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## REGULATION, EMPLOYMENT, AND THE ECONOMY Fears of job loss are overblown

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### Executive summary

A chief priority of the new House Republican majority in Congress is to curtail government regulation. In the first months since the new Congress convened, the House has held dozens of hearings designed to elicit criticisms of regulations, introduced legislation that would dramatically alter the regulatory process by requiring congressional approval of all major regulations, and passed a spending bill that would slash the funding levels of regulatory agencies and restrict their ability to enact rules covering areas such as greenhouse gas emissions.

In support of each of these steps, opponents of regulation argue that agency rules are damaging to the economy in general and job generation in particular. Some say specific regulations will destroy millions of jobs and cite a study (critiqued later in this paper) purporting to show that regulations cost \$1.75 trillion per year. Regulations are frequently discussed *only* in the context of their threat to job creation, while their role in protecting lives, public health, and the environment is ignored.

This report reviews whether the evidence backs the perspective of regulatory opponents. The first section looks broadly at the effects of regulations, whether they play a useful role in the economy, and whether their overall benefits outweigh their overall costs. The second section assesses the theory and evidence for the assertion that regulations undermine jobs and the economy. The last section examines the kinds of studies that are discussed when regulations are being formulated; these studies, often cited in debates and therefore of great importance, tend to be prospective estimates of the effects of proposed regulations. These three sections are previewed in this executive summary:

**Section 1. The broad role of regulation.** A perspective that considers only the potential damages of regulations to the economy and employment is far from complete, and can lead to a distorted view of their implications. Indeed, many regulations have the explicit intention

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and effect of aiding the economy and strengthening particular industries, thereby securing jobs. Three recent events should have made clear the dangers of the narrow view that regulation causes economic harm.

First, a wave of deregulation and the belief that financial markets can “self-regulate” played a major role in the housing bubble and the financial and economic crisis that ensued when the bubble burst. Eight million jobs were lost in the Great Recession, and the labor and housing markets remain painfully weak. Even Alan Greenspan, chairman of the Federal Reserve Board from 1997 to 2005 and a leading proponent of market self-regulation, has admitted that this approach failed during the crisis. And, as noted in the body of this paper, the director of the Securities and Exchange Commission (and a former leading Republican member of Congress) testified in 2008: “We have learned that voluntary regulation does not work. . . . The lessons of the credit crisis all point to the need for strong and effective regulation.”

The housing bubble was fueled by extraordinarily loose mortgage writing standards. In a speech before the American Economic Association on how the bubble should have been prevented or controlled, current Fed Chairman Ben Bernanke emphasized the importance of stricter and more strongly enforced mortgage regulation.

A second recent event reinforcing the importance of sound regulation to the economy and employment is the BP Deepwater Horizon oil spill of 2010. The commission established to examine the disaster concluded that there was extraordinarily lax oversight of oil drilling in the Gulf of Mexico, which meant that “the only question had become not whether an accident would happen, but when.” The spill was the largest in U.S. history, and its consequences for the economy in the gulf and the environmental devastation are still unfolding.

The third example of how sound regulation can aid the economy is the passage of the Food Safety Modernization Act in December 2010. Although it considerably strengthened the regulatory authority of the Food and Drug Administration, the law passed with widespread support from the food industry, which believed the improvements in food safety the bill was designed to produce would boost consumer confidence in the industry’s products. (This confidence had been shaken by a series of high-profile incidents of tainted food and by the 48 million cases of food-borne illnesses in the United States each year.)

Of course, regulations may have significant compliance costs, but costs may be warranted if the rules will produce even larger economic and social benefits. To assess this balance, the Office of Management and Budget each year prepares a cost-benefit report on regulation.<sup>1</sup> In reviews of major regulations covering 2000 to 2010, the agency found that in every year the benefits substantially exceeded the costs. On average, the value of the benefits was about seven times the cost. An earlier OMB report examined all social regulations in effect as of 1999 and likewise found that the benefits far exceeded the costs.

In March 2011 the Environmental Protection Agency released a congressionally mandated report on the costs and benefits of the Clean Air Act Amendments of 1990. This peer-reviewed state-of-the-art study found the economic costs to be significant, amounting to \$53 billion in 2010 (expressed in 2006 dollars), according to the central estimate. But the central estimate of the value of the benefits was \$1.3 trillion, 25 times the cost. In 2010 alone, an estimated 160,000 lives were saved by the Clean Air Act Amendments of 1990.

Taken together, the OMB and EPA studies demonstrate an unmistakable pattern: Over the past several decades the benefits of regulations have consistently and significantly exceeded their costs.

***Section 2. Assessing possible economic downsides of regulations.*** Opponents of regulation often advance the theory that the primary effect of regulations is to harm the economy and employment. They argue, for instance, that regulations raise costs for firms, thereby raising the costs of products, thereby leading to a reduction in sales and employment. But a

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1. Although the OMB data are the most comprehensive available, they have their own limits, as discussed in the full text.

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one-dimensional theory is insufficient to capture how regulations affect markets and the economy. Regulations can be designed to explicitly benefit the economy and particular industries, and they can lead to investments that create jobs, improve worker health and thus productivity, and spur important technological innovations, among other positive effects.

The multidimensional effects of regulations on employment are reflected in the mixed impacts found in the studies of economic regulation.

This section first reviews studies of economy-wide effects of regulations. The most common general studies are of environmental regulations, and these have consistently failed to find significant negative employment effects. Moreover, studies suggesting that regulations have broad negative effects on the economy offer little persuasive evidence.

A second type of study examined in this report looks at the effects of particular regulations on particular industries. A surprising number of such studies actually show that regulations have a small positive net effect on employment; these include studies of environmental regulations on industries generating significant pollution. Some well-executed studies have found that certain regulations led to job losses in particular areas, but most studies of various industries suggest that regulations had either a close to neutral or small positive effect on employment levels.

A third kind of study examined here reviews trade and regulations. Here, as well, the evidence is not consistent with the simple theory that regulations raise costs for firms in this country, undercut their competitiveness with firms in other countries, and lead to the transfer of jobs to countries with less stringent regulations. For example, some studies have found no “pollution haven” effect (the transfer of jobs to countries with lower environmental standards), but some have. The possibility of a regulation undercutting the competitiveness of U.S. firms can be countered with complementary policies, such as making environmental standards a key component of trade negotiations.

This report also examines the most direct government data on the extent of job loss from regulations. Since 2007, the government has published information on how many “extended mass job layoffs” employers attribute to government regulations/intervention. Over this period, only a tiny fraction of such job layoffs (about 0.3% of the 1.5 million of these layoffs each year) were attributed by employers to government regulations/intervention. Similarly, a study that reviewed job layoffs due to environmental regulations in previous decades found that such regulations caused well below 1% of extended mass layoffs.

**Section 3. Reviewing studies cited during regulatory debates.** Debates over whether to adopt regulations largely are based on estimates of the rules’ future effects. Studies of the reliability of government cost estimates of proposed or final regulations show that these estimates are often exaggerated.

One notable study published in 2000 by researchers from Resources for the Future examined 21 federal regulations for which prospective (*ex ante*) and retrospective (*ex post*) cost estimates were available. They found that government cost estimates of 13 regulations were significantly overstated when compared with the actual costs, while the cost estimates for only three regulations were significantly understated. An update of this analysis in 2006 by one of the researchers confirmed this general conclusion: Cost predictions used by government agencies tend to be too high.

These findings are further reinforced by similar results of an earlier Economic Policy Institute study of the regulation of pollution, as well as findings of an Office of Technology Assessment study of rules established by the Occupational Safety and Health Administration. The OTA study found, for example, that OSHA’s rule on vinyl chloride cost only about one-fourth the predicted amount, while its cotton dust rule cost less than one-third the predicted amount.

In both cases OTA explained that the lower-than-expected costs were partly due to unexpected gains from innovations and new technologies. In fact, the role of unanticipated technological advancements in lowering compliance costs is a strong and consistent finding in studies of government regulations.

The track record of opponents of regulation in calculating cost estimates has been particularly poor. Among the examples described in this report are industry estimates for the costs of regulations related to acid rain, air bags, benzene, catalytic converters, and automobile air conditioners; all were substantially overstated. The report also discusses industry studies

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that make inaccurate negative claims about the effects of specific regulations on employment levels, such as a recent U.S. Chamber of Commerce study of state employment regulations that relied on a fundamentally flawed statistical model.

In a speech to the Chamber of Commerce in February 2011, President Obama described the biased track record of the predictions used by opponents of regulation. He mentioned three examples—the creation of the Food and Drug Administration, the establishment of seat belt regulations, and the enactment of child labor laws—in which opponents inaccurately forecast doom in the wake of regulatory steps.

