mandate has not 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 & Sunstein 2001). A number of 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 their policy selection process.

At least two 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 (EISs), required under the National Environmental Protection Act, is also discouraging. According to many scholars, EISs are excessively detailed, and this detail conveys the false impression of precision while limiting the ability of outsiders to evaluate the accuracy of the analysis (Culhane 1990; Karkkainen 2002).

Still, courts have been reluctant to overturn decisions based on these EISs. Rather, scholars hypothesize that the mass of the analysis signals to the court that the agency has comprehensively assessed the environmental impacts. Similarly, 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 can subvert analytical goals for their own mission-driven policy preferences (Wilson 1989), and OIRA can make them a secondary priority to the president's political preferences (Shapiro 2005). These critics argue that moving economic analysis out of the executive branch is the solution to these problems (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 an outside party, whether it be Congress or an independent body, analyze pre-decisional policies is either practical (e.g., would an outside party have the information needed to conduct an RIA?) or constitutional. Introducing new participants with different preferences to produce or review analyses also does not by itself eliminate biases.

Back-of-the-Envelope Analysis as the Solution

The capacity to use RIAs as they were originally intended is thus plagued by a fundamental problem: the analyses are normally completed after a policy decision has been made. The RIA is then utilized more to justify a decision that the regulatory agency has already reached rather than as an input to the policy decision. It tends to examine alternative policy choices only superficially, if at all. In particular, "marginal" alternatives – or alternatives that vary only a small amount from the chosen policy option – are rarely examined. Examination of these marginal alternatives would shed significant light on the policy choice, but, since analysis can come after the decision, one can argue that agencies would prefer to obscure the decision rather than clarify it. Concurrently, as described, RIAs have become denser, making it harder for the public to understand how their conclusions are reached.[4]

The reforms discussed in the previous section do little to correct these problems. Possibly the most promising of these potential reforms, judicial review of RIAs, is likely to lead to analyses that are even more difficult for interested parties to understand and comment upon. In addition to fueling concerns that RIAs are already unrealistically precise—a recent Occupational Safety and Health Administration (OSHA) RIA estimated the costs of compliance with its Hazard Communication standard to be $2,102,747,140 (2012)—judicial review is unlikely to lead to the overturning of the associated regulations.[5]

So how can we encourage economic analysis to play its anticipated but yet unrealized role as an aid to regulatory decision-making? Any successful reform will have the following effects:

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

Wendy Wagner 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" (2009, p. 72). President Obama, in his 2011 Executive Order 13563, noted similar goals, indicating, "Before issuing a notice of proposed rulemaking, each agency, where feasible and appropriate, shall seek the views of those who are likely to be affected, including those who are likely to benefit from and those who are potentially subject to such rulemaking."

To accomplish these objectives, we propose that, for regulations that are likely to have an economic impact above a certain threshold,[6] agencies be required to conduct a BOTE or rough cut analysis well before they issue a proposed rule. The following three principles would guide the preparation of that analysis.

Embrace Simplicity: Agencies would be required to produce an analysis that does not attempt to scrutinize all possible impacts 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. Famous physicist Enrico Fermi asserted that complex scientific equations could be approximated within an order of magnitude using simple calculations. If this is true for even complex scientific equations, then surely it must also hold for economic analysis.[7]

Complete Prior to Selecting a Policy Option: The analysis would need to be prepared much earlier than the current RIA requirement so that it would be made public well before the publication of a proposed rule. As noted, agencies regularly settle on a policy by the time they issue a proposed rule. To be useful, a BOTE analysis should be published with enough time for agencies to receive and digest public comments on the alternative policies prior to the publication of a notice of proposed rulemaking (NPRM).

Consider Meaningful Alternatives: While the analysis would be simpler than that contained in an RIA, it would need to be conducted for multiple policy options. Ideally, the agency would not indicate its preferred policy option in a BOTE analysis, and all alternatives would be given

roughly equivalent consideration.[8] A minimum number of alternatives could be specified, but most importantly, a subset of these alternatives would differ from each other in small ways so that tradeoffs in more stringent and more lenient policies could be seen (e.g., how costs and benefits are affected by a slightly more and a slightly less restrictive standard).

