Penn Law
UNIVERSITY of PENNSYLVANIA LAW SCHOOL

Penn Program on Regulation

Cary Coglianese, Director
Edward B. Shils Professor of Law
and Professor of Political Science

September 22, 2013

The Hon. Howard Shelanski
Administrator, Office of Information and Regulatory Affairs
The Office of Management and Budget
725 17th Street, NW
Washington, DC 20503

Dear Administrator Shelanski,

This letter, with enclosures, responds to your request for my review of the *Draft 2013 Report to Congress on the Benefits and Costs of Federal Regulations* ("Draft Report") available on the OMB website. You asked for comments on the "format and substance" of the Draft Report – and you specifically sought my thoughts on the following four recommendations as stated in your August 9th email:

(a) retrospective analysis should become a routine part of agency rulemaking, and formal mechanisms should be maintained to reevaluate rules that may be unjustified, excessive, insufficient, or unduly complex;
(b) agencies should communicate with the public in a way that is clear, simple, meaningful, and jargon-free;
(c) objective, evidence-based assessment of costs and benefits should be used as an integral part of the regulatory decision-making process; and
(d) agencies should align their priorities across all levels of internal hierarchy.

I certainly endorse the first three of these recommendations. In various ways they comport with suggestions I have separately urged for some years in my own writing.

For example, as the Draft Report notes (p. 9), recommendations (a) and (c) are integrally connected with each other. In a 2005 co-authored paper, published as part of a National Research Council report, I wrote that retrospective "evaluation research provides valuable information for policy decision making," further observing that:

> The staff and political officials in state and federal regulatory agencies, legislatures, and other oversight bodies (such as the Office of Management and Budget) need to design and implement policies that work to achieve their goals. With information from retrospective evaluations of policies, policy

3501 Sansom Street • Philadelphia, PA 19104-6204 • Tel 215.898.6867 • cary_coglianese@law.upenn.edu
www.law.upenn.edu/coglianese

> makers will be better able to determine what policies to adopt (and how to design them) in the future. Policy evaluation research can also help identify ways to change existing policies to make them more beneficial.[1]

Last year, in an OECD report on retrospective regulatory analysis, I reiterated the importance of improving the ex post evaluation of regulatory policies, noting among other things that "[i]nstitutionalizing practices of rigorous ex post evaluation will help ensure more informed decision making in the future about regulation and regulatory policy."[2]

In addition, similarly supportive statements can be found in my writing with respect to recommendation (b), which calls for clear, straightforward communication with the public. In a 2005 journal article, I noted that to participate effectively in the rulemaking process, "[c]itizens need to be able to understand what the agency is proposing and must be able to have some understanding of the underlying policy issues involved in the rulemaking." [3] I noted that, at that time, "the latest findings from the U.S. Department of Education [indicated that] about 90 million adults (or over half of all adults in the U.S.) 'experience considerable difficulty in performing tasks that required them to integrate or synthesize information from complex or lengthy texts.'" I suggested that "agencies should certainly strive to display information clearly and in easy-to-read formats." Subsequently, in a 2011 report to the Administrative Conference on the online accessibility of rulemaking data, I further recommended that agencies "should ensure that rulemaking information will be easily accessible to ordinary individuals."[4]

I have no comparable affirmations to offer with respect to the fourth recommendation in your August 9th email, recommendation (d). It appears a sensible recommendation, as far as it goes. But it is also not entirely clear to me what it means to "align ... priorities," other than perhaps that the heads of agencies should try to manage their agencies well, trying to achieve the their most important objectives. Although it may be hard to imagine much reasonable objection to such a seemingly platitudinous recommendation, I confess I find this recommendation at best weakly supported by the contents of the Draft Report. Admittedly, the Draft Report contains a section on "regulatory coordination," but that section focuses on coordinating the regulatory standards between the U.S. and other countries. I found nothing in the report expressly indicating that a lack of "alignment" has become a particularly significant problem within agencies, nor any evidence suggesting what benefits to society would accrue from greater efforts to "align" agency priorities. This is not to deny that there might be a valid problem needing redress nor to suggest that recommendation (d) is in any way unwise. Rather, it is simply to note that the Draft Report does not itself, in my view, provide any justification for this recommenda-

---

[1] Cary Coglianese & Lori Snyder Bennear, "Program Evaluation of Environmental Policies: Toward Evidence-Based Decision Making," in National Research Council, *Social and Behavioral Science Research Priorities for Environmental Decision Making* (2005), pp. 246-273, http://www.nap.edu/openbook.php?record_id=11186&page=246

[2] Cary Coglianese, Evaluating the Impact of Regulation and Regulatory Policy, OECD Expert Paper No. 1 (August 2012), http://www.oecd.org/gov/regulatory-policy/1_coglianese%20web.pdf.

[3] Cary Coglianese, "The Internet and Citizen Participation in Rulemaking," *I/S: Journal of Law and Policy for the Information Society* 1: 33-57 (2005).

[4] Cary Coglianese, "Federal Agency Use of Electronic Media in the Rulemaking Process," Report to the Administrative Conference of the United States (December 2011), http://www.acus.gov/sites/default/files/documents/Coglianese-Federal-Agencies-Use-of-Electronic-Media-in-Rulemaking-FINAL-REPORT.pdf.

tion. If you believe this recommendation is important, I would encourage you and your staff to add a section to your final report explaining and justifying this recommendation.

In addition to these general observations about the four recommendations noted in your email (and elaborated in the Draft Report on pages 53-54), I attach a set of more focused comments organized by page number in the Draft Report, as well as the following additional materials:

- A set of handwritten notations on a copy of the draft, calling attention to various typographical or other similar minor formatting matters in the Draft Report.

- A copy of a recent paper of mine, "Moving Forward with Regulatory Lookback," which offers suggestions for achieving still greater institutionalization of retrospective review.

- A copy of chapter 1 and the table of contents from my forthcoming co-edited book, *Does Regulation Kill Jobs?,* which will be published later this year. As sections of the Draft Report review the literature on the relationship between regulation and employment, you may find some of the other chapters of this volume of interest. If you wish to review other parts of this book, please feel free to let me know.

I hope my review has been of some assistance as you and your staff prepare your final report to Congress. If you have any questions about my comments or these materials, or if I can assist in any other way, please feel free to contact me again.

Sincerely,

Cary Coglianese

Review of "2013 Draft Report to Congress on the Benefits and Costs of Federal Regulations"

Cary Coglianese
Edward B. Shils Professor of Law
Director, Penn Program on Regulation
University of Pennsylvania Law School

September, 2013

Page/Passage	*Comment*
P. 3, first para	Where exactly are the criteria ("below") that have been used in defining and coding for "major" rules?
P. 3, second bulleted para, third sentence	Instead of "net benefits" versus "net costs," I would advise "positive net benefits" versus "negative net benefits." After all, an estimate of net benefits is what is being computed. See p. 4 of the Draft Report for the definition of efficiency as "maximizing net social benefits."
P. 3, third bulleted para, second subpoint, first sentence	I suggest you insert "quantified and monetized," so this sentence reads "For 14 rules, representing the majority of the quantified and monetized benefits and costs of rules issued in FY 2012…" As the Draft Report acknowledges, rules may have benefits and costs that have not been quantified or monetized. You can only claim these 14 rules represent a majority of what has been estimated.
P. 8, first para, sentence beginning "Estimates are based on…"	Are the estimates based on *all* "the major regulations," as suggested here? Or did agencies fail to quantify or monetize the impacts for some major regulations?
P. 8, fn. 5, last sentence	Although I can understand why you "do not update or recalculate benefit and cost numbers," not doing so seems a bit discordant with one of the principal rationales for conducting retrospective analysis of regulations, which is to improve prospective estimates (p. 9).
P. 9, fn. 7	Perhaps you may wish to consider adding a citation here to my earlier paper with Lori Bennear, "Program Evaluation of Environmental Policies: Toward Evidence-Based Decision Making," in National Research Council, *Social and Behavioral Science Research Priorities for Environmental Decision Making* (2005): "[P]rogram evaluation will also provide critical information for prospective analysis of new policy initiatives. By knowing what policies have accomplished in other contexts, prospective analyses—such as benefit-cost analysis—can be grounded in experience as well as theory and forecasting. The accuracy of the estimation strategies used in prospective analyses can also be refined by comparing ex ante estimates with the ex post outcomes indicated in program evaluations. Figure E-2 illustrates the role of program evaluation in the policy process."

P. 10, first para	Here the need for stating the definition of a "major" rule – something promised on page 3 – becomes evident. But I fail to find a definition of or criterion for what you consider to be a "major" rule for purposes of this report. Such a definition was also missing in the 2012 Report to Congress, but if one goes back to page 8 of the 2011 Report to Congress stated criteria can be found. I would suggest re-inserting the relevant passage from the 2011 Report.
P. 10, last para, last sentence	I would suggest revising the ending of the last sentence on this page to read "…under Executive Order 12866 and, as applicable, Executive Order 13563." Technically, rules issued prior to 2011 were not subject to review under 13563, because that Order did not exist.
P. 15, last para	The point about double counting is a fair one. However, excluding NAAQS rules entirely may prove incomplete or inaccurate. The NAAQS may well impose costs *in addition* to the costs associated with EPA rules implementing the NAAQS. State implementation plans, after all, must be developed to ensure air quality regions meet the NAAQS, irrespective of what other implementing regulations may require. Those SIPs can impose additional costs on firms, some of which may not be coterminous with the costs associated with EPA's implementing regulations. The second sentence in this paragraph acknowledges as much, stating that the estimated impacts from CSAPR make up only a "*major* portion" of the estimates for the NAAQS (emphasis added).
P. 16, fn. 19, second sentence	Rather than "valuation of *statistical mortality risks*," I think you mean "valuation of **avoiding** *statistical mortality risks*" (bold added; italics in original).
P. 18, second full para & P. 20, Figure 1-1	I find the presentation of ranges of cost and benefit estimates in Figure 1-1 to be quite helpful. Consider, though, several potential enhancements to this figure when creating the final report: • Consider using something other than color to differentiate costs and benefits. Colors do not appear when the report is printed on a conventional black and white printer or photocopier. Perhaps a texture could be used instead. • Try to place the label for each FY directly under the cross-tick. • Consider using round dots to demarcate the endpoints of each range. This may also make years with point estimates (or thin variance around the estimates) more visible to the reader. • Consider inserting a tick mark for the mid-points of the ranges (as you refer to mid-points later in the report)
Pp. 20-21, sentence beginning "In addition, the groundwork…."	Please explain the relevance of the point you are making here about the rulemaking process sometimes transcending different administrations. It may well be relevant, but it is not self-evidently so. Is your hidden assumption here that different administrations adopt "methodological variations and differing assumptions"?
P. 22, fn. 31	Either delete "their" or change to "it." The reference is "DOT's rule," or even "DOT" – but both are singular.

P. 31, fn. 39	The first sentence (beginning "OMB did not finalize a Report in 1999…") appears to be a remnant from an older version of this report. Since you are only reporting rules from 2003 forward, whatever OMB did or didn't do in 1999 is irrelevant here.
P. 35, second bulleted point	Did the $9.6 billion point estimate for annual costs really remain the same using both a 3% and 7% discount rate? Also, in the last sentence in this bullet, are the $294 million in estimated "net compliance costs to government entities" only imposed on state, local, and tribal governments, or does it include costs to the federal government as well? This is important, given that this section of the report is focused on impacts on state, local, and tribal governments.
P. 35, last full sentence on page (beginning "Although these five rules…")	Is a word missing in this sentence?
P. 37, last para, sentence beginning "Some regulations can have adverse effects…"	After the semi-colon, the Draft Report reads "other regulations might produce benefits." I would recommend replacing "benefits" with "positive effects." This makes the noun parallel with "adverse effects" used in the previous part of this sentence. It also avoids confusion with economic benefits as estimated in benefit-cost analyses. After all, any "benefits" in terms of increases in wages or employment might actually be considered on the cost side of things for BCA purposes.
P. 38, fn. 51	There is a newer published paper you may wish to consider adding to this note: Dube et al., Minimum Wage Effects Across State Borders: Estimates Using Contiguous Counties, *Review of Economics and Statistics*, Nov. 2010, 92:945.
P. 55-56	Subsection A, on retrospective analysis and regulatory reform, is surprisingly (and disappointingly) weak in a number of respects. Neither the length nor the quality of this section befits the stated desire to "change regulatory culture" (p. 54), which is clearly a tall order, albeit an important one. The fact that this subsection spans only slightly more than one page in the entire report hardly indicates that OMB takes retrospective analysis seriously. The quality of this subsection of the report also suffers markedly in comparison with Chapter 1. The four bulleted "examples of reform" are actually only two reforms and two *proposed* reforms. In comparison with Chapter 1, there is a striking lack of presentation of quantitative estimates in this subsection. The reader is told that costs will be reduced from the examples, but not told by how much. Some of the language is less precise too; for example, it is stated that the "[r]ecent examples of reforms…*will* have a significant impact" (emphasis added), but in fact the impact is "estimated" (not certain) to occur and it is far from clear what "significant" means anyway. Effects are similarly asserted with certainty elsewhere in the bulleted section, rather than it being conveyed that these are estimates or predictions at this point.

Pp. 55-56, continued	There is no indication that the four examples of reforms and proposed reforms grew from the administration's lookback process. The reader can only presume they did, but nowhere is that demonstrated, let alone stated. The entire subsection, both in tone and in the literal meaning of key passages, conveys to the reader that the purpose of retrospective analysis is "reducing regulatory burden." Not that there is anything wrong with reducing burdens; when they are not offset by sufficient social benefits, they should be reduced. But the aim of retrospective analysis, and any reforms that follow from it, should be to increase efficiency, that is, to increase net benefits – not merely reduce burdens. The last sentence of the first paragraph of this subsection notes that retrospective analysis can help agencies decide how to "streamline, modify, or eliminate rules that do not make sense." True, but this passage is missing a key, additional word that appears in a similar sentence found on page 9 of the Draft Report: "expansion." Retrospective analysis, when it finds successes, can help inform decisions to expand or extend successful regulatory approaches; evaluation is not simply a one-way ratchet to reduce burdens merely for the sake of reducing burdens. Finally, this subsection's emphasis on merely reducing burdens is evident in how some of the examples are discussed. The reader is told that DOL has issued a revised rule on chemical warning labels that "will reduce employer costs;" but the reader is not told whether the rule is estimated to change the level of benefits in any way. Similarly, Treasury's changes in electronic notifications make sense, and it is obvious why administrative costs can be expected to go down; but nowhere is it stated that notification is expected to remain as effective as before. Presumably it could be, but the fact that no mention is made provides another example of lopsidedness. (To the drafter's credit, the reader *is* informed that the DOT proposed rule is not expected to diminish safety, even while operating costs are expected to decrease.)
P. 58, first full para	Please use principles of plain writing to revise the sentence that begins "Consistent with the Plain Writing Act…"
P. 59, first full para	As with the reforms in subsection (A), the language in this section exudes more certainty about the effects of the Work Plan. I would recommend saying that "the Work Plan is intended to" rather than that it is "designed to." You might also consider revisiting the use of "will" in the first bulleted item; perhaps it is more appropriate to say "…in ways that aim to benefit consumers…"
P. 61, last sentence of first bulleted item	Consider changing the beginning of this sentence to "It is more likely that the cumulative sum…."

P. 61, last bulleted item	Word choice. Some might say that job creation is always "desirable." Perhaps "spurring job creation" is instead "much more pressing during an economic downturn."
P. 62, three bulleted items	First item: consider changing "will" to "can be expected to"; second item: consider inserting "can" before "encourage"; third item: consider changing in relevant part to "…can encourage international trade and thus can promote long-run economic growth…"
Pp. 62-66	Throughout this section, changes are needed to make clear that the data reported are *ex ante estimates*. Chapter 1 is careful to make this clear in the labels used for tables and figures. This section could benefit from a similar careful attention to precision in what is claimed. For instance: • The heading for this section on page 62 should begin with the word, "Estimated" • The last paragraph on page 62 should be changed in relevant parts to "…present the estimated net benefits…" and "…presents estimates of costs and benefits…" • The titles for Figure 2-1(a) and 2-1(b), and all the tables, should have the words "Estimated" or "Estimates" inserted in the appropriate places • Somewhere in this section, a clearer cross-reference should be inserted to the caveats discussed on pages 8-9, 10n.11, and 14 of the Draft Report, about the limitations of summing across different rules and agencies. The one sentence at the end of footnote 141 is unsatisfying. I would urge you to discuss these limitations and caveats above the line and offer more explicit caution about the precision of the reported summed estimates. To my mind, following these suggestions for pages 62-66 would enhance the overall credibility of the Draft Report and by extension strengthen whatever "general conclusions" are intended for this section of the Draft Report.

2013 Draft Report to Congress On the Benefits and Costs of Federal Regulations And Agency Compliance With The Unfunded Mandates Reform Act

Table of Contents

EXECUTIVE SUMMARY

In accordance with the Regulatory-Right-to-Know Act,[1] the Office of Management and Budget (OMB) prepared this draft Report to Congress on the Benefits and Costs of Federal Regulations (Report). This will be the sixteenth annual Report since OMB began issuing this Report in 1997. The draft Report summarizes estimates by Federal regulatory agencies of the quantified and monetized benefits and costs of major Federal regulations reviewed by OMB over the last ten years (see below for the criteria for identifying "major" regulations for this report).

The principal findings are as follows.

- The estimated annual benefits of major Federal regulations reviewed by OMB from October 1, 2002, to September 30, 2012, for which agencies estimated and monetized both benefits and costs, are in the aggregate between $193 billion and $800 billion, while the estimated annual costs are in the aggregate between $57 billion and $84 billion. These ranges are reported in 2001 dollars and reflect uncertainty in the benefits and costs of each rule at the time that it was evaluated.

- Some rules are anticipated to produce far higher net benefits than others. Moreover, there is substantial variation across agencies in the total net benefits expected from rules. The overwhelming majority of rules have net benefits, but over the last decade, a few rules have net costs, typically as a result of legal requirements.

- During fiscal year 2012 (FY 2012), executive agencies promulgated 47 major rules, of which 22 were "transfer" rules – rules that primarily caused income transfers. Most transfer rules implement Federal budgetary programs as required or authorized by Congress.

    - For the 22 transfer rules, in all but two cases the issuing agencies quantified and monetized the transfer amounts. (The transfer amounts reflect the principal economic consequences of such rules.)
    - For 14 rules, representing the majority of the benefits and costs of rules issued in FY 2012, the issuing agencies quantified and monetized both benefits and costs. Those 14 rules were estimated to result in a total of $53.2 billion to $114.6 billion in annual benefits and $14.8 billion to $19.5 billion in annual costs.
    - For two rules, the issuing agency was able to quantify and monetize only benefits. For these two rules, the agencies estimated annual benefits of $350 million to $461 million.
    - For nine rules, the issuing agencies were able to quantify and monetize only costs or cost savings. For these rules, the agencies estimated total

[1] Section 624 of the Treasury and General Government Appropriations Act of 2001, Pub. L. No. 106-554, 31 U.S.C. § 1105 note.

annual costs of about $1 billion. Some of the rules were statutorily mandated.

- The independent regulatory agencies, whose regulations are not subject to OMB review under Executive Orders 12866 and 13563, issued 21 major final rules in FY 2012. Ten of the 21 rules were issued by the Commodity Futures Trading Commission (CFTC). CFTC also issued three joint rules with the Securities and Exchange Commission (SEC). SEC issued four additional rulemakings in the same period.

It is important to emphasize that the estimates used here have significant limitations. In some cases, quantification or monetization is not feasible. When agencies have not quantified or monetized the benefits or costs of regulations, or have not quantified or monetized important effects, it is generally because of conceptual and empirical challenges, including an absence of relevant information. Many rules have benefits or costs that cannot be quantified or monetized in light of existing information, and the aggregate estimates presented here do not capture those non-monetized benefits and costs. In some cases, quantification of various effects is highly speculative. For example, it may not be possible to quantify the benefits of certain disclosure requirements, even if those benefits are likely to be large, simply because the impact of some such requirements cannot be specified in advance. In other cases, monetization of particular categories of benefits (such as protection of homeland security or personal privacy) can present significant challenges. As Executive Order 13563 recognizes, some rules produce benefits that cannot be adequately captured in monetary equivalents. In fulfilling their statutory mandates, agencies must sometimes act in the face of substantial uncertainty about the likely consequences.

In addition, and significantly, prospective estimates may contain erroneous assumptions, producing inaccurate predictions. Retrospective analysis, required by Executive Order 13563 and institutionalized by Executive Order 13610, can be an important way of increasing accuracy. While the estimates in this draft Report provide valuable information about the effects of regulations, they should not be taken to be either precise or complete. The increasing interest in retrospective analysis, inside and outside of government and fueled by Executive Orders 13563 and 13610, should produce improvements on this count, above all by ensuring careful evaluation of the estimated *ex post* effects of rules. (Note that section 6 of Executive Order 13563, "Retrospective Analysis of Existing Rules," calls for such analysis.) This process should improve understanding not only of those effects, but also of the accuracy of prospective analyses, in a way that can be brought to bear on such analyses when they are originally written. In short, retrospective analysis can and should inform prospective analysis.[2]

OMB emphasizes that careful consideration of costs and benefits is best understood as a pragmatic way of helping to ensure that regulations will improve social welfare, above all by informing the design and consideration of various options so as (1) to help in the assessment whether it is worth proceeding at all and (2) to identify the opportunities for minimizing the costs of achieving a social goal (cost-effectiveness) and maximizing net social benefits (efficiency).

[2] Further discussion of the impact Executive Order 13563 has had on Agency rulemakings to date may be found in Chapter II of this report.

Executive Order 13563 states that to the extent permitted by law, each agency must "propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs (recognizing that some benefits and costs are difficult to quantify)" and that agencies "select, in choosing among alternative regulatory approaches, those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity)." It should be emphasized that these requirements, like all others in the Executive Order, apply only to the extent permitted by law; many regulations are issued as a result of statutory requirements or court order, which may sharply limit and even eliminate agency discretion. Improvements in social welfare are the goal; consideration of costs and benefits (both quantitative and qualitative) is an instrument for helping to achieve that goal. While recognizing the potential importance of nonquantifiable factors (such as human dignity, as recognized in Executive Order 13563), OMB and agencies continue to take steps to improve both quantification and monetization to enable the most informed cost-benefit analysis.

Consistent with the Regulatory Right-to-Know Act, this draft Report also offers several recommendations for regulatory reform. They include: facilitating public participation and fostering transparency by using plain language; making objective, evidence-based assessment of costs and benefits an integral part of the regulatory decision-making process; using retrospective review to inform decisions about specific rules and, more broadly, about the appropriate interpretation of impact analyses that feature incomplete quantification; and, finally, aligning agency priorities across all levels of internal hierarchy.

In addition to making recommendations for reform, this draft Report discusses implementation of Executive Order 13563, which encourages improved regulatory coordination, greater public participation in the regulatory process, reductions in regulatory burden, and simplification of requirements and language. FY 2012 saw achievements in a number of these areas. Public participation was facilitated by the launch and redesign of a number of Federal Government websites; the President, with officials from both Canada and Mexico, announced work plans related to international regulatory coordination; and, in response to several Executive Orders and OMB memoranda issued in FY 2012 that built on E.O. 13563, agencies across the Federal Government pursued initiatives in the areas of regulatory look-back, reducing paperwork burden, simplifying government communications, and promoting long-run economic growth and job creation via international regulatory cooperation.[3]

This draft Report is being issued along with a draft of OMB's Sixteenth Annual Report to Congress on Agency Compliance with the Unfunded Mandates Reform Act (UMRA) (Pub. L. No. 104-4, 2 U.S.C. § 1538). OMB reports on agency compliance with Title II of UMRA, which requires that each agency conduct a cost-benefit analysis and select the least costly, most cost-effective, or least burdensome alternative before promulgating any proposed or final rule that may result in expenditures of more than $100 million (adjusted for inflation) in any one year by State, local, and tribal governments, or by the private sector. Each agency must also seek input from State, local, and tribal governments.

[3] Further discussion of international regulatory cooperation efforts may be found in Chapter II of this report.

PART I: DRAFT 2013 REPORT TO CONGRESS ON THE BENEFITS AND COSTS OF FEDERAL REGULATIONS

CHAPTER I: THE BENEFITS AND COSTS OF FEDERAL REGULATIONS

This chapter consists of two parts: (A) the accounting statement and (B) a brief report on regulatory impacts on State, local, and tribal governments, small business, and wages. Part A revises the benefit-cost estimates in last year's Report by updating the estimates to the end of FY 2012 (September 30, 2012). As in previous Reports, this chapter uses a ten-year lookback. Estimates are based on the major regulations reviewed by OMB from October 1, 2002 to September 30, 2012.[4] For this reason, two rules reviewed from October 1, 2001 to September 30, 2002 (fiscal year 2002) were included in the totals for the 2012 Report but are not included in this Report. A list of these fiscal year 2002 (FY 2002) rules can be found in Appendix B (see Table B-1). The removal of the two FY 2002 rules from the ten-year window is accompanied by the addition of 14 FY 2012 rules.

As has been the practice for many years, all estimates presented in this chapter are agency estimates of benefits and costs, or transparent modifications of agency information performed by OMB.[5] This chapter also includes a discussion of major rules issued by independent regulatory agencies, although OMB does not review these rules under Executive Orders 13563 and 12866.[6] This discussion is based solely on data provided by these agencies to the Government Accountability Office (GAO) under the Congressional Review Act.

Aggregating benefit and cost estimates of individual regulations—to the extent they can be combined—provides potentially valuable information about the effects of regulations. But the resulting estimates are neither precise nor complete. Four points deserve emphasis.

1. Individual regulatory impact analyses vary in rigor and may rely on different assumptions, including baseline scenarios, methods, and data. To take just one example, all agencies draw on the existing economic literature for valuation of reductions in mortality and morbidity, but the technical literature has not converged on uniform figures, and consistent with the lack of uniformity in that literature, such valuations vary somewhat (though not dramatically) across agencies. Summing across estimates involves the aggregation of analytical results that are not strictly

[4] All previous Reports are available at: http://www.whitehouse.gov/omb/inforeg_regpol_reports_congress/.

[5] OMB used agency estimates where available. We note that those estimates were typically subject to internal review (through the process required by Executive Order 12866) and external review (through the public comment process). The benefit and cost ranges represent lowest and highest agency estimates using both 3 and 7 percent discount rates. If an agency quantified but did not monetize estimates, we used standard assumptions to monetize them, as explained in Appendix A. We adjusted estimates to 2001 dollars, the requested format in OMB Circular A-4, using the latest available Gross Domestic Product (GDP) deflator and all amortizations are performed using a discount rate of 7 percent, unless the agency has already presented annualized, monetized results using a different explicit discount rate. OMB did not independently estimate benefits or costs when agencies did not provide quantified estimates. The estimates presented here rely on the state of the science at the time the Regulatory Impact Analyses (RIAs) were published. We do not update or recalculate benefit and cost numbers based on current understanding of science and economics.

[6] Section 3(b) of Executive Order 12866 excludes "independent regulatory agencies as defined in 44 U.S.C. 3502(10)" from OMB's regulatory review purview.

comparable. While important inconsistencies across agencies have been reduced over time, OMB continues to investigate possible inconsistencies and seeks to identify and to promote best practices. Executive Order 13563 emphasizes the importance of such practices and of quantification, directing agencies to "use the best available techniques to quantify anticipated present and future benefits and costs as accurately as possible."

2. As we have noted, it is not always possible to quantify or to monetize relevant benefits or costs of rules in light of limits in existing information. For purposes of policy, non-monetized benefits and costs may be important. Some regulations have significant non-quantified or non-monetized benefits (such as protection of privacy, human dignity, and equity) and costs that are relevant under governing statutes and that may serve as a key factor in an agency's decision to promulgate a particular rule.

3. Prospective analyses may turn out to overestimate or underestimate both benefits and costs; retrospective analysis can be important as a corrective mechanism.[7] Executive Orders 13563 and 13610 specifically call for such analysis, with the goal of improving relevant regulations through modification, streamlining, expansion, or repeal. The result should be a greatly improved understanding of the accuracy of prospective analyses, as well as corrections to rules as a result of ex post evaluations. A large priority is the development of methods (perhaps including not merely before-and-after accounts but also randomized trials, to the extent feasible and consistent with law) to obtain a clear sense of the effects of rules. In addition, and importantly, *rules should be written and designed, in advance, so as to facilitate retrospective analysis of their effects.*

4. While emphasizing the importance of quantification, Executive Order 13563 also refers to "values that are difficult or impossible to quantify, including equity, human dignity, fairness, and distributive impacts." As Executive Order 13563 recognizes, such values may be appropriately considered under relevant law. Using examples from the recent past, if a rule would reduce the incidence of rape, prevent the denial of health insurance to children with preexisting conditions, or allow wheelchair-bound workers to have access to bathrooms, a consideration of dignity is involved, and relevant law may require or authorize agencies to take that consideration into account. If a regulation would disproportionately help or hurt those at the bottom of the economic ladder, or those who are suffering from some kind of acute condition or extreme deprivation, relevant law may require or authorize agencies to take that fact into account. So far as we are aware, there is only limited analysis of the distributional effects of regulation in general or in significant domains,[8] such analysis could prove illuminating.

[7] See Greenstone (2009).

[8] See, e.g., Kahn (2001); Adler (2011) offers relevant theoretical discussion.

A. Estimates of the Aggregated Annual Benefits and Costs of Regulations Reviewed by OMB over the Last Ten Years

1. In General

From fiscal year 2003 (FY 2003) through FY 2012, Federal agencies published 37,786 final rules in the *Federal Register*.[9] OMB reviewed 3,203 of these final rules under Executive Orders 12866 and 13563.[10] Of these OMB-reviewed rules, 536 are considered major rules, primarily as a result of their anticipated impact on the economy (i.e., an impact of $100 million in at least one year). It is important to emphasize that many major rules are budgetary transfer rules, and may not impose significant regulatory costs on the private sector.

The class of "economically significant" rules is broader than the class of rules that impose $100 million or more in costs on the private sector. We include in our 10-year aggregate of annualized benefits and costs of regulations rules that meet two conditions:[11] (1) each rule was estimated to generate benefits or costs of approximately $100 million, or more, in any one year; and (2) a substantial portion of its benefits and costs were quantified and monetized by the agency or, in some cases, monetized by OMB. The estimates are therefore not a complete accounting of all the benefits and costs of all regulations issued by the Federal Government during this period.[12] Table 1-1 presents estimates of the total annualized benefits and costs of 115 regulations reviewed by OMB over the ten-year period from October 1, 2002, to September 30, 2012, broken down by issuing agency.

As discussed in previous Reports, OMB chose a ten-year period for aggregation because pre-regulation estimates prepared for rules adopted more than ten years ago are of questionable relevance today. The estimates of the benefits and costs of Federal regulations over the period October 1, 2002, to September 30, 2012, are based on agency analyses conducted prior to issuance of the regulation and subjected to public notice, comments, and OMB review under Executive Orders 12866 and 13563.

---

[9] This count includes all final and interim final rules from all Federal agencies (including independent agencies).

[10] Counts of OMB reviewed rules are available through the "review counts" and "search" tools on OIRA's regulatory information website (www.reginfo.gov). In addition, the underlying data for these counts are available for download in XML format on the website.

[11] OMB discusses, in this Report and in previous Reports, the difficulty of estimating and aggregating the benefits and costs of different regulations over long time periods and across many agencies using different methodologies. Any aggregation involves the assemblage of benefit and cost estimates that are not strictly comparable. In part to address this issue, the 2003 Report included OMB's new regulatory analysis guidance, OMB Circular A-4, which took effect on January 1, 2004 for proposed rules and January 1, 2005 for final rules. The guidance recommends what OMB defines as "best practices" in regulatory analysis, with a goal of strengthening the role of science, engineering, and economics in rulemaking. The overall goal of this guidance is a more transparent, accountable, and credible regulatory process and a more consistent regulatory environment. OMB expects that as more agencies adopt our recommended best practices, the benefits and costs we present in future reports will become more comparable across agencies and programs. OMB continues to work with the agencies in applying this guidance to their impact analyses.