Not every industry or government prediction, of course, is necessarily off the mark. Nonetheless, in discussions of proposed regulations, it is important to bear in mind the tendency for their estimated costs to be exaggerated.

***The ongoing debate.*** Today's labor market is extraordinarily weak, and in this context it is more important than ever that assessments of government policies consider effects on employment. This concern, however, should not lead to unjustified efforts to weaken government regulators and regulations. Careful review of the available evidence indicates that regulations do not tend to significantly impede job creation. To the contrary, the evidence shows that an emphasis on deregulation can contribute to enormous economic dislocation. Moreover, regulations have generally and consistently struck a reasonable balance, with their benefits to health, safety, and well-being far exceeding their costs.

## **Section 1. The broad role of regulation**

Well-crafted regulations serve many purposes. They protect people from harmful products, ensure prudent use of natural resources, and safeguard the environment. They can prevent national and regional economic disasters, and can strengthen particular industries. They also play a critical role in structuring the economy and paving the way for innovation and competitive markets. This section of the report first examines the ways in which regulations can aid the economy and employment, and then investigates the general benefits and costs of regulations.

### ***Sound regulation, economic prosperity, and employment***

Well-designed and strongly enforced regulations are often necessary for the economy to operate effectively, a proposition supported by the history of regulation, including three recent examples. First, the absence of strong regulation was a primary cause of the financial crisis that has produced such severe economic pain. Second, the British Petroleum Deepwater Horizon oil spill, which led to widespread environmental and economic damage in and around the Gulf of Mexico, occurred in the context of stunningly lax regulatory oversight. Third, none other than the food industry itself embraced passage of the Food Safety Modernization Act, which strengthened the Food and Drug Administration's regulatory regime in a manner that the industry believed would restore confidence in and demand for its products.

***Regulatory failures and the financial collapse.*** Financial collapse in the absence of adequate federal regulation is a recurring pattern in economic history. Nobel Prize-winning economist Joseph Stiglitz recently made this point in a review of the role of regulations in responding to market failures.

*Markets are at the center of every successful economy. But unfettered markets often do not serve society well. Over the past two hundred years, economic theory and historical experience have shown that financial markets often fail to perform their essential functions of managing risk and allocating capital well, with disastrous social and economic consequences.<sup>2</sup>*

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2. Joseph Stiglitz, "Regulation and Failure," in *New Perspectives on Regulation*, edited by David Moss and John Cisternino, Cambridge, Mass., The Tobin Project, 2009, p. 21.

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In the wake of the Great Depression, a regulatory framework arose that for many decades managed to prevent financial collapses or moderate their effects. But in the three decades leading up to the 2008 financial collapse, policy-makers and regulators, motivated by the belief that financial institutions can “self-regulate,” shifted toward a deregulatory path. In its analysis of the causes of the crisis, the Financial Crisis Inquiry Commission wrote that this approach “stripped away key safeguards, which could have helped avoid [the financial] catastrophe. This approach had opened up gaps in oversight of critical areas with trillions of dollars at risk, such as the shadow banking system and over-the-counter derivatives markets.”<sup>3</sup>

Indeed, after the financial crisis unfolded, the officials who oversaw two of the central financial regulatory agencies during much of the early 2000s pointed out the failure of the self-regulatory approach. In 2008 congressional testimony, Alan Greenspan, chairman of the Federal Reserve Board from August 1997 to January 2006 and an avid supporter of self-regulation, admitted that self-regulation failed to prevent the financial collapse: “[T]hose of us who have looked to the self-interest of lending institutions to protect shareholder’s equity (myself especially) are in a state of shocked disbelief. Such counterparty surveillance is a central pillar of our financial markets’ state of balance. If it fails, as occurred this year, market stability is undermined.”<sup>4</sup> At the same hearing Christopher Cox, then-chairman of the Securities and Exchange Commission (and once a leading Republican member of Congress), testified: “We have learned that voluntary regulation does not work.” He also stated: “The lessons of the credit crisis all point to the need for strong and effective regulation.”<sup>5</sup>

One of the chief causes of the financial crisis was the bursting of the housing bubble, and stronger federal regulation of mortgage practices could have helped prevent the bubble from occurring or at least limited its size and effects. In a speech to the American Economic Association in 2009 that assessed some of the policy lessons from the financial crisis, Federal Reserve Board Chairman Ben Bernanke concluded:

*...the best response to the housing bubble would have been regulatory, not monetary. Stronger regulation and supervision aimed at problems with underwriting practices and lenders’ risk management would have been a more effective and surgical approach to constraining the housing bubble than a general increase in interest rates. ...*

*Efforts by the Federal Reserve and other agencies to address poor mortgage underwriting practices...came too late or were insufficient to stop the decline in underwriting standards and effectively constrain the housing bubble. ...*

*[H]aving experienced the damage that asset price bubbles can cause, we must be especially vigilant in ensuring that the recent experiences are not repeated. All efforts should be made to strengthen our regulatory system to prevent a recurrence of the crisis, and to cushion the effects if another crisis occurs.*<sup>6</sup>

The financial collapse of 2008 is a telling case study of how weak regulation can contribute not simply to economic damage but to economic disaster. The collapse of the financial system triggered a worldwide downturn that threatened to turn into a worldwide economic collapse. The federal government’s assertive response helped stave off that worst-case scenario, but the economic consequences have been dramatic and severe nevertheless. In the United States, eight million

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3. Financial Crisis Inquiry Commission, *Financial Crisis Inquiry Report*, Washington, D.C., January 2011, p. xviii. The views of the commission were not unanimous. Six of its members voted to adopt the report while four dissented. The members split along partisan lines.

4. Alan Greenspan, testimony before the House Committee on Oversight and Government Reform, October 23, 2008.

5. Christopher Cox, testimony before the House Committee on Oversight and Government Reform, October 23, 2008.

6. Ben S. Bernanke, “Monetary Policy and the Housing Bubble,” speech presented at the Annual Meeting of the American Economic Association, Atlanta, Ga., January 3, 2010.

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jobs were lost, millions of families lost their homes, trillions of dollars of wealth disappeared, and trillions of dollars of economic production failed to occur. As is typically the case in the wake of a financial collapse, the recovery has been slow, and the unemployment situation remains painful.

***Regulation and the British Petroleum Deepwater Horizon oil spill.*** The BP Deepwater Horizon spill was the worst accidental oil spill in U.S. history. The initial oil rig explosion on April 20, 2010, killed 11 people and injured 17, and the Macondo well was not capped until July 15. Nearly five million barrels of oil spilled into the Gulf of Mexico, producing serious environmental and economic damage that continues to unfold. The disaster significantly disrupted the three pillars of the Gulf Coast’s economy—fishing, tourism, and energy production—and the economic and cleanup costs will total in the tens of billions of dollars.

The oil spill occurred in a regulatory context that was lax to the extreme. According to the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, the lack of concern by government officials over the safety of deepwater oil drilling meant that, “the only question had become not whether an accident would happen, but when. On April 20, 2010, that question was answered.”<sup>7</sup>

The commission’s report documents the following regulatory lapses:<sup>8</sup>

- The responsible federal agency, the Minerals Management Service (MMS), was structurally flawed. It was responsible for safety enforcement as well as for revenue collection and energy development from issuing leases. Its focus became the latter at the expense of the former.
- MMS lacked both the resources and technical expertise to monitor the offshore oil industry, especially as offshore activity grew rapidly and more sophisticated technologies were put into place.
- The National Environmental Policy Act, which requires that federal agencies prepare environmental impact statements for all major federal actions that could have a significant effect on the environment (such as permitting the construction of an offshore oil rig), expressly treats the Gulf of Mexico less rigorously than other offshore areas.
- “MMS performed no meaningful review of the potentially significant adverse environmental consequences associated with its permitting for drilling of BP’s exploratory Macondo well.”<sup>9</sup>
- BP’s required Oil Spill Response Plan for the Gulf of Mexico was seriously deficient. Much of it was generic material prepared by a contractor that was not at all adapted to the oil spill scenarios of the gulf. For instance, its plan “described biological resources nonexistent in the Gulf—including sea lions, sea otters, and walruses,” yet “the MMS Gulf of Mexico Office approved the BP plan without additional analysis.”<sup>10</sup>

In sum, the commission found that this enormous oil spill was avoidable, and the lack of regulatory oversight was critical to its occurrence. The accident “resulted from clear mistakes made in the first instance by BP, Halliburton,

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7. National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, *Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling*, Washington, D.C., January 11, 2011, p. 85.

8. *Ibid.*, pp. 55-85 (Chapter 3 of the commission’s report is an in-depth review of the regulatory process and offshore drilling and how that process played out in the case of the Macondo well.)

9. *Ibid.*, p. 82.

10. *Ibid.*, p. 84.