If implemented incorporating the aforementioned three principles, BOTE analysis would deliver numerous benefits. Given its simplicity, such analysis could be used to more easily identify both which assumptions are driving the estimation of net benefits as well as what the possible best and worst case effects of the rule are. A National Academy of Sciences report emphasized the importance of integrating analysis and deliberation, suggesting, "Analysis can help by giving a preliminary indication of the magnitude of particular outcomes" (Stern & Feinberg 1995, p. 125). Similarly, where full-blown quantification may not be feasible for certain benefits and costs, BOTE analysis may still be possible. As a result, it has the potential to complement qualitative assessments of the potential effects of a particular policy.

Importantly, BOTE analysis would move consideration of the tradeoffs among alternatives to an earlier stage in the agency decision-making process. To the extent that some agencies do rough cut analysis behind closed doors before deciding on a regulatory approach, the requirement would simply make those initial analyses more widely available. Weimer and Vining (2011) cite a good example in which EPA economists demonstrated that the benefits of removing lead from gasoline were far greater than the costs. In this case, the problem becomes one of incentivizing the disclosure of these analyses rather than their production.

The result is that BOTE analysis would force agencies to obtain public input on realistic policy alternatives. In discussing stakeholder rulemaking in the organ transplantation arena, David Weimer (2010) cites the benefits of providing information to stakeholders early in the process as a means of improving decision-making. 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 lead to better policy choices.

Still, the specific design of the BOTE requirement needs to be carefully considered. We acknowledge that simplification may be easier for some RIAs than others and for some parts of RIAs than other parts. However, since a key to BOTE analysis is a focus on comparisons between marginal policy alternatives, we believe that a helpful degree of simplification is possible in all analyses. The analysis will need to merely illustrate the tradeoffs between policy options. As such, understanding the relative benefits and costs of each alternative is more

important than understanding their precise values. With this in mind, considerable simplification relative to the current RIA requirement is surely feasible.

The early timing of the BOTE analysis is also crucial. Although it is comparable to what an agency sometimes does in issuing an Advanced Notice of Proposed Rulemaking (ANPRM), the latter often considers broad questions about the direction of a possible regulation and rarely outlines specific requirements. Also, ANPRMs are produced voluntarily by agencies unlike our proposal for BOTE analysis, a fact which suggests that an agency that issues an ANPRM is likely differently motivated than most regulators producing BOTE analyses. More typically, agencies have shown a willingness to move their decision points earlier in the regulatory process in response to procedural requirements intended to influence their thinking (West & Raso 2012). The BOTE requirement would need to be structured in such a way as to dissuade agencies from doing so, a topic which we turn to in the next section.

We note that the Small Business Regulatory Enforcement Fairness Act (SBREFA) does something similar to what we are proposing in a much more limited context. SBREFA requires three agencies (EPA, OSHA, and the Consumer Financial Protection Bureau) to produce an analysis for small businesses before issuing an NPRM. Still, SBREFA only applies to these three agencies and to rules that will have significant impacts on small businesses. The required analysis, not surprisingly, also only focuses on the impacts on those businesses (see Section 244). Although little formal evidence exists on the success of SBREFA, Congressional testimony by Keith Holman (2012) argues that, at least in some circumstances, it has led to improved decision-making.

A final consideration for the design of the BOTE requirement is the burden that it would place on agencies. We feel that such analysis can be used to reduce the amount of time that regulatory agencies spend promulgating significant regulations. The two concerns—that agencies might shift decisions earlier and that the requirement may lengthen the regulatory process—may even have a mutual solution. Below we discuss the possibility of implementing BOTE analysis via agency incentives that would reduce the time spent on other parts of the regulatory process.

When BOTE Analysis Can Make a Difference

While the steps proposed to encourage 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 objectives. Executive Orders 12291 and 12866 were explicit that the directive to conduct benefit-cost analysis would apply to proposed rules. As a result, it may seem 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 noted, the procedural and analytical requirements have instead resulted in the RIA more often being utilized as a mechanism to support the regulator's preferred course of action, and so little effort is made to ensure it is digestible for even informed commentators. Regulators' inscrutable studies may also be the outcome of agency processes which incorporate input from a variety of internal contributors with diverse and sometimes conflicting perspectives. In either case, why should we think that adding an additional layer of procedure would encourage analysis to now function as it was intended? Whether agencies aim to use the current system to justify their preferences or are constrained by their processes, the result is the same. The analysis is not being used to inform decision-making currently.

In many respects, these issues are ubiquitous in the sense that regulators can 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, quite rationally, find ways to use those requirements to their benefit. Agencies can be just as capable as private entities of affecting 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. 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."

