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Thank you Chairman Brady, Vice Chair Klobuchar, and members of the Joint Economic Committee for inviting me to speak today.

My name is Michael Greenstone, and I am the 3M Professor of Environmental Economics at the Massachusetts Institute of Technology and a non-resident 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 regulations.

I appreciate the opportunity to speak with you today about opportunities to improve the government's regulatory system. 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 in today's economy, 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 to review current and proposed regulations. The purpose of my testimony is to describe in concrete terms how this can be accomplished and to wholeheartedly offer my support for Senate Bill 1472, "Strengthening Congressional Oversight of Regulatory Actions for Efficiency," that was introduced by Senator Klobuchar and is co-sponsored by Senator Collins and Senator King.

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 safety of our workplaces, 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, white-collar workers in Gary, Indiana often brought an extra shirt to work because the first would be dirty from the air and unfit to wear by midday. Even more importantly, some of my research, as well as research by others, has found that the polluted air led to sicker and shorter lives for 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 require 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 at those firms.[2] Although the ultimate effect on the level of jobs in the economy is likely minimal in normal economic times, recent research indicates that workers who lose their jobs due to regulations often face prolonged periods of unemployment and become reemployed at lower wages.[3]

The challenge then for regulators is to consistently set rules with benefits that exceed their costs.

In a pair of Executive Orders, President Obama has created a framework that has the potential to be the most fundamental shift in regulatory policy in more than three decades. The Executive Orders require that federal agencies routinely review existing significant regulations in order to "determine whether any such regulations should be modified, streamlined, expanded, or repealed" with the purpose of making the "regulatory program more effective or less burdensome in achieving the regulatory objectives." These reforms offer the promise of finding a better balance between our health and safety, and our economic growth.

To understand why the president's efforts are so critical, imagine if the Food and Drug Administration approved new drugs without ever having tested them on people — that it approved drugs knowing only in theory how they were likely to affect the human body. Further

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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," Department of Economics, MIT (2013).

[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," Department of Economics, MIT (2011).

[3] Reed Walker, "The Transitional Costs of Sectoral Reallocation: Evidence From the Clean Air Act and the Workforce," Quarterly Journal of Economics, 2013, 128(4).

imagine if such drugs remained on the market for years, or even decades, without their effects ever being subject to evaluation. This path is simply inconceivable, but it is how we have historically approached government regulations

Make no mistake — inadequate regulatory policy can be, as with drug approvals, a life-or-death issue because of the significant role regulations play in every aspect of our daily lives.

A bit of history: U.S. regulations used to be designed essentially in the dark. Then, in 1981, President Ronald Reagan issued an executive order institutionalizing the idea that regulatory action should be implemented only in cases when, among other provisions, "the potential benefits to society for the regulation outweigh the potential costs to society." It sounds obvious. But this idea of applying cost-benefit analysis in the regulatory arena fundamentally altered the way in which regulations were considered.

In 1993, President Bill Clinton outlined more specific guidelines for prospective analysis of cost-benefit trade-offs. And yet, the regulatory review process was still operating with one hand tied behind its back. As a general matter, a regulation's likely benefits and costs were considered only before the proposal was enacted — the point when we know the least precisely because the regulations are untested. Consequently, prospective estimates of the costs and benefits must rest on many unverifiable and potentially controversial assumptions.

And, once a regulation passed through a prospective analysis and went on the books, it could remain there for decades without any further evaluation.

Some regulations work out exactly as intended. But some, of course, do not. For example, an air pollutant may prove to be more harmful than was originally understood. Or, a regulation may end up imposing larger costs on businesses than suggested by the prospective analysis. In our rapidly changing world, regulations can and should adapt to change.

President Obama's Executive Orders take a critical step forward by looking backward. They require that agencies routinely reevaluate the costs and benefits of existing regulations and identify whether the goals of a regulation could be achieved through less expensive means. This potentially revolutionary process of retrospective analysis offers the promise of finding a better balance between our health and safety and our economic growth

In the remainder of my testimony, I will identify two further changes that would increase the chances that our regulatory system consistently produces rules with benefits that exceed costs.

I. Extending Executive Orders 13563 and 13610

The first change is to make three reforms that build on Executive Orders 13563 and 13610.

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, such as the types of data and other information that it anticipates being necessary for review.

Second, the relevant 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 retrospective analysis confirms the original expectation of benefits and costs, then there would not be a need for a new rulemaking.

Third, these efforts would be strengthened if they were accompanied by 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 their website the deadline for a rule's review and reconsideration. A stronger approach would be for judicial action to compel reviews and rulemaking in the cases where an agency has failed to comply with a review timeline or to act upon its results.

II. Creating a Regulatory Analysis Division within the Congressional Budget Office

The second change is to ensure that the quality of the reviews is commensurate with the stakes of getting regulatory policy right. In this spirit, there are some difficulties with the approach I just outlined. Many agencies do not have the staff, expertise, or 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. The non-partisan Congressional Budget Office (CBO) provides an appealing model.

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 evaluate the information that it receives from the Executive Branch.[4]

The entire budget process has benefited from CBO's existence. 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.

I believe that Senator's Klobuchar's bill S.1472, which creates a Regulatory Analysis Division in the non-partisan CBO, is the best solution. This Regulatory Analysis Division 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 – while other evaluations could be performed at the request of Congressional committees and members.

A Regulatory Analysis Division within the CBO 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. I believe that providing this type of rigorous, independent review would build confidence within the business community and a better sense of transparency.

Finally, a Regulatory Analysis Division of the CBO 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, the gold standard in terms of evidence, and natural experiments over models and observational studies. A 2011 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 a Regulatory Analysis Division would require resources, which are difficult to come by in our current fiscal environment. My best estimate is that it could be funded for less than $10-15 million annually. To put this in context, the current CBO budget is about $50 million annually.

This is a very small amount of money when compared to the potential costs and benefits 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], which are defined as having an

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[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

[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).

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 and benefits 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 is quite small in comparison. My judgment is that it is very likely that a Regulatory Analysis Division would pay for itself many times over.

By creating a body that can undertake rigorous analysis of 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 regulations 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 Regulatory Analysis Division within the Congressional Budget Office.

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.