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and Transocean, and by government officials who, relying too much on industry's assertions of the safety of their operations, failed to create and apply a program of regulatory oversight that would have properly minimized the risks of deepwater drilling."<sup>11</sup>

***Regulation of the food supply.*** After seven decades of legislative neglect, the nation's primary food safety law and the accompanying regulatory apparatus displayed alarming signs of wear in the period preceding passage of the Food Safety Modernization Act of 2010. High-profile episodes of tainted spinach, peanut butter, eggs, and cookie dough focused attention on food safety and spurred efforts to strengthen government regulation. These episodes, moreover, were not isolated incidents. In 2010, the Centers for Disease Control and Prevention estimated that 48 million Americans suffer from foodborne illnesses each year, which result in 128,000 hospitalizations and three thousand deaths.<sup>12</sup>

Reports about tainted foods have an immediate impact on the food industry. The industry pays for taking food off the shelf, and consumer demand for a tainted product can decrease significantly and remain low for an extended period. So, aside from concerns for consumer health, food producers and sellers have a direct self-interest in assuring that their products are safe and are perceived to be safe.

Starting in 2007, the Government Accountability Office included federal oversight of the food safety system in its "high-risk" programs report, a compilation of government operations that need major reforms to be effective. The GAO explained its reasoning for including the food safety system as follows:

*Agriculture, as the largest industry and employer in the United States, generates more than \$1 trillion in economic activity annually. Any food contamination could undermine consumer confidence in the government's ability to ensure the safety of the U.S. food supply, as well as cause severe economic consequences. The current fragmented federal system has caused inconsistent oversight, ineffective coordination, and inefficient use of resources. GAO has recommended that Congress consider a fundamental re-examination of the system and other improvements to help ensure the rapid detection of and response to any accidental or deliberate contamination of food before public health and safety is compromised.*<sup>13</sup>

In December 2010 Congress passed the Food Safety Modernization Act with substantial industry support. The Grocery Manufacturers Association, for example, praised its adoption on the day President Obama signed the act into law, with its chairman stating:

*I am proud of the food industry for its support of landmark food safety legislation and our efforts to protect consumers and provide them a safe food supply. This legislation will strengthen the safety of our nation's food supply, give FDA much needed resources to effectively monitor and regulate it, and increase consumer confidence in the food they eat.*<sup>14</sup>

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11. Ibid., p. 127.

12. Centers for Disease Control and Prevention, "Estimates of Foodborne Illness in the United States," December 2010. <http://www.cdc.gov/foodborneburden/index.html>

13. U.S. Government Accountability Office, "High-Risk Series: An Update," January 2007 (highlights page). <http://www.gao.gov/new.items/d07310.pdf>

14. Grocery Manufacturers Association, "Grocery Manufacturers Association Applauds President Obama for Signing Food Safety Legislation," Washington, D.C., January 3, 2011.

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The provisions of the act strengthen the regulatory process by requiring food processors to develop and implement safety plans; increasing the authority of the Food and Drug Administration to monitor and enforce these plans; requiring the FDA to conduct risk-based inspections, with an emphasis on high-risk industrial facilities; improving the traceability of foods that will aid investigations into food-borne illness outbreaks; and enhancing the FDA's oversight of imported food products. The FDA now has the authority to mandate product recalls, a shift from the previous policy that allowed industries to implement recalls or not on a voluntary basis.

### ***Cost-benefit analysis of regulations***

While the potential effects of regulations on the economy and employment are important, such an evaluation is a limited frame to assess their merits. Regulations have multiple purposes, including protecting people and the environment from harm. Only a comprehensive assessment of a regulation's effects—both positive and negative—can determine its merit.

One approach to such an assessment is cost-benefit analysis, a procedure that federal executive agencies frequently undertake before releasing major rules. Cost-benefit analysis is a complex and controversial undertaking that assigns dollar figures for as many costs and benefits as feasible. This approach attempts to "monetize" certain outcomes, such as saving lives, that by their very nature defy simple measurement.<sup>15</sup> Further, some benefits and costs defy quantification altogether.

While the results of cost-benefit analyses should not be considered precise, they can shed light on the effects of regulations. The Office of Management and Budget's annual report to Congress summarizing the prospective costs and benefits of regulations is the most comprehensive source of information about the effects of regulations.

The latest OMB report focuses on the benefits and costs of major regulations over the 10 fiscal years from 2001 to 2010.<sup>16</sup> OMB reviews major regulations produced by executive agencies (such as the Environmental Protection Agency, the Department of Health and Human Services, and the Department of Transportation). Federal law does not require OMB review of regulations by independent regulatory agencies, such as the Federal Reserve Board or the Securities and Exchange Commission.

During this 10-year period, OMB reviewed 106 major regulations for which cost and benefit data were available. Its central finding is that the combined value of the benefits of the 106 regulations far exceeded their combined cost: \$136 billion to \$651 billion in annual benefits versus \$44 billion to \$62 billion in annual costs (all figures are in 2001 dollars; the costs amount to much less than 1% of the economy).<sup>17</sup> This positive relationship—of benefits exceeding costs—held true for the regulations of every agency considered, but the majority of the total benefits were from the Environmental Protection Agency's clean air regulations.

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15. Some of the fundamental problems with cost-benefit analysis, especially when applied to environmental issues, are summarized by Prof. Lisa Heinzerling at <http://www.grist.org/article/cost-benefit-environmentalism-an-oxymoron>.

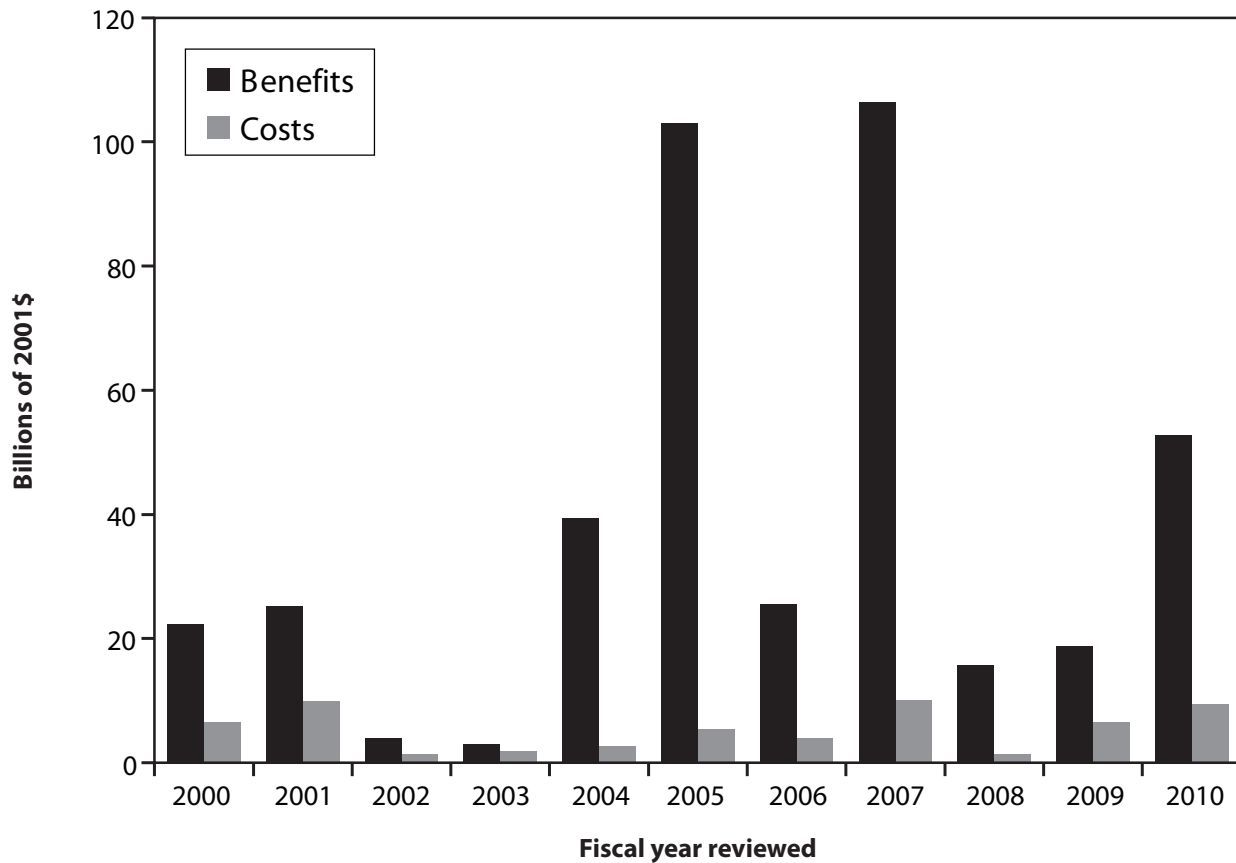
16. The report's release is the first of a two-stage release process. OMB initially releases its annual cost-benefit reports as drafts open to public comments; some of the public comments are incorporated into the final report issued later in the year. The OMB figures described in this paper are unlikely to change, however. Last year, for instance, the main cost-benefit tally in the OMB report did not change from the draft report to the final report. Major regulations are those that, for example, produce an annual effect on the economy of more than \$100 million (in 1996 dollars). OMB has found that the majority of the costs and benefits resulting from the regulations it reviews are from major regulations: "...our evaluation of a few representative agencies [for the 2004 report] found that major rules represented the vast majority of the benefits and costs of all rules promulgated by these agencies and reviewed by OMB." Office of Management and Budget, Office of Information and Regulatory Affairs, "Draft 2011 Report to Congress on the Benefits and Costs of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities," Washington, D.C., March 2011, p. 21. [http://www.whitehouse.gov/sites/default/files/omb/legislative/reports/Draft\\_2011\\_CBA\\_Report\\_AllSections.pdf](http://www.whitehouse.gov/sites/default/files/omb/legislative/reports/Draft_2011_CBA_Report_AllSections.pdf)

17. *Ibid.*, p. 13.