Although it is sensible to be skeptical of the ability of the BOTE requirement to invigorate analysis, such concerns rest on at least one important assumption: that it is not burdensome for agencies to sidestep them. An agency may choose to avoid requirements because it has a preference for a particular regulatory option that, if it were compared to other reasonable alternatives, would not be as attractive. Alternatively, it may be because the agency does not want to invest in developing expertise and procedures to adhere to the spirit of the requirement. If, like other requirements that end up in the "analysis dust bin," mandating that regulators disclose BOTE analysis can be reasonably assimilated into existing processes for producing benefit-cost analyses, these reforms will do little to improve regulatory decision-making. If, however, our requirements force agencies to conduct and disclose analyses that are fundamentally different from what they currently do, our proposal has the potential to bring positive change.

To illustrate, we simplify the rulemaking process into four stages. These time periods, labeled 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 BOTE analyses during time period T2 instead of the current requirement that they issue analyses when the proposed rule is released for public comment at the end of period T3. If benefit-cost analysis is to play a role in informing the regulatory decision-making process, it should be made public during T2, not after the agency has decided on its preferred strategy in T3.

Yet, how can we know whether the agency is following the requirement? Because the stages we have identified are fluid, it is difficult to determine if an agency has internally reached stage T3. If it has already settled on its preferred regulatory alternative prior to disclosing the initial benefit-cost analysis, the agency can easily replicate the same basic study 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 regulatory process. Although, in theory, the two sets of analyses should deviate especially under the weight of extensive public comments, often the two documents are identical to each other.

Fortunately, our proposal does not simply consider the timing of agency disclosure. It also requires the agency to contemplate a broader set of alternatives, including those that differ on the margin from its preference. This aspect of BOTE analysis can limit the agency's ability to put forth dense analyses that effectively justify preordained choices.

For an agency that would like to implement an option that might not maximize net benefits under a reasonable set of assumptions, a dense analysis is one mechanism through which such policy alternatives can survive (Wagner 2009). Opacity becomes the regulator's ally by hiding assumptions that are friendly to its preferences. In the same way that firms may use their superior information and resources to impact the regulatory process (Coglianese *et al.* 2004), agencies may try to use their privileged access to data and research to burden a potential critic, thereby limiting that evaluator's ability to question the regulator's choice. This is exactly what has occurred with the EIS requirement (Karkkainen 2002). Because the study is difficult for outside parties to decipher and comment on in a useful way, the alternative put forth by the agency becomes the de facto policy. Moreover, when the agency would like input to craft better

regulations, it is precluded from receiving that assistance if its processes encourage convoluted analysis.

In contrast, if an agency now has to consider more alternatives, the analyses themselves may simultaneously have to become more intelligible. The additional cost and time needed to produce detailed studies for all options can stretch a regulatory agency such that it is forced to issue more transparent rough cut analyses to promulgate the rule within a reasonable timeframe. For an agency seeking internal consensus before releasing the analysis, such a requirement can prompt the organization to streamline its processes. Similarly, a regulator keen on implementing its preference may be forced to present the required BOTE studies since preparing a difficult analysis for just one option provides a clear signal as to which policy it favors. In either case, the agency will generate rough cut analyses when the private benefit derived from its existing approach relative to the socially optimal regulatory strategy is exceeded by the additional cost of producing exhaustive analyses for all options.

Transparent analyses reduce the costs to the public of participating so even rule writers favoring a particular approach will produce BOTE analyses with reasonable assumptions. The mandate for more options thus substantially reduces the ability of agencies to unilaterally implement a particular policy. Whether its motivation is to implement a preference, ignore a requirement, or protect an internal process, the requirement that the agency provide more regulatory alternatives prompts the release of the analyses at time T2 instead of T3. 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. Instead, what if economies of scale exist? If it simply requires copying and pasting, additional impervious studies (with minor changes for alternative policy options) might be produced at little extra cost. In this case, the requirement that agencies consider 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 for the public to participate because it is faced with several complicated benefit-cost analyses instead of one as is the case with the existing requirement. Here, a recommendation for more alternatives undermines early disclosure by making it easier for the agency to publicly assert (if they so choose) that they are in stage T2 when in fact they have reached stage T3 in the rulemaking process.