[12] In many instances, agencies were unable to quantify all benefits and costs. We have included information about these unquantified effects on a rule-by-rule basis in the columns titled "Other Information" in Appendix A of this report. The monetized estimates we present necessarily exclude these unquantified effects.

In assembling these tables of estimated benefits and costs, OMB applied a uniform format for the presentation to make agency estimates more closely comparable with each other (for example, annualizing benefit and cost estimates). OMB monetized quantitative estimates where the agency did not do so. For example, for a few rulemakings within the ten-year window of this Report, we have converted agency projections of quantified benefits, such as estimated injuries avoided per year or tons of pollutant reductions per year, to dollars using the valuation estimates discussed in Appendix B of our 2006 Report.[13]

Table 1-1: Estimates of the Total Annual Benefits and Costs of Major Federal Rules by Agency, October 1, 2002 - September 30, 2012 (billions of 2001 dollars)

Agency	Number of Rules	Benefits	Costs
Department of Agriculture	5	$0.9 to $1.3	$0.8 to $1.2
Department of Energy	12	$8.2 to $15.3	$3.6 to $5.5
Department of Health and Human Services	19	$16.6 to $40.2	$2.4 to $5.2
Department of Homeland Security	2	$0 to $0.5	$0.1 to $0.3
Department of Housing and Urban Development	1	$2.3	$0.9
Department of Justice	4	$1.8 to $4.0	$0.8 to $1.0
Department of Labor	8	$7.3 to $21.4	$2.3 to $5.1
Department of Transportation (DOT)[14]	29	$16.2 to $27.6	$7.9 to $14.1
Environmental Protection Agency (EPA)[15]	32	$112.0 to $637.6	$30.4 to $36.5

[13] The 2006 Report is available at http://www.whitehouse.gov/omb/inforeg_regpol_reports_congress/. We note that there are ongoing discussions regarding the scientific assumptions underlying the benefits per ton numbers that we use to monetize benefits that were not monetized. If, for instance, assumptions similar to those described at http://www.epa.gov/air/benmap/bpt.html were used, these estimates would be somewhat higher.

[14] This total excludes FMCSA's 2010 Electronic On-Board Recorders for Hours-of-Service Compliance rule. The rule was vacated on Aug. 26, 2011, by the U.S Court of Appeals for the Seventh Circuit. To avoid double counting, this total also excludes FMCSA's 2009 Hours of Service rule, which finalized the provisions of the 2005 final rule included in the final count of rules.

[15] This total includes the impacts of EPA's 2005 Clean Air Interstate Rule (CAIR). CAIR was initially vacated by the U.S. Court of Appeals for the District of Columbia Circuit, see *North Carolina* v. *EPA*, 531 F.3d 896 (D.C. Cir. 2008) (per curiam), but in a later decision on rehearing the court modified the remedy to remand without vacatur, thus allowing EPA to continue to administer CAIR pending further rulemaking, see *North Carolina* v. *EPA*, 550 F.3d 1176 (D.C. Cir. 2008) (per curiam). On July 6, 2011, EPA finalized the Cross-State Air Pollution Rule (CSAPR), which responded to the remand in *North Carolina* and was designed to replace CAIR. On August 21, 2012, a divided panel of the D.C. Circuit vacated CSAPR while again keeping CAIR in place pending further EPA action. See *EME Homer City Generation, L.P.* v. *EPA*, 696 F.3d 7 (D.C. Cir. 2012). On January 24, 2013, the D.C.

Agency	Number of Rules	Benefits	Costs
Joint DOT and EPA	3	$27.3 to $49.6	$7.3 to $14.0
Total	**115**	**$192.7 to $799.7**	**$56.6 to $83.7**

The aggregate benefits and costs reported in Table 1-1 are somewhat higher than those presented in last year's final Report. As with previous Reports, the reported monetized benefits continue to be significantly higher than the monetized costs. Two agencies (the Department of Transportation and the Environmental Protection Agency) issued a majority of total rules — 64 of 115. In addition, the Environmental Protection Agency and the Department of Transportation are responsible for a majority of both total benefits and total costs.

Circuit denied EPA's petition for rehearing en banc. EPA has filed a petition for certiorari in the Supreme Court. Once the status of the final CSAPR has been resolved, OMB will consider changes to our method of attributing and accounting for the benefits and costs of the two rulemakings.

We recognize that the attribution and accounting raises some complex questions, and that on one view, not taken here, our approach greatly understates the net benefits of CSAPR – on that view, it does so by tens of billions of dollars. For the purposes of this draft Report, we have attributed the benefits and costs of the two rules on an incremental basis. A certain amount of equipment has been installed under CAIR, and we assigned both the costs and benefits due to those controls to CAIR, since it is a rule still on the books. For CSAPR, which is about 30% more stringent than CAIR, we assigned its costs and benefits only due to the additional equipment required over and above the requirements of CAIR. If CSAPR is upheld in its entirety and CAIR is officially withdrawn, another method we may consider is to assign to CSAPR all of the costs and benefits originally due to both rules. Until the final status of the two rules has been resolved, however, we have chosen to maintain the distinction between the two rules.

This total also excludes EPA's 2004 "National Emission Standards for Hazardous Air Pollutants: Industrial/Commercial/Institutional Boilers and Process Heaters." On June 19, 2007, the United States Court of Appeals for the District of Columbia Circuit vacated and remanded this rule to EPA. EPA finalized the 2011 National Emission Standards for Hazardous Air Pollutants for Major and Area Sources of Industrial, Commercial, and Institutional Boilers and Process Heaters and the Commercial and Industrial Solid Waste Incineration Units, but announced a delay notice, staying the effective date of these rules. In January 9, 2012, the United States District Court for the District of Columbia vacated the delay notice and remanded the notice for further proceedings. EPA subsequently published the final versions of these rules on January 31 and February 1, 2013. The current 10-year aggregate estimates therefore do not include the benefits and costs of these rules; however, they will be included in the 2014 version of this Report.

This total also excludes EPA's 2005 "Clean Air Mercury Rule." On February 8, 2008, the D.C. Circuit vacated EPA's rule removing power plants from the Clean Air Act list of sources of hazardous air pollutants. At the same time, the Court vacated the Clean Air Mercury Rule.

Finally, this total also excludes EPA's 2004 rule—"Establishing Location, Design, Construction, and Capacity Standards for Cooling Water Intake Structures at Large Existing Power Plants." On January 25, 2007 the Second Circuit remanded this rule back to EPA for revisions and EPA suspended the provisions of the rule. On April 1, 2009 the Supreme Court reversed one part of the Second Circuit ruling related to the use of cost-benefit analysis and remanded the rule to the lower court, which returned the rule to EPA for further consideration at the agency's request. As of the production of this draft Report, EPA is working on a revised version of this rulemaking.

Table 1-2 provides additional information on aggregate benefits and costs for specific agency program offices. In order for a program to be included in Table 1-2, the program office must have finalized three or more major rules in the last ten years with monetized benefits and costs. Two of the program offices included--Department of Transportation's National Highway Traffic Safety Administration and the Environmental Protection Agency's Office of Air--finalized three overlapping sets of rules pertaining to vehicle fuel economy, and these are listed separately.

Table 1-2: Estimates of Annual Benefits and Costs of Major Federal Rules: Selected Program Offices and Agencies, October 1, 2002 - September 30, 2012 (billions of 2001 dollars)

Agency	Number of Rules	Benefits	Costs
Department of Agriculture			
Animal and Plant Health Inspection Service	3	$0.9 to $1.2	$0.7 to $0.9
Department of Energy			
Energy Efficiency and Renewable Energy	12	$8.2 to $15.3	$3.6 to $5.5
Department of Health and Human Services			
Food and Drug Administration	8	$2.1 to $21.9	$0.8 to $1.2
Center for Medicare and Medicaid Services	10	$14.4 to $18.2	$1.5 to $3.8
Department of Labor			
Occupational Safety and Health Administration	4	$0.8 to $3.0	$0.5 to $0.6
Employee Benefits Security Administration	3	$6.6 to $18.4	$1.7 to $4.5
Department of Transportation			
National Highway Traffic Safety Administration	11	$13.1 to $22.3	$5.2 to $10.1
Federal Aviation Administration	6	0.3 to 1.2	$0 to $0.4
Federal Motor Carriers Safety Administration	5	$1.4 to $2.5	$1.6
Federal Railroad Administration	3	$0.9 to $1.0	$0.7 to $1.4
Environmental Protection Agency			
Office of Air	21	$109.4 to $629.1	$29.4 to $35.3
Office of Water	5	$1.1 to $3.6	$0.7 to $0.8
Office of Solid Waste and Emergency Response	4	$0 to $0.3	-$0.3
Department of Transportation/Environmental Protection Agency			
National Highway Traffic Safety	3	$27.3 to $49.6	$7.3 to $14.0

Agency	Number of Rules	Benefits	Costs
Administration/Office of Air			

The ranges of benefits and costs reported in Tables 1-1 and 1-2 were calculated by adding the lower bounds of agencies' estimates for each of the underlying rules to generate an aggregate lower bound, and similarly adding the upper bounds of agencies' estimates to generate an aggregate upper bound.[16] The range reported by the agency for each rule reflects the agency's uncertainty about the likely impact of the rule. In some cases, this range is a confidence interval based on a formal uncertainty analysis. In most cases, however, the ranges are generated using an informal sensitivity analysis in which input parameters are varied across a plausible range.

The benefits and costs presented in Tables 1-1 and 1-2 are not necessarily correlated. In other words, when interpreting the meaning of these ranges, the reader should not assume that when benefits are in fact on the low end of their range, costs will also tend to be on the low end of their range. This is because, for some rules, there are factors that affect costs that have little correlation with factors that affect benefits (and vice-versa). Accordingly, to calculate the range of net benefits (i.e., benefits minus costs), one should not simply subtract the lower bound of the benefits range from the lower bound of the cost range and similarly for the upper bound. It is possible that the true benefits are at the higher bound and that the true costs are at the lower bound, as well as vice-versa. Thus, for example, it is possible that the net benefits of Department of Labor rules taken together could range from about $2.2 billion to $19.1 billion per year.

2. EPA Air Rules

It should be clear that the rules with the highest benefits and the highest costs, by far, come from the Environmental Protection Agency and in particular its Office of Air and Radiation. EPA rules account for 58 to 80 percent of the monetized benefits and 44 to 54 percent of the monetized costs.[17] Of these, rules that have as either a primary or significant aim to improve air quality account for 98 to 99 percent of the benefits of EPA rules.

It is important to emphasize that the large estimated benefits of EPA rules issued pursuant to the Clean Air Act are mostly attributable to the reduction in public exposure to a single air pollutant: fine particulate matter. Of the EPA's 21 air rules, the rules with the highest estimated benefits are the Clean Air Fine Particle Implementation Rule, issued in 2007, with benefits estimates ranging from $19 billion to $167 billion per year; the Clean Air Interstate Rule, issued in 2005, with benefits estimates ranging from $12 to $152 billion; and the National Emission Standards for Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units ("Utility MACT"), issued in 2011, with benefits estimates ranging from $28 billion to $77 billion. While the benefits of these rules far exceed the costs, they are also among

[16] The approach of adding ranges likely overstates the uncertainty in the total benefits and costs for each agency. The actual ranges may be somewhat tighter than our estimates.
[17] These estimates do not include the joint EPA/DOT CAFE rules as "EPA" rules.

the costliest rules. The Utility MACT rule, which is estimated to be the costliest of the EPA rules, has annualized costs of about $8.1 billion.

We provide additional information because the estimated benefits and costs associated with the clean air rules provide a majority of the total benefits and costs across the Federal Government and because some of the scientific and economic questions are not resolved.

With respect to many of these rules, there remains room for continuing research and analysis to resolve uncertainties in benefits estimates; further scientific work is important in this domain. We note that EPA has invested substantial resources to reducing some aspects of that uncertainty over the last few years. EPA continues to improve methods to quantify the degree of technical uncertainty in benefits estimates and to make other improvements to EPA's Regulatory Impact Analyses.[18] Even so, significant uncertainty remains. More generally, the ranges of benefits and costs presented in Tables 1-1 and 1-2 should be treated with some caution. If the reasons for uncertainty differ across individual rules, aggregating high and low-end estimates can result in totals that may be misleading. In the case of the EPA rules reported here, however, a substantial portion of the uncertainty is similar across several rules, including (1) the uncertainty in the reduction of premature deaths associated with reduction in particulate matter and (2) the uncertainty in the monetary value of reducing mortality risk.

More research remains to be done on several key questions, including analysis of the health benefits associated with reduction of particular matter, which, as noted, drive a large percentage of aggregate benefits from air pollution controls. Midway through FY 2009, EPA made changes to some underlying assumptions as well as updates to some of the model inputs. These changes are reflected in EPA's more recent Regulatory Impact Analyses. With respect to particulate matter, we understand that significant additional research is currently being conducted that may be exceedingly valuable to clarify and resolve relevant scientific issues and to make further progress on the relationship between particulate matter, including the differentiation between different "species" of particulate matter, and health improvements. We continue to investigate the underlying questions. (We also note that consideration of co-benefits, including the co-benefits associated with reduction of particulate matter, is consistent with standard accounting practices and has long been required under OMB Circular A-4.)

We note in addition that EPA's 2006 National Ambient Air Quality Standards (NAAQS) for particulate matter (PM), with estimated benefits ranging from $4 billion to $40 billion per year and estimated costs of $3 billion per year, is excluded from the 10-year aggregate estimates or the year-by-year estimates. The reason for the exclusion is to prevent double-counting: EPA finalized implementing rules, such as the Cross-State Air Pollution Rule, that will achieve emission reductions and impose costs that account for a major portion of the benefit and cost estimates associated with this NAAQS rule. The benefit and cost estimates for lead NAAQS, SO2 NAAQS, and 2008 Ozone NAAQS may also be dropped in the future reports to avoid double counting to the extent that EPA publishes implementing regulations that would be designed to achieve the emissions reductions required by these NAAQS.

[18] See "Qualification and a brief discussion of uncertainties" for more discussion.

3. *Qualifications and a brief discussion on uncertainties*

In order for comparisons or aggregations to be meaningful, benefit and cost estimates should correctly account for all substantial effects of regulatory actions, some of which may not be reflected in the available data. Any comparison or aggregation across rules should also consider a number of factors that our presentation is not yet able to take into account. While practice is rooted in empirical research and is not widely variable, agencies have adopted somewhat different methodologies—for example, different monetized values for effects (such as mortality[19] and morbidity), different baselines in terms of the regulations and controls already in place, different rates of time preference, and different treatments of uncertainty. These differences are reflected in the estimates provided in Tables 1-1 and 1-2. And while we have generally relied on agency estimates in monetizing benefits and costs, and while those estimates have generally been subject both to public and to interagency review, our reliance on those estimates in this Report should not necessarily be taken as an OMB endorsement of all the varied methodologies used by agencies to estimate benefits and costs.

In addition, the agency estimates of benefits and costs naturally reflect the uncertainties associated with the agency's assumptions and other analytic choices. Noting some such uncertainties, a committee of the National Research Council/National Academy of Sciences

---

[19] Agencies often design health and safety regulation to reduce risks to life, and valuation of the resulting benefits can be an important part of the analysis. What is sometimes called the "value of a statistical life" (VSL) is best understood not as the "valuation of life," but as the valuation of *statistical mortality risks*. For example, the average person in a population of 50,000 may value a reduction in mortality risk of 1/50,000 at $150. The value of reducing the risk of 1 *statistical* (as opposed to known or identified) fatality in this population would be $7.5 million, representing the aggregation of the willingness to pay values held by everyone in the population. Building on an extensive and growing literature, OMB Circular A-4 provides background and discussion of the theory and practice of calculating VSL. It concludes that a substantial majority of the studies of VSL indicate a value that varies "from roughly $1 million to $10 million per statistical life." Circular A-4 generally reports values in 2001 dollars; if we update these values to 2010 dollars the range would be $1.2-$12.2 million. In practice, agencies have tended to use a value above the mid-point of this range (i.e., greater than $6.7 million in 2010 dollars).
Two agencies, EPA and DOT, have developed official guidance on VSL. In its 2013 update, DOT adopted a value of $9.1 million ($2012), and requires all the components of the Department to use that value in their RIAs. See Department of Transportation (2013). EPA recently changed its VSL to an older value of $6.3 million ($2000) and adjusts this value for real income growth to later years. In its final rule reviewing the National Ambient Air Quality Standards for particulate matter, for example, EPA adjusted this VSL to account for a different currency year ($2010) and for income growth to 2020, which yields a VSL of $8.9 million. EPA stated in this RIA, however, that it is continuing its efforts to update this guidance, and that it anticipated presenting draft guidelines in response to recommendations received from its Science Advisory Board.
Although the Department of Homeland Security has no official policy on VSL, it recently sponsored a report through its U.S. Customs and Border Protection, and has used the recommendations of this report to inform VSL values for several recent rulemakings. This report recommends $6.3 million ($2008) and also recommends that DHS adjust this value upward over time for real income growth (in a manner similar to EPA's adjustment approach).
Other regulatory agencies that have used a VSL in individual rulemakings include DOL's Occupational Safety and Health Administration (OSHA) and HHS' Food and Drug Administration (FDA). In OSHA's Hazard Communication final rule, OSHA used a VSL of $8.7 million ($2010). The FDA has consistently used values of $5.0 and $6.5 million ($2002) in several of its rulemakings to monetize mortality risks, but it also uses a monetary value of the remaining life-years saved by alternative policies. This is sometimes referred to as a "Value of a Statistical Life Year" or VSLY. (See Circular A-4 for discussion.)

released the study *Estimating the Public Health Benefits of Proposed Air Pollution Regulations* (2002), which recommends improvements to EPA benefits estimates. In addition, we continue to work with EPA to consider recommendations from recent NRC reports, Miller, et al (2006) and National Research Council (2008). See also Environmental Protection Agency (2010).

For example, the wide range of benefits estimates for particle control does not capture the full extent of the scientific uncertainty in measuring the health effects associated with exposure to fine particulate matter and its constituent elements. Continuing research is important in this domain. The six key assumptions in the benefits estimates are as follows:

1. Inhalation of fine particles is causally associated with premature death at concentrations near those experienced by most Americans on a daily basis. EPA has determined that the weight of available epidemiological evidence supports a determination of causality. Potential biological mechanisms for this effect while not completely understood, are supportive of this determination.
2. All fine particles, regardless of their chemical composition, are equally potent in causing premature mortality. This is an important assumption, because particulate matter (PM) produced via transported precursors emitted from electrical generating utilities (EGUs) tends to differ significantly from direct PM released from diesel engines and other industrial sources. Fine particles vary considerably in composition across sources, but EPA has concluded that the scientific evidence is not yet sufficient to allow differentiation of benefits estimates by particle type.
3. The impact function for fine particles is approximately linear within the range of ambient concentrations under consideration, which includes concentrations below the National Ambient Air Quality Standard. Indeed, a significant portion of the benefits associated with more recent rules are from potential health benefits in regions that are in attainment with the fine particle standard.
4. The forecasts for future emissions and associated air quality modeling are valid. These analyses are based on up-to-date assessment tools and scientific literature that has been peer-reviewed. Although we recognize the difficulties, assumptions, and inherent uncertainties in the overall enterprise, we believe the results are highly useful in assessing the benefits of air quality regulations.
5. Some rules apply a national dollar benefit-per-ton estimate of the benefits of reducing directly emitted fine particulates from specific source categories. Because these benefit-per-ton estimates are based on national-level analysis that may not reflect local variability in population density, meteorology, exposure, baseline health incidence rates, or other local factors, depending on the analysis and the location, they may over-estimate or under-estimate the actual benefits of controlling directly emitted fine particulates.
6. The value of mortality risk reduction is taken largely from studies of the willingness to accept risk in the labor market and might not necessarily apply to people in different stages of life or health status.

We have also noted that many of these major rules have important non-quantified benefits and costs that may have been a key factor in an agency's decision to select a particular approach. In important cases, agencies have been unable to quantify the benefits of rules, simply because existing information does not permit reliable estimates. These qualitative issues are

discussed in Table A-1 of Appendix A, agency rulemaking documents, and previous editions of this Report.

Finally, because these estimates exclude non-major rules and rules adopted more than ten years ago, the total benefits and costs of all Federal rules now in effect are likely to be significantly larger than the sum of the benefits and costs reported in Table 1-1. More research would be necessary to produce comprehensive current estimates of total benefits and costs for all agencies and programs, though some agencies have developed valuable comprehensive assessments of the benefits and costs of their programs. And as noted, it is important to consider retrospective, as opposed to *ex ante*, estimates of both benefits and costs; this topic is a continuing theme of this report.

B. Trends in Annual Benefits and Costs of Regulations Reviewed by OMB over the Last Ten Years

Table 1-3 reports the total benefits and costs of rules issued from October 1, 2002 to September 30, 2012 by fiscal year for which reasonably complete monetized estimates of both benefits and costs are available.[20] Figure 1-1 provides similar information as Table 1-3 in graphical form (note that in previous years, we have used a point estimates for this graph; however, for the purposes of this draft report we have attempted to incorporate the full range of impacts across the 10 fiscal years. We are particularly interested in comment on this new approach to the figure). As the figure shows, the monetized additional costs of private mandates tend to be around or below $10 billion per year. The vast majority of benefits and costs for rules finalized in FY2012 results from two rules: EPA's court-ordered Mercury and Air Toxics Standards (MATS) rule (the National Emission Standards for Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Electric Utility Steam Generating Units), and EPA and the Department of Transportation's Joint Rulemaking to Establish 2017 and Later Model Year Light Duty Vehicle GHG Emissions and CAFE Standards. Both rules have benefits that significantly outweigh their costs.

Table 1-3: Total Annual Benefits and Costs of Major Rules by Fiscal Year, (billions of 2001 dollars)

Fiscal Year	Number of Rules	Benefits	Costs
2003	6	$1.6 to $4.5	$1.9 to $2.0
2004	9[21]	$8.8 to $69.7	$2.6 to $2.8

[20] This table includes all rules reported in Table 1-1. The ranges will not necessarily match previously reported estimates for a fiscal year in past reports as rules have been dropped over time as described in this and past reports. See Appendix A for a complete list of rules included in these totals.

[21] This total excludes the impacts of EPA's 2004 "National Emission Standards for Hazardous Air Pollutants: Industrial/Commercial/Institutional Boilers and Process Heaters," included in our 10-year aggregate until last year's report. On June 19, 2007, the United States Court of Appeals for the District of Columbia Circuit vacated and remanded the national emission standards for hazardous air pollutants for industrial/commercial/institutional boilers and process heaters. It also excludes EPA's 2004 "Establishing Location, Design, Construction, and Capacity Standards for Cooling Water Intake Structures at Large Existing Power Plants" rule. On January 25, 2007 the

Fiscal Year	Number of Rules	Benefits	Costs
2005	12[22]	$27.9 to $178.1	$3.8 to $6.1
2006	6[23]	$2.5 to $5.0	$1.1 to $1.4
2007	12	$28.6 to $184.2	$9.4 to $10.7
2008	12	$8.6 to $39.4	$7.9 to $9.2
2009	15[24]	$8.6 to $28.9	$3.7 to $9.5
2010	17[25]	$18.6 to $85.9	$6.4 to $12.4
2011	12	$34.3 to $89.5	$5.0 to $10.1
2012	14	$53.2to $114.6	$14.8 to $19.5

Variability in benefit estimates appears greater than in cost estimates. Note that the benefits exceed the costs in every fiscal year and that the highest benefit year, in terms of the midpoint of the range of estimates, was 2007.

Second Circuit remanded this rule back to EPA for revisions and EPA suspended the provisions of the rule. On April 1, 2009 the Supreme Court reversed one part of the Second Circuit ruling related to the use of cost-benefit analysis and remanded the rule to the lower court, which returned the rule to EPA for further consideration at the agency's request.

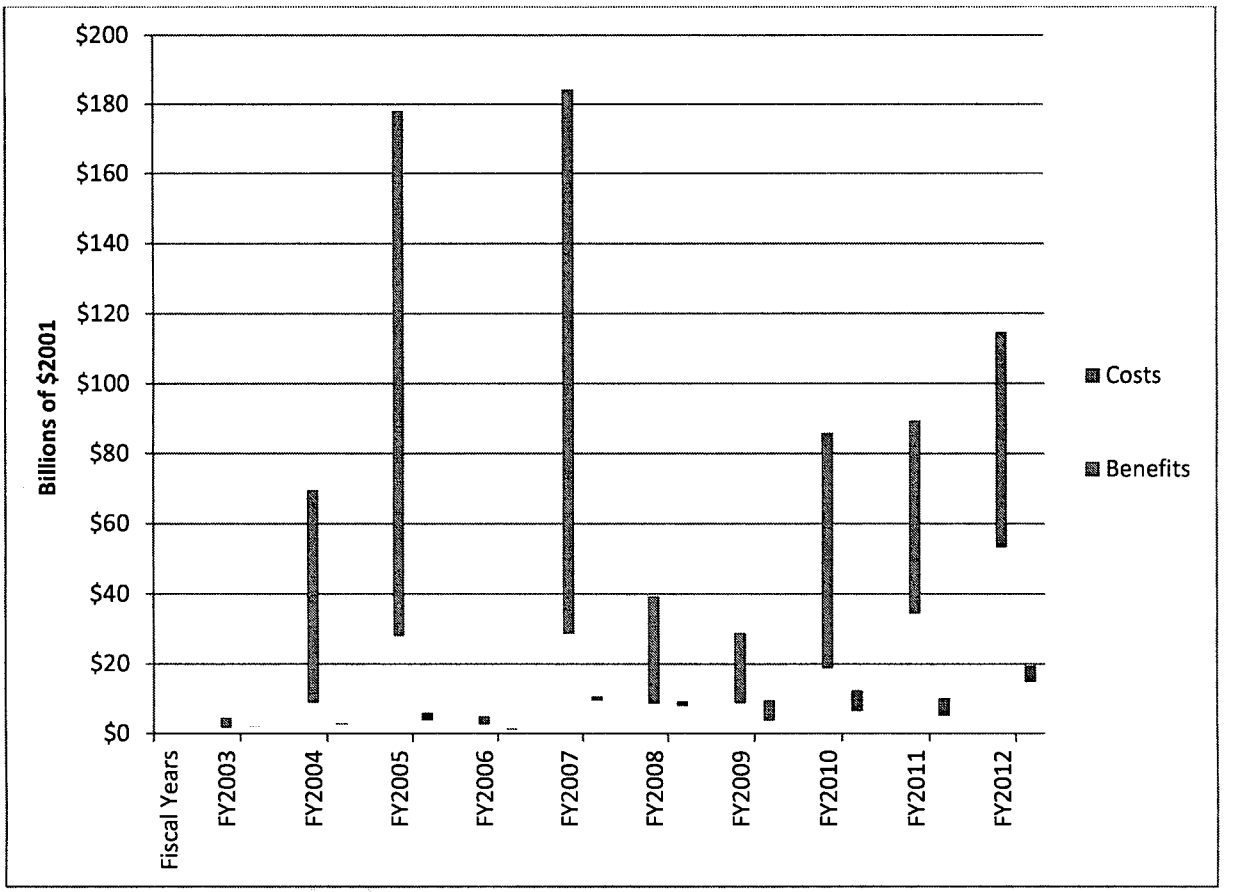
[22] This total does not include EPA's 2005 Clean Air Mercury Rule which was vacated in 2008.

[23] This total does not include the impacts of EPA's 2006 PM NAAQS rule. Consistent with past practices, the benefit and cost estimates of the NAAQS rulemaking was only included until the implementing regulations were finalized.

[24] This total excludes DOT's 2008 Hours of Service rule which finalized provisions included for an interim final rule included in the 2005 totals.

[25] This total excludes the impacts of DOT's 2010 Electronic On-Board Recorders for Hours-of-Service Compliance rule. This rule was vacated by the U.S. Court of Appeals for the Seventh Circuit on August 26, 2011.

Figure 1-1: Total Annual Benefits and Costs of Major Rules by Fiscal Year



The estimates we report here are prospective estimates made by agencies during the rulemaking process. As we have emphasized, it is possible that retrospective studies will show (as they sometimes have) that the benefits and costs were either overestimated or underestimated. As discussed elsewhere in this draft Report (see Appendix A) as well as previous Reports, the aggregate estimates of benefits and costs derived from estimates by different agencies and over different time periods are subject to some methodological variations and differing assumptions.[26] In addition, the groundwork for the regulations issued by one administration is often begun in a

[26] This is particularly true for EPA's air pollution regulations. Caution should be used in comparing benefits and costs over time in light of several factors, including new scientific evidence regarding the relationship between pollutants and health endpoints; changes in the EPA's choice of assumptions when uncertainty remains (e.g., regarding the shape of the concentration – response function at low levels); and differences in techniques for monetizing benefits (including changes to the value assigned to a statistical life). Aggregate estimates in the report reflect differences in approaches and assumptions over time. Summing across time does not reflect how EPA would calculate the benefits of prior rules today.

previous administration.[27] Nonetheless, the methodological variations and differing assumptions are usually not dramatic, and we believe that comparative information remains meaningful.

C. Estimates of the Benefits and Costs of Major Rules Issued in Fiscal Year 2012

1. Major Rules Issued by Executive Departments and Agencies

In this section, we examine in more detail the estimated benefits and costs of the 47 major final rules for which OMB concluded review during the 12-month period beginning October 1, 2011, and ending September 30, 2012.[28] (Note that 22 of the 47 rules are transfer rules.) Major rules represent approximately 19 percent of the 278 final rules reviewed by OMB.[29] OMB believes, however, that the benefits and costs of major rules, which have the largest economic effects, account for the majority of the total benefits and costs of all rules subject to OMB review.[30]

The monetized costs and benefits estimates, aggregated by agency in Table 1-4 and listed in Table 1-5(a), are included in the ten-year aggregates in Tables 1-1, 1-2, and 1-3.

[27]For example, FDA's trans-fat rule was proposed by the Clinton administration and issued by the Bush Administration, while the groundwork for EPA's 2004 non-road diesel engine rule was set by the NAAQS rules issued in 1997. Also, NHTSA's Corporate Average Fuel Economy rule for Model Year 2011 was proposed during the Bush Administration, but finalized in the first year of the Obama Administration.

[28] This count excludes rules that were withdrawn from OMB review or rules that were rescinded, stayed, or vacated after publication. It also counts joint rules as a single rule, even if they were submitted to OMB separately for review.

[29] Counts of OMB-reviewed rules are available through the "review counts" and "search" tools on OIRA's regulatory information website (www.reginfo.gov).

[30] We discussed the relative contribution of major rules to the total impact of Federal regulation in detail in the "response-to-comments" section on pages 26-27 of the 2004 Report. In summary, our evaluation of a few representative agencies found that major rules represented the vast majority of the benefits and costs of all rules promulgated by these agencies and reviewed by OMB.

Table 1-4: Estimates, by Agency, of the Total Annual Benefits and Costs of Major Rules: October 1, 2011 - September 30, 2012 (billions of 2001 dollars)

Agency	Number of Rules	Benefits	Costs
Department of Energy	2	$1.8 to $3.4	$0.3 to $0.7
Department of Health and Human Services	3	$0.9 to $1.7	$0.3 to $1.0
Department of Homeland Security	1	$0 to $0.4	$0.1 to $0.2
Department of Labor	1	$0.5 to $1.6	$0.1 to $0.2
Department of Transportation	3	$0.3 to $1.3	$0.4
Environmental Protection Agency	3	$28.5 to $77.5	$8.3
Joint DOT and EPA[31]	1	$21.2 to $28.8	$5.3 to $8.8
Total	**14**	**$53.2 to $114.6**	**$14.8 to $19.5**

Twenty-two of the rules were "transfer rules"—rules that primarily caused income transfers, usually from taxpayers to program beneficiaries. Most of these implement Federal budgetary programs as required or authorized by Congress. Rules of this kind are promulgated in response to statutes that authorize and often require them. Although rules that affect Federal budget programs are subject to Executive Orders 12866 and 13563 and OMB Circular A-4, and are reviewed by OMB, past Reports have focused primarily on regulations that have effects largely through private sector mandates. (For transfer rules, agencies typically report the estimated budgetary impacts.)