FIGURE A

Annual benefits of major rules reviewed each year outweigh the costs



SOURCE: Office of Management and Budget.

OMB also broke down the findings by year during this period (and added data for the year 2000). In every single year benefits exceeded costs, consistent with the general trend. OMB’s graph of this trend (a version of which is reproduced in **Figure A**) uses the midpoints of the range of costs and benefits of the regulations reviewed each year.<sup>18</sup> On average, the value of the estimated annual benefits of the major regulations reviewed each year was seven times the cost. Note that the rulemaking process in place for these regulations (including regulatory impact analyses produced by the agencies as well as OMB review) helps produce this outcome. If the process suggests that certain provisions of a regulation in development might produce significant costs without yielding significant benefits, then those provisions can be amended.

18. For example, the estimated combined annual benefits of the major regulations reviewed by OMB in fiscal year 2010 ranged from \$23 billion to \$82 billion, with a midpoint of \$53 billion; combined costs ranged from \$6.5 billion to \$12.5 billion, with a midpoint of \$9.5 billion (Ibid., p. 20). OMB notes: “the three highest years for benefits (2004, 2005, and 2007) are mostly explained by three EPA regulations: the 2004 non-road diesel engine rule, the 2005 interstate air quality rule, and the clean air fine particulate implementation rule” (Ibid., p. 19).

An earlier OMB report, submitted to Congress in 2000, estimated the annual costs and benefits of all “social regulations” in place in early 1999 (social regulations include the rules issued by executive agencies such as the EPA; the nature of rules covered correspond to the rules covered in the data cited above for 2000 onwards). The analysis likewise found the benefits of the regulations to be substantially greater than their costs. Specifically, the report estimated that the annual measured benefits of all social regulations in place as of the first quarter of 1999 ranged from \$254 billion to \$1.8 trillion, while the annual costs ranged from \$146 billion to \$229 billion (these figures are in 1996 dollars).<sup>19</sup>

In sum, the data in the recent OMB report covering major regulations from 2000-2010 and its earlier report covering prior decades share a main finding. According to the government’s cost-benefit analyses, the value of the benefits of the regulations put in place in recent decades have far exceeded the costs (**Table 1**).

**TABLE 1**

**Benefits from regulations significantly exceed costs**

<b>Regulations and time period</b>	<b>Estimated annual benefits</b>	<b>Estimated annual costs</b>
Major regulations reviewed by OMB in fiscal years 2001-10	\$136 billion to \$651 billion (2001 dollars)	\$44 billion to \$62 billion (2001 dollars)
Major regulations reviewed by OMB in fiscal year 2000	\$13 billion to \$32 billion (2001 dollars)	\$6 billion to \$7 billion (2001 dollars)
Social regulations in place as of the first quarter of 1999	\$254 billion to \$1.8 trillion (1996 dollars)	\$146 billion to \$229 billion (1996 dollars)

**SOURCE:** Office of Management and Budget. Figures for different periods should not be added together, in part because they rely on different methodologies and different dollars.

As noted, of the regulations examined by OMB, clean air regulations have had the largest effect. Regulations related to clean air are also now the subject of much dispute. For these reasons, a just-released study by the Environmental Protection Agency is worth examining.

On March 1, the EPA released a comprehensive congressionally mandated study of the costs and benefits of the Clean Air Act Amendments of 1990. These wide-ranging amendments to the 1970 Clean Air Act (which had also been amended in 1977) established new programs to control acid rain and the depletion of the stratospheric ozone. The amendments also strengthened and tightened existing aspects of the act, refined permitting requirements, and reformed the hazardous air pollutant regulatory program.

The study, which was reviewed extensively by a respected outside panel of experts (who characterized the study’s cost-benefit analysis as “state of the art”),<sup>20</sup> found the amendments to be enormously beneficial. The study’s central cost-benefit estimate is that the Clean Air Act Amendments of 1990 had net benefits in 2010 of \$1.2 trillion (expressed in 2006 dollars), with benefits exceeding costs by a ratio of 25-to-1. The central estimate found costs of \$53 billion in 2010

19. Office of Management and Budget, “Estimates of Total Annual Monetized Costs and Monetized Benefits of Social Regulations” (Table 4), Washington, D.C. (<http://www.whitehouse.gov/sites/default/files/omb/assets/omb/inforeg/2000fedreg-charts.pdf>). The wide range for aggregate benefits largely reflects different estimates of the benefits of environmental regulations.

20. Advisory Council on Clean Air Compliance Analysis, “Review of the Final Integrated Report for the Second Section 812 Prospective Study of the Benefits and Costs of the Clean Air Act,” Washington, D.C., December 16, 2010. [http://yosemite.epa.gov/sab/sabproduct.nsf/1E6218DE3BFF682E852577FB005D46F1/\\$File/EPA-COUNCIL-11-001-unsigned.pdf](http://yosemite.epa.gov/sab/sabproduct.nsf/1E6218DE3BFF682E852577FB005D46F1/$File/EPA-COUNCIL-11-001-unsigned.pdf)

and benefits of \$1.3 trillion.<sup>21</sup> (The low estimate for benefits provided by the study, reflecting the fifth percentile results from a statistical uncertainty analysis, is \$160 billion; the high estimate for benefits, reflecting the 95th percentile results from a statistical uncertainty analysis, is \$3.8 trillion.)

Other information in the study describes the estimated health benefits produced by the 1990 amendments. In 2010 alone, these include 160,000 lives saved (described by EPA as “reductions in premature mortality”), 13 million additional days of work (and productivity) because employees were healthier, and 3.2 million additional days of school attended because students were healthier (**Table 2**).

**TABLE 2**

**Clean Air Act Amendments of 1990 are providing enormous health benefits**

<b>Health benefits</b>	<b>2010</b>	<b>Cumulative through 2010</b>
<i>Lives saved</i>	160,000	1,826,000
<i>Additional work days</i>	13,000,000	137,000,000
<i>Additional school days</i>	3,200,000	26,600,000
<i>Heart attacks prevented</i>	130,000	1,358,000
<i>Fewer hospital admissions</i>	86,000	841,000
<i>Fewer cases of chronic bronchitis</i>	54,000	575,000

**SOURCE:** Environmental Protection Agency (for 2010 data) and authors’ analysis of EPA data (for cumulative through 2010).

The information in the EPA study also makes it possible to ballpark the cumulative effects of the Clean Air Act Amendments of 1990 to date. For example, the figures suggest that the amendments have already saved roughly 1.8 million lives.<sup>22</sup> By the end of 2011, the estimated number of lives saved will grow to about 2 million.

The health benefits listed in Table 2 do not include all the benefits that were monetized for the study, benefits such as fewer emergency room visits (86,000) or fewer asthma attacks (1.7 million). Nor does the discussion include significant benefits from the 1990 amendments that could not be quantified in dollars. For example, the EPA does not yet have the data enabling it to quantify the effects of certain types of pollutants.

The OMB and EPA information portray an unmistakable pattern: For decades the value of the benefits of regulations has consistently and significantly outweighed the costs. The Clean Air Act Amendments of 1990 offer a particularly dramatic example of enormous health benefits, direct aid to the economy through increased work days and productivity, and millions of lives saved.

21. U.S. Environmental Protection Agency, Office of Air and Radiation, “The Benefits and Costs of the Clean Air Act: 1990 to 2020,” Final Report, Washington, D.C., EPA, March 2011, pp. 7-9.

22. Ibid., pp. 5-25. The EPA study provides specific annual health benefits, by category of benefits, for three years: 2000, 2010, and 2020. Background data distributed by EPA contains estimated overall benefit levels (in dollars) for the intervening years. Assuming that the distribution of these benefits was the same throughout the period, the authors estimated cumulative effects through 2010 for different categories of benefits.