Altering Agency Incentives to Encourage BOTE Analysis

The end result is that when the cost of producing detailed studies of additional options is substantial, the simple three-part recommendation for encouraging more useful benefit-cost analysis will work well. However, when preparing additional benefit-cost analyses that are technically dense is not costly, an agency intent on implementing its preference can use the requirements to its advantage. Multiplying the size of the analysis supporting its recommendation, controversial assumptions become more difficult to ferret out which limits the role analysis can play as an aid to decision-making in the public interest.

To solve this problem, the agency must be encouraged to produce comprehensible and transparent BOTE analysis even when it has the wherewithal to avoid doing so. To provide such incentives, it is tempting to simply rely on a mandate. In fact, for government procedures, this is the most common remedy. Regulators are showered with procedural and analytical requirements, some of 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 numerous executive orders (Arbuckle 2012). Yet, as we described, mandates are likely to fail to achieve their purpose when regulators have the desire and opportunity to avoid the associated requirements.

Perhaps one step removed – although similar in spirit to simply mandating that the agency follow the new procedures – is to direct the regulator to provide evidence that it is adhering to the requirements. For example, agencies could be required to explicitly disclose their assumptions and a summary of their methodology in a separate section of the document. Alternatively, BOTE analysis could be limited to a certain number of pages. Although these steps can constrain the agency's ability to sidestep the proposed requirement, 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 limit 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. Like performance-based regulation (where the regulator stipulates the end state the firm is to achieve), a maximum length for the analysis describes the required end state that signals a "good-faith" BOTE analysis.

One of the challenges in enforcing both means-based and performance-based regulations is that they require regulators to have or be able to gather a great deal of information about the regulated entities to set the standard correctly (Coglianese *et al.* 2004; Carrigan & Coglianese

2011). Technology standards compel the regulator to gather detailed data about firm operations to determine how best to satisfy the regulatory objective. Performance standards similarly require that the agency know enough to set a meaningful standard that will achieve the regulatory objective and have sufficient means to be able to know whether it is achieved.

The informational burdens and challenges are similar for those approaches that would promote meaningful benefit-cost analysis using mechanisms that look like command-and-control approaches to regulation. A substantial amount about the agency's operations must be known to be confident that the elements included in the mandate – in our example, up front disclosure of the assumptions and strategy for the analysis – are the levers that the agency would otherwise use to present its preference in the most favorable light. For those regulators resistant to changing their procedures, the mandate must anticipate which elements need to be explicitly disclosed to empower the public to participate. Similarly, the party setting up the controls must be able to determine how many pages are sufficient to declare an analysis impenetrable. Although correlated, it is not the case that all dense analyses are voluminous, and all voluminous analyses are dense.

Importantly, if they are required to limit their analyses to a certain number of pages or explicitly disclose their methodology and assumptions, agencies whose preferences support particular regulatory approaches will have incentives to look for other levers. Much like the aforementioned game played between firms and regulators who try to control their behavior through command-and-control methods, these types of solutions perpetuate a cat-and-mouse game. The agency loosens the bonds on its ability to implement its preference while those concerned about agency discretion are implementing fixes to counteract these acts. Insisting that regulators explicitly disclose their assumptions, describe the methodology used, or adhere to page limits is likely to do little to counteract agencies from relegating analysis to window dressing if preferences or inertia impel it to do so.[9]

Rather than rely on mandates, we suggest either raising the cost to agencies that may be inclined to generate opaque analyses or lowering the cost – including providing benefits to the agency – for producing the intended BOTE analysis. Addressing the issue using this framework may seem obvious to many, and we would not argue differently. The approach amounts to nothing more than using "carrots" and "sticks" by offering rewards to those that conform while, at the same time, punishing those that do not. Even so, in many cases, process mandates do exactly the opposite, perversely imposing costs on agencies that comply through additional procedural and analytic requirements.

A wide range of possibilities exists to raise the cost to agencies of producing analyses that oppose the essence of the BOTE requirement. Moreover, a similarly diverse set of options is available to lower the cost of truly informative benefit-cost analyses. While our intention is not to provide an exhaustive list, we offer three strategies that 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 true BOTE analysis.

One alternative would be to subject agencies who continue to produce incomprehensible 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 at the BOTE stage, simply subjecting the RIA to a more critical assessment would raise the cost of avoiding the requirement. In a similar vein, one could just as easily lower the standards of review for those that do adhere. At the extreme, agencies that generate transparent studies of a variety of viable options could be exempted from having to prepare detailed RIAs to accompany their NPRMs or final rules. Although this may seem extreme, as we have described, RIAs are currently used more as advocacy documents than as useful tools for review. Eliminating the analyses that accompany proposed and final rules may do little to undermine the goal of selecting the best regulatory alternative.