We recognize that markets embed distortions and that the transfers are not lump-sum. Hence, transfer rules may create social benefits or costs; for example, they may impose real costs on society to the extent that they cause people to change behavior, either by directly prohibiting or mandating certain activities, or, more often, by altering prices and costs. The costs resulting from these behavior changes are referred to as the "deadweight losses" associated with the transfer. The Regulatory Right-to-Know Act requires OMB to report the social costs and benefits of these rules, and OMB encourages agencies to report these costs and benefits for transfer rules; OMB will consider incorporating any such estimates into future Reports.

Tables 1-5(a) and 1-5(b) lists each of the 25 "non-transfer" rules and, where available, provides information on their monetized benefits, costs, and transfers.

[31] Estimates listed here are for EPA's rule. DOT's rule has lower estimated costs and benefits due to differences in their regulatory requirements.

Table 1-6(a) lists each of 19 "budget" rules and provides information on the estimated income transfers. Unless otherwise noted, OMB simply converts to 2001 dollars agencies' own estimates of annualized impacts. For all 47 budget and non-budget rules, we summarize the available information on the non-monetized impacts, where available, for these regulations in the "other information" column of Table A-1 in Appendix A. Table 1-6(b) lists the three non-budget transfer rules. The primary economic impact of each of these three rules is to cause transfers between parties outside the Federal Government, and the table includes agencies' estimates of these transfers.

Overall, HHS promulgated the largest number of rules (twenty-one). Fourteen of these largely transfer income from one group of entities to another without imposing significant costs on the private sector, while the other seven do have significant economic impact on the private sector.

Table 1-5 (a): Major Rules Reviewed with Estimates of Both Annual Benefits and Costs, October 1, 2011 - September 30, 2012 (billions of 2001 dollars)

Agency	RIN[32]	Title	Benefits	Costs
HHS	0938-AQ11	Administrative Simplification: Adoption of Standards for Electronic Funds Transfer (EFT) (CMS-0024-IFC)	$0.2-$0.3	<0.1
HHS	0938-AQ13	Administrative Simplification: Standard Unique Identifier for Health Plans and ICD-10 Compliance Date Delay (CMS-0040-F)	$0.7 Range: $0.4-$1.0	$0.5 Range: $0.2-$0.8
HHS	0938-AR01	Administrative Simplification: Adoption of Operating Rules for Electronic Funds Transfer (EFT) and Remittance Advice (RA) (CMS-0028-IFC)	$0.2-$0.3	$0.1-$0.3
DOL	1218-AC20	Hazard Communication	$0.6 Range: $0.5-$1.6	$0.2 Range: $0.1-$0.2
DHS	1625-AA32	Standards for Living Organisms in Ships' Ballast Water Discharged in U.S. Waters	$0.2 Range: <$0.1-$0.4	$0.1 Range: $0.1-$0.2
DOE	1904-AB50	Energy Efficiency Standards for Fluorescent Lamp Ballasts	$1.0 Range: $0.8-$1.6	$0.3 Range: $0.2-$0.5
DOE	1904-AB90	Energy Conservation Standards for Residential	$1.1 Range:	$0.2 Range:

[32] In 2010, OMB issued a memorandum on "Increasing Openness in the Rulemaking Process – Use of the Regulation Identifier Number (RIN)" (available at: http://www.whitehouse.gov/sites/default/files/omb/assets/inforeg/IncreasingOpenness_04072010.pdf). The memorandum provides that agencies should use the RIN on all relevant documents throughout the entire "lifecycle" of a rule. We believe that this requirement is helping members of the public to find regulatory information at each stage of the process and is promoting informed participation.

Agency	RIN[32]	Title	Benefits	Costs
		Clothes Washers	$1.0-$1.8	$0.2-$0.3
EPA	2060-AN72	Petroleum Refineries--New Source Performance Standards (NSPS)--Subparts J and Ja	$0.4-$0.7	$0.1
EPA	2060-AP52	National Emission Standards for Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Electric Utility Steam Generating Units	$28.1-$76.9	$8.2
EPA	2060-AP76	Oil and Natural Gas Sector--New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants	$0.2	$0.1
EPA & DOT	2060-AQ54; 2127-AK79	Joint Rulemaking to Establish 2017 and Later Model Year Light Duty Vehicle GHG Emissions and CAFE Standards[33]	$28.8 Range: $21.2-$28.8	$8.8 Range: $5.3-$8.8
DOT	2126-AA97	National Registry of Certified Medical Examiners	$0.1 Range: $0.1-$0.2	<$0.1
DOT	2126-AB26	Hours of Service	$0.5 Range: $0.2-$1.0	$0.4
DOT	2130-AC27	Positive Train Control Systems Amendments (RRR)	<$0.1 Range: $0-$0.1	<0.1

Nb: one of these rules should be deleted.

Eleven rules that partially monetized either benefits or costs and are listed in Table 1-5(b). Two of these rules, DOI's two Migratory Bird Hunting regulations, assessed only benefits. Nine rules reported only monetized costs or cost savings and relevant transfers, without monetizing benefits. The potential transfer effects and non-quantified effects of rules are described in "other information" column of Table A-1.[34]

We continue to work with agencies to improve the quantification of the benefits and costs of these types of regulations and to make progress toward quantifying variables that have thus far

[33] Estimates listed here are for EPA's rule. DOT's rule has lower estimated costs and benefits due to differences in their regulatory requirements.

[34] In some instances, agencies have been unable to quantify the benefits and costs of rules because existing information does not permit reliable estimates. In these cases, agencies generally have followed the guidance of Circular A-4 and have provided detailed discussions of the non-quantified benefits and costs in their analysis of rules in order to help decision-makers understand the significance of these factors. For example, DOI promulgates annual Migratory Bird Hunting regulations, which permit hunting of migratory birds. The two potential societal costs are (1) any long-run effect on the bird populations and (2) the cost associated with administering and enforcing the permit program. Evaluating the long-term population effect of annual hunting permits is difficult. Also, State governments administer and enforce the permit program; gathering this information is difficult.

been discussed only qualitatively. Executive Order 13563 notes that agencies "may consider (and discuss qualitatively) values that are difficult or impossible to quantify," but firmly states that "each agency is directed to use the best available techniques to quantify anticipated present and future benefits and costs as accurately as possible."

Table 1-5(b): Major Rules Reviewed with Partial Estimates of Annual Benefits or Costs, October 1, 2011 - September 30, 2012 (billions of 2001 dollars)

Agency	RIN	Title	Benefits	Costs
USDA	0584-AD59	Nutrition Standards in the National School Lunch and School Breakfast Programs	Not Estimated	$0.5
HHS	0938-AQ22	Medicare Shared Savings Program: Accountable Care Organizations (CMS-1345-F)	Not Estimated	$0.1
HHS	0938-AQ67	Establishment of Exchanges and Qualified Health Plans Part I (CMS-9989-F)	Not Estimated	$0.6 Range: $0.5-$0.6
HHS	0938-AQ89	Medicare and Medicaid Programs: Reform of Hospital and Critical Access Hospital Conditions of Participation (CMS-3244-P)	Not Estimated	-$0.7
HHS	0938-AQ96	Regulatory Provisions To Promote Program Efficiency, Transparency, and Burden Reduction (CMS-9070-P)	Not Estimated	-$0.1
DOI	1014-AA02	Increased Safety Measures for Oil and Gas Operations on the Outer Continental Shelf (OCS)	Not Estimated	$0.1
DOI	1018-AX97	Migratory Bird Hunting; 2012-2013 Migratory Game Bird Hunting Regulations—Early Season	$0.2	Not Estimated

Agency	RIN	Title	Benefits	Costs
DOI	1018-AX97	Migratory Bird Hunting; 2012-2013 Migratory Game Bird Hunting Regulations—Late Season	$0.2	Not Estimated
DOJ	1105-AB34	National Standards to Prevent, Detect, and Respond to Prison Rape	Not Estimated	$0.4
DOL	1210-AB08	Improved Fee Disclosure for Pension Plans	Not Estimated	$0.1 Range: <$0.1-$0.1
EPA	2060-AR55	Regulation of Fuels and Fuel Additives: 2013 Biomass-Based Diesel Renewable Fuel Volume	Not Estimated	$0.2-$0.3

Table 1-6(a) Major Rules Implementing or Adjusting Federal Budgetary Programs, October 1, 2011 - September 30, 2012 (billions of 2001 dollars)

Agency	RIN	Title	Transfers
USDA	0584-AE15	Certification of Compliance With Meal Requirements for the National School Lunch Program Under the Healthy, Hunger-Free Kids Act of 2010	$0.2
HHS	0938-AO53	Home and Community-Based State Plan Services Program and Provider Payment Reassignments (CMS-2249-P2)	$0.1
HHS	0938-AQ01	Changes in Provider and Supplier Enrollment, Ordering and Referring, and Documentation Requirements; and Changes in Provider Agreements (CMS-6010-F)	($0.1)
HHS	0938-AQ25	Revisions to Payment Policies Under the Physician Fee Schedule and Part B for CY 2012 (CMS-1524-FC)	($15.4)
HHS	0938-AQ26	Changes to the Hospital Outpatient Prospective Payment System and Ambulatory Surgical Center Payment System for CY 2012 (CMS-	$0.5

Agency	RIN	Title	Transfers
		1525-F)	
HHS	0938-AQ27	End-Stage Renal Disease Prospective Payment System for CY 2012, Quality Incentive Program for PY 2013 and PY 2014; Ambulance Fee Schedule; and Durable Medical Equipment (CMS-1577-F)	$0.2
HHS	0938-AQ30	Home Health Prospective Payment System Refinements and Rate Update for CY 2012 (CMS-1353-F)	($0.3)
HHS	0938-AQ35	Community First Choice Option (CMS-2337-F)	$1.5
HHS	0938-AQ62	Medicaid Eligibility Expansion Under the Affordable Care Act of 2010 (CMS-2349-F)	$23.8
HHS	0938-AQ84	Medicare and Medicaid Electronic Health Record Incentive Program--Stage 2 (CMS-0044-F)	$2.0
HHS	0938-AQ98	Establishment of the Consumer Operated and Oriented Plan Program (CMS-9983-F)	Not Estimated
HHS	0938-AR12	Changes to the Hospital Inpatient and Long-Term Care Prospective Payment Systems for FY 2013 (CMS-1588-F)	$1.7
HHS	0938-AR20	Prospective Payment System and Consolidated Billing for Skilled Nursing Facilities--Update for FY 2013 (CMS-1432-N)	$0.5
TREAS	1505-AC42	Assessment of Fees for Large Bank Holding Companies and Nonbank Financial Companies Supervised by the Federal Reserve to Cover the Expenses of the Financial Research Fund	Not Estimated
ED	1810-AB12	Teacher Incentive Fund	$0.2
ED	1810-AB15	Race to the Top--Early Learning Challenge Phase 2	$0.1
ED	1840-AD11	Federal Pell Grant Program	($3.8)
ED	1894-AA01	Race to the Top Fund Phase 3	$0.2
VA	2900-AO10	Vocational Rehabilitation and Employment Program—Changes to Subsistence Allowance	$0.1

( ) indicates a budget savings

Table 1-6(b): Additional Non-Budget Transfer Rules Reviewed, October 1, 2011 - September 30, 2012 (billions of 2001 dollars)

Agency	RIN	Title	Transfers
HHS	1904-AB50	Policy and Technical Changes to the Medicare Advantage and the Medicare Prescription Drug Benefit Programs for Contract Year 2013 (CMS-4157-F)	$4.9
HHS	0938-AR07	State Requirements for Exchange--Reinsurance and Risk Adjustments (CMS-9975-F)	$9.9 Range: $9.6-$9.9
DOL	1210-AB08	Labor Certification Process and Enforcement for Temporary Employment in Occupations Other Than Agriculture or Registered Nursing in the United States (H-2B Workers)[35]	$0.1

For regulations intended to reduce mortality risks, an important analytic tool that can be used to assess regulations, and to help avoid unjustified burdens, is cost-effectiveness analysis. Some agencies develop estimates of the "net cost per life saved" for regulations intended to improve public health and safety. To calculate this figure, the costs of the rule minus any monetized benefits other than mortality reduction are placed in the numerator, and the expected reduction in mortality in terms of total number of lives saved is placed in the denominator. This measure avoids any assignment of monetary values to reductions in mortality risk. It still reflects, however, a concern for economic efficiency, insofar as choosing a regulatory option that reduces a particular mortality risk at a lower net cost to society would conserve scarce resources compared to choosing an option that would reduce the same risk at greater net cost.

Table 1-7 presents the net cost per life saved for ten recent health and safety rules for which calculation is possible. The net cost per life saved is calculated using a 3 percent discount rate and using the agencies' best estimates for costs and expected mortality reduction. As is apparent, there is substantial variation in the net cost per life saved by these rules.

[35] On April 26, 2012, the U.S. District Court for Northern District of Florida issued a preliminary injunction against this rule. On April 1, 2013, the U.S. Court of Appeals for the Eleventh Circuit upheld this decision.

Table 1-7: Estimates of the Net Costs per Life Saved of Selected Health and Safety Rules Reviewed by OMB in Fiscal Years 2012-2013 (millions of 2001 dollars)

Agency	Rule	Net Cost per Life Saved	Notes
DOL/OSHA	Hazard Communication	Negative	Savings from productivity improvements exceed costs.
DOT/FMCSA	Hours of Service	Negative	Savings from property damage and congestion prevention, plus benefits from improved driver health exceed costs.
DOT/NHTSA	Ejection Mitigation	$0.2	The agency estimates that the rule will prevent 374 equivalent lives (using a 3% discount rate). This breaks down into about 304 fatalities and 69 equivalent lives from accidents. Using a VSL of $6.1 million, the value of the equivalent lives at a 3% discount rate is $421 million. If we subtract the non-fatality related benefits from costs, the net cost per life is about $0.3 million per life. Adjusting to 2001 dollars yields about $0.2 million per life saved.
EPA/AR	Cross State Air Pollution Rule (CAIR Replacement Rule)	Negative	Morbidity and visibility benefits exceed costs.
EPA/AR	National Emission Standards for Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Electric Utility Steam Generating Units	$0.5-1.2	The agency estimates that the rule will prevent between 4,300 and 11,000 premature deaths, annually. Total costs associated with the rule are $9.6 billion annually. The monetized annual value of the morbidity and other non-mortality benefits is $3 billion (using a 3% discount rate). If we subtract the non-mortality benefits from costs, the net cost per life saved is approximately $0.6 to 1.5 million ($2007). Adjusting to 2001 dollars yields roughly $0.5 to $1.2 million.
EPA/AR	Petroleum Refineries--New Source Performance Standards (NSPS)--Subparts J and Ja	Negative	Value of recovered natural gas exceeds costs.

This table is designed to be illustrative rather than definitive, and continuing work must be done to ensure that estimates of this kind are complete and not misleading. For example, some mortality-reducing rules have a range of other benefits, including reductions in morbidity, and it is important to include these benefits in cost-effectiveness analysis. Other rules have benefits that are exceedingly difficult to quantify but nonetheless essential to consider—for example, rules that improve water quality or have aesthetic benefits. Nonetheless, it is clear that some rules are far more cost-effective than others, and it is valuable to make note of variations in order to increase the likelihood that scarce resources will be used as effectively as possible.

2. *Major Rules Issued by Independent Agencies*

The Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA)[36] requires the Government Accountability Office (GAO) to submit to Congress reports on major rules, including rules issued by agencies not subject to Executive Orders 13563 and 12866. In preparing this Report, we reviewed the information contained in GAO reports on benefits and costs of major rules issued by independent agencies for the period of October 1, 2011 to September 30, 2012.[37] GAO reported that five agencies issued a total of 21 major rules during this period. (Rules by independent agencies are not subject to OMB review under Executive Order 13563 and Executive Order 12866.)

Table 1-8 lists each of these major rules and the extent to which GAO reported benefit and estimates for the rule. The majority of rules were issued to regulate the financial sector. Ten of the 21 rules were issued by the Commodity Futures Trading Commission (CFTC). CFTC also issued three joint rules with the Securities and Exchange Commission (SEC). SEC issued four additional rulemakings in the same period.

16 of the 21 rules provided some information on the benefits and costs of the regulation. The independent agencies still continue to struggle in providing monetized estimates of benefits and costs of regulation. Six rules included analyses that monetized portions of the costs; none of the rules provided analyses that include monetized estimates of benefits. In light of the limited information provided to and by the GAO, the Office of Management and Budget does not know whether the rigor of the analyses conducted by these agencies is similar to that of the analyses performed by agencies subject to OMB review.

The agencies in question are independent under the law, and under existing Executive Orders, OMB generally does not have authority to review their regulations formally or to require analysis of costs and benefits. We emphasize, however, that for the purposes of informing the public and obtaining a full accounting, it would be highly desirable to obtain better information on the benefits and costs of the rules issued by independent regulatory agencies. The absence of such information is a continued obstacle to transparency, and it might also have adverse effects on public policy. Recall that consideration of costs and benefits is a pragmatic instrument for ensuring that regulations will improve social welfare; an absence of information on costs and benefits can lead to inferior decisions.

Executive Order 13563 emphasizes the importance of agency use of "the best available techniques to quantify anticipated present and future benefits and costs as accurately as possible." While that Executive Order applies only to executive agencies, independent agencies may wish to consider the use of such techniques. In Executive Order 13573, the President explicitly said that the independent agencies should follow the central principles of Executive Order 13563. In its February 2, 2011, guidance on Executive Order 13563, OMB also

---

[36] Pub. L. No. 104-121.

[37] Footnote 3, above, states the criteria for including rules in the report. In practice, a rule was considered "major" for the purposes of the report if (a) it was estimated to have either annual costs or benefits of $100 million or more or (b) it was likely to have a significant impact on the economy.

encouraged the independent agencies to follow the principles and requirements of the order.[38]

OMB provides in Appendix C of this Report a summary of the information available on the regulatory analyses for major rules by the independent agencies over the past ten years. This summary is similar to the ten-year lookback for regulation included in recent Reports. It examines the number of major rules promulgated by independent agencies as reported to the GAO from 2003 through 2012, which are presented in Tables C-1 and C-2.[39]

Table 1-8: Major Rules Issued by Independent Regulatory Agencies, October 1, 2011 - September 30, 2012

Agency	Rule	Information on Benefits or Costs	Monetized Benefits	Monetized Costs
Bureau of Consumer Financial Protection	Electronic fund transfers (Regulation E) (77 FR 6194)	Yes	No	No
Bureau of Consumer Financial Protection	Fair credit reporting (Regulation V) (76 FR 79308)	Yes	No	No
Commodity Futures Trading Commission	Business conduct standards for swap dealers and major swap participants with counterparties (77 FR 9734)	Yes	No	No
Commodity Futures Trading Commission	Core principles and other requirements for designated contract markets (77 FR 36612)	Yes	No	Yes
Commodity Futures Trading Commission	Customer clearing documentation, timing of acceptance for clearing, and clearing member risk management (77 FR 21278)	No	No	No

[38] Memorandum for the Heads of Executive Departments and Agencies, and of Independent Regulatory Agencies, M-11-10, "Executive Order 13563, 'Improving Regulation and Regulatory Review,'" p. 6, available at http://www.whitehouse.gov/sites/default/files/omb/memoranda/2011/m11-10.pdf

[39] OMB did not finalize a Report in 1999; OMB reconstructed the estimates for this period based on GAO reports. Prior to the 2003 Report, OMB did not report on independent agency major rules on a fiscal year basis, but rather on an April-March cycle. Similar to last year, OMB is reporting all of the rules from 2003 through 2012 on a fiscal year basis (see Table C-1). The number of rules presented in earlier Reports may therefore not match the number of rules presented here.

Agency	Rule	Information on Benefits or Costs	Monetized Benefits	Monetized Costs
Commodity Futures Trading Commission	Derivatives clearing organization general provisions and core principles (76 FR 69334)	No	No	No
Commodity Futures Trading Commission	Investment of customer funds and funds held in an account for foreign futures and foreign options transactions (76 FR 78776)	Yes	No	No
Commodity Futures Trading Commission	Position limits for futures and swaps (76 FR 71626)	Yes	No	Yes
Commodity Futures Trading Commission	Protection of cleared swaps customer contracts and collateral; conforming amendments to the commodity broker bankruptcy provisions (77 FR 6336)	Yes	No	No
Commodity Futures Trading Commission	Real-time public reporting of swap transaction data (77 FR 1182)	Yes	No	No
Commodity Futures Trading Commission	Swap data recordkeeping and reporting requirements (77 FR 2136)	Yes	No	No
Commodity Futures Trading Commission	Swap dealer and major swap participant recordkeeping, reporting, and duties rules; futures commission merchant and introducing broker conflicts of interest rules; and chief compliance officer rules for swap dealers, major swap participants, and futures commission merchants (77 FR 20128)	No	No	No

Agency	Rule	Information on Benefits or Costs	Monetized Benefits	Monetized Costs
Commodity Futures Trading Commission and Securities Exchange Commission	Further definition of "swap dealer," "security-based swap dealer," "major swap participant," "major security-based swap participant" and "eligible contract participant" (77 FR 30596 (Interim Final Rule), 77 FR 48208 (Final Rule))	Yes	No	Yes
Commodity Futures Trading Commission and Securities and Exchange Commission	Further definition of "swap," "security-based swap," and "security-based swap agreement"; mixed swaps; security-based swap agreement recordkeeping (77 FR 48208)	No	No	No
Commodity Futures Trading Commission and Securities Exchange Commission	Reporting by investment advisers to private funds and certain commodity pool operators and commodity trading advisors on form PF (76 FR 71128)	Yes	No	Yes
Consumer Product Safety Commission	Testing and labeling pertaining to product certification (76 FR 69482)	No	No	No
Nuclear Regulatory Commission	Revision of fee schedules; fee recovery for FY 2012 (77 FR 35809)	Yes	No	No
Securities and Exchange Commission	Consolidated audit trail (77 FR 45722)	Yes	No	Yes
Securities and Exchange Commission	Disclosure of payments by resource extraction issuers (77 FR 56365)	Yes	No	Yes
Securities and Exchange Commission	Investment adviser performance compensation (77 FR 10358)	Yes	No	No
Securities and Exchange Commission	Net worth standard for accredited investors (76 FR 81793)	Yes	No	No

D. The Impact of Federal Regulation on State, Local, and Tribal Governments, Small Business, Wages, and Economic Growth

Section 624 (a)(2) of the Regulatory Right-to-Know Act requires OMB to present an analysis of the impacts of Federal regulation on State, local, and tribal governments, small business, wages, and economic growth. In addition, the 2011 Presidential Memorandum: Administrative Flexibility calls for a series of measures to promote flexibility for State, local, and tribal governments; these measures include reduced reporting burdens and streamlined regulation.[40]

1. Impacts on State, Local, and Tribal Governments

Over the past ten years, only five rules have imposed costs of more than $100 million per year ($2001 adjusted for inflation) on State, local, and tribal governments that have been classified as public sector mandates under the Unfunded Mandates Reform Act of 1995 (UMRA):[41]

- *EPA's National Primary Drinking Water Regulations: Long Term 2 Enhanced Surface Water Treatment* (2005): The rule protects against illness due to cryptosporidium and other microbial pathogens in drinking water and addresses risk-risk trade-offs with the control of disinfection byproducts. It requires the use of treatment techniques, along with monitoring, reporting, and public notification requirements, for all public water systems that use surface water sources. The monetized benefits of the rule range from approximately $260 million to $1.8 billion. The monetized costs of the rule range from approximately $80 million to $130 million.
- *EPA's National Primary Drinking Water Regulations: Stage 2 Disinfection Byproducts Rule* (2006): The rule protects against illness due to drinking water disinfectants and disinfection byproducts (DBPs).[42] The rule effectively tightens the existing standards by making them applicable to each point in the drinking water distribution system individually, rather than only on an average basis to the system as

[40] President Barack Obama, Memorandum for the Heads of Executive Departments and Agencies, "Presidential Memorandum – Administrative Flexibility," available at http://www.whitehouse.gov/the-press-office/2011/02/28/presidential-memorandum-administrative-flexibility.

[41] We note that EPA's rules setting air quality standards for ozone and particulate matter may ultimately lead to expenditures by State, local, or tribal governments of $100 million or more. However, Title II of the Unfunded Mandates Reform Act provides that agency statements of compliance with Section 202 must be conducted "unless otherwise prohibited by law." 2 U.S.C. § 1532 (a). The conference report to this legislation indicates that this language means that the section "does not require the preparation of any estimate or analysis if the agency is prohibited by law from considering the estimate or analysis in adopting the rule." H.R. Conf. Rep. No. 104-76 at 39 (1995). EPA has stated, and the courts have affirmed, that under the Clean Air Act, the criteria air pollutant ambient air quality standards are health-based and EPA is not to consider costs in setting the standards.

[42] While causal links have not been definitively established, a growing body of evidence has found associations between exposure to DBPs and various forms of cancer, as well as several adverse reproductive endpoints (e.g., spontaneous abortion).

a whole. EPA has determined that this rule may contain a Federal mandate that results in expenditures by State, local, and tribal governments, and the private sector, of $100 million or more in any one year. While the annualized costs fall below the $100 million threshold, the costs in some future years may be above the $100 million mark as public drinking water systems make capital investments and finance these through bonds, loans, and other means.

- *DHS's Chemical Facility Anti-Terrorism Standards Rule* (2007): This rule establishes risk-based performance standards for the security of our nation's chemical facilities. It requires covered chemical facilities to prepare Security Vulnerability Assessments (SVAs), which identify facility security vulnerabilities, and to develop and implement Site Security Plans (SSPs), which include measures that satisfy the identified risk-based performance standards. The rule also provides DHS with the authority to seek compliance through the issuance of Orders, including Orders Assessing Civil Penalty and Orders for the Cessation of Operations. DHS has determined that this rule constitutes an unfunded mandate on the private sector. In the regulatory impact assessment published with this rule, DHS estimates that there are 1,500 to 6,500 covered chemical facilities. DHS also assumes that this rule may require certain municipalities that own and/or operate power generating facilities to purchase security enhancements. Although DHS is unable to determine if this rule will impose an enforceable duty upon State, local, and tribal governments of $100 million (adjusted annually for inflation) or more in any one year, it has been included in this list for the sake of completeness.
- *EPA's National Emission Standards for Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units and Standards for Performance for Electric Utility Steam Generating Units (2011)*: This rule will reduce emissions of hazardous air pollutants (HAP) including mercury from electric power generators, both private and public. The annualized estimated cost is $9.6 billion ($2007, using discount rates of 3% and 7%). The lower annualized estimated benefit is $33 billion ($2007, 7% discount rate); the higher $90 billion ($2007, 3% discount rate). The annualized net compliance cost to government entities is approximately $294 million in 2015.
- *USDA's Nutrition Standards in the National School Lunch and School Breakfast Programs (2012)*: This rule updates the meal patterns and nutrition standards for the National School Lunch and School Breakfast Programs to align them with the Dietary Guidelines for Americans. This rule requires most schools to: (1) increase the availability of fruits, vegetables, whole grains, and fat-free and low-fat fluid milk in school meals; (2) reduce the levels of sodium, saturated fat and trans fat in meals; and (3) meet the nutrition needs of school children within their calorie requirements. USDA estimates $479 million in annual costs for the Local School Food Authorities and training, technical assistance, monitoring, and compliance costs for the State Education Agencies.

Although these five rules were the only ones over the past ten years to require public sector mandates under UMRA by State, local, and tribal governments exceeding $100 million (adjusted for inflation), they were not the only rules with impacts on other levels of governments. For example, many rules have monetary impacts lower than the $100 million threshold, and

agencies are also required to consider the federalism implications of rulemakings under Executive Order 13132.

2. Impact on Small Business

The Regulatory Right-to-Know Act calls for an analysis of the effects of regulations on small business. Consistent with that direction, Executive Order 12866, "Regulatory Planning and Review," recognizes the need to consider such effects and to minimize costs on small business. That Executive Order, reaffirmed by and incorporated in Executive Order 13563, "Improving Regulation and Regulatory Review," directs agencies to tailor their regulations by business size in order to impose the least burden on society, consistent with the achievement of regulatory objectives. It also calls for the development of short forms and other efficient regulatory approaches for small businesses and other entities.

In the findings section of SBREFA, Congress states that "small businesses bear a disproportionate share of regulatory costs and burdens."[43] When relevant regulations are issued, each firm must determine whether a regulation applies, how to comply, and whether it is in compliance. For small business, making that determination may impose significant costs. As firms increase in size, fixed costs of regulatory compliance are spread over a larger revenue and employee base, which often results in lower regulatory costs per unit of output.

In recognition of these principles, many statutes and regulations explicitly attempt to reduce burdens on small businesses, in part to promote economic growth and in part to ensure against unnecessary or unjustified costs and adverse effects on employment and wages. For example, agencies frequently tailor regulations to limit the costs imposed on small business and to offer regulatory relief, including explicit exemptions for small businesses and slower phase-in schedules, allowing adequate periods of transition. Moreover, the Regulatory Flexibility Act (RFA) requires agencies to assess the effect of regulations on small businesses.[44] Under the RFA, whenever an agency concludes that a particular regulation will have a significant economic effect on a substantial number of small entities, the agency must conduct both an initial and final regulatory flexibility analysis. This analysis must include (among other things) an assessment of the likely burden of the rule on small entities and an analysis of alternatives that may afford relief to small entities while achieving the regulatory goals. OMB works closely with agencies to promote compliance with RFA and to tailor regulations to reduce unjustified costs and to create appropriate flexibility.

On January 18, 2011, President Obama issued a memorandum to underline the requirements of the RFA and to direct agencies to offer an explanation of any failure to provide flexibility to small businesses in proposed or final rules. Such flexibility may include delayed compliance dates, simplified reporting requirements, and partial or total exemptions. The President's memorandum emphasizes the relationship between small and new businesses and

[43] Section 202(2) of Pub. L. No. 104-121.
[44] 5 U.S.C. §§ 601-612.

economic growth and job creation; he directed agencies to ensure, to the extent feasible and consistent with law, that regulatory initiatives contain flexibility for small businesses.[45]

The empirical evidence of the effects of regulation on small business remains less than clear. We have cited in previous Reports research by the Small Business Administration (SBA) Office of Advocacy, suggesting that small entities disproportionately shoulder regulatory and paperwork burdens. The Office of Advocacy has sponsored at least four studies that estimate the burden of regulation on small businesses.[46] A study sponsored by SBA (and cited in our 2010 Report), by Dean, et al., concludes that environmental regulations act as barriers to entry for small firms.[47]

Becker offers a more complex view, focusing on the effect of air pollution regulation on small business.[48] He finds that although "progressively larger facilities had progressively higher unit abatement costs, ceteris paribus,"[49] the relationship between firm size and pollution abatement costs varies depending on the regulated pollutant. For troposphere ozone, the regulatory burden seems to fall substantially on the smallest three quartiles of plants. For SOx, the relationship between regulatory burden and the firm size seems to be U-shaped. For total suspended particles, new multi-unit emitting plants in the smallest size class had $265 more capital expenditure (per $10,000 of value added) in non-attainment counties than similar plants in attainment counties, while "those in the larger size classes had an additional $511-687 in expenditure...though the rise was not monotonic."[50]

The evidence in the literature, while suggestive, remains preliminary, inconclusive, and mixed. OMB continues to investigate the evolving literature on the relevant questions in order to obtain a more precise picture. It is clear, however, that some regulations have significant adverse effects on small business and that it is appropriate to take steps to create flexibility in the event that those adverse effects cannot be justified by commensurate benefits. As the President's 2011 memorandum directs, agencies should specifically explain any refusal to take such steps, especially in light of the importance of small businesses and startups for economic growth and job creation.

