Statement of Michael Greenstone
Massachusetts Institute of Technology
The Hamilton Project
The Brookings Institution

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Thank you Chairman Conrad, Ranking Member Sessions, and members of the committee for having me here today. I would also like to add a special thanks to Senator Mark Warner, Chairman of the Performance Task Force, for inviting me to participate.

My name is Michael Greenstone, and I am the 3M Professor of Environmental Economics at the Massachusetts Institute of Technology, the Director of the Hamilton Project, and a Senior Fellow at the Brookings Institution. My research focuses on estimating the costs and benefits of environmental quality, with a particular emphasis on the impacts of government regulation.

I appreciate the opportunity to speak with you today about how we might improve the government's system of regulatory review. Under all economic circumstances, regulatory efficiency and clarity are crucial objectives for the credibility and predictability of the government's role in the marketplace. However, given the current economic climate, it is absolutely essential to design a regulatory structure that protects the well-being of our citizens without imposing unnecessary costs on American businesses and society as a whole.

We can achieve these objectives without compromising our values in key areas ranging from the protection of public health to the supervision of financial markets by ensuring that the Executive and Legislative branches have the tools of analysis and measurement they need. The purpose of my testimony is to describe in concrete terms how this can be accomplished.

Introduction

American government, at every level, regulates a broad array of social and economic life. Regulatory policy determines the air we breathe, the quality of the water we drink, the materials we use to construct our homes, the cars we buy, the rules that govern our employment contracts, the loans we can take out, the investments we make, and much more. Government regulates these activities because in cases of market failures, for example, our free market system does not create the necessary incentives for businesses and individuals to protect the public good.

But, in making decisions about regulations, public officials must choose which areas of our lives merit government rules, as well as how stringent those rules should be.

The Clean Air Act is a classic example of a regulation with significant benefits and costs. Before its passage in 1970, there were few constraints on businesses that emitted pollution as a byproduct of their operations. The result was poor air quality. As one small example, it was common for white collar workers in Gary, Indiana to bring an extra shirt to work because the first would be dirty from the air and unfit for wear by midday. Even more importantly, some of my research, as well as research by others, has found that the polluted air led to elevated mortality rates that reduced the lifespans of the American people.[1] Obviously, no business sets out to cause these impacts; but, in trying to maximize their profits, it was not in their interest to install expensive pollution abatement equipment when their competitors did not. As a result, they did not act to adequately reduce emissions.

At the same time, the Clean Air Act's regulations cause firms to alter their production processes in ways that raise their costs. Indeed, some of my recent research finds that an important set of Clean Air Act rules has raised polluting industries' costs of production by roughly 2.6%. This has reduced firms' profits and led to higher prices for consumers. Further, it has caused regulated firms to scale back their operations, which led to employment losses.[2] Although the ultimate effect on the level of jobs in the economy is likely minimal, recent research indicates that workers who lose their jobs due to regulation often face prolonged periods of unemployment and become reemployed at lower wages.[3]

The challenge is for regulators to set rules with benefits that exceed their costs. This seems basic, but a weakness in our regulatory system is that we generally do not have the information necessary to make these judgments. This is because the historical approach

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[1] Kenneth Chay and Michael Greenstone, "The Impact of Air Pollution on Infant Mortality: Evidence from Geographic Variation in Pollution Shocks Induced by a Recession," *Quarterly Journal of Economics*, 2003, 118(3).
Olivier Deschenes, Michael Greenstone and Joseph Shapiro, "Defending Against Environmental Insults: Drugs, Emergencies, Mortality and the NOx Budget Program Emissions Market," NBER Working Paper 2011.
http://www.nber.org/public_html/confer/2011/SI2011/EEE/Deschenes_Greenstone_Shapiro.pdf

[2] Michael Greenstone, "The Impacts of Environmental Regulations on Industrial Activity: Evidence from the 1970 and 1977 Clean Air Act Amendments and the Census of Manufacturers." *Journal of Political Economy*, 2002, 110(6).
Michael Greenstone, John A. List and Chad Syverson "The Effects of Environmental Regulation on the Competitiveness of U.S. Manufacturing," 2011.
http://home.uchicago.edu/~syverson/enviroregsandproductivity.pdf

[3] Reed Walker, "The Transitional Costs of Sectoral Reallocation: Evidence From the Clean Air Act and the Workforce," Department of Economics, Columbia University (2011).

to U.S. regulation is to evaluate these regulations' *likely* benefits and costs *before* they are enacted. This is the point when we know the least because the regulations are untested. Once a regulation is implemented, it goes on the books and generally stays there unexamined for years and in some cases decades.