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## Section 2. Assessing possible economic downsides of regulations

This section begins with a discussion of the theory that regulations are likely to cause significant employment or economic losses. It then turns to a review of the studies of this question, and concludes with an examination of the most direct source of labor market data on the relationship between regulations and job trends.

### ***Regulation, employment, and the economy: a theoretical perspective***

Recent advocates of deregulation articulate the following theory on the deleterious effects of regulation on employment. First, they argue that it is costly for firms to comply with regulations. This increase in costs leads, in turn, to higher prices for products. Consumers will want fewer of these goods at higher prices. The drop in sales means the firms will employ fewer workers.

Second, they assert that firms could make better use of the resources required to comply with regulations. That is, firms could invest these resources, for example, in technological improvements that would boost the productivity of their workforce, leading to lower prices, increased sales and profits, and additional hiring.

Third, they say that the prospect of a new wave of regulation creates substantial uncertainty for certain firms. In this view, firms are unwilling to invest in new employees or equipment until the regulatory future is more predictable.

Depending on the particular regulation, elements of this theory could be applicable. But in any case, the theory outlined above is at best incomplete. Consider the following factors:

- The direct cost of complying with regulations translates into increased employment. For example, an environmental regulation will mean more jobs for those engaged in pollution abatement. Further, it is possible that regulations may produce more labor-intensive production processes. A true accounting of the direct employment effects of a regulation thus considers both jobs lost and jobs gained.
- Regulations can have broad economic benefits that may not be apparent at first blush. Clean air regulations, for instance, significantly improve the health of workers and children, resulting in lower health care costs and more productive workers.
- Not all benefits from regulations can be neatly categorized as economic. Perhaps a firm driven out of business due to a stringent regulation was operating in a fashion so dangerous to workers or public safety that the benefits of the regulation nonetheless outweigh the costs.
- Regulations often spur technological innovations that boost productivity. Michael Porter of Harvard Business School—a self-described Republican and an eminent specialist on how companies and nations compete—has hypothesized that properly designed environmental regulations can lead to so much innovation that they completely offset the costs of compliance.<sup>23</sup>
- Weak or absent regulations can be a direct threat to the economy and employment. As illustrated in the first section of this report, with inadequate regulations financial markets can collapse, environmental disasters can occur (with substantial economic costs), and consumers can lose faith in an industry's products, diminishing sales. In other words, regulatory failures can harm the economy while strong regulation can facilitate markets' functioning, and thus are often necessary to produce stable and flourishing job markets.

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23. Michael Porter and C. Van der Linde, "Toward a New Conception of the Environment-Competitiveness Relationship," *Journal of Economic Perspectives* 9(4): 97–118, 1995.

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- Regulations ensure that firms do not act in ways that place unacceptable costs on those outside the firm, or on the society as a whole. Once, manufacturers could pollute the air at will. With regulations, laws now require manufacturers to reduce pollutants and to incorporate into their production processes the costs of disposing of waste. This has benefited both the public at large as well as the private sector (companies benefit, for instance, when their workers are not breathing polluted air caused by other firms). Economists would say that much of the externality of air pollution has been overcome with regulations designed to correct this “market failure” (a term which refers to any market result that does not result in optimal results for society).
  - Regulatory standards are typically developed over a lengthy time period with substantial opportunities for input and review by the business community and others, thereby diminishing uncertainty. Regulations can also establish rules for operating that diminish firm uncertainty. The main culprit behind the lack of investment by firms today is not regulatory uncertainty but a continued imbalance between supply (overcapacity) and consumer demand.
  - When labor markets are slack, and companies generally have substantial surplus cash, as is now the case, increased spending to comply with regulations might be beneficial to job creation; companies do not have to divert such spending from other investments, and plenty of workers are available to meet any increases in demand.

Assessments of the economic and employment effects of specific regulations must weigh these competing factors against each other. There is no *prima facie* theoretical case that regulation necessarily has a negative impact on the economy and employment.

### ***Economic theory and studies of the employment effects of regulations***

Our collective intuition about the impact of regulations on business activity—the chain from regulations to higher costs and less employment—reflects a focus on the most identifiable, immediate impacts on a particular firm or industry. (Economists sometimes call studies with such a focus “partial equilibrium” analyses.) However, studies of the impact of regulations on the economy and employment, in either the near term or over the long run, must use a different theoretical and empirical approach.

Consider a hypothetical regulation that banned the use of a specific pigment in the manufacturing of red automobile paint due to the toxic nature of that ingredient. Under a narrow, partial-equilibrium view of regulation, one could argue that this regulation would increase costs for automobile manufacturers (specifically those that used the red paint and sold a high volume of red cars), thus leading them to sell fewer red cars and decreasing employment in the auto industry.

Thinking more broadly, however, would lead to the following conclusions. First, in the short run, the increased costs might lead to fewer sales of red cars, but would almost certainly lead to higher sales of silver cars, black cars, etc., and thus the employment impact industry-wide would be smaller than the simple story would suggest. This is especially true over longer horizons as firms and consumers adjust to the new cost structure.

Second, over time, car companies would look for alternative pigments to create a red color, and this endeavor might actually increase overall employment in the near term as car companies hired chemists, color experts, and others to develop a new red pigment.<sup>24</sup> The short-term investments made to adapt to the new regulations might result in employment

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24. Note that this example is not entirely hypothetical. Candy consumers of a certain age will recall the disappearance of red M&Ms in 1976 due to fears of the food coloring FD&C Red #2, which was banned by the FDA in that year (though the dye was apparently not actually used in the candy). Orange M&Ms were introduced to replace the red ones, and red was reintroduced in 1987. The current red coloring used in the United States appears to be banned in several European countries, where a different dye is used. See <http://en.wikipedia.org/wiki/M%26M's>.

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gains that would partially offset or even exceed the impact of higher costs. This outcome is especially likely if these investments are concentrated in industries that have high levels of domestic content and are labor intensive.

Third, even if there were some lasting impact on the auto industry (e.g., because some people forgo auto purchases because red is not an option), this does not imply an economy-wide reduction in employment levels. For example, fewer drivers might mean more transit passengers, and thus greater demand for buses or subway cars. Further, since macroeconomic performance is also driven by overall monetary and fiscal policy (and trade policy), the assessed impact of regulations should also take into account adjustments in these policies that might be made to counteract potentially higher levels of unemployment.

The example of the red cars—and the “general-equilibrium” considerations it incorporates—illustrates that firm- or industry-specific empirical studies are of limited use in assessing the long-term macroeconomic impacts of regulations on employment levels. A more comprehensive approach considers the full range of employment impacts, including how transition investments can create jobs. This wider view of regulation can lead to different conclusions about the effects of regulations on jobs.

For example, a Congressional Budget Office review of three economy-wide models of the impact of carbon limits found that two of the three studies showed job gains in some industries that approximately offset job losses in others over time. (The narrow partial-equilibrium kind of analysis usually used to assess the impact of regulations might only have examined any near-term job losses.) The CBO noted that, in these two models, over time “a small percentage might choose to work fewer hours or not at all, resulting in slightly lower total employment than would be the case in the absence of the program.”<sup>25</sup> The third study showed net losses primarily due to a slower adjustment of labor—an assumption with which CBO tended to disagree.

### ***Assessing different studies, other considerations***

The results from studies that rely on economy-wide models will depend critically on the underlying economic theory used to develop the estimates. Some economic models essentially assume that in the long-run employment will return to an underlying trend or “full employment” equilibrium.<sup>26</sup> Since these models do not fully capture short-term macroeconomic effects on employment, the models can be relatively uninformative about the impact of policies, especially in recessionary periods when displaced workers have great difficulty finding new jobs. Such models can be more informative about the distribution of jobs across sectors of the economy.

When interpreting studies of regulation and employment, one should distinguish between economic analyses that estimate or predict employment changes based on a model of the economy (often computable general equilibrium models) and empirical estimates of the impact of already enacted regulations. In the first instance, economic modelers must make a variety of assumptions about the cost and impact of the regulations, which may or may not turn out to be true in practice. For example, computable general equilibrium models of pollution abatement must make assumptions about how abatement technology is likely to advance over time.

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25. Congressional Budget Office, “How Policies to Reduce Greenhouse Gas Emissions Could Affect Employment,” Washington, D.C., May 5, 2010, p. 6.

26. In these models, to the extent that regulations decrease labor productivity and thus the equilibrium real wage, they will also decrease the equilibrium aggregate quantity of labor supplied and hence employment. The interpretation of the results is not that regulation will “kill jobs” but rather that the labor market will eventually rebalance at a lower level of employment with higher chosen levels of leisure based on workers’ labor-leisure tradeoff. Further, these models are of limited use in recessionary periods when there is significant slack in the labor market.