3. Impact on Wages and Employment

Regulations of many different markets and areas of activity can ultimately affect labor markets, producing changes in wages and employment levels. Some regulations can have adverse effects on both dimensions, especially if they significantly increase costs; other regulations might produce benefits, especially if they significantly decrease costs. The relevant effects can be quite complex, since in general equilibrium, regulation in one market can have

---

[45] Barack Obama, Memorandum for the Heads of Executive Departments and Agencies, "Presidential Memoranda – Regulatory Flexibility, Small Business, and Job Creation," available at http://www.whitehouse.gov/the-press-office/2011/01/18/presidential-memoranda-regulatory-flexibility-small-business-and-job-cre.

[46] See Hopkins (1995); Dean, et al. (2000); Crain and Hopkins (2001); Crain (2005).

[47] Dean, et al. (2000).

[48] Becker (2005).

[49] *Id.*, p. 163.

[50] *Id.*, p. 165.

ripple effects across many markets, making it difficult to produce aggregate figures. In addition, some regulations require or promote activities that may have beneficial effects on job creation.

We discuss here the effect of labor market regulations, environmental regulations, and economic regulations on wages and employment. OMB continues to investigate the possibility that certain kinds of regulations can have adverse effects on job creation in particular, and is interested both in empirical work and in taking steps to reduce or eliminate such adverse effects. Under Executive Order 13563, job creation is an important consideration in regulatory review: "Our regulatory system must promote public health, welfare, safety, and our environment while promoting economic growth, innovation, competitiveness, and job creation." In light of Executive Order 13563, a number of recent Regulatory Impact Analyses attempt to identify the likely employment effects of regulation (whether positive or negative).

a. Labor market regulations.

It is perhaps simplest to analyze the effects of direct regulation of labor markets, as they can be plausibly analyzed using a relatively simple partial equilibrium framework—i.e., one that focuses exclusively on the labor market, ignoring the effects through other markets. There are many different types of labor market regulations. Perhaps the most obvious are direct price controls, such as minimum wage laws.[51] Another form of labor market regulation consists of regulations that mandate particular employer-provided benefits, such as the requirement under the Family and Medical Leave Act (FMLA) to provide unpaid leave to care for a new child; in the same category are rules that affect working conditions, such as workplace safety regulations under the Occupational Safety and Health Act. Another category of labor market regulation is anti-discrimination law, which protects certain classes of workers from discrimination in hiring and wage-setting decisions. Yet another form of labor market regulation governs the ability of workers and firms to bargain collectively; in general, U.S. competition law prohibits collusion among employers and allows collective bargaining by workers.

The effects of these approaches must be analyzed separately. Here we outline the theory and evidence on the effect of mandated benefits regulations on wages and employment levels. To be concrete, consider a workplace safety regulation. Summers provides the standard price-theoretic treatment of such regulations.[52] Such a regulation will shift the labor supply curve down by the amount that workers value the increase in safety, so that workers are willing to supply more labor for a given wage than in the absence of the regulation. Because it imposes compliance costs on employers, the regulation also shifts the labor demand curve down by the amount of the compliance cost.

If workers value the mandated benefit at more than it costs employers to provide the benefit, then both the employment level and net wages (i.e., monetary compensation plus the value of non-monetary benefits such as safety) will rise. Under standard assumptions, employers have incentives to provide such benefits, but various market failures may result in suboptimal provision of such benefits. Conversely, if workers value the mandated benefit at less than its

[51] Neumark & Wascher (2008).
[52] Summers (1989).

cost, then the employment level and net wages will fall. This simple model assumes that wages can indeed perfectly adjust downwards in response to the mandated benefits—but if wages are sticky, then the regulation could result in a decrease in employment levels and an increase in net wages.

In the case of group-specific mandated benefits, which are targeted at identifiable groups of workers in the population, the theoretical analysis is more complicated. Jolls provides the leading account and emphasizes that the interaction of group-specific mandated benefits regulation with anti-discrimination law determines its consequences for labor markets.[53] Consider, for instance, regulations under the Americans with Disabilities Act (ADA) that require that employers accommodate the special needs of disabled employees—a group-specific mandated benefit. The law also forbids employers from discriminating against disabled workers in hiring and compensation decisions. To the extent that it is easier to enforce the prohibition of discrimination in wage setting than in hiring decisions, Jolls argues that the law will result in no reduction in wages for disabled workers but a reduction in their employment level, because employers will prefer to hire (cheaper) non-disabled workers.

In contrast, group-specific mandates that target women, such as maternity leave mandates, are more likely to have an effect on wages because women are disproportionately represented in a few occupations, and hence their wages can more easily be adjusted downward without triggering anti-discrimination enforcement. These mandates can be analyzed in the standard framework provided by Summers described above, and because wages adjust down, are less likely to have a negative effect on employment.

The empirical literature does not offer unambiguous conclusions, but some studies provide support for the predictions of these simple partial equilibrium models. Acemoglu and Angrist find that the ADA resulted in no decrease in relative wages of disabled people but a decrease in employment levels.[54] In contrast, Gruber finds that regulations that require employers to provide comprehensive coverage for childbirth in health insurance plans result in a decrease in women's wages but have no effect on their employment levels.[55] Studies examining the effect of the FMLA in the U.S., however, find little effect on either relative employment levels or wages of women, perhaps because the mandated leave is short and unpaid, and many employers provided maternity leave prior to the law.[56] Bartik reviews labor market literature and offers recommendations on how to improve employment benefits using adjusted reservation wage gains and adjusted earnings gains.[57] Using 1994-1998 International Adult Literacy Survey microdata for Canada, Finland, Italy, the Netherlands, Switzerland, the United Kingdom, and the US, Kahn finds that employment protection mandates increase the incidence of temporary employment for low skilled workers, youth and women and raise relative joblessness among the young, immigrants and possibly women.[58] Botero et al largely echo this result when they

[53] Jolls (2000).
[54] Acemoglu and Angrist (2001).
[55] Gruber (1994).
[56] Waldfogel (1999) and Baum (2003). Ruhm (1998) examines parental leave mandates in Europe and finds that they are associated with increases in women's relative employment levels and reductions in their relative wages.
[57] Bartik (2012).
[58] Kahn (2007).

examined the relationship between labor force participation and employment laws, collective relations laws and social security laws in 85 countries.[59] OMB continues to investigate the growing literature on these topics. The references here are meant to be illustrative rather than exhaustive.

b. Environmental regulation.

The effects of environmental regulation on the labor market can be difficult to assess, in part because those effects are not easy to disentangle from the effects of other economic changes over time and across industries. The underlying questions require careful and continuing conceptual analysis and empirical study, and OMB is following new developments, both conceptual and empirical. In this section we summarize some of the leading articles that are often cited in the academic literature.

Surveying the early studies, Goodstein (1994) finds that seven of nine relevant studies showed increases in employment as a result of environmental regulation, one showed a decrease, and one was inconclusive. He states that "on balance, the available studies indicate that environmental spending ... has probably led to a net increase in the number of jobs in the U.S. economy ... although if it exists, this effect is not large." A more recent discussion finds that the research thus far has "yielded mixed results" with respect to "the over-all employment effects of environmental regulation" in the short- or medium-term.[60]

In an influential treatment, Morgenstern, Pizer, and Shih (2002) explore four highly polluting, regulated industries to examine the effect of higher abatement costs from regulation on employment.[61] The authors conclude that increased abatement expenditures generally do not cause a significant change in employment. In reaching this conclusion, they provide a general framework, identifying three sources of potential beneficial and adverse effects that regulation could have on employment:

- *Demand effect:* higher production costs raise market prices and hence reduce consumption (and production), thus reducing demand for output, with potentially negative effects on employment; in the authors' words, the "extent of this effect depends on the cost increase passed on to consumers as well as the demand elasticity of industry output."
- *Cost effect:* As costs go up, plants add more capital and labor (holding other factors constant), with potentially positive effects on employment; in the authors' words, as "production costs rise, more inputs, including labor, are used to produce the same amount of output."
- *Factor-shift effect:* Post-regulation production technologies may be more or less labor intensive (i.e., more/less labor is required per dollar of output); in the authors' words, "environmental activities may be more labor intensive than conventional production," meaning that "the amount of labor per dollar of output will rise," though it is also

[59] Botero, et al (2004).
[60] Berman and Bui (2001b).
[61] Data include information from 1979, 1980, 1981, 1985, 1988 and 1991.

possible that "cleaner operations could involve automation and less employment, for example."

Isolating these elements, the authors expect, and find, *positive* employment effects in industries (such as petroleum and plastics) where environmental activities are labor-intensive and demand is relatively inelastic. Where the pollution abatement activities required or encouraged by regulation are not labor-intensive, and where demand is elastic, positive employment effects would not be expected and negative effects should be anticipated to occur; in such cases, the demand effect will dominate the outcome. But the authors find that in those industries where labor already represents a large share of production costs and where demand is relatively more elastic (such as steel and pulp and paper), there is nonetheless little evidence of any statistically significant employment consequence. They also state that "increased environmental spending generally does *not* cause a significant change in industry-level employment. Our average across all four industries is a net gain of 1.5 jobs per $1 million in additional environmental spending, with a standard error of 2.2 jobs—an insignificant effect."

In another study, Berman and Bui (2001) use direct measures of regulation and plant data to estimate the employment effects of sharply increased air quality regulation in Los Angeles. They compare changes in employment in affected plants to those in other plants in the same industries but in regions not subject to the local regulations. The authors find that "while regulations do impose large costs, they have a limited effect on employment" – even when exit and dissuaded entry effects are considered.[62] Their conclusion is that local air quality regulation "probably increased labor demand slightly." In their view, the limited effects likely arose because (1) the regulations applied disproportionately to capital-intensive plants with relatively little employment; (2) the plants sold to local markets where competitors were subject to the same regulations (so that sales were relatively unaffected); and (3) abatement inputs served as complements to employment.

In a related paper, Cole and Elliott (2007) study the impact of UK environmental regulations on sectoral employment using panel data spanning 27 different industries over 5 years. They find that environmental regulation costs did not have a statistically significant effect on employment, regardless of whether such costs were treated as exogenous or endogenous. The authors suggest that regulation costs could generate "competing effects on employment and cancel each other out" or simply have no discernible impact at all. By contrast, other sectoral studies – focusing on the manufacturing sector – have found negative effects on employment.[63]

The 2010 Report states that OMB is also exploring the risk that domestic regulation might lead companies to do business abroad as a result of domestic regulation in the environmental area, resulting in depressed wages and employment. The economic literature has for some time examined firms' decisions to locate new plants or relocate existing plants in response to environmental regulations.

---

[62] Berman and Bui (2001).

[63] See, e.g., Greenstone (2002); Kahn (1997). See also Walker (2011), for a recent finding of negative effects on employment as a result of environmental regulation.

In this context, the evidence is both suggestive and mixed. In their review of the literature on the effect of environmental regulation on the manufacturing sector, Jaffe et al. find that "although the long-run social costs of environmental regulation may be significant, including adverse effects on productivity, studies attempting to measure the effect of environmental regulation on net exports, overall trade flows, and plant-location decisions have produced estimates that are either small, statistically insignificant, or not robust to tests of model specification."[64]

Using 17-year panel data, Keller and Levinson (2002) find the stringency of environmental regulation (expressed in pollution abatement costs) has "small deterrent effects" on states competing for foreign direct investment.[65] Xing and Kolstad find "using instruments for the unobserved variables, the statistical results show that the laxity of environmental regulations in a host country is a significant determinant of F[oreign] D[irect] I[nvestment] from the US for heavily polluting industries and is insignificant for less polluting industries."[66]

A recent study by Hanna (2010) measured the response of US-based multinationals foreign direct investment decisions to the Clean Air Act Amendments using a panel of firm-level data over the period 1966-1999. Consistent with the theory that regulation causes firms to substitute foreign for domestic production, the authors find that in the environmental area, domestic regulation has led US-based multinational companies "to increase their foreign assets in polluting industries by 5.3 percent and their foreign output by 9 percent."[67] The authors also find that these results are more robust for firms that manufactured within an industry for which imports had historically accounted for a large percentage of US consumption (see also Greenstone (2002) discussed below). Like Hanna (2010), Brunnermeier and Levinson (2004), using panel data, also find "statistically significant pollution haven effects of reasonable magnitude."[68] Levinson and Taylor's (2008) results in examining trade flows and environmental regulation are consistent with these other studies.[69]

c. Economic regulation.

Rate regulations and restrictions on entry in product markets—commonly referred to as "economic regulation"—can have important effects on labor markets. As emphasized by Peoples,[70] restrictions on entry into an industry can make unionization of the industry easier because as a result the industry is dominated by a few large firms, which lowers the cost of organizing workers. The resulting high unionization rates give unions in the regulated industries substantial bargaining power, and as a result wages in regulated industries, which historically include trucking, electricity, and airlines, are higher. Moreover, rate regulations that allow firms in these industries to pass costs on to customers may make it easier for unions to bargain for relatively high wages.

---

[64] Jaffe et al, pp. 157-8.
[65] Keller and Levinson (2002), p. 691.
[66] Xing and Kolstad (2002), p. 1.
[67] Hanna (2010), p. 160.
[68] Brunnermeier and Levinson (2004), p. 6.
[69] Levinson and Taylor (2008).
[70] Peoples (1998).

To the extent that economic regulation also results in higher prices in the product market, consumers, including workers, will of course have to pay those prices. Blanchard and Giavazzi show in theoretical terms that the increased markups in the product market caused by widespread economic regulation can result in both lower real wages of workers, measured in terms of purchasing power, and lower employment levels.[71] The theoretical negative effect of entry regulation on employment was supported empirically by Bertrand and Kramarz,[72] who examine entry restrictions in the French retail industry and find that they have reduced employment growth in France. Using individual worker information from CPS files from 1973 through 1988, Peoples and Saunders show that deregulation of the trucking industry led to significant real wage reduction for white drivers, narrowing the black/white income gap.[73]

4. Impact on Economic Growth

Measuring the effects of regulation on economic growth is a complex task. The category of "regulation" is of course very large. Criminal law, property law, and contract law are not always characterized as "regulation," but they do have regulatory functions, and if well-designed, they can promote and even be indispensable to economic growth. A system of freedom of private property and freedom of contract promotes such growth, and it cannot exist without regulation (including that form of regulation that occurs through the common law). Some forms of national regulation may have a positive effect on growth, perhaps by promoting stable and efficient operation of financial markets, by improving educational outcomes, by promoting innovation, or by upgrading the operation of the transportation system. An absence of regulation, or poorly designed deregulatory initiatives, may have significant adverse effects on growth – if, for example, they undermine the stability and efficiency of financial markets.

Excessive and unnecessary regulations, on the other hand, can place undue burdens on companies, consumers, and workers, and may cause growth and overall productivity to slow. While the evidence remains less than entirely clear, some evidence suggests that domestic environmental regulation has led some U.S.-based multinationals to invest in other nations (especially in the domain of manufacturing), and in that sense, such regulation may have an adverse effect on domestic growth. It is generally agreed that predictability and certainty are highly desirable features of a regulatory system. (We note parenthetically that Executive Order 13563 emphasizes that our regulatory system "must promote predictability and reduce uncertainty"; in certain recent actions and decisions, including the decision not to finalize the EPA's proposed ozone rule in 2011, the Administration has emphasized the importance of predictability and certainty.) At the same time, the direct impacts of particular regulations, or categories of regulations, on the overall economy may be difficult to establish because causal chains are uncertain and because it is hard to control relevant variables.

a. Some conceptual challenges and the nature of growth.

One difficulty with measuring the relationship between regulation and economic growth is identifying the appropriate measure of output. Economists frequently look at Gross Domestic

[71] Blanchard and Giavazzi (2003).
[72] Bertrand and Kramarz (2002).
[73] Peoples and Saunders (1993).

Product (GDP), which is also our principal emphasis here (see below), but as a growing technical literature suggests, GDP may not adequately account for the effects of some regulations. For example, GDP does not capture directly relevant benefits of regulation, such as environmental protection, that do not result in increases in goods or services produced.[74] Efforts to expand the national accounts to incorporate omitted factors – such as improvements in environmental quality in satellite accounts – suggest the incompleteness of existing measures.[75]

A detailed literature explores some of the potentially deeper limitations of national income and product accounting. There is a complex and not fully understood relationship between GDP growth and subjective well-being (insofar as a rapidly growing literature suggests that the latter may be measured).[76] Two of the most important contributors to this literature are Nobel Prize winner Daniel Kahneman and ~~current~~ former Council of Economic Advisers Chairman Alan Krueger. Some studies, for example, conclude that, on average, increases in subjective well-being are clearly and consistently associated with rising levels of GDP across different countries.[77] Such studies find that this positive relationship is even stronger when comparing the subjective well-being of richer and poorer members within the same country at a single point in time.[78] Other studies point to cross-country data suggesting that as income per capita increases, subjective well-being increases steeply but only up to a certain threshold. Afterwards, levels of happiness are only weakly correlated with further increases in income per capita; that is, above some threshold level of GDP, income has little effect on subjective well-being.[79] The precise relationship between GDP growth and subjective well-being has yet to be settled.

A more general observation is that there may be a significant difference between self-reported life satisfaction and self-reported day-to-day experience; the measure of "life satisfaction" evidently captures judgments that are not captured in day-to-day experience, and vice-versa.[80] Some studies, for example, find that life satisfaction generally increases with income but that experienced well-being does not.[81]

In this vein, Krueger, et al, offer an alternative measure of well-being—National Time Accounting—that proposes to measure and analyze how people spend and experience their time.[82] One claim is that such measures provide important information that is not fully or adequately captured in GDP or other existing measures. This approach provides an extension to

[74] See Sen (1999a, 1999b), Krueger (2009), Kahneman, et al. (2004), and Stiglitz, et al. (2010).
[75] Nordhaus & Kokkelenberg (1999); Nordhaus (2004).
[76] See Krueger (2009) for a discussion of subjective well-being and its measurement. See also Stevenson and Wolfers (2008b) showing movements in happiness inequality that do not parallel movements in income inequality.
[77] See Deeton (2008); Hagerty & Veenhoven (2003); Stevenson & Wolfers (2008a); Inglehart, Foa, Peterson, & Welzel (2008). For a finding of "a clear positive link between average levels of subjective well-being and GDP per capita across countries," see Stevenson and Wolfers (2008a).
[78] Stevenson and Wolfers (2008a) characterize this conclusion as one that has garnered a "clear consensus in the literature."
[79] See Inglehart et al. (2008). Lane (2001) claims that once an individual rises above a basic "subsistence level," the major sources of well-being are not income but rather friends and family life.
[80] Diener et al. (2010); Kahneman (1999).
[81] Krueger & Schkade (2008); Diener et al. (2010).
[82] Krueger, et al (2009). Krueger and Schkade (2008) also have examined the reliability of subjective well-being measures. For a general account, see Diener, et al. (2009). See also Kahneman et al (2004), Kahneman & Krueger (2006), Krueger, ed. (2009).

regular time use surveys and uses what the authors call the Day Reconstruction Method (DRM) to ask respondents what they were doing and how they felt at different times during the day.

Federal statistical initiatives are currently underway that are influenced by and build upon this approach. The National Institute on Aging (NIA) is supporting the inclusion of well-being measures in a number of large population-based surveys, both nationally and internationally. Specifically, a module of questions, designed by Krueger with funding from NIA, was fielded in the 2010 American Time Use Survey (ATUS). The ATUS, which is conducted by the U.S. Census Bureau for the Bureau of Labor Statistics (BLS), is a continuous survey about how individuals age 15 and over spend their time doing various activities, such as work, childcare, housework, watching television, volunteering, and socializing. In the module, up to three activities that a respondent reports are randomly selected, and respondents are asked how happy, tired, sad, stressed, and in pain they felt during each of those activities. Data from this module will become available mid-2011. NIA currently intends to fund this module again in 2012, and OIRA continues to support these efforts.

In November 2010, the NIA and the U.K, Economic and Social Research Council also sponsored a workshop that was held at the National Academy of Sciences on the role of well-being measures in public policy. This meeting brought together leading academic and policy experts from the U.S. and U.K. to explore research needs and practical challenges surrounding the integration of subjective well-being measures into policy planning and evaluation process of local and national governments and agencies. The NIA has further commissioned a National Academy of Sciences panel on development of nonmarket satellite National Accounts of Well-being. In addition, NIA, along with the National Center for Complementary and Alternative Medicine, is funding a series of research grants on both experienced and evaluative well-being.

Meanwhile, a rapidly developing literature continues to explore the relationship between economic growth and well-being, and it is possible that this literature may turn out to have implications for regulatory policy and uses of cost-benefit analysis.[83] It is possible, for example, that a regulatory initiative may have effects on subjective well-being, or actual experience, that cost-benefit analysis does not fully capture. Consider, just for purposes of illustration, a few of many examples from the relevant literature:

- Contributing to the extensive literature on the relevance of relative (as opposed to absolute) economic position, Luttmer reports that higher earnings of neighbors are associated with lower levels of self-reported happiness, suggesting that subjective well-being may be partly a function of relative income.[84] Another study suggests that the impact of relative income levels matters more at higher levels of income.[85]

- Testing for the differences between experienced well-being and life satisfaction, Kahneman and Deaton analyze more than 450,000 responses to the Gallup-Healthways Well-Being Index, a daily survey of 1,000 US residents conducted by the

[83] See, e.g., Vitarelli (2010); Adler and Posner (2008).
[84] Luttmer (2005).
[85] See Dynan & Ravina (2007).

Gallup Organization They find that income and education are more closely related to life satisfaction, but health, care-giving, loneliness, and smoking are relatively stronger predictors of day-to-day emotions.[86]

- Biswas-Diener et al. compare subjective well-being measures from the U.S. and Denmark. They find that although the Danish claim higher life satisfaction, Americans are higher in both positive and negative affect; they are more "emotional." Their study also suggests that poor Danes are happier than their American counterparts.[87]

- Kahneman et al. use the Day Reconstruction Method in a study of women conducted concurrently during one day in Columbus, Ohio and Renne, France. The authors find that the specific sources from which the women draw happiness vary between the two cities, "reflecting differing cultural norms and social arrangements."[88]

- Examining changes over time in the United States and Britain, Blanchflower and Oswald find that in the last quarter-century, reported levels of well-being have declined in the United States and remained flat in Britain and are affected by such factors as relative income and age; they estimate the monetary values of events such as unemployment and divorce and find that both impose the welfare equivalent of large losses in monetary terms.[89]

- Expanding their investigation to 31 European countries, Blanchflower and Oswald examine data from the 2007 European Quality of Life Survey and find that the statistical structure of well-being in European nations looks "almost exactly the same as in the United States."[90] That is, the "same variables enter, and in almost identical ways." They conclude that, across nations, "[h]appy people are disproportionately the young and old (not middle-aged), rich, educated, married, in work, healthy, exercise-takers, with high fruit-and-vegetable diets, and slim."

- Responding to critics who claim that subjective well-being measures fail to provide valid measures of well-being, Oswald and Wu examine reported life satisfaction among a recent random sample of 1.3 million U.S. inhabitants. They observe a high (0.6) correlation across states between these measures of subjective well-being and objective quality-of-life rankings (calculated from, among other things, state indicators such as crime, air quality, taxes, and cost-of-living).[91] Oswald and Wu conclude that "subjective well-being data contain genuine information about the quality of human lives."

- Using African data collected from the Gallup World Poll and African Demographic and Healthy Surveys, Deaton et al. show that the death of an immediate family

[86] Kahneman & Deaton (2010).
[87] Biswas-Diener (2010).
[88] Kahneman (2010).
[89] See Branchflower & Oswald (2004).
[90] See Blanchflower & Oswald (2010).
[91] Oswald & Wu (2010). In more technical terms, their paper claims to "offer[] a crosscheck on the spatial compensating-differentials theory of economics and regional science."

member has little effect on life evaluation, but a sizeable impact on measures of emotion, such as depression or sadness. They suggest that the amount of money necessary to compensate for the emotional effects of a death is larger than that required to compensate one's resulting life evaluation.[92]

- Harter and Arora investigate the relationship between hours worked and perceived job fit and their impact on both life satisfaction and experienced measures of well-being.[93] Using data drawn from the Gallup World Poll, they find that perceived job fit was a robust predictor of life satisfaction across various regions and increased in importance as the hours worked increased. This conclusion adds to prior studies they cite, which show meaningful relationships between the subjective experience of work and objective outcomes, such as employee productivity and turnover.[94]
- Krueger and Mueller examine individual job search activities using a longitudinal data set of weekly surveys from unemployed workers in New Jersey in 2009. They provide the following important conclusions: "job search declines steeply over the spell of unemployment for a given set of individuals; (2) after a period of rapidly rising unemployment, workers who lost their jobs at different times are strikingly different, and comparisons across cohorts that lost their jobs at different times are prone to bias (another source of heterogeneity bias); (3) unemployed workers express much dissatisfaction with their lives, and their self-reported mood worsens the longer they are unemployed while life satisfaction stays relatively constant; (4) the unemployed appear to be particular sad during the time they spend searching for a job, and, if anything, they find job search more emotionally onerous as the duration of unemployment increases; (5) in the Great Recession the exit rate from unemployment was low at all durations of unemployment, and declined gradually over the spell of unemployment; (6) the choice of job search activities and amount of search time do not bear a straightforward relationship with the likelihood of receiving a job offer but job search time and the reported reservation wage do predict early exits from U[nemployment] I[nsurance], although unmeasured characteristics of workers could distort the estimated relationships; and (7) we find little evidence that exhaustion of extended U[nemployment] I[nsurance] benefits is associated with an increase in job search activity or in job offers."[95]
- Though a random-assignment experiment (supported by General Social Survey data), Ifcher and Zarghamee find that individuals in a happier mood are less likely to prefer present over future utility. In other words, compared to neutral effect, mild positive effect significantly decreases time preference over money.[96] According to the authors, one practical implication is that individuals may benefit from awareness that their mood affects their behavior. For example, a new employee may want to postpone pension plan contribution decisions until he or she is in a happy mood.

[92] Deaton et al (2010).
[93] Harter and Arora (2010).
[94] Isen (1987); Warr (1999).
[95] Krueger and Mueller (2011), pp. 3-4.
[96] Ifcher & Zarghamee (2011).

- Examining data collected from fifty-eight countries, Engelbrecht finds that natural capital per capita across those countries is correlated with subjective life-satisfaction measures, especially in high-income nations.[97] He concludes that debates about sustainable development – which often seek to ensure that future generations will have a similar level of wealth per capita available to them as current generations do – should incorporate subjective well-being measures.

The relevant literature, and its potential implications, remain in early stages, OMB continues to investigate the relevant literature and to explore its possible implications for improving regulatory review and regulatory policy.

b. Regulation and economic activity.

While identifying the appropriate measure of output is a difficult task, debate also continues about how to evaluate the impact of regulations on the standard indicators of economic activity. Exploration of that impact continues to be centrally important, as Executive Order 13563 makes clear with its clear reference to "economic growth, innovation, competitiveness, and job creation." At the same time, regulatory impacts on economic growth may be difficult to demonstrate because of other simultaneous changes in the economy. For example, economic growth may be strong while regulatory activity is increasing; even if so, the strength of economic growth may not be caused by such activity.

Many regulations affect economic growth indirectly through their effects on intermediate factors. There is a growing consensus specifying these intermediate drivers of growth, including increased human capital, capital investment, research and development, economic competition, physical infrastructure, and good governance (including good institutions).[98] Some evidence strongly suggests that regulations promoting educational attainment may improve human capital accumulation, thereby increasing economic growth.[99] Ashenfelter and Krueger study the economic returns to schooling using survey data of identical twins and conclude that "each year of school completed increases a worker's wage rate by 12-16 percent."[100] Other studies show a positive link between increased life expectancy and growth.[101]

If they are not carefully designed, regulations can also impose significant costs on businesses, potentially dampening economic competition and capital investment. Djankov et. al. (2002) find that increased regulations on entry into markets—such as licensing and fees—create higher costs of entry and thus adversely affect economic outcomes.[102] By contrast, van Stel et.

---

[97] Englebrecht (2009).
[98] See, e.g., Temple (1999).
[99] For a recent empirical analysis using new OECD data to find a strong positive impact of increased education on economic output, see Cohen & Soto (2007).
[100] Ashenfelter and Krueger (1994), p. 1157. Krueger and Lindahl (2001) provide an overview of two literatures: (1) labor literature on monetary return to schooling and (2) the macro growth literature that investigates the relationship between education in different countries and their subsequent economic growth.
[101] See, e.g., Bloom et al (2004). Bloom et al. survey the existing literature on health and economic outcomes, and find in their own cross-country analysis that a one year increase in life expectancy generates a 4 percent increase in economic output, controlling for other variables.
[102] Djankov et al (2002).

al. (2007) find that entry regulations actually have little impact on entrepreneurship, but that regulations creating greater labor rigidity have a discernible negative impact. [103]

Relatively few studies attempt to measure the economic impact of regulations in the aggregate; the literature focuses instead on particular regulatory arenas.[104] The literature examining the economic impact of environmental regulations in particular is extensive. Here are a few examples:[105]

- Jorgenson and Wilcoxen modeled dynamic simulations with and without environmental regulation on long-term growth in the U.S. to assess the effects and reported that the long-term cost of regulation is a 2.59% reduction in Gross National Product.[106]
- Berman and Bui find that during a period of aggressive environmental regulation, productivity *increased* among the petroleum refineries located in the Los Angeles from 1987 to 1992, suggesting that "[a]batement costs may severely overstate the true cost of environmental regulation"[107] and that "abatement associated with the SCAQMD regulations was productivity enhancing."[108]
- Greenstone, List, and Syverson (2011) analyze plant-level production data to estimate the effects of environmental regulations on manufacturing plants' total factor productivity (TFP) levels. Using the Clean Air Act Amendments' division of counties into pollutant-specific nonattainment and attainment categories, they find that among surviving polluting plants, a nonattainment designation is associated with a roughly 2.6 percent decline in TFP.
- Gray and Shadbegian examine the investment activity of paper mills from 1979 to 1990,[109] and they find that "plants with relatively high pollution abatement capital expenditures over the period invest less in productive capital. The reduction in productive investment is greater than the increase in abatement investment, leading to lower total investment at high abatement cost plants. The magnitude of this impact is quite large, suggesting that a dollar of pollution abatement investment reduces productive investment by $1.88 at that plant. This seems to reflect both environmental investment crowing out productive investment within a plant and firms

[103] van Stel et al (2007). They also find that regulations improving access to credit have a positive impact on entrepreneurship.

[104] One of the few such studies is an analysis by Hahn and Hird (1991), which estimates the net costs of regulations on the economy to be $46 billion, with aggregate annual transfer payments between $172.1 and $209.5 billion. But the authors note that their estimates have a wide range of uncertainty due to difficulties in estimation methods and available data. Further, this study is likely to be outdated due to major policy and economic developments in the years since its publication.

[105] Berman and Bui (2001a) provide a helpful summary of some of this literature. It should be recalled that many environmental regulations affect provision of non-market goods that are not explicitly reflected in standard measures of economic activity. Thus, in addition to the direct economic costs imposed by environmental regulations, these same regulations have social welfare and other non-market impacts that are not captured in these studies.

[106] Jorgensen & Wilcoxen (1990).

[107] *Id*, p. 509.

[108] *Id*, p. 499. SCAQMD is South Coast Air Quality Management District.