President Obama's recent regulatory reform proposal, spelled out in Executive Order 13563, is a revolutionary step in the right direction. Specifically, it requires that agencies routinely revisit the measurement of costs and benefits of existing regulations and identify the least costly ways to achieve a regulation's goals. I applaud this very important first step.

In the remainder of my testimony, I will identify some ways to extend this important reform so that our regulatory system consistently produces rules with benefits that exceed costs.

I. Extending Executive Order 13563

There are three reforms that build on Executive Order 13563 and would ultimately make the United States' regulatory policy more effective. In keeping with the theme of today's hearing, let me note that these reforms are consistent with the United Kingdom's requirement of analyzing regulations' benefits and costs both before and after their implementation.

First, I recommend institutionalizing the retrospective review of economically significant rules in a public way so that these reviews are automatic in nature. In the case of rules that are currently in force, this would mean publicly committing to a retrospective analysis of each existing rule within a pre-specified period. This might be 5 or 10 years, with the length of time depending on the particulars of the rule and the results of any previous reviews.

In the case of new rules, the implementing agency would be required to announce a timetable for review with a maximum allowable amount of time, perhaps 5 or 10 years, with shorter time periods being preferable. In addition, the agency would be required to pre-specify the expected benefits (e.g., reduced child mortality rates) and costs (e.g., reduced business profits) so that the terms of the subsequent review would be known in advance. The agency would also be required to identify how these benefits and costs would be measured; this might include the types of data and other information that it anticipates being necessary for review.

Second, the agency should commit to undertaking a new rulemaking when the results from the retrospective analysis differ from the benefits and costs that were expected prior to the rule's implementation. As with the retrospective analysis, there should be a time limit for conducting the new rulemaking. In cases where the realized benefits exceed the costs by a wider margin than expected, there may be further opportunities to maximize net benefits. In cases where the rules are found to be ineffective or unjustified, agencies should identify ways to modify the rules or abandon them. Finally if the original

expectation of benefits and costs is confirmed by the retrospective analysis, then there would not be a need for a new rulemaking.

Third, we need a triggering mechanism to ensure that retrospective evaluations occur and, when appropriate, for new rulemakings to be undertaken within the prescribed time periods. One approach would be for agencies to announce publicly and post on the web the deadline for a rule's review and reconsideration. A stronger and likely preferable approach would be for judicial action to compel reviews and rulemaking in the cases when an agency has failed to comply with a review timeline or to act upon its results.

II. A CBO for Regulations

There are at least two difficulties with the approach that I have just outlined. Many agencies do not have the staff, expertise, or the resources necessary to undertake these reviews. Further, the process of self-evaluation is challenging for all organizations as it requires complete objectivity. Indeed, history is unkind to organizations that fail to get outside reviews of their work.

My recommendation is to establish a new, independent body for regulatory review. This body could be housed within the Legislative Branch, and it could be modeled after the Congressional Budget Office (CBO) or even become a division within the existing CBO.

As you know, before the CBO was established, only the President had a ready source of budgetary and economic data and analysis. Congress was forced to largely rely on the Office of Management and Budget (OMB) for this sort of information. The CBO was invented to level the playing field. Its analyses allow Congress to consider the economic and budgetary implications of new policy ideas. Crucially, the CBO also helps Congress to evaluate the information that it receives from the Executive Branch.[4]

The entire budget process has benefited from the role of CBO. This is a direct result of its independence. The budgetary analyses and proposals of all legislators and Executive agencies are now created to a higher standard, knowing that they must ultimately stand up to scrutiny by the non-partisan CBO.