Moreover, current benefit-cost analyses prepared as part of RIAs infrequently reveal that net benefits are close to zero. In their aforementioned study of the RIAs accompanying 109 rules, Morrall and Shapiro (2012) found that less than 15% were expected to generate between $0 and $100 million in net benefits. In contrast, 27% anticipated net benefits *exceeding* $1 billion. These results suggest that, in many cases, rough-cut analysis may be enough to determine if a particular regulatory approach will yield net benefits. For this group, the primary value of BOTE analysis is to allow comparisons between policy options. And to the extent that rough cut analysis reveals that one approach is far superior to the others, more detailed analysis is not needed anyway. For the small number of regulations that have net benefits near zero, BOTE analysis should help in deciding whether the regulatory policy is a good idea from an economic perspective. It can also signal that a more detailed study characterizing uncertainty is worthwhile.

Instead of (or in addition to) exempting agencies from having to prepare RIAs later, regulators could be encouraged to perform BOTE analysis by reducing the length of OIRA review or the notice-and-comment period for those that comply. The current requirement 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 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 may have similar effects.[10]

It may appear that shortening either executive or public review of rulemaking is a step in the wrong direction, in that it would provide even less time for interested parties to identify any questionable aspects of the analysis. However, the expedited timeframe would only apply to those proposed rules preceded by true rough cut benefit-cost analysis. Given that a meaningful examination would occur at the earlier BOTE phase, the need for critical review at the NPRM and final stage would be lessened. Especially if coupled with the previously described "carrot" exempting those agencies from producing a detailed RIA 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" (5 U.S.C. 706). Although RIAs are typically considered exempt, this exclusion would not automatically apply to rough cut analysis conducted earlier in the process. For those that produce studies not consistent with the BOTE requirement, the agency might be subject to stricter review by the courts simply because it did not follow the mandated procedure. Opening up such rulemaking to more critical review would impose costs on an agency that might otherwise ignore the requirement.

Even so, this option may require the simultaneous exemption of compliant rough cut analysis from judicial review. Exposing poor BOTE analysis to more stringent review could have the unintended consequence of subjecting even good analysis to the same based on the "arbitrary" and "capricious" standard. In fact, some have suggested that in order to convince an agency to perform and disclose analysis in the spirit of what we propose, it 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. It also limits the inappropriate use of these early estimates by agency opponents or the media to fortify their challenge or make the agency look bad publicly. Still, since excusing good BOTE analysis from judicial review may be a necessary condition to be able to subject dense analysis to more stringent review, this option appears less appealing. Only if it becomes evident that courts have misread the intent of BOTE analysis and uphold challenges to even good applications would we advocate exempting such analyses from judicial review more generally.

Although the possibilities we have outlined would likely convince a large number of potential violators to produce good BOTE analyses, each requires an entity to judge whether that analysis meets the criteria. While allowing the evaluator flexibility to change that definition over time, this body could also provide some basic guidance for agencies on what constitutes an acceptable BOTE analysis (e.g., disclosure of assumptions, consideration of marginal alternatives, etc.). In addition to the burden this may place on the organization saddled with the responsibility, having any review body make a judgment regarding the quality of a rough cut analysis introduces the possibility for arbitrary and politically motivated decisions. We acknowledge this limitation and would prefer a mechanism to encourage BOTE analysis that did not need an outside evaluator. However, instruments that would fulfill this condition simultaneously require a set definition of what constitutes good BOTE analysis. Only by assigning an organization to evaluate agencies' rough cut benefit-cost studies can the difficult question of what distinguishes good transparent analysis be addressed fluidly.

In the current regulatory framework, identifying an appropriate evaluator is fairly straightforward. As the agency assigned to review RIAs connected to NPRMs and final rules, OIRA is 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 agency has not yet decided on its course of action. As long as the assignment were coupled with less critical review of RIAs at later stages as proposed, the added responsibility of evaluating BOTE analysis would likely not require additional resources. Evaluating rough cut analysis would reduce OIRA's analytical burden relative to deciphering dense RIAs built to conceal information in some cases. By substituting BOTE for in-depth benefit-cost analysis, we anticipate the new process would reduce the time and cost of review despite the presence of more alternatives to consider.