[109] Gray & Shadbegian (1998).

shifting investment towards plants facing less stringent abatement requirements. Estimates placing less weight on within-firm reallocation of investment indicate approximate dollar-for-dollar ($0.99) crowding out of productive investment."[110]

- Becker and Henderson[111] find that in response to ground-level ozone regulation, in polluting industries "birth [of plants] fall dramatically in nonattainment counties, compared to attainment counties...This shift in birth patterns induces a reallocation of stocks of plants toward attainment areas. Depending on the interpretation of reduced-form coefficients, net present value for a typical new plant in a nonattainment area could fall by 13-22 percent."[112]
- Greenstone[113] finds that "in the first 15 years after the [Clean Air Act Amendments] became law (1972-1987, nonattainment counties (relative to attainment ones) lost approximately 590,000 jobs, $37 billion in capital stock and $75 billion (1987 dollars) of output in polluting industries)."[114] However, Greenstone notes that these impacts remain modest in comparison to the size of the national manufacturing sector. Further, these results indicate statistically significant economic costs associated with carbon monoxide regulations but not with ozone or sulfur dioxide regulations.
- List, et al., examined the effects of air quality regulation stringency and location decisions of new plants in New York State from 1980 to 1990, and found that regulatory stringency and the decision to locate is negatively correlated, and the current parametric estimates of this negative correlation may be understated.[115]
- As noted above, Hanna[116] finds that domestic environmental regulation has had an effect in increasing the outbound foreign direct investment of U.S.-based multinational firms. The results include an increase in foreign investments in polluting industries by 5.3 percent and in foreign output by 9 percent; the results are concentrated in manufacturing.
- Jaffe and Palmer[117] find that increases in compliance costs generated by environmental regulations lead to a lagged effect of increases in research and development expenditures, as measured by patents of new environmental technologies. This corroborates other studies[118] with similar findings. These studies suggest that there may be positive economic effects related to technological innovation in the years following increased environmental regulatory compliance costs. As Jaffe and Palmer argue, "in the aggregate, the disincentives for R&D attributed to a command-and-control approach to environmental regulation may be

[110] *Id*, at 254-255.
[111] Becker & Henderson (2000).
[112] *Id.*, at 414-415.
[113] Greenstone (2002).
[114] *Id*, at 1213.
[115] List, et al. (2003).
[116] Hanna (2010).
[117] Jaffe and Palmer (1997).
[118] See Lanoie et al (2008).

overcome by the high returns that regulation creates for new pollution-control technology."[119] These results, however, are noted to be sensitive to the definitions of the time lag and difficulties in specifying research and development models, coding patent types, and linking research and development to overall economic growth.

- Chay and Greenstone[120] find that improvements in air quality induced by Clean Air Act regulations resulted in increased housing values at the county level between 1970 and 1980. This finding suggests possible economic gains in asset values resulting from improved environmental conditions, which may have had longer-term impacts on economic growth. Again, these overall impacts are difficult to quantify.
- Kahn examines census and state data and finds that better educated, wealthier populations experienced cleaner air, but that poorer, less educated populations experienced a greater overall improvement in air quality between 1980 and 1998 in California. During this time period, the exposure of the Hispanic population to pollution also fell sharply along with exposure differentials between richer and poorer people. The author concludes that, "[g]iven the overall trend in improvements for certain demographic groups, it appears that regulation under the Clean Air Act has helped, and not economically harmed, the 'have nots.'"[121]

Outside of the context of environmental regulation, a number of studies find that some regulations have promoted economic growth and otherwise had desirable economic effects. For example, Carpenter (2009) finds that certain approaches to entry regulation – such as the discretionary approval regimes used by the Food and Drug Administration – can actually increase economic activity by establishing credible expectations of fairness and product safety.[122] Similarly, Greenstone et al. (2006) find that disclosure rules in the securities industry can reduce the adverse effects of informational asymmetries and increase market confidence. Their study finds that the 1964 Securities Act Amendments generated $3-6 billion of asset value for shareholders as a result of increased investment activity. According to their evidence, higher levels of investor protection and disclosure requirements are associated with the higher valuation of equities.[123]

Another body of work focuses more specifically on behaviorally informed approaches to regulation—including setting appropriate default rules, reducing complexity, using disclosure as a regulatory tool, and presenting information so as to promote clarity and salience. The relevant

---

[119] Jaffe & Palmer (1997), at 618.

[120] Chay & Greenstone (2005). Fullerton (2011) uses a carbon permit system – specifically, the cap-and-trade legislation that passed the U.S. House of Representatives in 2009 (which then stalled in the Senate) – to illustrate six different types of distributional effects: (1) the higher prices of carbon-intensive products, (2) changes in relative returns to factors like labor, capital, and resources, (3) allocation of scarcity rents from a restricted number of permits, (4) distribution of the benefits from improvements in environmental quality, (5) temporary effects during the transition, and (6) capitalization of all those effects into prices of land, corporate stock, or house values. He concludes that, in this particular case, many or all effects may be regressive – that is, the net burden as a fraction of income is higher for the poor than for the rich.

[121] Kahn (2001).

[122] Carpenter (2009). For more historical and formal modeling approaches to this same argument, see, e.g., Carpenter (2004) and Carpenter & Ting (2007).

[123] *Id.* See also La Porta et al (1999).

work explores how such approaches might help improve market functioning or reduce economic costs associated with more aggressive regulatory efforts. Regulations aimed at managing risks can also have significant economic benefits by increasing the willingness of market actors to participate in market transactions.[124] These studies suggest that when examining the economic effects of regulation, analysts should be mindful of the importance of considering alternative regulatory approaches, in addition to deregulatory options, as the baseline for comparison.

Executive Order 13563 refers in particular to the importance of flexible approaches, stating that with relevant qualifications, "each agency shall identify and consider regulatory approaches that reduce burdens and that maintain flexibility and freedom of choice for the public." In some cases, carefully chosen forms of regulation, increasing flexibility, may yield the same social welfare benefits as existing regulatory approaches while imposing significantly lower costs. In other cases, alternative regulatory approaches may actually improve market functioning, increase economic activity, and promote economic growth.[125]

OMB continues to investigate the underlying questions; no clear consensus has emerged on all of the answers. Further work of the sort outlined here might ultimately make it possible to connect regulatory initiatives to changes in GDP and also to changes in subjective well-being under various measures.

---

[124] On the possible welfare and economic gains from employing alternative regulatory approaches, see generally Moss & Cisternino (2009).

[125] *Id.* See also Balleisen and Moss, eds. (2009).

CHAPTER II: RECOMMENDATIONS FOR REFORM AND REPORT ON IMPLEMENTATION OF EXECUTIVE ORDER 13563

The Regulatory Right-to-Know Act charges OMB with making "recommendations for reform," and the Consolidated Appropriations Act, 2012 (Public Law 112-74), requires OMB to "submit to the Committees on Appropriations of the House and the Senate a report on the implementation of Executive Order 13563." In particular, the report "shall include information on:

> "(a) increasing public participation in the rulemaking process and reducing uncertainty;
>
> "(b) improving coordination across Federal agencies to eliminate redundant, inconsistent, and overlapping regulations; and
>
> "(c) identifying existing regulations that have been reviewed and determined to be outmoded, ineffective, and excessively burdensome." [126]

This chapter consists of recommendations for regulatory and analytic reform, our report on FY 2012 activities conducted as part of the implementation of Executive Order 13563, and regulatory cost and benefit comparisons by administration.

Recommendations for Reform

In its 2009, 2010, 2011 and 2012 reports, OMB recommended a wide range of regulatory and analytic reforms and practices, including retrospective analysis of existing rules; examination of how to conduct and present regulatory impact analyses when necessary inputs are non-quantifiable; use of cost-effectiveness analysis, especially for regulations designed to reduce mortality risks; clear presentation of quantified and non-quantifiable costs, benefits, and distributional effects of proposed regulations and their alternatives; promotion of public participation and transparency through technological means; regulatory cooperation with international trading partners; promotion of economic growth and innovation; empirical testing of disclosure strategies; and careful consideration of approaches to regulation that are informed by an understanding of human behavior and choice.[127] OMB continues to support these recommendations and especially highlights the following points:

- Transparency and public participation are facilitated by, among other things, plain writing. Indeed, Executive Order 12866 provides that agencies "shall draft [their] regulations to be simple and easy to understand, with the goal of minimizing the potential for uncertainty," and Executive Order 13563 states that regulations must be "accessible,

[126] The reporting requirement is Section 202 of the Executive Office of the President Appropriations Act, 2012 (125 Stat. 897), which is Title II of Financial Services and General Government Appropriations Act, 2012, which is Division C of the Consolidated Appropriations Act, 2012. For the Regulatory Right-to-Know Act, see 31 U.S.C. section 1105.

[127] Earlier versions of the benefit-cost report are available on OMB's website at http://www.whitehouse.gov/omb/inforeg_regpol_reports_congress/.

consistent, written in plain language, and easy to understand."[128] Agencies would do well to follow the example of USDA's Animal and Plant Health Inspection Service, which has recently had success enhancing the clarity of its regulations by assigning writers with degrees in English to collaborate with attorneys, subject matter experts and other more traditional participants in the rulemaking process.

- Regulatory impact analysis (RIA) should be used as a central part of open government. Objective, evidence-based, logical assessment of costs and benefits should not be the last step in rulemaking or dismissed as a box to check; it should be an integral part of the regulatory decision-making process. RIAs of economically significant regulations should contain clear, tabular presentations of both benefits and costs, including tables showing undiscounted year-to-year effects as well as tables showing costs and benefits of the individual provisions that may make up a larger regulation.

- In spite of the seeming diversity of OMB's recommendations, reform efforts can dovetail together. Consider, for example, how retrospective analysis may advance our understanding of non-quantifiable effects in a prospective analysis. Suppose there were a safety rule for which costs could be quantified at the time of issuance, but key inputs for the benefits analysis were not yet quantifiable. On the basis of a break-even calculation showing that the rule's benefits would exceed its costs if it reduced hazards by one percent—and the sense that a one-percent reduction was "small" and therefore easily attainable—the rule was issued. If subsequent retrospective analysis showed that the rule's effectiveness at hazard reduction was well below one percent, such analysis could inform decisions about both the rule itself and, more broadly, the appropriate interpretation of RIAs that feature incomplete quantification.

- Agencies should seek to align their priorities, including priorities that reflect OMB recommendations for reform, across all levels of internal hierarchy. Even though this process may involve the unpleasant task of asking staff members or managers to abandon projects in which they invested a good deal of time in the past, efficiency of staff efforts in the present requires that the priorities of an agency's top leaders be communicated to, and built into the incentive structures for, lower-level managers. Indeed, policy decisions should be a function less of past momentum than of present coordination within and across agencies.

Because the goal of Executive Order 13563 is to change regulatory culture, further recommendations for reform will be implicit in our discussions of activities conducted as part of OMB's implementation of that Executive Order. Such a discussion for FY 2012 appears in the next portion of this chapter.

[128] Available at http://www.archives.gov/federal-register/executive-orders/pdf/12866.pdf and http://www.gpo.gov/fdsys/pkg/FR-2011-01-21/pdf/2011-1385.pdf.

Implementation of Executive Order 13563 in Fiscal Year 2012

The range of activities conducted under the auspices of Executive Order 13563 has included reducing regulatory burden, simplifying requirements and language, regulatory coordination, encouragement of public participation in the regulatory process, and consideration of the relationship between regulation and employment and economic growth.

A. Reducing Regulatory Burden: Recent Achievements and Future Progress

The prospective analysis of regulatory costs and benefits required by Executive Orders 12866 and 13563 may depend on a degree of speculation, so the actual costs and benefits of a regulation may be lower or higher than what was originally anticipated. Executive Order 13563 calls for careful reassessment—in other words, retrospective analysis—of regulations that are in place. After retrospective analysis has been undertaken, agencies will be in a position to streamline, modify, or eliminate rules that do not make sense in their current form or under existing circumstances.

Building on Executive Order 13563's call for retrospective analysis, President Obama issued Executive Order 13610, *Identifying and Reducing Regulatory Burdens* (May 10, 2012), to institutionalize regulatory look-back and specifically require agencies to prioritize "initiatives that will produce significant quantifiable monetary savings or significant quantifiable reductions in paperwork burdens."[129] Executive Order 13610 also requires agencies to "give special consideration to initiatives that would reduce unjustified regulatory burdens or simplify or harmonize regulatory requirements imposed on small businesses." Finally, Executive Order 13610 requires agencies to focus on "cumulative burdens" and to "give priority to reforms that would make significant progress in reducing those burdens."

Recent examples of reforms and proposed reforms that will have a significant impact include:

- In March, 2012, the Department of Labor issued a final rule that will bring U.S. requirements for hazardous chemical warning labels in line with those of other nations. This rule will reduce employer costs related to training and updating of materials and reduce trade barriers for chemical manufacturers that sell their products abroad.

- The Treasury Department, along with the Department of Homeland Security's Customs and Border Protection, issued a final rule in August, 2012, eliminating the mailing of paper "courtesy" notices of liquidation, which provide informal, advanced notice of liquidation dates to importers of record whose entry summaries are electronically filed. This effort to proceed only electronically streamlines the notification process and reduces printing and mailing costs.

- The Department of Transportation has proposed a rule that would allow combined drug and alcohol testing for operators conducting commercial air tours. The intent is to

[129] Available at http://www.whitehouse.gov/the-press-office/2012/05/10/executive-order-identifying-and-reducing-regulatory-burdens.

decrease operating costs by eliminating duplicate programs while ensuring no loss in safety.

- The Federal Acquisition Regulation (FAR) is being amended to accelerate payments to small business subcontractors. This change is in accordance with policy guidance provided by the Office of Management and Budget (OMB) in Memorandum M-12-16, dated July 11, 2012, "Providing Prompt Payment to Small Business Subcontractors."

The regulatory look-back is not a one-time exercise; regular reporting about recent progress and coming initiatives is required. The goal is to change the regulatory culture so that rules on the books are consistently evaluated to confirm they are effective, cost-justified, and based on the best available science. By creating regulatory review teams at agencies, OMB will continue to examine what is working and what is not, and to eliminate unjustified and outdated regulations.

B. Simplification of Requirements and Language

1. Simplifying Paperwork Requirements

In addition to looking back at existing regulations, OMB is also focused on reducing other unjustified reporting and paperwork burdens. In a June 22, 2012, Memorandum, "Reducing Reporting and Paperwork Burdens," OIRA asked executive departments and agencies to assess possibilities for eliminating redundant or unnecessary information collections; streamlining forms; exempting small businesses from information collections; simplifying applications for federal licenses or approvals for participation in federal programs; using sampling rather than collecting data from every member of a population of interest; replacing paper-based communication or data systems with electronic options; reducing frequency of information collection; reducing record retention requirements; or maximizing re-use of data that are already collected.[130]

Agencies identified opportunities for measurable reductions in paperwork burdens and are pursuing plans that include the following:

- The Department of Veterans Affairs (VA) is working to consolidate the application and renewal process for health benefits by eliminating the collection of financial information that is already collected by the Internal Revenue Service (IRS) and Social Security Administration (SSA). The VA expects to improve its application by making it more adaptive to data provided by respondents. VA expects veterans to save thousands of hours and the Federal Government to save millions of dollars from this improved process.

- The Federal Emergency Management Agency (FEMA) is progressing toward the implementation of an integrated agency-wide e-Grants online application that will be available to the public online. The system will simplify submission of grant program

[130] This memorandum is available at http://www.whitehouse.gov/sites/default/files/omb/inforeg/memos/reducing-reporting-and-paperwork-burdens.pdf.

applications across FEMA by creating online forms. Fully integrating and automating these systems will improve efficiency and the effectiveness of FEMA operations to better serve the needs of internal and external stakeholders. Grantees are expected to save over 500,000 hours in paperwork burden per year.

- The Internal Revenue Service's plan to simplify reporting for capital gains and losses will allow taxpayers the option to report summary information without unnecessary line-by-line details for each transaction. IRS estimates that the changes will save about 20 million taxpayers, or their preparers, a total of 19 million hours.

- The Federal Emergency Management Agency's improved standard flood hazard determination online form, with drop-down menus, will save respondents time when a property is used as collateral. FEMA estimates the improved form will save the public over two million hours per year.

- The Internal Revenue Service's Optional Office-in-the-Home Deduction proposal will allow taxpayers to elect an optional, simpler method of determining their office-in-the-home tax deduction by using the number of square feet in the home office multiplied by a dollar per square foot amount provided by the IRS. IRS expects taxpayers to save over 1.6 million hours per year and $7 million in out-of-pocket costs from this simpler calculation method.

- The Department of Homeland Security's plan to make arrival and departure records electronic and automated for non-immigrant visitors to the United States promises to save travelers over one million hours per year, benefiting airlines and streamlining government operations.

- The Internal Revenue Service expects its initiative to allow individual taxpayers to electronically file their amended tax return (Form 1040-X) will save 6.5 million taxpayers a total of about 1 million hours and $11 million in out-of-pocket costs per year.

Further details on these and many other promising initiatives that will reduce burden on the American people are available in the "Information Collection Budget of the United States Government 2012."[131]

2. *Simplifying Language*

Executive Orders 12866 and 13563 state that regulations should be written in a style that is easy to understand. The Plain Writing Act of 2010[132] extends the call for ~~writing that is~~ clear, concise, and well-organized ~~to~~ documents that: writing in

- are necessary for obtaining any Federal Government benefit or service, or filing taxes (e.g., tax forms or benefit applications);

[131] This report is available at http://www.whitehouse.gov/sites/default/files/omb/inforeg/icb/icb_2012.pdf. Additional, ongoing updates may be found by visiting OMB's blog, http://www.whitehouse.gov/omb/blog.
[132] Pub. L. 111-274.

- provide information about any Federal Government benefit or service (e.g., handbooks for Medicare or Social Security recipients); or
- explain to the public how to comply with a requirement that the Federal Government administers or enforces (e.g., guidance on how to prepare required reports or comply with safety requirements).

Consistent with the Plain Writing Act, in an August 9, 2012, Memorandum, "Testing and Simplifying Federal Forms," OIRA directed federal agencies to test complex or lengthy forms in advance, in order to determine if people can actually understand them. Advance testing—which could take a variety of forms including focus groups or web-based experiments—would make agencies better able to identify likely burdens on members of the public and to find ways to increase simplification and ease of comprehension.

C. Regulatory Coordination

Building on Executive Order 13563, which directs agencies to promote "coordination, simplification, and harmonization," President Obama issued Executive Order 13609, "Promoting International Regulatory Cooperation" in May, 2012. The Executive Order emphasizes the importance of international regulatory cooperation as a key tool for eliminating unnecessary differences in regulation between the United States and its major trading partners; this approach supports economic growth, job creation, innovation, trade and investment, while also protecting public health, safety, and welfare. Among other things, Executive Order 13609 provides that agencies that are required to submit a Regulatory Plan must "include in that plan a summary of... international regulatory cooperation activities that are reasonably anticipated to lead to significant regulations." Further, the Executive Order requires agencies to identify in OIRA's semiannual regulatory agenda regulations that would have "significant international impacts" and, as part of the regulatory look-back initiative, to "consider reforms... that address unnecessary differences in regulatory requirements between the United States and its major trading partners."

Several major steps were taken toward greater international regulatory coordination in FY 2012, including on December 7, 2011, when President Obama and Prime Minister Harper announced the launch of the United States-Canada **Regulatory Cooperation Council (RCC) Action Plan**. As of July, 2012, all of the 29 Work Plans to implement sectoral and cross-cutting initiatives in the Action Plan were finalized. In December, 2012, the RCC presented the one-year "Progress Report to Leaders."[133] The Progress Report provides status updates on each of the Work Plans and highlights the full range of activities currently being undertaken by U.S. and Canadian regulators to achieve more effective and coordinated approaches to regulation. These approaches are aimed at reducing unnecessary regulatory differences and enhancing our joint economic competitiveness while continuing to protect the health, safety, and welfare of the American people. The work plans have two-year timeframes and include clear milestones and

[133] Available at http://www.whitehouse.gov/sites/default/files/docs/pco_bnet-30471-v38-rcc-progress_report_-_dec_2012_final.pdf.

timelines, mechanisms to promote ongoing regulatory alignment, and regular opportunities for public participation and stakeholder engagement.

February of 2012 saw the launch of the United States-Mexico High-Level Regulatory Cooperation Council (HLRCC) Work Plan. This Work Plan identifies a number of areas of mutual interest – food, transportation, nanotechnology, e-health, oil and gas, and conformity assessment – and outlines activities to be carried out by the United States and Mexico over a period of two years. Among other things, the Work Plan is designed to:

- Develop common approaches to food safety in ways that will benefit consumers and the food industry on both sides of the border;
- Reduce burdens on U.S. and Mexican businesses, while maintaining the safety and reliability of products, by bringing the two countries together to develop compatible electronic certification programs;
- Improve the safety of our citizens by ensuring that all trucks in each country are inspected to a consistently high standard, regardless of the vehicle's country of origin;
- Foster innovation while reducing risks to environmental and human health by ensuring that the United States and Mexico share, at an early stage, information about each other's regulatory approaches to nanomaterials;
- Decrease costs and reduce the time required to implement electronic health record systems in each country, by increasing cooperation and sharing best practices on Electronic Health Record certification; and
- Minimize risks in oil and gas exploration, production activities, and drilling, by developing a common approach to managing contingencies in the Gulf of Mexico.

In addition to pursuing regulatory coordination within North America, OMB's Office of Information and Regulatory Affairs, through its contributions to the Transatlantic Economic Council and its leadership role on the U.S.-E.U. High Level Regulatory Cooperation Forum ("the Forum"), is working to enhance regulatory cooperation with the European Union. In September of 2012, the U.S. and E.U. jointly requested public input on how to promote greater transatlantic regulatory compatibility, specifically seeking detailed input on: (1) differences between existing regulation in the United States and Europe that may impose unnecessary costs and burdens on businesses, and (2) on priority areas where the U.S. and E.U. should cooperate on future regulations affecting new and innovative growth markets and technologies, particularly where growth and innovation are spurred by small and medium sized businesses.

On February 12, 2013, President Obama, together with E.U. leaders, announced their intention to launch negotiations on a Transatlantic Trade and Investment Partnership.[134] The

[134] The official announcement is available at http://www.whitehouse.gov/the-press-office/2013/02/13/statement-united-states-president-barack-obama-european-council-presiden.

goals of the Partnership include addressing costly "behind the border" non-tariff barriers that impede the flow of goods and services and reducing the cost of differences in regulation and standards by promoting greater compatibility, transparency, and cooperation. With the announcement concerning negotiations on horizontal and sectoral regulatory issues, OMB will continue efforts to make progress through the Forum, taking into consideration the input provided by public stakeholders in response to the September, 2012, joint solicitation.

D. Public Participation, the Open Government Partnership and the National Action Plan

Under Executive Order 13563, agencies are directed to promote public participation. Moreover, OIRA itself is committed to using technology to improve transparency and to increase public participation in the regulatory process. Efforts in this area have been a high priority, as shown by the United States' collaboration with other countries in the global Open Government Partnership (OGP);[135] by the launch of the U.S. Open Government National Action Plan; [136] and by the introduction and redesign of websites that facilitate communication between members of the public and the U.S. Federal Government.

One such website is "We the People," an online tool that allows Americans to directly petition the White House.[137] As of early 2013, 7.2 million people have logged more than 11.6 million signatures on more than 178,000 petitions on issues ranging from education to immigration to tax policy.

Another website of note is Regulations.gov, a centralized portal for timely public access to regulatory dockets. As discussed in more detail in last year's benefit-cost report, Regulations.gov has launched a major redesign, including innovative new search tools, social media connections, and better access to regulatory data.

Also new at Regulations.gov is the availability of Application Programming Interfaces (APIs). With the addition of APIs, other web sites – ranging from other government pages to industry association and public interest group pages – will now be able to repurpose publicly-available regulatory information on Regulations.gov and format this information in unique ways such as mobile apps, analytical tools, "widgets" and "mashups." Future releases will include APIs that allow Regulations.gov to receive comment submissions from other sites. In general, availability of APIs will make possible fundamental changes in the way people are able to interact with public federal regulatory data and content.

As part of the Open Government Partnership National Action Plan, the Obama Administration has committed to promoting the use of Smart Disclosure—Smart Disclosure being the timely release of complex information and data in standardized, machine-readable formats in ways that enable consumers to make informed decisions. The National Science and Technology Council has established a task force dedicated to promoting better disclosure policies, and in September of 2011, the Office of Management and Budget issued guidance to

[135] For more information on the Open Government Partnership, see http://www.opengovpartnership.org/.
[136] Available at http://www.whitehouse.gov/sites/default/files/us_national_action_plan_final_2.pdf.
[137] Available at https://petitions.whitehouse.gov/.

federal agencies on Smart Disclosure. Moreover, on March 30, 2012, the White House and the National Archives and Records Administration, with support from ideas42, hosted a summit in order to advance federal departments and agencies' expansion of the use of Smart Disclosure. Leading innovators and experts inside and outside of government shared best practices and practical advice, the goal being to support agency efforts to integrate Smart Disclosure into their everyday work.

E. Employment and Economic Growth Effects of Regulation

Executive Order 13563 states that our "regulatory system must protect public health, welfare, safety, and our environment while promoting *economic growth*, innovation, competitiveness, and *job creation*" (emphases added). Furthermore, Executive Order 12866 requires regulatory impact analyses to include assessments of regulations' effects on the functioning of the economy and on employment.

OMB continues to believe that it is important for regulatory agencies to attempt, to the extent feasible, to consider the employment effects (whether negative or positive) of their regulations, particularly in view of the potential long-term adverse consequences of reduced employment for affected workers and their families.[138] However, when assessing the effects of regulations on employment and applying those assessments to policy decisions, there are several potential pitfalls:

- Expecting a precise, measurable impact from most individual regulations. Only a small fraction of individual regulations or agency actions will have a large enough effect to allow for measurement of changes in gross domestic product (GDP) or national employment. It is the cumulative sum over time of many small changes that may be significant in these areas.

- Ignoring long-run or indirect impacts. Many regulatory actions have direct, short-run effects that are mitigated by long-run market adjustments. For example, businesses sometimes shut down as a result of a regulation; because jobs are temporarily lost, a short-run, industry-specific job-counting model would give the impression that regulation reduces employment. Alternatively, firms may need to hire new workers to perform activities necessary for coming into compliance with a regulation; in this case, the same job-counting model would give an impression that regulation increases employment. However, these apparent reductions or increases in employment often will, in the medium or long run, turn out to be shifts in employment between economic sectors.[139]

- Ignoring the importance of timing. With employment-related policy goals, timing is often essential; spurring job creation is much more desirable during an economic downturn than during expansionary portions of the business cycle. Regulatory development, meanwhile, typically involves years of assessing evidence on the need for

[138] See Jacobson et al. (1993); Krueger and Mueller (2011); and von Wachter et al. (2009).
[139] Examples may be seen in a variety of areas, including tobacco (Warner et al., 1996), water resource investment (Haveman and Krutilla, 1967), and many others.

and effect of regulation; also, once issued, many regulations will remain effective indefinitely. Given their development and effectiveness timeframes, very few regulations that were originally motivated by policy goals unrelated to employment will be well-suited to targeting job creation when it is most needed.

A more valid approach to assessing the effects of regulatory actions on economic growth and employment focuses on technological progress. Technological progress—defined as the creation and diffusion, among consumers and producers, of new ideas or information—is a key source of economic growth; in fact, through much of the past century of U.S. history, it has been the most important source of growth.[140] Regulators' effects on jobs and growth thus depend on their effects on technological progress. Areas in which regulations may foster this progress include:

- New or improved consumer products. If issuing a new regulation increases the flow of innovative products, or revising an old regulation removes a barrier to developing new products, the direct effect on growth and jobs will be positive.

- Production, collection and dissemination of information. Various regulatory activities can lead to increased production and collection of knowledge and increased dissemination of that knowledge after it is produced. These activities encourage innovation and economic growth.

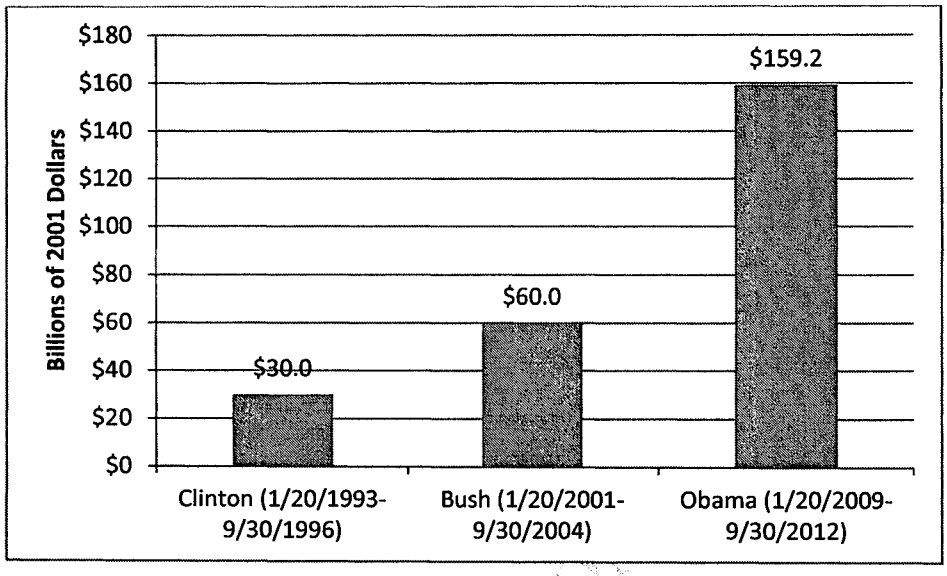
- Increased international trade. Regulations promoting harmonization of manufacturing, labeling or other requirements encourage international trade and thus long-run economic growth and job creation. The benefits of making regulatory information more easily available—through, for example, increased use of the Internet—are enhanced, even beyond their domestic effects, when they encourage trade.

Net Benefits of Regulations, Compared Across Administrations

In the past four years, agencies and OMB have worked together to issue a number of rules for which the benefits exceed the costs and by a large margin. The following figures and tables (see Appendix D for more detailed information) provide more detail about aggregate net benefits and about costs and benefits of rules from the past four years, compared to earlier administrations. Figures 2-1(a) and 2-1(b) present the net benefits of rules from the first four years of the past three administrations. For comparison purposes, Figure 2-1(a) includes rules that have been subsequently overturned, while Figure 2-1(b) excludes these rules. Table 2-1 presents costs and benefits from the first four years of the past three administrations.

[140] Snowdon and Vane (2003).

Figure 2-1(a): Total Net Benefits of Major Rules through the Fourth Fiscal Year of an Administration, Including Vacated Rules[141]



[141] For the purposes of showing general trends by Administration, totals are computed by summing annualized net benefits for rules from the first four years of an Administration. Net benefits are based on primary estimates of costs and benefits, or on the midpoints of high and low cost and benefit estimates if only ranges are reported. To avoid double counting, the 1994 Acid Rain NOX Regulation rule (which was vacated and replaced by an IFR in 1995) was excluded. As noted in chapter 1, there are differences in methodologies across agencies and across time, but we do not have reason to believe that these differences are significant contributors to the general conclusions offered in the figures and tables in this chapter.

Figure 2-1(b): Total Net Benefits of Major Rules through the Fourth Fiscal Year of an Administration, Excluding Vacated Rules[142]

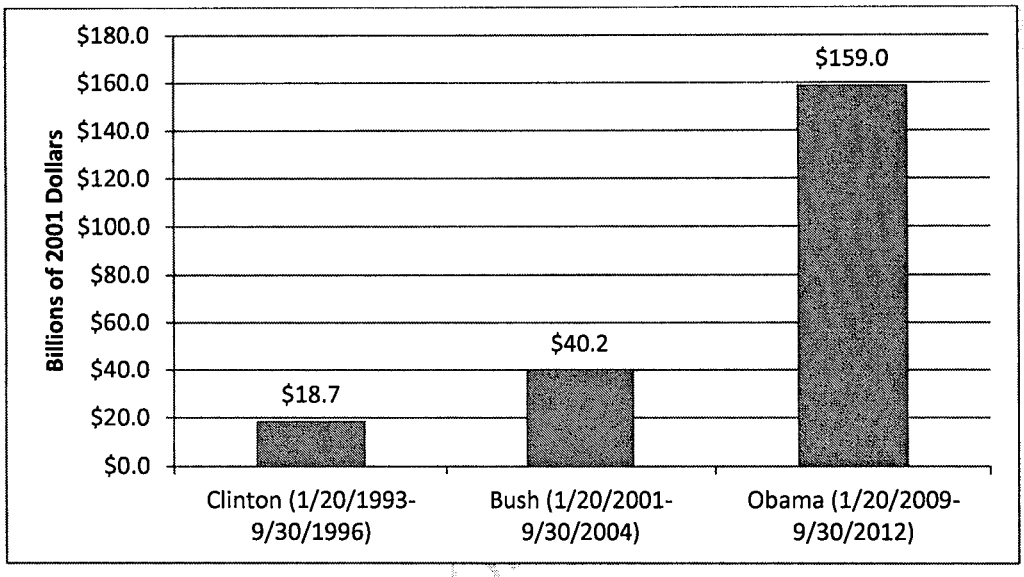


Table 2-1: Annual Benefits and Costs of Major Rules through the Fourth Fiscal Year of an Administration (billions of 2001 dollars)[143]

Administration	Benefits	Costs
Obama (1/20/09-09/30/12)	$110.0 to $315.3	$27.8to $46.3
Bush (1/20/01-09/30/04)	$11.9 to $120.4	$5.1 to $9.4
Clinton (1/20/93-09/30/96)	$11.8 to $55.4	$8.4 to $9.5

[142] This figure uses the same methodology as Figure 2-1(a), but excludes the following rules which have been vacated or are not in effect: Regulations Restricting the Sale and Distribution of Cigarettes and Smokeless Tobacco to Protect Children and Adolescents (HHS, 1996), Establishing Location, Design, Construction, and Capacity Standards for Cooling Water Intake Structures at Large Existing Power Plants (EPA, 2004), National Emission Standards for Hazardous Air Pollutants: Industrial/Commercial/Institutional Boilers and Process Heaters (EPA, 2004), Tire Pressure Monitoring Systems (DOT, 2002), Electronic On-Board Recorders for Hours-of-Service Compliance (DOT, 2010), and Cigarette Warning Label Statements (HHS, 2011). The figure includes one rule that has been vacated but is included, as explained in more detail above: EPA's appeal: Cross-State Clean Air Rule (CAIR Replacement Rule) (EPA, 2011).