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In more empirically based analyses of the impact of past regulations, the researcher must attempt to disentangle the impact of regulations from the myriad other factors that can affect employment. The methodological design of a study—and whether it can pull out the independent influence of regulation—is thus critical.

### ***Economy-wide studies of regulations and employment***

Generally, economy-wide studies do not find a significant decline in employment from regulatory policies.

In the context of a comprehensive review of environmental regulation and employment, an earlier Economic Policy Institute study by Goodstein reported that “...a majority of the available studies indicate that environmental spending has actually boosted aggregate employment somewhat.”<sup>27</sup> This conclusion was reached by seven of the nine economy-wide studies available at the time (1994); only one of the nine studies found that environmental regulations led to economy-wide job losses, while one study had mixed results. Studies typically show that environmental protection creates more jobs than are lost since spending on abatement is labor intensive and performed with domestically produced goods, Goodstein concluded.

A more recent 2008 study by Bezdek et al. includes a review of studies of environmental regulations and employment and also examines the level of employment in the U.S. environmental industry. This study finds that “EP [environmental protection], economic growth, and jobs creation are complementary and compatible: Investments in EP create jobs and displace jobs, but the net effect on employment is positive.”<sup>28</sup> The report also notes that employment in environmental protection industries increased from 700,000 jobs in 1970 to 5 million in 2003.

An older study by Jorgenson and Wilcoxon that still receives some attention uses a model of economic activity (which includes 35 industries) to simulate the growth of the economy with and without environmental regulation.<sup>29</sup> The authors concluded that regulation reduces the level of gross national product by 2.6%, and that over the period examined (1972-85) the annual growth rate was 0.19% slower. The simulation model used by Jorgenson and Wilcoxon is highly stylized; it makes a number of unreasonable assumptions, such as perfect capital mobility, full employment, and perfect foresight by consumers. These assumptions mean that any increase in costs to a firm, such as compliance costs with a regulation, harm the economy, as it causes firms to alter the perfect decisions they have already made. It thus ignores, for instance, any unexpected productivity gains from new compliance costs. As such, the fact that the model shows reductions in economic activity is not terribly informative since this result was essentially built into the underlying assumptions of the model. (Crain and Crain also find that regulations are costly to the economy; their study is examined in the last section of this report.)

It is important to remember that, even if the economy-wide net impact of regulation on employment is small, significant job displacements and shifts across sectors or regions can still occur. Complementary policies, such as transition assistance and retraining, would help smooth any economic changes.

### ***Industry- and regulation-specific impacts***

While the above discussion suggests that industry-level analyses are of limited use for economy-wide employment impact assessments, it is nonetheless instructive to examine the findings from those studies since regulations might impact the

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27. Eban Goodstein, “Jobs and the Environment: The Myth of a National Trade-Off,” Washington, D.C., Economic Policy Institute, 1994, p. 5.

28. Roger H. Bezdek, Robert M. Wendling, and Paula Di Perna, “Environmental Protection, the Economy, and Jobs: National and Regional Analyses,” *Journal of Environmental Management*, 86 (2008), p. 63.

29. Dale W. Jorgenson and Peter J. Wilcoxon, “Environmental Regulation and U.S. Economic Growth,” *Rand Journal of Economics* 21(2): 314-340, 1990.

composition of jobs across industries and can influence sector-specific labor-market indicators. The studies cited below are broadly representative of the larger literature, the preponderance of which shows that regulations have not produced significant job losses. The focus here is on environmental regulation, since this is the area of regulation that has undergone perhaps the most economic analysis, and it represents a large fraction of the total economy-wide costs associated with regulation.

An important contribution to the research comes from a study by Morgenstern, Pizer, and Shih.<sup>30</sup> They analyzed the impact of environmental regulations on four industries that generate significant pollution and thus would be expected to be affected significantly by environmental regulation. Their research notes that the employment impact is, in theory, ambiguous—that is, employment in an industry might increase or decrease depending upon several characteristics of the industry. In particular, if demand for the products of a particular industry is very sensitive to price, if the costs associated with pollution abatement are high, and/or if pollution abatement does not employ many people, then there will likely be job loss.

On the flip side, if demand is relatively inflexible to price, and if the pollution abatement activities require intensive labor inputs, then the net effect of the regulation even within the affected industry may be positive. Taking their theory to the data, they found that in two of the four industries studied (plastics and petroleum) the net employment impact of the environmental regulations was small but positive, while in the other two industries (pulp and paper, and iron and steel) there was no statistically significant impact (**Table 3**).

**TABLE 3**

**Environmental spending and employment by polluting industries**

<b>Industry</b>	<b>Change in full-time jobs per million dollars (1987\$) of environmental expenditure</b>	<b>Characterization of effect</b>
<i>Petroleum</i>	2.17	Positive, statistically significant
<i>Plastics</i>	6.9	Positive, statistically significant
<i>Pulp and paper</i>	-1.13	Not statistically significant
<i>Steel</i>	0.53	Not statistically significant

**SOURCE:** Richard D. Morgenstern, William A. Pizer, and Jhih-Shyang Shih, “Jobs Versus the Environment: An Industry-Level Perspective,” *Journal of Environmental Economics and Management*, 2002, 43, pp. 412-436.

A study by Berman and Bui offers a different approach, but arrives at approximately the same conclusion. The authors examined the Los Angeles area and the impact of air quality regulation. By comparing manufacturing plants in Los Angeles that were subject to increased regulation with a comparative sample of plants (and plant-years) in the same industries across regions, the authors attempted to isolate the employment impact of new local air quality regulations. They found that there was “...no evidence that local air quality regulation substantially reduced employment,” and that the regulations “...probably increased labor demand slightly.”<sup>31</sup>

30. Richard D. Morgenstern, William A. Pizer, and Jhih-Shyang Shih, “Jobs Versus the Environment: An Industry-Level Perspective,” *Journal of Environmental Economics and Management* 43: 412-436, 2002.

31. Eli Berman and Linda T.M. Bui, “Environmental Regulation and Labor Demand: Evidence From the South Coast Air Basin,” *Journal of Public Economics* 79: 265, 293, 2001.



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A counter to these findings is a report by Greenstone that looked at plants that were subject to increased regulatory screening under the Clean Air Act Amendments of 1970 and 1977 because they were located in counties that failed to meet environmental standards. From 1972 to 1987 “nonattainment” counties that did not meet the standards (and were thus more closely regulated) had employment that was 590,000 lower in pollution-intensive industries relative to the employment that would be expected if these counties had been “attainment” counties. However, the results may mix the impact of regulation per se with the location of economic activity, which might have been attracted to counties that had cleaner air.<sup>32</sup> In fact, Greenstone states that, “Since it is likely that the regulation effects partially reflect some shifting of manufacturing activity within the U.S. they probably *overstate* the national loss of activity” (emphasis in original).<sup>33</sup> In other words, since the study examined only impacts in some counties, it failed to capture the nationwide effects (which could include shifts in the distribution of jobs) of this nationwide regulation. It also bears noting that the findings were statistically significant for carbon monoxide regulations, but not for the other pollutants examined.

The Greenstone study is perhaps the most notable analysis finding a significant (albeit by its own admission overstated) negative localized effect of regulation on employment. Taken as a whole, however, the literature studying individual regulations and specific industries tends to show that the broad fear of substantial regulation-induced job loss at the industry level is unfounded.

Of further interest, the studies above reflect efforts to test whether environmental regulations that increased costs led to significant employment loss. Less common are studies of whether regulations designed to improve the functioning of the economy or particular industries have had that effect. In its own recent review of the literature on regulations and the economy, OMB described two studies of this nature, both of which demonstrated that regulations can promote economic growth.

One study examined the effects of applying mandatory disclosure rules to certain over-the-counter stocks; it found that this regulation had several positive effects, including increasing the shareholder value of the affected equities by a range of \$3-6 billion (in 2005 dollars).<sup>34</sup> The second study, says OMB, “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.”<sup>35</sup>

## **Regulation and trade**

In today’s global economy, there are persistent fears that regulations spur the relocation of economic activity to other countries or regions and thereby cause job loss in the United States. This theoretical possibility of “regulatory havens” spans many different kinds of regulations. For example, some have suggested that environmental regulation would lead to the outsourcing of energy-intensive manufacturing to countries with more lax standards, such as China. Others have

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32. This possibility is suggested in Greenstone’s analysis showing that the “nonattainment status is not orthogonal to observable county- or plant-level characteristics that may be determinants of plant growth.” Michael Greenstone, “The Impacts of Environmental Regulations on Industrial Activity: Evidence From the 1970 and 1977 Clean Air Act Amendments and the Census of Manufactures,” Working Paper No. 8484, Cambridge, Mass., National Bureau of Economic Research, September 2001, p. 36.