This system of budgetary review and economic analysis could be a model for a reorganization of regulatory review. Like the CBO, this new organization would reside in the Legislative Branch, and it would be founded on non-partisanship and independence. The organization would be charged with conducting independent regulatory impact evaluations. Some of the organization's activities would be statutory in nature – for example, automatic reviews of economically significant regulations –

[4] Congressional Budget Office, "CBO Testimony: Statement of Robert D. Reischauer, Director, Congressional Budget Office, before the Joint Committee on the Organization of Congress" (1993). http://www.cbo.gov/ftpdocs/105xx/doc10580/1993_06_10_mission.pdf

while other evaluations could be performed at the request of Congressional committees and members.

Such an organization would directly strengthen our regulatory system. Agency analyses would benefit from the scrutiny that they would ultimately receive from this new, independent organization. Further, the results of the retrospective reviews would become part of the agencies' automatic assessments of their regulations that I described above. And I believe that providing this type of rigorous, independent review would build confidence within the business community and a better sense of transparency.

Finally, this new organization could help to increase the credibility of the regulatory evaluations by developing an explicit checklist to determine the rigor of regulatory analyses. The checklist should favor randomized control trials that are the gold standard in terms of evidence and natural experiments over models and observational studies. A recent Hamilton Project paper provides some other ideas for a check list.[5] Such a checklist could also be issued as guidance by the Administration to its agencies.

Of course, the creation of such a body would require resources, which are difficult to come by in our current fiscal environment. However, I think it is extraordinarily likely that such an office would pay for itself many times over. To put this in context, the current CBO budget is less than $50 million annually. My best estimate is that the new budget for such an organization would be less, perhaps substantially so.

This is a very small amount of money when compared to the costs that regulations impose on our economy. Although it is difficult to determine the total number of economically significant regulations that are on the books, the Office of Management and Budget reviewed 540 major regulations between 2001 and 2010.[6] These are generally economically significant regulations which have an effect of more than $100 million on the economy annually—either in costs or benefits. Consequently, it seems safe to conclude that the total costs of regulations can be measured in the hundreds of billions of dollars annually. It is apparent that we have a lot at stake economically with regard to our regulatory system and the cost of finding out which parts are working could be quite small in comparison.

In the United Kingdom, they have established an independent committee of experts, the Regulatory Policy Committee, to review the evidence and analysis on each regulation and to provide an opinion about the robustness of the evidence. Thus, in many respects, this proposal is similar in spirit to what already exists in the U.K.

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[5] Ted Gayer, "A Better Approach to Environmental Regulation: Getting the Costs and Benefits Right," Discussion Paper 2011-06, The Hamilton Project, Brookings Institution (2011).

[6] Office of Information and Regulatory Affairs, Office of Management and Budget, “2011 Report to Congress on the Benefits and Costs of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities” (2011).

By creating a body that can undertake rigorous analysis about the costs and benefits of regulation – both ex-ante and ex-post – policymakers will have better tools for protecting those regulations with great benefits for our society, reforming those regulation that impose unnecessary costs, and potentially culling those that no longer serve their purpose.

IV. Conclusions

In conclusion, our regulatory system is a linchpin of our well-being. It allows us to live longer and healthier lives, among many other important impacts. However, these important benefits come with direct economic costs. The purpose of my testimony has been to identify some reforms that will help to ensure that our regulatory system does its job in the most cost-effective way possible – in which the benefits to society exceed the costs.

To quickly summarize, I propose two key reforms:

1. Institutionalize a process by which agencies automatically undertake retrospective reviews of regulations and initiate a new rulemaking when the results from the retrospective analysis differ from the expected benefits and costs.

2. Create a new, independent body for rigorous, objective regulatory review that is modeled on the Congressional Budget Office.

Both of these reforms are similar to the successful reform of the U.K. regulatory system that is the topic of today's hearing. Thus, the U.K.'s experience bolsters the case for these reforms.

We live in a rapidly changing economy and need a regulatory review structure that evolves to meet the new and different needs of our society. The reforms that I have outlined here will allow our regulatory system to consistently produce rules with benefits that exceed costs. That would be good for our well-being, and good for the American economy.

Thank you once again for inviting me to participate in this discussion. I will gladly respond to any questions.