[143] Estimates are based on ranges of costs and benefits reported in this and previous Reports. The low ends of ranges reported above reflect low estimates and exclude vacated rules, while the high ends of ranges reported above reflect high estimates and include vacated rules. See Appendix D for a list of rules included in the totals.

Tables 2-2, 2-3, and 2-4 list the individual rules concluded during the Obama administration with the highest net benefits, highest benefits, and highest costs, respectively.

Table 2-2: Major Rules with the Highest Net Benefits through the Fourth Fiscal Year of the Obama Administration (billions of 2001 dollars)[144]

Agency	Rule	Net Benefits
EPA/AR	National Emission Standards for Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units	$44.3
EPA/AR	Cross-State Clean Air Rule (CAIR Replacement Rule)	$39.4
DOT/NHTSA & EPA/AR	Joint Rulemaking to Establish 2017 and Later Model Year Light Duty Vehicle GHG Emissions and CAFE Standards	$20.0
EPA/AR	National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants	$10.3[145]
EPA/AR	Review of the National Ambient Air Quality Standards for Sulfur Dioxide	$9.9

[144] Table 2-2 reports the top five rules with highest net benefits – benefits minus costs – based on the primary agency estimates, or midpoints if only ranges are reported. The relevant benefits include economic savings, lives saved, and more.

Table 2-3: Major Rules with the Highest Benefits through the Fourth Fiscal Year of the Obama Administration (billions of 2001 dollars)[146]

Agency	Rule	Benefits
EPA/AR	National Emission Standards for Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units	$52.4
EPA/AR	Cross-State Clean Air Rule (CAIR Replacement Rule)	$40.1
DOT/NHTSA & EPA/AR	Joint Rulemaking to Establish 2017 and Later Model Year Light Duty Vehicle GHG Emissions and CAFE Standards	$28.8
DOT/NHTSA & EPA/AR	Passenger Car and Light Truck Corporate Average Fuel Economy Standards MYs 2012 to 2016	$11.9
EPA/ AR	National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants	$11.2

Table 2-4: Major Rules with the Highest Costs through the Fourth Fiscal Year of the Obama Administration (billions of 2001 dollars)[147]

Agency	Rule	Costs
DOT/NHTSA & EPA/AR	Joint Rulemaking to Establish 2017 and Later Model Year Light Duty Vehicle GHG Emissions and CAFE Standards	$8.8
EPA/AR	National Emission Standards for Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units	$8.2
DOT/NHTSA & EPA/AR	Passenger Car and Light Truck Corporate Average Fuel Economy Standards MYs 2012 to 2016	$3.3
DOL/EBSA	Statutory Exemption for Provision of Investment Advice	$3.1
DOE/EE	Energy Efficiency Standards for Pool Heaters and Direct Heating Equipment and Water Heaters	$1.1

[146] Table 2-3 reports the top five rules with highest benefits based on the primary agency estimates, or midpoints if only ranges are reported.

[147] Table 2-4 reports the top five rules with highest costs based on the primary agency estimates, or midpoints if only ranges are reported.

Moving Forward with Regulatory Lookback

Cary Coglianese[*]

President Obama has rightly called on government agencies to establish ongoing routines for reviewing existing regulations to determine if they need modification or repeal. Over the last two years, the White House Office of Information and Regulatory Affairs (OIRA) has overseen a signature regulatory "lookback" initiative that has prompted dozens of federal agencies to review hundreds of regulations. This regulatory initiative represents a good first step toward increasing the retrospective review of regulation, but by itself will do little to build a lasting culture of serious regulatory evaluation. After all, past administrations have made similar review efforts, but these ad hoc exercises have never taken root. If President Obama is serious about institutionalizing the practice of retrospective review, his Administration will need to take further steps in the coming years. This essay offers three feasible actions – guidelines, plans, and prompts – that President Obama's next OIRA Administrator should take to move forward with regulatory lookback and improve both the regularity and rigor of regulatory evaluation.

Responding to an executive order from President Obama, dozens of federal agencies over the last two years have undertaken extensive reviews of the regulations on their books, looking for antiquated, counterproductive, or unnecessary rules that should be modi-

[*] Cary Coglianese is the Edward B. Shils Professor of Law, Professor of Political Science, and Director of the Penn Program on Regulation at the University of Pennsylvania Law School. This essay is based upon remarks delivered at a Progressive Policy Institute (PPI) forum on "Regulating in the Digital Age" in Washington, D.C., on May 9, 2013. The author is grateful for helpful comments from Brady Sullivan, Jonathan Wiener, participants at the PPI forum, and the editorial team at the *Yale Journal on Regulation*.

fied or eliminated. According to the Administration, agencies have collectively completed more than five hundred regulatory reviews and initiated policy modifications expected to yield cost savings in the billions of dollars. These results look good, to be sure, but they are only a small step toward achieving the Administration's broader goal of institutionalizing retrospective regulatory analysis. To avoid squandering the progress made so far, the Administration must use the next several years to take additional steps to improve retrospective regulatory analysis and identify still better targets for the application of more rigorous evaluation research.

The Obama Administration has sometimes characterized its existing retrospective review initiative as "historic"[1] and "unprecedented."[2] But actually it is far from unprecedented. President Clinton issued an executive order requiring agencies to develop programs by which they would "periodically review" existing regulations,[3] and Vice President Gore oversaw a government-wide regulatory review process that trimmed a sizeable number of pages of outmoded rules from the *Code of Federal Regulations*.[4] Under President George W. Bush, the White House Office of Information and Regulatory Affairs (OIRA) invited members of the public to nominate existing rules needing review and reconsideration, a process which led to the scru-

[1] Press Release, White House Office of the Press Sec'y, White House Announces New Steps to Cut Red Tape, Eliminate Unnecessary Regulations (May 10, 2012), http://www.whitehouse.gov/the-press-office/2012/05/10/white-house-announces-new-steps-cut-red-tape-eliminate-unnecessary-regul.

[2] Cass Sunstein, A Smarter Approach to Regulation (August 7, 2012), http://www.-whitehouse.gov/blog/2012/08/07/smarter-approach-regulation.

[3] Exec. Order No. 12,866, 58 Fed. Reg. 51,735 §5 (1993).

[4] *See, e.g.*, John Kamensky, Assistant to the Deputy Dir. of Mgmt., U.S. Office of Mgmt. and Budget, The U.S. Reform Experience: The National Performance Review, Presentation at Indiana University at the Conference on Civil Service Systems in Comparative Perspectives, Indiana University (April 6, 1997), *available at* http://gov-info.library.unt.edu/npr/library/papers/bkgrd/kamensky.html.

tiny of nearly four hundred rules and regulatory guidance documents.[5]

Although retrospectively reviewing regulation is far from new, what makes the Obama Administration's latest round of review distinctive is its laudable but ambitious goal of institutionalizing the practice of what the Administration calls regulatory lookback.[6] President Obama's first OIRA Administrator, Cass Sunstein, proclaimed that the Administration's lookback would not be a "one-time endeavor" as in previous administrations; instead, the Obama Administration's lookback aspires to be just a first step toward building "a regulatory culture of regular evaluation."[7]

Widespread acceptance of continuous regulatory review is exactly what is needed to fulfill what President Obama has rightly characterized as the government's duty to "measure, and seek to improve, the actual results of regulatory requirements."[8] Unfortunately, the federal government's treatment of retrospective regulatory review still lags far behind agencies' practice of prospectively analyzing proposed regulations, a process institutionalized by President Reagan and overseen by OIRA for the last thirty years. It is fair to say that retrospective review is today where prospective analysis was in the 1970s: ad hoc and largely unmanaged.

---

[5] OFFICE OF MGMT. & BUDGET, STIMULATING SMARTER REGULATION: 2002 REPORT TO CONGRESS ON THE COSTS AND BENEFITS OF REGULATIONS AND UNFUNDED MANDATES ON STATE, LOCAL, AND TRIBAL ENTITIES 4 (noting that 316 regulations and guidance documents were considered in 2002, in addition to 71 in 2001), *available at* http://www.whitehouse.gov/sites/default/files/omb/assets/omb-/inforeg/2002_report_to_congress.pdf.

[6] Exec. Order No. 13,610, 77 Fed. Reg. 28,467 (May 14, 2012) (calling for agency action "to institutionalize regular assessment of significant regulations").

[7] Cass Sunstein, Regulation: Looking Backward, Looking Forward, Address Before the 2012 A.B.A. Admin. L. & Reg. Pract. Sec., Washington, D.C., May 10, 2012, *available at* http://www.whitehouse.gov/sites/default/files/omb/inforeg/speeches/-regulation-looking-backward-looking-forward-05102012.pdf.

[8] Exec. Order No. 13,563, 76 Fed. Reg. 3, 21 (2011).

Without doing more, the Obama Administration's recent lookback initiative will end up in the same dustbin as the regulatory review processes initiated under Clinton and Bush. Sure, some discrete improvements in specific regulations will likely result, but retrospective review will remain a periodic and unsystematic fancy rather than a serious, ongoing part of regulatory policymaking.

How to move forward? One way would be to create a new, independent regulatory institution dedicated to retrospective review, along the lines of proposals offered by, among others, Michael Greenstone of MIT and Michael Mandel and Diana Carew of the Progressive Policy Institute.[9] There is much to be said for such proposals. But as anyone who follows Washington politics knows, it will undoubtedly take considerable time—not to mention clout—before Congress might enact even such appealingly bipartisan proposals. Even if a new institution were to be authorized, funded, and staffed, it would take still more time for that body to begin to conduct reviews and make recommendations. The Obama team would likely be in its closing days, if not gone from Washington altogether, by the time a new institution could begin to have an impact.

Fortunately, the Obama Administration does not need to wait for the creation of a new institution before taking steps to embed evaluation more deeply and permanently into the regulatory process. Acting entirely on its own, the Administration can still move forward with action that will help institutionalize retrospective review for the next three years and beyond. Specifically, the White House's OIRA should issue government-wide regulatory evaluation guidelines, re-

[9] Michael Greenstone, *Toward a Culture of Persistent Regulatory Experimentation and Evaluation*, *in* NEW PERSPECTIVES ON REGULATION 111 (David Moss & John Cisternino, eds., 2009); MICHAEL MANDEL & DIANA G. CAREW, PROGRESSIVE POL'Y INST., REGULATORY IMPROVEMENT COMMISSION: A POLITICALLY VIABLE APPROACH TO U.S. REGULATORY REFORM (2013), *available at* http://www.progressivepolicy.org/2013/05/regulatory-improvement-commission-a-politically-viable-approach-to-u-s-regulatory-reform/.

quire the creation of evaluation plans for significant rules as part of the prospective review process, and adapt the practice developed by George W. Bush's OIRA of issuing "prompt letters" so as to promote targeted, value-added regulatory evaluation.

Evaluation Guidelines. OIRA first needs to establish specific guidelines for agencies to follow in conducting retrospective evaluations of existing regulations. At present, far too many agencies' reviews are little more than glances in the rearview mirror, drawing mainly on anecdotes and expert impressions. Glances back may be better than nothing, but they fall far short of what it will take to create a credible, evidence-based approach to regulation. Rather than relying on impressions, the federal government needs careful, systematic research that addresses the question of causation: What benefits and costs can actually be attributed to a regulation after it has been implemented?[10] Getting reliable answers to this causal question requires adherence to exacting standards for research design and statistical analysis, yet federal agencies currently lack clear guidance about how to conduct high quality retrospective reviews.

It is instructive that when it comes to producing *prospective* regulatory analysis, agencies can turn to OIRA's Circular A-4, a lengthy document that provides both a general guide to conducting regulatory analysis as well as concrete prescriptions for analysts to follow. Circular A-4 offers regulatory analysts in agencies specific instructions, such as, "You should not use benefit transfer in estimating benefits if resources are unique or have unique attributes," and, "You should provide estimates of net benefits using both 3 percent and 7 percent" discount rates.[11]

---

[10] Cary Coglianese, *Evaluating the Impact of Regulation and Regulatory Policy*, (OECD Expert Paper No. 1, 2012), *available at* http://www.oecd.org/gov/regulatory-policy/1_coglianese web.pdf.

[11] OFFICE OF MGMT. & BUDGET, CIRCULAR A-4: REGULATORY ANALYSIS (Sept. 17, 2003), *available at* http://www.whitehouse.gov/sites/default/files/omb/assets/-regulatory_matters_pdf/a-4.pdf.

Admittedly, some of what can be found in Circular A-4 may also be helpful in conducting retrospective analysis, but nothing in A-4 offers a specific framework for approaching retrospective evaluation. The Circular contains nothing about making causal attributions by estimating counterfactuals or about how to undertake statistical analysis of regulatory impacts. If the Obama Administration is serious about deepening and strengthening regulatory review, at the very least it should create retrospective evaluation guidelines comparable to Circular A-4.

Evaluation Plans. Issuing evaluation guidelines is not only the most feasible action the Administration could take in the near term, it also would provide a foundation upon which to base additional steps. One such additional step would be to require agencies to include in each prospective regulatory impact analysis (RIA) a plan for the subsequent evaluation of the proposed rule. An evaluation plan would constitute only a small part of an overall RIA, and it would be non-binding in the sense that an agency would not be obligated to carry out the plan. Nevertheless, such a plan would provide a future guide whenever the agency, OIRA, or the public does later deem it appropriate to look back at the rule after it has been implemented. A plan for retrospective evaluation should, among other things, discuss:

- ways of operationalizing the proposed rule's objectives, specifying metrics that could be used in the future to assess whether each objective had been met;
- sources of data that either currently exist or would need to be developed in order to estimate the impact of the rule on the specified metrics;
- the time frame when the rule's objectives could be expected to accrue or, relatedly, the time frame when retrospective evaluation would be appropriate; and

- research or analytic designs that could be used in evaluating the rule (e.g., sources of cross-sectional or longitudinal variation, other potential explanatory factors that might need to be controlled, and possible statistical approaches to estimating counterfactuals).

An evaluation plan would be useful if the agency later reexamined the rule in a future administration's lookback process. Such planning also would help prompt agencies early in the rule development process—even when proposed rules are being drafted—to begin to think about retrospective evaluation needs, such as what data could be collected or identified in advance of the rule's implementation in order to facilitate subsequent measurement. Evaluation plans should be made publicly available, and as such they may help stimulate independent evaluation research by other entities, including the Administrative Conference of the United States, the National Academy of Sciences, and the National Academy of Public Administration, as well as by university and think-tank researchers.

OIRA is well positioned to oversee formal evaluation planning as part of regulatory development. Imposing a requirement for the submission of formal evaluation plans would serve to implement the periodic review of existing significant regulations demanded under both Section 6 of Executive Order 13,563[12] and Section 5 of Executive Order 12,866,[13] not to mention the provisions of Executive Order 13,610.[14] In addition, since the data needed for evaluation may at times call for information-collection requests, OIRA's role in implementing the Paperwork Reduction Act[15] would also make it an appropriate entity to interact with agencies over plans for evaluation.

[12] Exec. Order No. 13,563, 76 Fed. Reg. 3,821, 3,822 (2011).
[13] Exec. Order No. 12,866, 58 Fed. Reg. 51,735, 51,739 (1993).
[14] Exec. Order No. 13,610, 77 Fed. Reg. 28,467, 28,469 (2012).
[15] 44 U.S.C. §§ 3501-3521 (2012).

Evaluation Prompts. Finally, OIRA should extend to the context of retrospective review the earlier OIRA practice of sending agencies occasional prompt letters.[16] Evaluation prompts would identify specific existing rules that the Administration believes should be targeted for in-depth review, above and beyond whatever the agency may do in the ordinary course of the ongoing lookback process called for under the existing executive orders.

Far too many of the retrospective reviews that agencies have conducted to date have been impressionistic, rather than systematic or rigorously empirical. Of course, that is to be expected with the short time frame agencies have been given under the retrospective review initiatives in recent administrations. Moreover, for some rules no more than a close but informal glance back will be warranted. For other rules, though, a more in-depth, serious evaluation will be needed to advance the goals of sound regulatory governance.

As with regulatory plans, OIRA is well positioned to implement the prompt letter proposal given its familiarity with rules across the entire sweep of the federal government. Better than any other entity, OIRA can determine what the federal government's top priorities for regulatory evaluation should be. Specifically, OIRA should issue prompt letters calling for in-depth evaluation in at least three types of cases:

- *Close calls*. Rules should be evaluated rigorously when they had, at the time they were promulgated, high expected costs or benefits but relatively small expected *net* benefits in their RIAs. If the costs of such a rule turned out after implementation to be substantially larger than estimated, or

[16] *See* John D. Graham, *Saving Lives Through Administrative Law and Economics*, 157 U. PA. L. REV. 395, 460-463 (2008) (describing the development and use of OIRA's regulatory prompt letters).

the benefits substantially smaller, the rule would no longer have benefits that justify its costs.

- *High uncertainty*. Relatedly, rules expected to impose high benefits or costs merit subsequent evaluation if the prospective benefit or cost estimation exhibited high levels of uncertainty. For these rules, a follow-on investigation would reduce the uncertainty.
- *Common issues*. Rules that present common issues of either benefit or cost estimation – or that rely on common assumptions – are prime candidates for rigorous retrospective review, as serious efforts to evaluate their benefits and costs retrospectively would help validate or improve prospective estimation techniques applicable to other rules.

Although OIRA lacks the capacity to conduct the needed rigorous retrospective evaluation research on its own, it is distinctively positioned to help identify opportunities like these, where evaluation could assist in improving regulatory outcomes, reducing regulatory burdens, or validating or improving methods of regulatory impact analysis. OIRA could, of course, also welcome other agencies or members of the public to make suggestions for rules that should be subjected to evaluation prompt letters.

OIRA's prompt letters would urge agencies to allocate internal agency research funds to conduct in-depth empirical evaluations of rules in accord with OIRA's evaluation guidelines. Agencies could alternatively seek assistance from entities such as the National Science Foundation or the National Academy of Sciences to fund or facilitate systematic regulatory assessments. Either way, given OIRA's placement within the Office of Management and Budget, it may be positioned to help support the allocation of necessary budgetary resources for its priority regulatory evaluations. OIRA's statutory role in overseeing the Paperwork Reduction Act also positions it to stand ready to process expeditiously the approvals of information re-

quests that may be needed to collect the data needed to undertake evaluations subject to prompt letters.

* * *

These three proposals—evaluation guidelines, evaluation plans, and evaluation prompts—could all be implemented without any congressional action shortly after the confirmation of the next OIRA Administrator. Although these three steps by themselves will not cure everything that ails the nation's regulatory system, they nevertheless represent meaningful steps toward better regulatory analysis and ultimately better regulation. Evaluation, after all, is needed to identify both real successes and real problems that need fixing.[17]

Institutionalizing rigorous evaluation practices will by no means come easily. Rigor and quality have not always described even the prospective regulatory impact analyses that agencies have been required to complete under OIRA's oversight for the last several decades.[18] With time, though, the practice of regulatory analysis can improve and deepen. Building a culture of retrospective evaluation is a long-term proposition, and at this juncture it requires taking steps to maintain the momentum the Obama Administration has generated with its extensive lookback initiative. The only way to advance the administration's admirable objectives of improving both regulation and regulatory evaluation is to keep moving forward with looking back.

---

[17] *See* Cary Coglianese, *Thinking Ahead, Looking Back: Assessing the Value of Regulatory Impact Analysis and Procedures for Its Use*, 3 KOREA LEG. RES. INST. J. L. & LEG. 5, 18 (2013) (S. Kor.) (discussing how evaluation research seeks "to attribute, causally, both the good and bad outcomes to regulations").

[18] *See* Robert W. Hahn & Patrick M. Dudley, *How Well Does the U.S. Government Do Benefit-Cost Analysis?*, 1 REV. ENVTL. ECON. & POL'Y 192, 209 (2007) (analyzing seventy-four federal regulatory impact analyses [RIAs] completed between 1982-1999 and concluding "that many RIAs are of poor quality").

Does Regulation Kill Jobs?

Edited by
Cary Coglianese, Adam M. Finkel, and Christopher Carrigan

PENN

UNIVERSITY OF PENNSYLVANIA PRESS

PHILADELPHIA

—-1
—0
—+1

Published by
University of Pennsylvania Press
Philadelphia, Pennsylvania 19104-4112
www.upenn.edu/pennpress

Printed in the United States of America on acid-free paper
10 9 8 7 6 5 4 3 2 1

Library of Congress Cataloging-in-Publication Data
ISBN 978-0-8122-4576-9

Contents

—-1
—0
—+1

Preface

Are regulations job killers or job creators? This question has dominated much public debate in the United States during the past several years as the nation has suffered sustained high levels of unemployment. Some politicians espouse the view that regulations are job killers, while others claim regulations either have little negative effect or actually stimulate the creation of new industries and jobs. Although the debate over jobs and regulation often divides along party lines, politicians on both sides of the aisle share a common desire to improve economic conditions and lessen the hardship that unemployment imposes on individuals and their families. This book responds to that common desire by bringing together the work of leading scholars and practitioners to understand better how regulation affects employment and what regulatory agencies might do to improve their analysis of these employment impacts.

Despite the obvious reasons for wanting to understand better whether regulation helps or hurts employment, neither regulatory analysts nor academic researchers have yet to develop the kind of evidentiary foundation needed to provide solid answers. Partly this is because the empirical relationship between regulation and employment is harder to untangle than it might seem at first glance. Intuitively it might seem obvious that regulations adversely affect employment. When regulations increase the cost of doing business, they drive up the cost of products and services, reducing demand and thereby shrinking employers' need for workers and their capacity to retain them. But just as intuitively, it might seem obvious that regulations can promote jobs. After all, one of the ways regulation increases the cost of doing business is by increasing the demand for goods and services needed to comply with the law, thus creating additional demand for labor associated with installing and operating required equipment and implementing mandated protocols. Of course, it is also highly plausible that both intuitions have validity and that the same regulations that increase jobs for some individuals decrease them for others.

Some empirical research has tested these various intuitions with respect to a limited number of regulatory domains by using several methods and sources of data. As the opening chapters in this book explain in detail, the results of past research have been informative even if still in ways somewhat limited. Given the economy's complexity and dynamism, combined with regulation's heterogeneity and expansiveness, more work is needed to produce firm, generalizable answers. This book seeks to help in filling this need. It adds to existing knowledge of regulation's employment effects as well as aims to stimulate additional research and analysis by academic researchers as well as government analysts. Its chapters offer new empirical findings about the connection between regulation and jobs, substantial ideas about how economic analysis of regulations can better incorporate consideration of employment effects, and proposals for reforming the regulatory process to give employment its proper due in regulatory decision making.

Of course, this book does not purport to settle definitively the debate between those who view regulation as job killing and those who view regulation as job creating. It does, however, move toward narrowing the divide through the achievement of a better understanding about the true consequences of regulation for the level and quality of employment. In times of substantial economic stress, the public and their elected officials naturally expect that government agencies will give greater scrutiny to employment effects as they consider adopting new regulations or modifying existing ones. This book—the first of its kind to examine the relationship between regulation and jobs—offers guidance for ensuring that such heightened scrutiny can meaningfully contribute to improved regulatory analysis, design, and outcomes.

Cary Coglianese

Chapter 1
The Jobs and Regulation Debate

Cary Coglianese and Christopher Carrigan

The Great Recession wreaked havoc on employment in the United States. Even as the overall economy officially began to pick up by the middle of 2009, the American labor force still struggled to rebound. Month after month, millions of workers lost their jobs and millions more continued to look for new full-time work. Politicians responded to this great economic crisis by, among other things, blaming regulation (Coglianese 2012a). Some blamed the lack of adequate regulation for triggering the economic collapse in the first place, while others blamed regulation and its attendant burdens for hampering the pace of recovery. For those in the latter group, the phrase "job-killing regulations" became a common rallying cry for a regulatory reform agenda. Still other politicians argued that strong regulations not only could prevent future economic, environmental, and public health disasters but would actually stimulate new jobs, forcing companies to innovate and creating so-called green jobs.

Although ideological differences account for much of the polarized political debate over jobs and regulation in the United States, this debate fundamentally centers on an empirical question—namely, what impact regulation has on employment. This question can and should be approached with rigorous economic and policy analysis, and fortunately some important research has already addressed the empirical question. Nevertheless, uncertainty remains about how generalizable existing research findings are to today's economy as well as exactly how to incorporate what is known about jobs and regulation into decision making about specific new regulations. Given the importance to society of having both effective regulation and available employment opportunities, we have assembled this volume to advance the search for a better understanding of how regulation affects jobs.

In this opening chapter, we begin by showing in greater detail how the political debate over the economy has in recent years also turned into a debate over regulation, with partisans claiming that regulation either kills or creates jobs. Notwithstanding this political rhetoric, the existing empirical research suggests that regulation does relatively little to reduce or increase overall jobs in the United States. We consider here why, given that the published economics research does not provide a strong basis for believing that regulation affects overall employment levels, the political debate has nevertheless focused so much on regulation's impact on jobs. We offer an account of the political economy of the jobs and regulation debate that emphasizes the distribution of job impacts and the greater responsiveness of the political system to relatively more certain, identifiable job losses than to less certain, unspecified job gains, even if in the aggregate the latter fully offset the former. Our aim is not merely to understand better the puzzling disconnect between politics and economics on this issue but also to explain why both regulators and researchers ought to be more attentive to the kinds of analytic and empirical issues raised throughout this book. Only by developing better estimates of the real effects of regulation on employment can policy debate in the United States even hope to rise above the current polarized predicament where regulation's effects on jobs are too often either superficially treated or overblown by officials on both ends of the ideological spectrum.

Jobs and Regulation on the Political Agenda

The United States' worst recession since the 1930s ushered in a deep and sustained period of job losses. Before the recession started in 2007, the national unemployment rate hovered at around 4.5 percent, but it quickly rose to over 7 percent by the end of 2008 and peaked at 10 percent in October 2009 (Bureau of Labor Statistics 2013a). Once the recession officially ended, unemployment took longer to rebound than in any previous recession, remaining at levels above 8 percent for more than three additional years (Bureau of Labor Statistics 2013a). As of February 2013, the United States still had 12 million persons out of work (Bureau of Labor Statistics 2013b). In addition, a substantial proportion of unemployed individuals had been out of work for up to a year or more. Prior to the recession, about 645,000 individuals could be counted as having been unemployed for a year or more, but by 2010 this number had risen to 4.5 million, the largest share of the U.S. labor force facing such long-term unemployment on record (Bureau of Labor Statistics 2010).[1]

The unemployment crisis prompted a heated political response. Republicans seized on the costs that regulations necessarily impose on

business and began repeatedly referring to regulations as "job-killers" (Coglianese 2011), developing what one columnist referred to as "a seemingly immutable law of . . . rhetoric that the word 'regulation' can never appear unadorned by the essential adjective 'job-killing'" (Marcus 2012). In a Republican presidential primary debate in June 2011, Representative Michele Bachmann opined that the U.S. Environmental Protection Agency (EPA) "should really be renamed the job-killing organization of America" (CNN 2011). Another candidate for the Republican presidential nomination, former Utah Governor Jon Huntsman, called for "ending the EPA's regulatory reign of terror" (Malcolm 2011), while yet another, Texas Governor Rick Perry, referred to a "cemetery for jobs at the EPA" (Broder and Galbraith 2011). The eventual Republican presidential nominee in 2012, former Massachusetts Governor Mitt Romney, made regulatory reform one of the key parts of his plan for restoring economic growth, lambasting what he saw as the government's destruction of the American dream of economic prosperity "day by day, job-killing regulation by job-killing regulation" (Romney 2012). Even after President Obama's reelection, Republicans continued to press their argument. In giving the Republican response to President Obama's 2013 State of the Union address, for example, Senator Marco Rubio (R-Florida) disparaged the passage of "job-killing laws" (Rubio 2013).

Democrats, of course, had their own rhetorical playbook. Although President Obama (2011b) acknowledged that some regulations can be burdensome and even have a "chilling effect" on the economy, he also repeatedly defended the importance of regulation in protecting the public from economic and environmental disasters. Democrats used the words "common sense" instead of "job-killing" in connection with regulation, defending the need for sensible rules to protect the public from the undesirable by-products of economic activity (Obama 2013a; Reid 2011). Democrats also continued to blame the lack of effective regulation for the economic crisis that triggered the recession (Coglianese 2012a; Obama 2012a), attacking the Republicans' job-killing argument as a "myth" designed only to help them in "peddling a cure-all tonic of deregulation" (Reid 2011).

Responding to the charges leveled specifically against environmental regulation, advocates of more stringent regulation adopted a countervailing rhetoric about "green jobs" (Middle Class Task Force 2009). The basic idea is that the imposition of regulations that call for the adoption of pollution control technology or techniques will support the development of new jobs in firms that produce the required technologies or the know-how to deploy the required techniques. Moreover, such regulations may create jobs within the affected firms, as when companies subject to new requirements need to hire additional staff to monitor

compliance or when mandates induce changes to business operations that simply make those operations more labor intensive. Former EPA administrator Carol Browner defended the federal environmental agency by declaring that "the EPA creates opportunities [and] creates jobs" (Browner 2011). At the 2012 Democratic National Convention, former President William Clinton claimed that new federal fuel economy standards adopted by the Obama Administration would generate over 500,000 "good new jobs" over the next two decades (Clinton 2012). In defending his own first-term record, President Obama applauded his administration's energy regulations for creating "tens of thousands of good American jobs" (Obama 2013b).

Clearly, regulation and employment have become firmly linked in contemporary public discourse. That connection actually dates back decades. When Ronald Reagan ran for president in 1980, the United States had been experiencing a short recession—the first dip in a double-dip recession—that brought unemployment levels up from 5.7 percent in July 1979 to 7.8 percent by July 1980 (Bureau of Labor Statistics 2013a). On the campaign trail, Reagan vociferously criticized the Carter Administration for its economic policies, including its "continuing devotion to job-killing regulation" (Cannon 1980). By the 1990s, other politicians could be heard using the job-killing rhetoric—many of them California Republicans just like Reagan had been. In his first term as California's governor, for example, Republican Pete Wilson blamed regulation for imposing "job-killing burdens" on his state's businesses (*Sacramento Bee*, 19 December 1991; *San Jose Mercury News*, 14 November 1991). Wilson appointed former baseball commissioner Peter Ueberroth to chair a commission designed to develop recommendations to improve California's economic competitiveness. Ueberroth had regulation in mind when he proclaimed in 1992 that "California has developed the most highly tuned, finely honed job-killing machine that this country has ever seen" (Stevenson 1992).[2] Over the years, the phrase "job-killing regulations" has been used by others as well, such as when Senator Don Nickles (R-Oklahoma) called the ergonomics rule issued by the Clinton Administration's Occupational Safety and Health Administration "the most intrusive, expensive and job-killing regulation ever handed down" by the agency (*Salt Lake City Deseret News*, 7 March 2001).