33. *Ibid.*, p. 27. Not only does the study fail to account for shifts in jobs from nonattainment counties to attainment counties, it also fails to account for shifts in jobs within counties. Further, to the degree jobs were shifted from nonattainment counties to other counties in the United States, the 590,000 figure double counts the effect on nonattainment counties.

34. Michael Greenstone, Paul Oyer and Annette Vissing-Jorgensen, “Mandated Disclosure, Stock Returns, and the 1964 Securities Acts Amendments,” *Quarterly Journal of Economics*, May 2006.

35. Office of Management and Budget (2011), *op. cit.*, p. 48. This is OMB’s description of Dan Carpenter, “Confidence Games: How Does Regulation Constitute Markets?” in Edward Balleisen and David Moss, eds., *Government and Markets: Toward a New Theory of Regulation*, New York, N.Y., Cambridge University Press, 2009.

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suggested that financial market regulation would lead financial firms to relocate to other financial centers abroad. Job loss could be the result of U.S. firms moving operations overseas, and/or regulatory-induced cost increases that lead to a decline in international competitiveness and thus sales.

But the location of production is dependent on many considerations, including natural resource availability, market locations, and labor supply quantity and quality. The regulatory environment is just one of many factors.

More stringent regulation is also not necessarily a reason for a firm to relocate; in fact, the opposite can be true. For example, regulations can lead to a leveling of the economic playing field within an industry. A company that wants to be “green” for the purpose of marketing its product would welcome environmental regulations that would prevent its competitors from competing solely on price; a stock broker may not want to trade in a market that allows insider trading or does not require firms to disclose critical information. Regulations may also have cross-industry benefits. Farmers most certainly benefit from fewer toxic emissions by nearby power plants.

In a recent symposium on his hypothesis that properly designed environmental regulations can lead to innovation and lower costs in certain industries (discussed earlier in this section), Michael Porter stated that its origins were his research for his book, *The Competitive Advantages of Nations*:

*And in the course of writing that book I had looked at hundreds of different industries across many, many different countries, and I kept noticing something. I kept noticing that there were often very strict standards and regulations in a particular country in a particular field, but yet that country was competitive in that field. I kept noticing that over and over again. And so out of that came this notion that we could see not a conflict between environmental regulation, strict environmental regulation, and competitiveness, but we could actually see ... that these things could actually reinforce each other.<sup>36</sup>*

In a 1995 survey of the empirical literature, Jaffe et al. assessed the impact of environmental regulation on the competitiveness of U.S. manufacturing. Specifically, the report looked at the literature on the costs of pollution abatement, international trade flows, plant locations, and economic growth to assess the impact of environmental regulation broadly. The authors concluded in part that “there is relatively little evidence to support the hypothesis that environmental regulations have had a large adverse effect on competitiveness,” and that “...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.”<sup>37</sup> One could argue that the world has become increasingly globalized over the past 15 years, and thus the economy is more susceptible to regulation today. However, the period prior to 1995 was still substantially integrated globally, and the changes to environmental regulation (including the gaps between the U.S. and certain other countries) were significant in that period as well.

More recently, in 2008 Pasurka examined the literature on abatement and pollution havens, and found no consensus among the myriad studies (and meta-studies) linking environmental controls to trade patterns or competitiveness.<sup>38</sup> Some found negative effects, others did not. The different results reflect the sensitivity of empirical findings to the choice

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36. Michael Porter, “Hans 36. Landsberg Memorial Lecture,” January 19, 2011 p. 11-12. <http://www.rff.org/Events/Documents/110119.pdf>.

37. Adam B. Jaffe, Steven R. Peterson, Paul R. Portney, and Robert N. Stavins, “Environmental Regulation and the Competitiveness of U.S. Manufacturing: What Does the Evidence Tell Us?” *Journal of Economic Literature* 33(1): 157, 1995.

38. Carl Pasurka, “Perspectives on Pollution Abatement and Competitiveness: Theory, Data, and Analyses,” *Review of Environmental Economics and Policy* 2(2) 194-218, summer 2008.

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of methodology, industry sample, country sample, and sample time period. In another review, Frank Ackerman concludes that "...the bulk of the economic literature...continues to suggest that a good pollution haven is hard to find."<sup>39</sup>

The Berman and Bui study described earlier also can be brought to bear on the pollution haven argument. The study looked specifically at plant-level data to assess the impact of local pollution controls in the Los Angeles area. In this case, firms could have simply moved out of the area to avoid the more stringent regulation, yet the study found no evidence that employment levels declined. A more general finding comes from Bureau of Labor Statistic data on the reasons behind extended mass layoffs of workers. As will be described later in some detail, the BLS data show that only a tiny fraction of all such layoffs are due to government regulation/intervention. Of relevance here, the data do not clearly indicate a single instance in which such layoffs due to government regulation/intervention reflected the relocation of a plant.

A recent report by Hanna, however, shows that there may be some effect of environmental regulation on U.S. multinationals' investments abroad. It finds that regulation has led U.S.-based multinationals to increase foreign assets in polluting industries by 5.3%.<sup>40</sup> The impact was concentrated in manufacturing.

More broadly, a 2004 literature review found that "[t]he early literature, based on cross-sectional analyses, typically concludes that environmental regulations have an insignificant effect on firm location decisions. However, recent studies that use panel data to control for unobserved heterogeneity, or instruments to control for endogeneity, find statistically significant pollution haven effects of reasonable magnitude."<sup>41</sup> In other words, this literature review notes that certain studies with refined statistical techniques are finding pollution haven effects.

The discussion of the impact of regulations must also consider the regulatory environment of the United States in comparison with the rest of the world. An assessment of the United States on environmental or labor standards can look very different depending on the comparison made. Thus, the likelihood of regulatory-induced offshoring is different if we are considering production in a high-skilled, capital-intensive industry (where Germany might be the more natural location) than if we are considering a low-skilled, labor-intensive industry (where China might be the competitor). Pasurka presented data on pollution abatement costs across the countries of the Organization for Economic Cooperation and Development and across industries that showed that the U.S. is not an outlier when it comes to the amount spent on pollution abatement, and that the difference between the U.S. and other OECD countries "largely disappeared by the 1990s."<sup>42</sup>

Complementary policies can help protect domestic employment and the policy goals of regulations. This protection is important because any flight to regulation havens not only can influence employment levels but can undermine the regulatory goals as well. Consider, for example, global greenhouse gas emissions. If a significant amount of energy-intensive manufacturing is sent overseas to plants that use energy from greenhouse-intensive energy production, the net result could be an increase in global GHG emissions. Again, the mixed evidence available does not suggest that a large shift is likely to occur from such regulation, but to the degree a particular regulation raises valid concerns of this nature, undertaking complementary policy, such as making environmental standards a key provision of trade agreements, should be considered.

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39. Frank Ackerman, "The Unbearable Lightness of Regulatory Costs," Global Development and Environment Institute, Working Paper No. 06-02, Medford, Mass., Tufts University, p. 9, February 2006.

40. Rema Hanna, "US Environmental Regulation and FDI: Evidence From a Panel of US-Based Multinational Firms," *American Economic Journal: Applied Economics* 2(3): 158-189, 2010.

41. Smita B. Brunnermeier and Arik Levinson, "Examining the Evidence on Environmental Regulations and Industry Location," *Journal of Environment and Development* 13: 6-41, 2004.

42. Pasurka, op. cit., p. 207.

## Extended mass layoff data suggest few jobs lost due to regulation

Some information about the employment effects of regulations can be gleaned from the “extended mass layoff” data series issued by the U.S. Department of Labor’s Bureau of Labor Statistics. This series examines events in which a company lays off 50 or more workers for more than 30 days.<sup>43</sup> It includes information from the companies about the reasons for such layoffs. Since 2007, one of the reasons that can be chosen is “government regulations/intervention.” This change in data reporting provides a basis for examining some of the important questions addressed in this brief.

While individuals who are unemployed due to extended mass layoffs do not account for the majority of the unemployed, their numbers are substantial. For instance, since 2007 about 1.5 million workers a year have lost jobs due to extended mass layoffs.

It is striking how few of these layoffs employers attribute to government regulations/intervention (**Table 4**). The BLS data show that in 2007-09 about 4,300 workers a year were unemployed due to extended mass layoffs resulting, according to the employers, from government regulations/intervention. This amounts to 0.3% of workers who lost their jobs due to extended mass layoffs.

**TABLE 4**

### Employers attribute few extended mass layoffs to government regulations/intervention

Year	Total workers subject to extended mass layoffs	Layoffs attributed to government regulations/intervention	Percent attributed to government regulations/intervention
2007	965,935	2,637	0.3%
2008	1,517,857	5,505	0.4
2009	2,108,803	4,854	0.2
<i>Average</i>	1,451,558	4,333	0.3

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics.