In addition to easing the demands of review, our proposal would enable OIRA to focus its attention on those rules most likely to have alternatives that deliver greater gains to social welfare. By subjecting those agencies that fail to produce true BOTE analysis to more stringent review later, the costs to those who might otherwise bypass the requirement are raised. If a regulator still does not adhere, OIRA would receive a signal that the agency's analysis is likely to require more attention. Coupling the requirement to produce BOTE analysis with a review standard that is either ratcheted up or down depending on the quality of that analysis would thus provide the added benefit of pointing OIRA to those rules where it is likely to make the biggest positive impact as regulatory gatekeeper.

We do note that OIRA involvement raises the potential for politicization of the BOTE process. OIRA is a much criticized institution (see, e.g., Olson 1984), particularly by supporters of

regulation. However, given OIRA's analytical capability as well as its incentives as described above, it is a natural fit for supervising the implementation of BOTE analysis. We would not necessarily object to locating BOTE review elsewhere in the federal government, but, absent legislation creating such an entity, OIRA is the most logical placement.

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 often come to be used by agencies as advocacy documents, supporting the regulator's preferred option after that course of action has been determined. 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 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 often true of RIAs.

Recognizing that simply mandating a new procedure does not ensure compliance, we have demonstrated that its success hinges on how costly it is for agencies to resist the requirement. 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 also encouraging broader participation. Alternatively, if an agency can easily replicate the inscrutable analysis for the other options, not only will our approach fail to provide a remedy, it may achieve exactly the opposite result, making it more difficult for informed parties to participate.

This latter possibility may not accurately reflect reality for most or even an important subset of agencies and rules. However, given the possibility it does, we focus on mechanisms to curb 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 unsuccessful, we focus on mechanisms that either lower the cost of performing good BOTE analysis or raise the cost of producing impenetrable analysis.

Altering the timeframe for or stringency of OIRA review or manipulating the length of the notice-and-comment period all provide promising levers to influence agencies' costs. If BOTE

analysis is prepared according to the principles outlined in our reform, the agency would be subject to less stringent OIRA review of the NPRM or final rule at little cost since RIAs are largely ineffectual anyway. An agency that ignores the BOTE requirement could otherwise be exposed to more searching OIRA review later. Shortening the notice-and-comment period or the length of OIRA review for complying agencies would provide the same incentives for regulators to comply even if they could replicate intractable benefit-cost analyses for the range of alternatives relatively easily.

Recognizing that any of these possibilities requires an entity to ascertain whether the agency's analysis meets the spirit of the BOTE requirements, we argue that OIRA (at least in the present institutional context) is the most logical choice. Not only is it capable and likely willing, adding this function to OIRA's overall responsibilities is unlikely to increase its overall burden if review times at later stages are reduced. Importantly, it would also encourage OIRA to focus critical attention on exactly those rules where alternative policies to those preferred by the agency may maximize social net benefits.

Following a series of disasters in heavily regulated industries including the financial crisis and the Gulf oil spill coupled with an economic recovery that has only slowly reduced historically high levels of U.S. unemployment, it may not be surprising that the regulatory enterprise is under the microscope (Coglianese 2012). 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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Notes

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

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

[3] See, for example, the Regulatory Accountability Act of 2013.

[4] For example, in the RIA for the Final Mercury and Air Toxics Standards, the Environmental Protection Agency (EPA) spent 95 pages calculating the benefits of mercury emission reductions for children's IQ (2009). These extensively detailed benefits totaled only $4 to $6 *million* while the total benefits of the rule were estimated at between $37 and $90 *billion*.

[5] Courts are historically deferential to agencies on regulatory decisions based on *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.* (1984).

[6] Executive Order 12866 mandates that agencies produce an RIA for any regulation with an economic impact of $100 million or more in any given year. 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 successful.

[7] While estimating within an order of magnitude may even be a goal of some RIAs, as demonstrated with OSHA's (2012) Hazard Communication rule, the degree of precision at which benefit-cost analyses are reported undercuts the notion that this is true in many cases.

[8] An agency may be limited in the breadth of options it can consider by its statutory authority. In these cases, our call for BOTE analysis would simply require that agencies consider alternatives within the bounds of that authority.

[9] On the other hand, the attraction of command and control to oversee regulators is the same as it is to oversee regulated firms. Such mechanisms can be simple and easy to enforce. Still, as in the case of regulated firms, we anticipate that the disadvantages of command and control will often outweigh these advantages when overseeing regulators.

[10] This change would require changes to the Congressional Review Act which mandates a minimum 60 day comment period for major rules.