Although claims about job killing are hardly new, Figure 1.1 clearly demonstrates how the intensity and frequency of these claims reached new heights during the most recent economic downturn. Not only did the specific phrase "job-killing regulation" skyrocket in the media (Livermore and Schwartz this volume), but the general connection between jobs and regulation in the media followed a trend that closely tracked the increasing levels of unemployment. Figure 1.1 shows how

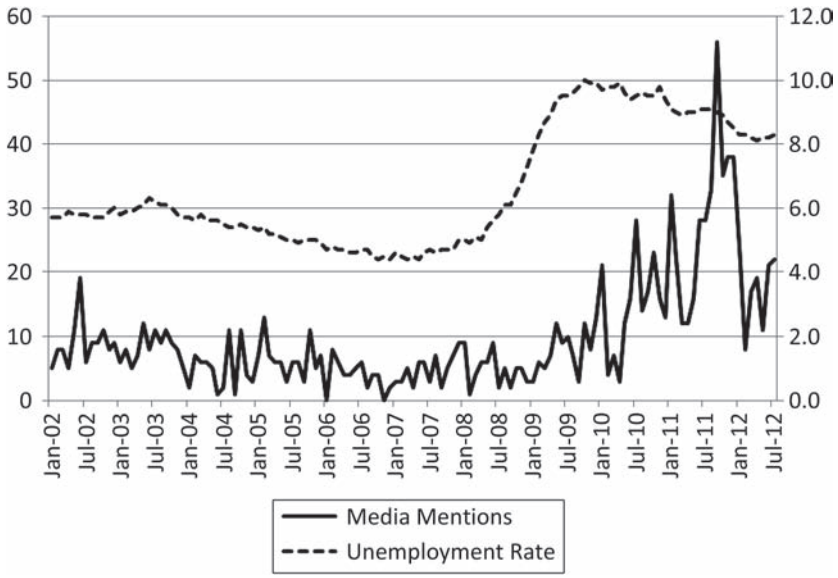


Figure 1.1. "Jobs" and "Regulation" in the Media, 2002–2012.
Note: Media mentions were compiled through a LexisNexis database search of five newspapers, the *Chicago Tribune*, *Los Angeles Times*, *New York Times*, *Wall Street Journal*, and *Washington Post*, using the following search: regulation w/5 [jobs or employment or unemployment]. Unemployment rate data were collected from the Bureau of Labor Statistics Web site.

the word "regulation" came to be increasingly accompanied by "jobs" or "employment" in national newspapers over a five-year period ending in mid-2012—a trend indicative of the tight linkage between jobs and regulation in political debate.

At the same time, the jobs and regulation debate has also manifested itself in some changes in regulatory policy. Perhaps the most striking change occurred at the state level when, on his first day in office in January 2013, Indiana's new governor, Mike Pence, fulfilled a campaign promise and issued an executive order imposing a statewide moratorium on new regulations in order to "promot[e] job creation, economic development, and freedom" (Pence 2013). At the federal level, President Obama issued an executive order in 2011 expressly affirming that regulation needs to solve policy problems while also "promoting economic growth . . . and job creation" (Obama 2011a). In announcing the order, Obama called on agencies to review their existing regulations and change or repeal those that "stifle job creation and make our economy

—-1
—0
—+1

less competitive" (Obama 2011b). The President's Council on Jobs and Competitiveness also issued a series of policy recommendations in early 2012 directed at accelerating employment growth—with regulatory reform being among its major proposals (Jobs Council 2012). Subsequently, President Obama issued another executive order on "reducing regulatory burdens" that directed agencies to "be especially careful not to impose unjustified regulatory requirements" (Obama 2012b).

Congress also took steps to reduce perceived regulatory barriers to job growth. In the 112th Congress, the House of Representatives approved the Red Tape Reduction and Small Business Job Creation Act, a bill that would have operated at the federal level much like the Indiana governor's executive order, imposing an across-the-board moratorium on federal regulations until the unemployment rate fell to 6 percent or lower. The House also passed another bill that would have required all major rules to be approved by Congress before they could take legal effect (Regulations From the Executive in Need of Scrutiny Act of 2011). Yet another bill passed that would have imposed on regulatory agencies a requirement to consider "estimated impacts on jobs" before issuing new regulations (Regulatory Accountability Act of 2011). Although the Democratically controlled Senate never approved any of these bills in the 112th Congress, regulatory reform legislation continued to be debated in the 113th Congress, again with job creation as the key stated objective (e.g., Regulations From the Executive in Need of Scrutiny Act of 2013; Regulatory Sunset and Review Act of 2013; Small Business Freedom of Commerce Act of 2013).

Jobs and Regulation in Economic Research

Politicians' heightened attention to regulation's contribution to weak labor markets has intuitive appeal. Regulation imposes additional costs on firms, and these costs can in turn affect how many workers firms employ or how much they pay those workers. Basic microeconomic theory holds that when the cost of producing a product increases, the amount of that product that a firm will supply to the market at the existing price will decline. If the firm opts to charge more for its product, the price increases will in turn reduce sales, assuming demand is not completely inelastic (Hall 2013; Mankiw 2012). When output declines, so too does the need for the factors of production—including labor. Even if regulations require only fixed capital investments that do not directly affect marginal costs, such mandated investments can still force financially struggling firms to close their doors, leaving their workers faced with the prospect of finding new employment.

Yet theory also predicts that regulations could increase employment. After all, regulation forces firms to incur increased costs in capital or labor (or both) (Berman and Bui 2001; Morgenstern et al. 2002). Any regulation-induced increases in labor costs mean that existing workers are getting paid more, that more workers are being employed, or that these two effects are occurring in tandem. For example, a regulation that requires automobile manufacturers to install catalytic converters or other pollution control devices on cars increases the demand for labor in producing the pollution control technology and installing the mandated devices.[3]

Predictions that regulation will have significant employment effects—positive or negative—would seem plausible given the size of the overall regulatory burden in the United States. The Office of Management and Budget (OMB) has reported that the estimated total costs of major regulations adopted over the period from October 2002 through September 2012 averaged between $57 and $84 billion per year in 2001 dollars—hardly a trivial number in absolute terms (Office of Management and Budget 2013:12). In fiscal year 2012, just 14 rules together generated between $15 and $20 billion in estimated costs (Office of Management and Budget 2013:19). OMB estimates that the corresponding benefits of these regulations amply outweigh the costs, but the sheer magnitude of the costs at least reinforces the plausibility of the theoretical expectation that regulation discernibly affects employment.

Despite this plausibility, it still remains an empirical question, given the alternative theoretical possibilities, as to whether regulatory mandates do cause employment to rise or fall. Researchers have yet to provide substantial support for either of the possible employment impacts that economic theory predicts, whether increases or decreases in jobs. The number of published studies rigorously examining the question is certainly not large, but to date the empirical work suggests that regulation plays relatively little role in affecting the aggregate number of jobs in the United States (see Chapter 2). Studies generally find either no strong relationship at all or relatively modest effects of regulation on employment.

Most of the research has focused on the employment effects of environmental regulation.[4] In one of the earliest studies, Berman and Bui (2001) analyzed the impact on manufacturing jobs of local air pollution regulations adopted in Southern California. Comparing employment in firms located in that region over time as well as in comparable firms outside of Southern California, they found no substantive or statistically significant effects of local air pollution regulations on employment. Similarly, Morgenstern et al. (2002) evaluated whether reported

—-1
—0
—+1

spending by firms on environmental regulatory compliance correlated with changes in employment levels across those firms, finding no statistically significant changes in employment averaged across four industrial sectors from 1979 through 1991. Moreover, when analyzed separately, two of the four sectors actually showed small, statistically significant increases in jobs in the face of increased regulatory compliance spending.

Using other data and a different study design, Greenstone (2002) found a decrease of an average of about 40,000 jobs per year in facilities located in "nonattainment areas," that is, parts of the country declared to have "dirty" air and therefore subject to more stringent air pollution requirements under the Clean Air Act. However, because the observed employment changes were relative ones—derived from a comparison with areas in the country lacking more stringent controls—it is not known how much of Greenstone's observed decrease reflects true job losses in the aggregate rather than a shift in jobs from dirtier areas of the country to cleaner ones. Greenstone (2002:1211) also observed that although the changes he found were "substantial," they still amounted to a "modest 3.4 percent of total manufacturing sector employment."

More recent work has followed Greenstone's approach of exploiting variation in the Clean Air Act's air quality designations, comparing wages over time in cleaner (less regulated) versus dirtier (more regulated) air quality regions throughout the country. Walker (2011, forthcoming) found that overall employment in the more regulated sectors fell by about 15 percent—again relative to areas with less regulation—following the imposition of new clean air designations. The workers in these industries also reportedly saw on average a 20 percent reduction in the present value of their wages following new regulatory controls, with much of this decrease attributable to older, higher-paid workers who were laid off (Walker forthcoming). Although such an earnings effect is certainly nontrivial, Walker has characterized the loss as "relatively small" given that it was "two orders of magnitude below most estimates of the health benefits" of the law (Walker forthcoming). In other words, adding the estimated earnings loss to the computation of costs would make no difference in a benefit–cost assessment of existing air pollution regulation. Walker also did not include in his analysis any offsetting positive effects accruing to workers that gain jobs because of the imposition of new regulation.

These major studies indicate that the relationship between regulation and jobs is far less pronounced than typically portrayed in political debate. The research has generated at most only tepid or mixed support for the proposition that regulation kills or creates jobs. Although the

results vary between positive and negative, statistically significant and insignificant, the studies do fairly consistently demonstrate that any effects of regulation are at most modest relative to the overall size of the labor market.[5] That basic conclusion also finds support in additional research studying specific rules (Gray et al. 2011), using international data (Cole and Elliott 2007), employing alternative statistical techniques (Kahn and Mansur 2010), and considering policies for mitigating climate change (Deschenes 2012). In their chapter in this book, Gray and Shadbegian similarly find statistically significant but only "very small" job losses associated with regulation in certain manufacturing sectors. Aldy and Pizer, also in this book, estimate the downstream effects on employment in manufacturing firms caused by a substantial increase in electricity prices, an increase that itself might plausibly be caused by environmental regulation, finding a decline of only 0.2 percent in the level of employment.

Data on "green jobs"—those generated by environmental regulation—tend to paint a similar picture of, at most, modest effects from regulation. Porter (2008) has argued that stringent environmental regulations force firms to innovate, thereby inducing gains in firms' efficiency and competitiveness that offset, or even more than offset, the costs of regulatory compliance (see also Porter and van der Linde 1995). In addition to relying on a controversial assumption that without regulation firms are passing up profitable opportunities for innovation, Porter's evidence for a regulatory "win–win" consisted primarily of case examples and did not systematically estimate employment effects. Palmer et al. (1995) challenged Porter's hypothesis by referring to Census Bureau data showing that the cost savings firms reap from complying with environmental regulations amount to no more than 2 percent of firms' overall regulatory compliance costs.[6] Separately, the Bureau of Labor Statistics (2013c) has reported that the percentage of total employment in industries associated with the production of green goods and services accounted for just 2.6 percent of total public and private sector employment.

These findings from the literature on environmental regulation's impact on jobs are generally borne out by the more extensive literature on how minimum wage laws affect employment. Minimum wage requirements directly regulate a key feature of labor markets, so if any kind of regulation affects employment, it should presumably be these laws. For some time now, scholars have assumed that "minimum wage legislation reduces employment" (Sunstein 1993:56). A survey of over 100 studies beginning in the early 1990s concluded that the weight of the evidence supports the view that increasing the minimum wage reduces employment of low wage workers—but the authors of that same

survey also noted that the research results on this question have "by no means always [been] statistically significant" (Neumark and Wascher 2007:121). By contrast, other more recent analyses and surveys of the literature on the effects of minimum wage laws have concluded that such laws have little impact on levels of employment (Dube et al. 2010; Schmitt 2013).

Overall, what we know about the relationship between regulation and employment contrasts strikingly with the grandiose claims found in contemporary political debate about either dramatic job-killing or job-creating effects of regulation. The empirical evidence actually provides little reason to expect that U.S. economic woes can be solved by reforming the regulatory process. Of course, this is not to deny that regulation does sometimes lead to some workers being laid off because of plant closures or slowdowns nor to deny that workers are sometimes hired to install and run new technologies or processes needed to comply with new regulations. But the picture that emerges is far removed from politicians' emphatic rhetoric about both the job-killing nature of regulation as well as its ability to create lots of green jobs.

Why Politicians Link Regulation and Jobs

A mismatch between political rhetoric and academic research should hardly be surprising. Political scientists and pundits often assume that politicians are motivated primarily by the drive to remain elected and that they favor taking symbolic gestures that allow them to claim credit and shift blame (Edelman 1967; Mayhew 1974). Targeting regulation as the source of either economic distress or salvation can certainly be a politically expedient gesture, even if not grounded in evidence (Carrigan and Coglianese 2012). After all, most politicians have few, if any, levers to control the fundamentals of the economy, especially in a period of sharp economic disequilibrium, but they do have the power to issue, modify, and repeal regulations, thereby presenting an image to their constituents that something is actually being done.

But one need not question entirely the sincerity of the politician who focuses on regulation's impact on jobs. After all, the belief that regulation affects employment does have a basis in economic theory, and the empirical research that tests this belief is far from exhaustive. The data analyzed in the existing literature draw mainly from the 1980s and 1990s, and it is possible that regulation's effects are different today, whether because firms can more easily outsource overseas, because the cumulative regulatory burden imposed on firms is quantitatively or qualitatively different today, or because regulation's impacts on employment differ in periods of sustained economic downturns like the one the

United States recently experienced. In addition, existing research has also been limited to a few types of regulation, mostly labor and environmental policy. Gray and Shadbegian (this volume) report that regulation's impact on jobs appears to be related to industry structure, suggesting the possibility that regulatory efforts in banking, health care, and other sectors could possibly affect employment in ways that environmental regulation might not.[7]

We note these limitations in the existing literature not merely to present academic caveats but to suggest why it might appear reasonable for politicians to persist in their belief in regulation's connection to jobs. The phenomenon at issue is, after all, complex; the research challenges in investigating it are daunting. Consider that during the five-year period leading up to the 2008 recession an average of 1.9 million workers were laid off or fired every month in the United States.[8] With this much "normal" churning within labor markets, is it any wonder that it is difficult to determine with confidence how many layoffs a regulation, or a set of regulations, might cause? Researchers have a lot of statistical noise to penetrate. And even when they work through the noise, they cannot simply assume that jobs "lost" following the adoption of a regulation would have always been there in the absence of the regulation.

Of course, the existing literature does not deny that regulation can affect employment, even if the overall net effects are insignificant or modest. As noted earlier, Morgenstern et al. (2002) found employment higher in two sectors in the face of increased spending on environmental regulation. Conversely, Greenstone (2002) and Walker (2011, forthcoming) showed relative declines in overall employment in areas with heightened levels of environmental controls. In other words, even if job losses in some areas of the country are cancelled out by gains in other areas (as the Morgenstern et al. [2002] results would appear to imply), regulation still can have tangible impacts in terms of job shifts. Some workers lose their jobs while others gain them. Even for the same workers, job shifts can occur when they move to new facilities or assume new responsibilities within the same firms, as well as when they take on new jobs in altogether different firms—jobs that may not necessarily pay as much as their former jobs. For workers and their families, job shifts caused by regulation have real consequences.

Politicians care about these consequences. At a recent conference on regulatory reform, Senator Angus King (I-Maine) stated that "the driving issue for all politicians is jobs."[9] Even if Senator King's statement is an exaggeration, it may not be much of one. Politicians do often treat jobs as possessing intrinsic value, defining—not just contributing to—individuals' psychological, physical, and social well-being (Kalleberg

—-1
—0
—+1

2011). President William Clinton (2011:ix) has written: "Work is about more than making a living, as vital as that is. It's fundamental to human dignity, to our sense of self-worth as useful, independent, free people." Many years earlier, President Franklin D. Roosevelt declared that "the right to a useful and remunerative job" should be enshrined in a second, economic Bill of Rights (Roosevelt 1944). Political leaders from around the world have forged a Declaration of Human Rights (United Nations General Assembly 1948:Art. 23) that formally pronounces that "everyone has the right to work . . . and to protection against unemployment."

Politicians' utmost concern for employment is not surprising, given how much their constituents value productive employment. Over the years, the Gallup organization has repeatedly asked survey respondents to assess what they believe is "the most important problem facing this country today" (see, e.g., Saad 2013). In polls asking this question from 1970 to 2013, the economy ranked as one of the top three problems 88 percent of the time (Figure 1.2), greatly outpacing even national defense, which ranked as a distant second and reached at least one of the top three spots in only 43 percent of the polls conducted. The priority the public gives to economic issues in Gallup's national poll correlates closely with the unemployment rate at the time a poll is taken. As Figure 1.2 shows, economic issues rank as the top problem when unemployment is at its highest. Similarly, Davis and von Wachter (2011) have shown that as the unemployment rate increases nationally, workers' perceived likelihood of losing their own jobs also increases. The level of public dissatisfaction with regulation also appears to increase with unemployment. As unemployment increased after the last financial crisis, the proportion of respondents reporting that government regulated business "too much" rose from 38 percent in 2007 to 50 percent in 2011 (Newport 2012)—the highest level of disaffection with regulation ever recorded (Carrigan and Coglianese 2012).

Public attitudes obviously influence politicians' incentives. Although economic conditions do not entirely determine politicians' electoral fortunes (Bartels 2008; Fair 1978; Fiorina 1981; Healy and Malhotra 2013; Niemi et al. 1995; Tufte 1978), few politicians find it desirable to run for reelection in an economic climate of high unemployment. If nothing else, high unemployment leads politicians to create and foster a political narrative that either shifts blame or makes it look like they are taking action to reduce unemployment. Railing against regulators and their failings satisfies these political needs well (Carrigan and Coglianese 2012). Regulation also makes an advantageous target because it can be "fixed" without any major budgetary outlays on the part of the government, something that is especially helpful when periods of high

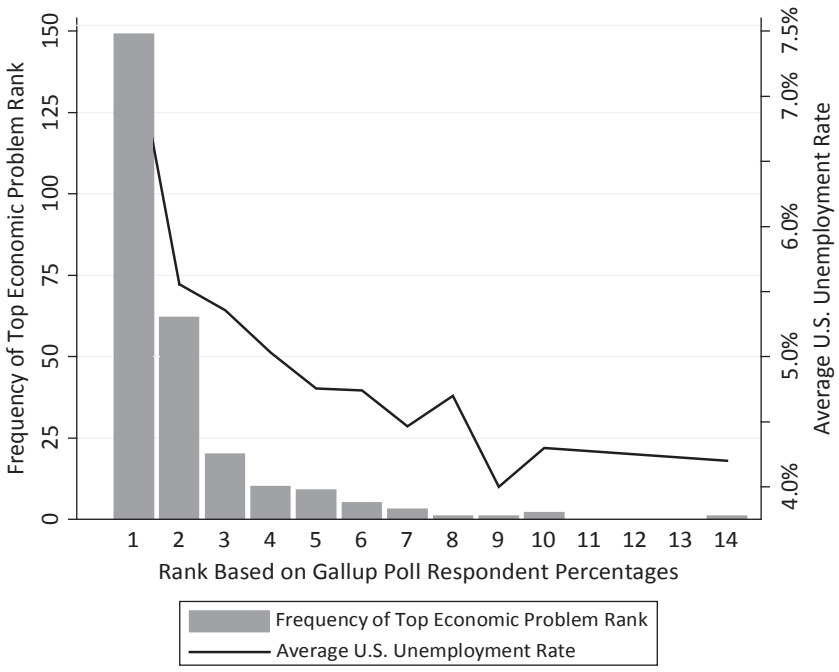


Figure 1.2. Public Ranking of Economic Problems, 1970–2013

Note: Using a database available from the Roper Center at the University of Connecticut, data were compiled from 263 Gallup polls from January 1970 through February 2013 asking respondents, "What do you think is the most important problem facing this country today?" Unemployment rate data were collected from the Bureau of Labor Statistics. For each Gallup poll, responses—economic and noneconomic—were ranked according to the percentage of respondents that named that problem, with the problem receiving the largest percentage being ranked one. Problems categorized as economic included "economy in general," "unemployment," "inflation," "debt," "recession," and "wages," as well as related terms. The top-ranked economic problem in each poll was used to compile the frequency of ranking across all polls. The average unemployment rate for each ranking was determined using the mean unemployment rate for those months in which the top economic problem received that ranking.

unemployment combine with concerns about budget deficits and the size of the national debt.

Most important, regulation does really affect some workers' jobs—and politicians respond acutely to how these and other policy impacts are distributed. They care if factories in their districts lay workers off, even though factories in other politicians' districts might hire more

—-1
—0
—+1

workers. "All politics is local," the late House speaker Tip O'Neill famously opined (O'Neill and Hymel 1994). We have long known that impacts of public policy on employment can vary regionally and locally (Haveman and Krutilla 1968). Politicians are sensitive to these local employment effects even if on net the aggregate impacts on employment across the country as a whole prove benign. Politicians, like most people, care more deeply about impacts that occur close to home. As President Harry S. Truman once stated, "It's a recession when your neighbor loses his job; it's a depression when you lose yours" (*The Observer*, 13 April 1958). By this measure, the Great Recession of 2008 spawned millions of depressions—but not ones distributed equally across every state or political district. After the national recession officially ended in 2009, 10 states still went on to suffer their highest rates of unemployment since the Bureau of Labor Statistics began tracking local unemployment in 1976 (Bureau of Labor Statistics 2013a). It is understandable that politicians in states like these will blame regulation for local labor market conditions, notwithstanding evidence showing that regulation has little to no net effect on job levels across the entire country.[10]

Politicians are also more likely to become activated about regulation's "job-killing" effects than about its job-generating potential. Unlike economists, who dispassionately count job losses the same as job gains when trying to tally the overall impacts of regulation in their empirical research, politicians at least implicitly treat job losses as weightier than job gains, even if the jobs pay the same. This is because job losses will often be more predictable and certain than job gains.[11] The firms bearing the costs of new regulations already exist—as do jobs in those firms—and these impacted firms and their workers can be expected to mobilize politically. By contrast, job gains will often be more speculative, lacking identifiable firms and workers who could mobilize. When former President Clinton proclaimed that new fuel economy regulations would generate 500,000 new jobs over the next 20 years, no one could really say who specifically would land those jobs (nor even if these jobs would ever truly materialize). By contrast, when regulators propose placing new standards on coal-powered electricity plants, metal finishing plants, or trucking companies, the specific firms in the targeted sector can be assured that their costs of doing business will be affected. And the specific employees in these firms may reasonably wonder whether their own livelihoods will be threatened as well. Many politicians can identify with what Representative Jim Jordan (R-OH) once reported about regulation of the trucking industry: "I have heard from truck drivers who . . . tell me that the DOT [Department of Transportation] and the EPA are putting them out of business with their

multiple mandates" (U.S. House of Representatives, Committee on Oversight and Government Reform 2012:5). He and other legislators have undoubtedly heard from far fewer workers who will find new jobs in the future because of a DOT or EPA rule.

In the end, politicians and social scientists are rather like the proverbial blind persons attentive to different parts of the elephant, looking at the connection between jobs and regulation in different ways. Regulation writ large may well have little or no *net impact* on aggregate employment. That is, job gains from regulation overall may well offset job losses across the entire economy. But this does not mean that individual regulations have no demonstrable or adverse effects on employment within specific regions, industries, and firms. Especially in democracies divided into smaller electoral districts, political leaders respond to individual and local impacts, and they respond to tangible losses more than they do to speculative gains, even when in the aggregate negative and positive impacts of regulatory policies balance out across the entire nation. What might seem to many economists to be "mere" transfers of jobs can still palpably change real people's lives by affecting their wage earnings, physical health, and psychological well-being (e.g., Moyle and Parkes 1999). These discrete effects, and the ways that they are distributed, matter to people and to their elected politicians. Politics, after all, is fundamentally about who gets what, when, and how—as well as about who loses what, when, and how (Lasswell 1958).

Implications for Regulatory Analysis

Just as regulation's impacts on jobs matter to citizens and their elected politicians, they should also presumably matter to appointed officials and their analysts within regulatory agencies. For many years, though, agency analysts have tended to ignore any job impacts of proposed regulations in their benefit–cost analyses (Shapiro this volume). Despite being instructed by executive order to consider "adverse effects" of proposed regulations on "productivity, employment, and competitiveness" (Clinton 1993), analysts have simply assumed either that employment effects are already implicitly accounted for in their benefit–cost analyses or that any separate employment effects are too transitory or small to change the outcome of these analyses (Masur and Posner this volume, Hall 2013). Analysts have often adopted a simplifying assumption of full employment (perhaps reasonably so), according to which any worker losing a job because of regulation could readily find another, comparable one elsewhere in the economy (Mannix this volume). With such an assumption, analysts in regulatory agencies have found it easier to focus on the most direct costs and benefits of regulation when

calculating a proposed rule's net benefits. They have acted as if their role is limited to determining whether the winners under a proposed regulation could in principle pay off the losers, not to worrying much about who the winners or losers might be.

The failure to include employment explicitly in benefit–cost analyses of regulation does not derive from any overarching lack of concern about employment on the part of economists and policy analysts. On the contrary, agencies have sometimes tried to estimate the job effects of regulation separately, without incorporating them into their benefit–cost analyses (Ferris and McGartland this volume). Furthermore, in other policy realms, economists have actually undertaken extensive efforts to understand the macroeconomic factors that affect the level of employment in the economy as well as to analyze various policy options for lowering unemployment to its "natural" or "acceptable" levels. In any basic macroeconomics textbook, for example, controlling unemployment occupies a prominent place alongside managing inflation (Mankiw 2010). In practice, economists throughout the executive branch of government pay careful attention to unemployment and policy options to combat it. These economists just tend to work outside the traditional regulatory agencies and instead within other governmental entities such as the White House National Economic Council, the Council of Economic Advisors, and the Federal Reserve.

Undoubtedly part of the reason analysts have neglected to itemize job effects in their regulatory benefit–cost analyses is that, as we have discussed, the empirical literature suggests that regulation in the aggregate does not seem to affect overall employment levels. The costs that regulations impose on firms may be sizable, but they are still quite small relative to the overall cost of doing business and do not appear to be the major driver affecting the competitiveness of U.S. industry (Jaffe et al. 1995). Yet the findings from the existing empirical research probably only partly explain why agencies do not incorporate job effects into their benefit–cost analyses of new regulations. After all, the principles of benefit–cost analysis do not say to exclude a specific kind of benefit or cost simply because it might be relatively small. A potentially more important reason for not including job effects in benefit–cost analysis is that doing so has been just too difficult—conceptually, analytically, and empirically (Bartik 2012). If it were easy to estimate and value job impacts reliably, far fewer agencies would hesitate to incorporate such effects into their analyses, especially given politicians' interest in the connection between regulation and jobs.

Still, when it is clear that a proposed regulation will kill or create an estimated number of jobs, particularly if the estimated number of jobs affected is substantial (Elliott this volume), it does make sense for the

promulgating agency to ensure these job losses are fully factored into its benefit–cost analysis. Unemployment brings with it not just a gain of "leisure" time for workers and a lowering of costs to employers; it can also impose negative consequences in terms of reduced future earnings potential, job search costs, social stigma, and negative physical and mental health effects (Davis and von Wachter 2011; Dooley et al. 1996; Frey and Stutzer 2002; Helliwell and Huang 2011; Sullivan and von Wachter 2009).[12] Especially during a severe economic downturn, a regulation that results in layoffs can produce long spells of unemployment, which may cause disproportionate effects on income potential. Those out of work for extended periods can experience significant cuts in their preemployment earnings upon reentering the workforce (Congressional Budget Office 2004, 2007; von Wachter 2010).

In effect, job losses caused by a regulation constitute a negative externality of that governmental action. At the same time that a regulation can serve to correct a market externality, thereby delivering benefits to society, the costs that the regulation imposes on firms can create their own externalities, over and above the opportunity costs associated with the resources devoted to complying with the regulation. The Bureau of Labor Statistics (2009:1) puts it this way: "When workers are unemployed, they, their families, and the country as a whole lose. Workers and their families lose wages, and the country loses the goods or services that could have been produced. In addition, the purchasing power of these workers is lost, which can lead to unemployment for yet other workers." To be complete, benefit–cost analyses of proposed regulations would need to take all of the indirect effects of job losses into account.

When incorporating job effects into a benefit–cost analysis, the analyst must confront two questions. First, what will be the impact of the proposed regulation on jobs? That impact could be measured simply by the number of jobs, as it has been in much of the empirical research to date. But employment impacts could also be measured in terms of wages, job quality, or job fit. A job, after all, is not a (fungible) job. Job quality is at least partially determined by whether it is high paying or low paying (Acemoglu 2001), but a "good" job also provides stability, security, and, to some extent, flexibility to its holder—not to mention it should also match well the skills and interests of the job holder (Kalleberg 2011; Tilly 1997). A given regulation might well make no difference in terms of the number of jobs, but it could still affect job pay, quality, or fit. The analyst needs to forecast how an individual regulation will affect the selected employment metric—a task that will seldom be easy. Predicting a regulation's effects will often require making difficult long-term employment forecasts as regulations last for years and many important rules do not even take legal effect for a year or more after

—-1
—0
—+1

they are adopted (Robinson this volume). As the effects of regulation on employment are likely to be indirect, if not highly attenuated, regulatory officials may need to abandon their reliance on more tractable partial equilibrium models and work to develop dynamic general equilibrium models, an approach recently explored in industry-sponsored research (Smith et al. 2013). Of course, however they are estimated, employment forecasts need to include both negative effects (losses) and positive ones (gains).

After the employment impact of a regulation has been determined, the second question for the benefit–cost analyst is: What is the monetary value of that impact? Actual earnings might initially seem to provide a basis, but when a firm lays off workers or reduces what it pays them, what the workers lose the employer reaps as a corresponding cost savings.[13] What matters is valuing the real welfare effects to workers as they are forced to transition to new jobs (Arrow et al. 1996). Presumably that value should be less than current earnings (Bartik 2013). Separate from wages, the analyst could seek to estimate the value to workers of layoffs by monetizing the ancillary effects of unemployment, such as the adverse impacts on health (Adler this volume). Monetizing health effects sometimes generates moral objections (Ackerman and Heinzerling 2004), but well-accepted valuation practices that have been applied in other public policy realms, such as environmental or public health regulation, could be used to value the health effects of unemployment (Finkel this volume).

Already, some have suggested that the full stream of ancillary effects from the loss of a single job should be valued around, or even somewhat more than, $100,000 per job in present value terms (Bartik 2013; Masur and Posner 2012). Bartik (2013) suggests that the welfare costs from regulation-induced job losses could amount to 10 percent to 20 percent of the other costs of the regulation conventionally included in a benefit–cost analysis. Of course, to the extent that a regulation also induces job gains, whether in other sectors or in other parts of the country, those positive effects would need to be included when making any complete valuation of job impacts. Still, if the labor impacts expected from a specific proposed regulation were indeed to add even 10 percent to its overall costs, knowing that might sometimes make a difference when public officials have to decide whether to proceed with that regulation—or whether to pursue other options, such as the use of market-based instruments that might potentially have both lower compliance costs and fewer detrimental employment effects (Färe et al. this volume).

In the end, that is the purpose of regulatory analysis: to aid in decision making. Given the great concern elected lawmakers have expressed about regulation's impacts on employment, regulatory analyses can

better advance public deliberation and decision making if they are more attentive to both the impacts and value of regulation's effects on employment (Elliott this volume; Livermore and Schwartz this volume). Politicians' sensitivity about local effects also means that benefit–cost analysis of regulation would be more useful if it explicates how both the positive and negative employment effects will be distributed.[14] Without more explicit inclusion of job effects into regulatory analysis, officials within agencies could very well be overly influenced by a political process that at times seems to place a nearly infinite value on jobs. Treating employment concerns as a trump card that blocks otherwise welfare-enhancing regulation would be a mistake—but so too would it be a mistake to ignore the real employment-related externalities that are not accounted for in the typical benefit–cost analysis. If nothing else, the salience of the political debate over jobs and regulation makes it important to try to get the best possible estimates of both the impacts and value of employment effects.

About This Book

The late economist Edward Gramlich once noted, in his leading textbook on benefit–cost analysis, that "the whole jobs issue is a potential alibi for large-scale fudging of numbers" (Gramlich 1990:227). For this reason, respectable economists and analysts have for years concluded that it is often better to make simplifying assumptions that in effect ignore public policy's ancillary effects on jobs. Such an approach at least advances consistency, and it is certainly better than succumbing to political pressures by fudging numbers. But as Gramlich (1990:227) also noted, the analyst can play an important role in informing decision makers, not simply accepting or ignoring what might merely be politically expedient rationalizations: "Politicians are wont to try to obtain programs, and others to defend them, because they create jobs. At this point the benefit-cost analyst can ask some hard questions—are these temporary or permanent jobs, will the job gains here result in overall employment gains, or will other employment just go down, in which case using labor here is a real cost?" What Gramlich said in the context of government programs aiming to create jobs can also be said with respect to regulations that might either create or destroy jobs. The role of the regulatory analyst is to "ask some hard questions"—and to provide answers that can help decision makers.

This vision of the analyst's role explains the genesis of this book. We believe that the relationship between jobs and regulation deserves both better analysis by regulatory agencies in advance of their decisions as well as more retrospective research that can inform that analysis by

identifying how regulations have affected employment after they have been implemented, how those effects have been distributed, and the conditions under which they have arisen (Coglianese 2012a; Coglianese and Bennear 2005; Greenstone 2009). Along with our coeditor, Adam Finkel, we have assembled an interdisciplinary group of regulatory scholars and analysts to give sustained attention to three vital questions raised by the jobs and regulation debate: Does regulation kill or create jobs? How should regulatory analysts investigate the job effects of regulation? How, if at all, should the regulatory process be reformed to give proper consideration to regulation's impacts on employment to yield better policy results? The remainder of this book is divided into three parts, each corresponding to one of these three questions.

The first part offers the reader a careful presentation of empirical evidence about regulation's employment effects. In Chapter 2, Richard Morgenstern provides a foundation for the rest of the book by reviewing the existing research on regulation's employment impacts as well as the welfare effects of unemployment gleaned from labor economists' studies of mass layoffs. In Chapter 3, Wayne Gray and Ronald Shadbegian offer new data analysis on the relationship between employment and regulation and address a gap in the existing literature by investigating how differences in the competitiveness of different industrial sectors either accentuates or attenuates regulation's employment effects. Joseph Aldy and William Pizer, in Chapter 4, focus on the relationship between upstream regulation and downstream employment by estimating the spillover effects on manufacturing from regulation-induced price increases in electricity. In Chapter 5, Rolf Färe, Shawna Grosskopf, Carl Pasurka, and Ronald Shadbegian model employment impacts under different regulatory approaches, comparing more rigid, traditional regulation with more flexible, market-based instruments.

The second part of the book offers an in-depth treatment of many of the core conceptual and methodological issues that regulatory analysts will need to confront in seeking to improve their analyses of the employment effects of regulation. In Chapter 6, Lisa Robinson outlines nine important principles—or "best practices"—for agencies to follow when seeking to incorporate job impacts into their regulatory impact analyses. In Chapter 7, Adam Finkel translates and applies the lessons learned over the last 30 years in the scientific assessment of public health risks, concluding that analysts investigating employment effects would do well to replicate how health risk assessors have responded to challenges related to uncertainty, bias, and the estimation of second-order effects. Matthew Adler, in Chapter 8, offers a model for incorporating into agency decision making the effects on individual psychological and physical well-being that can result from unemploy-

ment as well as some strategies for empirically measuring these impacts. Ann Ferris and Al McGartland, in Chapter 9, explore issues that the EPA has encountered in studying employment effects and then advocate keeping jobs analyses separate from benefit–cost analyses, at least until economic theory and empirical research develop further. Finally, Brian Mannix maintains in Chapter 10 that, while the observable employment impacts of regulation may be important, they cannot simply be grafted on to the standard framework for benefit–cost analysis because, he further argues, such effects are already captured—albeit implicitly—in the standard computation of compliance costs.

The third and final part entertains the possibility that the current regulatory process in the United States could be reformed in ways that would better ensure that federal agencies appropriately factored job impacts into their regulatory decision making. In Chapter 11, Jonathan Masur and Eric Posner defend and expand the argument that agencies should incorporate jobs impacts into their benefit–cost analyses (Masur and Posner 2012), recommending that agencies account for more than just first-order effects when making regulatory decisions. Stuart Shapiro, in Chapter 12, reviews how well regulatory agencies are currently doing in analyzing job impacts, concluding that the track record is abysmal and that a new, outside government entity should be charged with evaluating regulation's effects on jobs. In Chapter 13, Michael Livermore and Jason Schwartz make the democratic case for agencies to conduct better assessments of employment impacts, arguing that such jobs analyses can usefully inform public deliberation regardless of whether they actually alter the outcomes of particular benefit–cost analyses. Finally, in Chapter 14, E. Donald Elliott argues that at the end of the day, the government needs to factor job effects into regulatory analysis when they may be significant either to decisions or to public debate and that experience with similar assessments in the United States and European Union provides a fruitful model for reforming regulatory practice.

Conclusion

The impacts of regulation on employment—whether real or just alleged—will continue to matter to public policy decision makers, particularly in times of high unemployment. Although economists may persist in finding little or no aggregate net effect of regulation on jobs, politicians will continue to respond to localized and individual impacts as well as to the distribution of gains and losses. As long as some regulations affect some jobs, politicians will still either criticize or praise regulations for what they do to employment in their districts and states. The

challenge for researchers and analysts is not merely to continue to test claims about how regulation writ large affects aggregate levels of jobs but also to understand better which regulations have which specific effects on jobs and what are the conditions under which these effects occur. We hope this book can help move forward efforts to meet that challenge.

Employment in the United States may have rebounded by the time many readers will encounter the pages of this book; we certainly hope it will have. With time, phrases like "job-killing regulations" may even fade from the national political discourse. Yet even if economic renewal leads the debate over jobs and regulation to fall dormant for a time in Washington, D.C., it will undoubtedly persist in regulatory disputes at the state and local level and can be counted on to return to the national stage the next time the nation's economy stalls and unemployment spikes for any sustained period. To ensure that policy analysis can better inform deliberation by the public and their leaders, researchers and analysts should seek to contribute by continuing to engage in the kind of work presented and addressed in the chapters of this book.

Acknowledgments

We thank Mariah Ford, Ben Meltzer, Brady Sullivan, and Tim von Dulm for research assistance, Jen Evans for help preparing the manuscript, and John Coglianese, Adam Finkel, Billy Pizer, and Brady Sullivan for their comments. We have also benefited from ideas shared by participants attending the two Penn Program on Regulation events from which this book grows, especially the Washington, D.C. workshop. Although the ground rules for that workshop prevent us from attributing ideas to specific individuals, several participants may notice an affinity between certain of our themes and comments they shared at the dialogue. We gratefully acknowledge here their insights and inspiration.

Notes

1. By "on record," we mean since 1967, when the Bureau of Labor Statistics began tracking unemployment of one year or more in duration.

2. Other Californian Republican officials echoed these sentiments at the time (see, e.g., Carbone 1992; Fuentes 1992).

3. Morgenstern et al. (2002) further distinguish between "cost effects" and "factor-shift effects" that arise from regulation-induced increases in production costs. Cost effects arise when, keeping the firm's ratio of capital to labor the same, regulation increases costs for all factors of production, including capital and labor. Factor-shift effects occur when regulation is more or less labor intensive to implement. If a regulation leads to more labor-intensive operations

(decreasing the capital–labor ratio), then wage increases or job gains result (or both). An increase in the capital–labor ratio would have the opposite effect. Any job effects resulting from either cost or factor-shift effects are, of course, distinct from job losses as well as wage cuts associated with the reduced demand for the more costly product.

4. The studies of environmental regulation we discuss in this section are ones that have the most direct measures of regulatory stringency, relying either on variation in actual rules or on firm-reported data on private sector spending on regulatory compliance. Other studies have attempted to discern various economic effects of regulation at the macrolevel by deploying proxies such as the size of government budgets, the number of pages of rules, or indices of regulatory burdens and then correlating these with overall macroeconomic indicators (e.g., Beard et al. 2011; Dawson and Seater 2013; Feldmann 2009; Jacobzone et al. 2010). Some of these studies report correlations between the deployed proxies and employment, but other studies using similar measures have found no effects (e.g., Sinclair and Vesey 2012). For a discussion of the use of proxies in regulatory research, see Coglianese (2012b).

5. This view is consistent with responses to a variety of surveys. From 1995 to 2013, for example, the Bureau of Labor Statistics (BLS) surveyed each business that incurred a "mass layoff"—that is, over 50 state unemployment insurance claims within five weeks. Since 2007, BLS has specifically asked whether government regulations caused the layoffs—but only a small percentage of businesses reported that regulation was a factor (Bureau of Labor Statistics 2012). Separately, randomized surveys find that at most only about a quarter of small business owners view excessive government regulation as a pressing concern (American Sustainable Business Council et al. 2012; Dunkelberg and Wade 2011, 2013; Hall 2011). Similarly, only about a quarter of the respondents in a *Wall Street Journal* survey of about 50 economists pointed to "uncertainty about government policy" as a factor for the economy's slow return of employment (Izzo 2011).

6. We thank Adam Finkel for reminding us that even if the Porter hypothesis were true in a given situation, employment could still go down because the cost-saving innovations induced by regulation might take the form of new technologies that eliminated some of the need for labor.

7. These results accord with others who have likewise found that the economic effects of regulations vary across sectors (e.g., Jorgenson and Wilcoxen 1990).

8. We used Bureau of Labor Statistics Job Openings and Labor Turnover Survey data at http://data.bls.gov/cgi-bin/dsrv as the source for the number of workers laid off or fired monthly. The average was computed from monthly total U.S. nonfarm layoffs and discharges, seasonally adjusted, over the 60-month period from 2003 through 2007.

9. Senator King made his comment while giving the luncheon address at the Progressive Policy Institute's conference on "Regulating in the Digital Age," held in Washington, D.C., on 9 May 2013.

10. Invoking a hypothetical that will surely resonate with our academic readers, a legislative staff member expressed to one of us the reasonableness of politicians' distributional concerns by imagining a university facing a tough decision that would affect the number of faculty positions. "Wouldn't the provost want to know how different departments would fare under different options?" the staffer asked rhetorically. Even if the imaginary university's decision resulted in no change in faculty appointments overall, university officials would

—-1
—0
—+1

presumably still find it relevant to know if the decision meant that the archeology department gained positions while the biology department lost positions (or vice versa).

11. Another possible explanation, from behavioral economics, might be that people feel the hurt of losing something more than the gain associated with getting that thing in the first place (Kahneman 2011).

12. On the other hand, Ruhm (2000) contends that overall mortality actually declines during periods of high unemployment, although the rate of suicide increases.

13. It is possible, of course, that the utility of the lost wages to the worker will not be counterbalanced perfectly by the utility connected to cost savings to the firm. However, the utility from the worker's so-called leisure time would need to be factored in as well. Economists often use the reservation wage, or the earnings level at which a worker is indifferent between working and not working, to focus on the welfare or utility effects of policies that affect labor choices (Bartik 2012; Haveman and Farrow 2011). Another approach to valuation would be to multiply jobs lost times average unemployment benefits provided by the government. This would not represent a value in terms of economic welfare, but it might still be deemed relevant to public officials who must monitor the public fisc.

14. As Arrow et al. (1996:6) have noted, "While benefit-cost analysis should focus primarily on the overall relationship between benefits and costs, a good benefit-cost analysis will identify important distributional consequences of a policy."

References

Acemoglu, Daron (2001) "Good Jobs versus Bad Jobs," *Journal of Labor Economics* 19: 1–21.

Ackerman, Frank, and Lisa Heinzerling (2004) *Priceless: On Knowing the Price of Everything and the Value of Nothing*. New York: New Press.

American Sustainable Business Council et al. (2012) *Small Business Owners' Opinions on Regulations and Job Creation* (1 Feb.), http://asbcouncil.org/sites/default/files/files/Regulations_Poll_Report_FINAL.pdf.

Arrow, Kenneth, et al. (1996) *Benefit-Cost Analysis in Environmental, Health, and Safety Regulation*. Washington, DC: AEI Press.

Bartels, Larry M. (2008) *Unequal Democracy: The Political Economy of the New Gilded Age*. Princeton, NJ: Princeton University Press.

Bartik, Timothy J. (2012) "Including Jobs in Benefit-Cost Analysis," *Annual Review of Resource Economics* 4: 55–73.

———. (2013) "Social Costs of Jobs Lost Due to Environmental Regulations." Upjohn Institute Working Paper 13-193, Kalamazoo, MI.

Beard, T. Randolph, et al. (2011) "Regulatory Expenditures, Economic Growth and Jobs: An Empirical Study." Phoenix Center Policy Bulletin No. 28, http://www.phoenix-center.org/PolicyBulletin/PCPB28Final.pdf.

Berman, Eli, and Linda T. M. Bui (2001) "Environmental Regulation and Labor Demand: Evidence from the South Coast Air Basin," *Journal of Public Economics* 79: 265–95.

Broder, John M., and Kate Galbraith (2011) "E.P.A. Is Longtime Favorite Target for Perry," *New York Times*, 29 Sept., http://www.nytimes.com/2011/09/30/us/politics/epa-is-perrys-favorite-target.html.

Browner, Carol (2011) "Job-Killing EPA—Carol Browner, October 19," *Colbert Report* interview, http://www.colbertnation.com/the-colbert-report-videos/400166/october-19-2011/indecision-2012—job-killing-epa—carol-browner (accessed 10 March 2013).

Bureau of Labor Statistics (2009) *How the Government Measures Unemployment*. Washington, DC: United States Department of Labor.

———. (2010) *Issues in Labor Statistics*. United States Department of Labor Summary 10-10, Washington, DC.

———. (2012) *Extended Mass Layoffs in 2011*. United States Department of Labor, Report 1039, Washington, DC.

———. (2013a) "Labor Force Statistics from the Current Population Survey, (Seas) Unemployment Rate," United States Department of Labor, http://data.bls.gov/timeseries/LNS14000000 (accessed 6 June 2013).

———. (2013b) "Labor Force Statistics from the Current Population Survey, (Seas) Unemployment Level," United States Department of Labor, http://data.bls.gov/timeseries/LNS13000000 (accessed 6 June 2013).

———. (2013c) *Employment in Green Goods and Services – 2011*. United States Department of Labor USDL-13-0476. Washington, DC.

Cannon, Lou (1980) "Reagan, Ignoring Bush, Assails Carter's Policies," *Washington Post*, 19 May, sec. A, p. 8.

Carbone, Leslie (1992) "Letter to the Editor," *California Journal Weekly*, 1 Sept.

Carrigan, Christopher, and Cary Coglianese (2012) "Oversight in Hindsight: Assessing the U.S. Regulatory System in the Wake of Calamity," in C. Coglianese, ed., *Regulatory Breakdown: The Crisis of Confidence in U.S. Regulation*. Philadelphia: University of Pennsylvania Press.

Clinton, William J. (1993) "Executive Order 12866: Regulatory Planning and Review," *Federal Register* 58: 190.

———. (2011) *Back to Work: Why We Need Smart Government for a Strong Economy*. New York: Alfred A. Knopf.

———. (2012) "Transcript of Bill Clinton's Speech to the Democratic National Convention," *New York Times*, 5 Sept., http://www.nytimes.com/2012/09/05/us/politics/transcript-of-bill-clintons-speech-to-the-democratic-national-convention.html.

CNN (2011) "Republican Debate, June 13," CNN transcript, http://transcripts.cnn.com/TRANSCRIPTS/1106/13/se.02.html (accessed 10 March 2013).

Coglianese, Cary (2011) "Tracking Down Killer Regulations," *RegBlog* (19 June), https://www.law.upenn.edu/blogs/regblog/2011/06/tracking-down-killer-regulations.html (accessed 23 June 2013).

———. (2012a) *Regulatory Breakdown: The Crisis of Confidence in U.S. Regulation*. Philadelphia: University of Pennsylvania Press.

———. (2012b) "Evaluating the Impact of Regulation and Regulatory Policy." OECD Expert Paper No. 1 (August), http://www.oecd.org/gov/regulatory-policy/1_coglianese%20web.pdf.

Coglianese, Cary, and Lori Snyder Bennear (2005) "Program Evaluation of Environmental Policies: Toward Evidence-Based Decision Making," in G. Brewer and P. Stern, eds., *Social and Behavioral Science Research Priorities for Environmental Decision Making*. Washington, DC: National Academies Press.

Cole, Matthew A., and Rob J. Elliott (2007) "Do Environmental Regulations Cost Jobs? An Industry-Level Analysis of the UK," *B.E. Journal of Economic Analysis and Policy* 7: 1–25.

—-1
—0
—+1

Congressional Budget Office (2004) *Family Income of Unemployment Insurance Recipients*. Washington, DC: U.S. Congress.
———. (2007) *Long-Term Unemployment*. Washington, DC: U.S. Congress.
Davis, Steven J., and Till M. von Wachter (2011) "Recessions and the Cost of Job Loss." NBER Working Paper Series Paper 17638, Cambridge, MA.
Dawson, John W., and John J. Seater (2013) "Federal Regulation and Aggregate Economic Growth," *Journal of Economic Growth* 18: 137–77.
Deschenes, Olivier (2012) "Climate Policy and Labor Markets" in D. Fullerton and C. Volfram, eds., *The Design and Implementation of US Climate Policy*. Chicago: University of Chicago Press.
Dooley, David, et al. (1996) "Health and Unemployment," *Annual Review of Public Health* 17: 449–65.
Dube, Arindrajit, et al. (2010) "Minimum Wage Effects Across State Borders: Estimates Using Contiguous Counties," *Review of Economics and Statistics* 92: 945–64.
Dunkelberg, William C., and Holly Wade (2011) *NFIB Small Business Economic Trends* (August), http://www.nfib.com/Portals/0/PDF/sbet/sbet201108.pdf.
———. (2013) *NFIB Small Business Economic Trends* (June), http://www.nfib.com/Portals/0/PDF/sbet/sbet201306.pdf.
Edelman, Murray (1967) *The Symbolic Uses of Politics*. Urbana: University of Illinois Press.
Fair, Ray C. (1978) "The Effect of Economic Events on Votes for President," *Review of Economics and Statistics* 60: 159–73.
Feldmann, Horst (2009) "The Unemployment Effects of Labor Regulation Around the World," *Journal of Comparative Economics* 37: 76–90.
Fiorina, Morris P. (1981) *Retrospective Voting in American National Elections*. New Haven, CT: Yale University Press.
Frey, Bruno S., and Alois Stutzer (2002) "What Can Economists Learn from Happiness Research?" *Journal of Economic Literature* 40: 402–35.
Fuentes, Thomas A. (1992) "Conroy Rejects Mediocre Rating, Says He 'Hit Ground Running,'" *Los Angeles Times*, 1 Nov., http://articles.latimes.com/1992-11-01/local/me-1624_1_county-s-delegation-republican-men-and-women-willie-brown.
Gramlich, Edward (1990) *A Guide to Benefit-Cost Analysis* 2nd ed. Englewood Cliffs, NJ: Prentice Hall.
Gray, Wayne, et al. (2011) "Do EPA Regulations Affect Labor Demand? Evidence from the Pulp and Paper Industry." Unpublished paper, Clark University, Worcester, MA (23 May).
Greenstone, Michael (2002) "The Impacts of Environmental Regulations on Industrial Activity: Evidence from the 1970 and 1977 Clean Air Act Amendments and the Census of Manufactures," *Journal of Political Economy* 110: 1175–219.
———. (2009) "Toward a Culture of Persistent Regulatory Experimentation and Evaluation," in D. Moss and J. Cisternino, eds., *New Perspectives on Regulation*. Cambridge, MA: Tobin Project.
Hall, Keith (2013) "The Employment Costs of Regulation." Mercatus Center, George Mason University Working Paper Series Paper 13-06, Arlington, VA.
Hall, Kevin (2011) "Regulation, Taxes Aren't Killing Small Business, Owners Say," *McClatchy Newspapers* (Sept. 1), http://www.mcclatchydc.com/2011/09/01/122865/regulations-taxes-arent-killing.html#ixzz1aDv1MwCt (accessed 23 June 2013).

-1—
0—
+1—

Haveman, Robert H., and Scott Farrow (2011) "Labor Expenditures and Benefit-Cost Accounting in Times of Unemployment," *Journal of Benefit-Cost Analysis* 2: 1–7.

Haveman, Robert H., and John V. Krutilla (1968) *Unemployment, Idle Capacity, and the Evaluation of Public Expenditures: National and Regional Analyses.* Baltimore, MD: Johns Hopkins University Press.

Healy, Andrew, and Neil Malhotra (2013) "Retrospective Voting Reconsidered," *Annual Review of Political Science* 16: 285–306.

Helliwell, John F., and Haifang Huang (2011) "New Measures of the Costs of Unemployment: Evidence from the Subjective Well-Being of 2.3 Million Americans." NBER Working Paper Series Paper 16829, Cambridge, MA.

Izzo, Phil (2011) "Dearth of Demand Seen Behind Weak Hiring," *Wall Street Journal,* 18 July, http://online.wsj.com/article/SB10001424052702303661904576452181063763332.html.

Jacobzone, Stéphane, et al. (2010) "Assessing the Impact of Regulatory Management Systems: Preliminary Statistical and Econometric Estimates." OECD Working Papers on Public Governance 17, http://dx.doi.org/10.1787/5kmfq1pch36h-en.

Jaffe, Adam B., et al. (1995) "Environmental Regulation and the Competitiveness of the U.S. Manufacturing: What Does the Evidence Tell Us?" *Journal of Economic Literature* 33: 132–63.

Jobs Council (2012) *Road Map to Renewal: 2011 Year-End Report.* Washington, DC: President's Council on Jobs and Competitiveness.

Jorgenson, Dale W., and Peter J. Wilcoxen (1990) "Environmental Regulation and U.S. Economic Growth," *Rand Journal of Economics* 21: 314–40.

Kahn, Matthew E., and Erin T. Mansur (2010) "How Do Energy Prices, and Labor and Environmental Regulations Affect Local Manufacturing Employment Dynamics? A Regression Discontinuity Approach." NBER Working Paper Series Paper 16538, Cambridge, MA.

Kahneman, Daniel (2011) *Thinking Fast and Slow.* New York: Farrar, Straus and Giroux.

Kalleberg, Arne L (2011) *Good Jobs, Bad Jobs: The Rise of Polarized and Precarious Employment Systems in the United States, 1970s to 2000s.* New York: Russell Sage Foundation.

Lasswell, Harold D. (1958) *Politics: Who Gets What, When, How.* New York: Meridian Books.

Malcolm, Andrew (2011) "The Ames Republican Debate Transcript: Everything They Said That You Missed," *Los Angeles Times,* 13 Aug., http://latimesblogs.latimes.com/washington/2011/08/ames-debate-romney-bachmann-paul-huntsman-santorum-gingrich-pawlenty-cain.html.

Mankiw, N. Gregory (2010) *Macroeconomics,* 7th ed. New York: Worth Publishers.

———. (2012) *Principles of Microeconomics.* Mason, OH: South-Western, Cengage Learning.

Marcus, Ruth (2012) "Bad Science Around 'Job-Killing Regulations,'" *Washington Post*, 24 Apr., http://articles.washingtonpost.com/2012-04-24/opinions/35451177_1_bad-science-regulation-political-economy-research-institute.

Masur, Jonathan S., and Eric A. Posner (2012) "Regulation, Unemployment, and Cost–Benefit Analysis," *Virginia Law Review* 98: 579–634.

Mayhew, David (1974) *Congress: The Electoral Connection.* New Haven, CT: Yale University Press.

—-1
—0
—+1

Middle Class Task Force (2009) *Green Jobs: A Pathway to a Strong Middle Class (Staff Report)*. Washington, DC: Office of the Vice President of the United States.

Morgenstern, Richard D., et al. (2002) "Jobs Versus the Environment: An Industry-Level Perspective," *Journal of Environmental Economics and Management* 43: 412–36.

Moyle, Penny, and Katharine Parkes (1999) "The Effects of Transition Stress: A Relocation Study," *Journal of Organizational Behavior* 20: 625–46.

Neumark, David, and William Wascher (2007) "Minimum Wages and Employment: A Review of Evidence from the New Minimum Wage Research." NBER Working Paper Series Paper 12663, Cambridge, MA.

Newport, Frank (2012) "Little Appetite in U.S. for More Gov't Regulation of Business," *Gallup,* 24 Sept., http://www.gallup.com/poll/157646/little-appetite-gov-regulation-business.aspx.

Niemi, Richard G., et al. (1995) "State Economies and State Taxes: Do Voters Hold Governors Accountable?" *American Journal of Political Science* 39: 936–57.

Obama, Barack (2011a) "Executive Order 13563: Improving Regulation and Regulatory Review," *Federal Register* 76: 14.

———. (2011b) "Toward a 21st-Century Regulatory System," *Wall Street J.*, 18 Jan., sec. A, p. 17.

———. (2012a) "Executive Order 13610: Identifying and Reducing Regulatory Burdens," *Federal Register* 77: 93.

———. (2012a) "Full Transcript of Obama's Speech on the Economy in Cleveland, Ohio," *Washington Post*, 14 June, http://www.washingtonpost.com/politics/full-transcript-of-obamas-speech-on-the-economy-in-cleveland-ohio/2012/06/14/gJQAdY10cV_print.html.

———. (2012b) *Executive Order 13610: Identifying and Reducing Regulatory Burdens*. Federal Register, vol. 77, no. 93. Washington, DC: GPO.

———. (2013a) "Paring Back Unnecessary Regulations," the White House, http://www.whitehouse.gov/economy/reform/paring-back-unnecessary-regulations (accessed 6 May 2013).

———. (2013b) "The 2013 State of the Union, February 12," the White House, http://www.whitehouse.gov/state-of-the-union-2013 (accessed 10 March 2013).

Office of Management and Budget (2013) *2013 Draft Report to Congress on the Benefits and Cost of Federal Regulations and Agency Compliance with the Unfunded Mandates Reform Act*. Washington, DC: The White House.

O'Neill, Thomas P., and Gary Hymel (1994) *All Politics Is Local and Other Rules of the Game*. Holbrook, MA: Bob Adams.

Palmer, Karen, et al. (1995) "Tightening Environmental Standards: The Benefit-Cost or the No-Cost Paradigm?" *Journal of Economic Perspectives* 9: 119–32.

Pence, Michael R. (2013) "Executive Order 13-03: Promoting Job Creation, Economic Development, and Freedom by Ordering a Moratorium on Regulations," Executive Department, State of Indiana, http://www.in.gov/gov/2384.htm (accessed 10 March 2013).

Porter, Michael E (2008) *On Competition*. Boston: Harvard Business School Publishing

Porter, Michael E., and Claas van der Linde (1995) "Toward a New Conception of the Environment-Competitiveness Relationship," *Journal of Economic Perspectives* 9: 97–118.

Reid, Harry (2011) "Reid: Businesses, Economists Debunk Republican Myth of Job-Killing Regulations, November 15," United States Senator for Nevada Harry Reid, http://www.reid.senate.gov/newsroom/pr_111511_debunkrepublicanmyth.cfm? (accessed 6 May 2013).

Romney, Mitt (2012) "Remarks in Schaumburg, Illinois Following the Illinois Primary," American Presidency Project, University of California, Santa Barbara, http://www.presidency.ucsb.edu/ws/index.php?pid=100244 (accessed 10 March 2013).

Roosevelt, Franklin D. (1944) "State of the Union Message to Congress," the White House, http://www.fdrlibrary.marist.edu/archives/address_text.html (accessed 17 June 2013).

Rubio, Marco (2013) "Transcript: Marco Rubio's Republican Response, February 13," ABC News, http://abcnews.go.com/Politics/transcript-marco-rubios-state-union-response/story?id=18484413 (accessed 10 March 2013).

Ruhm, Christopher J. (2000) "Are Recessions Good for Your Health?" *Quarterly Journal of Economics* 115: 617–50.

Saad, Lydia (2013) "Economy Dominant in Obama's Speech, Americans' Priorities," *Gallup,* 14 Feb., http://www.gallup.com/poll/160445/economy-dominant-obama-speech-americans-priorities.aspx.

Schmitt, John (2013) "Why Does the Minimum Wage Have No Discernible Effect on Employment?" Center for Economic and Policy Research, Washington, DC, February.

Sinclair, Tara M., and Kathryn Vesey (2012) "Regulation, Jobs, and Economic Growth: An Empirical Analysis." George Washington University Regulatory Studies Center Working Paper, http://research.columbian.gwu.edu/regulatorystudies/sites/default/files/u41/032212_sinclair_vesey_reg_jobs_growth.pdf.

Smith, Anne E., et al. (2013) *Estimating Employment Impacts of Regulations: A Review of EPA's Methods for Its Air Rules.* Report prepared by NERA Economic Consulting for the U.S. Chamber of Commerce, Washington, DC, February.

Stevenson, Richard W. (1992) "Patching Up L.A.—A Corporate Blueprint," *New York Times,* 9 Aug., http://www.nytimes.com/1992/08/09/business/patching-up-la-a-corporate-blueprint.html.

Sunstein, Cass R. (1993) *After the Rights Revolution: Reconceiving the Regulatory State.* Cambridge, MA: Harvard University Press.

Sullivan, Daniel, and Till von Wachter (2009) "Job Displacement and Mortality: An Analysis Using Administrative Data," *Quarterly J. of Economics* 124: 1265–306.

Tilly, Chris (1997) "Arresting the Decline of Good Jobs in the USA?" *Industrial Relations Journal* 28: 269–74.

Tufte, Edward R. (1978) *Political Control of the Economy.* Princeton, NJ: Princeton University Press.

United Nations General Assembly (1948) *The Universal Declaration of Human Rights* (10 Dec.), http://www.un.org/en/documents/udhr/.

U.S. House of Representatives, Committee on Oversight and Government Reform (2012) *Continuing Oversight of Regulatory Impediments to Job Creation: Job Creators Still Buried by Red Tape.* Serial No. 112-161. 112th Cong., 2d sess. Washington, DC: GPO.

von Wachter, Till (2010) *Long-Term Unemployment: Causes, Consequences and Solutions.* Testimony before the Joint Economic Committee of the U.S. Congress, 29 April. Washington, DC.

—-1
—0
—+1

Walker, W. Reed (2011) "Environmental Regulation and Labor Reallocation: Evidence from the Clean Air Act," *American Economic Review: Papers and Proceedings* 101: 442–47.

———. (forthcoming) "The Transitional Costs of Sectoral Reallocation: Evidence from the Clean Air Act and the Workforce," *Quarterly. Journal of Economics* 128, http://faculty.haas.berkeley.edu/rwalker/research/walker_transitional_costs_CAA.pdf.

Legislation Cited

Red Tape Reduction and Small Business Job Creation Act, H.R. 4078, 112th Congress (2012).

Regulations From the Executive in Need of Scrutiny Act of 2011, H.R. 10, 112th Congress (2011).

Regulations From the Executive in Need of Scrutiny Act of 2013, H.R. 367, 113th Congress (2013).

Regulations From the Executive in Need of Scrutiny Act of 2013, S. 15, 113th Congress (2013).

Regulatory Accountability Act of 2011, H.R. 3010, 112th Congress (2011).

Regulatory Sunset and Review Act of 2013, H.R. 309, 113th Congress (2013).

Small Business Freedom of Commerce Act of 2013, H.R. 168, 113th Congress (2013).