The 4,300 figure itself deserves further context. It does not take into account any offsetting job creation that the regulations may have spurred, such as jobs created from the increased demand for the products from companies in compliance with the regulations. More broadly, the 4,300 figure pales in comparison to any accounting of the jobs lost in this period due to the regulatory failures that contributed to the economy’s financial crisis.

That extended mass layoffs resulting from government regulations/intervention are a small sliver of all such layoffs is not an anomaly of tough economic times (when more layoffs naturally reflect the lack of demand). In 2007, a year of modest job growth,<sup>44</sup> just 0.3% of extended mass layoffs were attributed to government regulation/intervention.

The data available prior to 2007 are consistent with the recent findings. Goodstein summarized such data from the 1970s, 1980s, and 1990s and found similarly small numbers of workers being laid off—and similarly small fractions of all layoffs—due to environmental regulations.<sup>45</sup>

43. Specifically, BLS defines extended mass layoffs as “layoffs of at least 31 days’ duration that involve the filing of initial claims for unemployment insurance by 50 or more individuals from a single establishment during a period of 5 consecutive weeks.”

44. The nation officially entered into a recession in December 2007.

45. Eban Goodstein, *The Trade-Off Myth: Fact and Fiction About Jobs and the Environment*, Washington, D.C., Island Press, 1999, pp. 35-37.

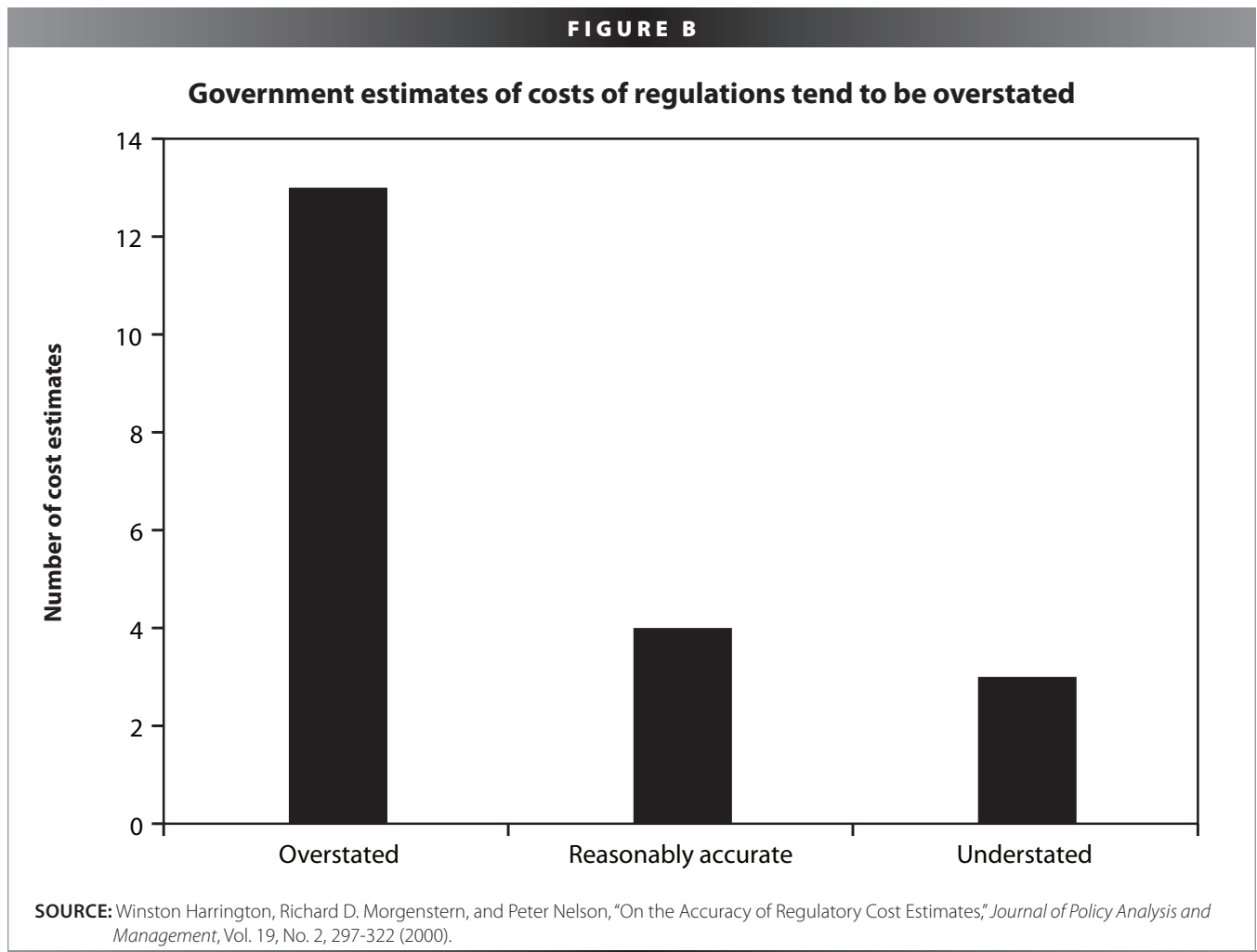
### Section 3. Reviewing studies cited during regulatory debates

Section 2 of this report primarily examined retrospective studies of the effects of regulations or studies that rely on actual outcomes. Discussions over the adoption of particular regulations, however, usually depend on *prospective* studies. These studies attempt to estimate the costs and outcomes of proposed or final regulations. They are intrinsically imprecise; the effects of regulations as well as the changes in production processes necessary to meet them are difficult to estimate in advance. This section of the paper first examines the studies by government that are typically referenced in regulatory discussions. The last part of this section, and the report, takes a look at industry and other studies.

#### Which way are government studies biased?

A relatively large number of studies have examined whether the predictive cost estimates used by government agencies when they are formulating their regulations tend to be overstated or understated. The general consensus might be surprising: Government cost estimates tend to be too large.

Perhaps the most widely cited of these studies is a 2000 report by Harrington, Morgenstern, and Nelson. Their analysis compared the cost estimates for federal regulations before they were put in place (*ex ante* estimates) to cost estimates of how much these regulations cost once they were implemented (*ex post* estimates). The focus was on comparing *ex ante* cost estimates used by government agencies to *ex post* estimates usually prepared by an academic or independent analyst.



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A central finding of this study is that overall costs of particular regulations estimated by the federal government tend to be overstated. Of the 21 federal regulations examined, in 13 cases the *ex ante* costs turned out to be too large (they were at least 25% larger than the *ex post* costs). In only three cases did a federal agency understate costs (its cost estimates were at least 25% smaller than the *ex post* costs). In the remainder of cases, the *ex ante* cost estimates were deemed to be reasonably accurate (**Figure B**).<sup>46</sup>

In a 2006 analysis Harrington, drawing from the OMB's *2005 Report to Congress* on the costs and benefits of regulation as well as from other sources, examined a wider range of examples of various cost-benefit studies. He found that these examples reinforced the conclusion that government agencies tend to overstate the costs of regulations.<sup>47</sup>

In 2010, Harrington, Morgenstern, and Nelson, in an updated summary of their findings, discussed why government cost estimates tend to be too high. They concluded the following:<sup>48</sup>

- Government cost estimates fail to account for technological adjustments. For instance, scrubbers installed to reduce acid rain proved to be “more efficient and more reliable than expected.”
- Delays in devising and implementing rules lead to less costly adjustments.
- Either because the extent of pollution reduction a rule can produce was initially overestimated, or because firms failed to comply, rules can be both less costly *and* less beneficial than expected. This is consistent with another finding from their 2000 study, that the *ex ante* unit cost estimates (for example, how much it costs to reduce a particular amount of pollution) were more accurate than the total cost estimates and were less likely to be overstated.
- *Ex ante* cost estimates are based on the proposed rule; adjustments made before the rule is finalized, often to respond to points made by the industries regulated, may reduce costs.
- *Ex ante* cost estimates tend to rely on the use of current technology as well as information provided by the regulated industries themselves, both of which bias the estimates upward.

Other, earlier studies produced similar results. A report by the Office of Technology Assessment in 1995 that focused on rulemaking by the Occupational Safety and Health Administration concluded that many of OSHA's cost estimates were too high because the agency failed to adequately consider advances in technology. The report stated, “In a good number of the cases that OTA examined, the actual compliance response that was observed included advanced or innovative control measures that had not been emphasized in the rulemaking analyses, and the actual cost burden proved to be considerably less than what OSHA had estimated.”<sup>49</sup>

By far the two most costly OSHA regulations examined by OTA were the vinyl chloride and cotton dust rules. In both cases, partly due to unexpected gains from innovations and new technologies, compliance costs turned out to be much less

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46. Winston Harrington, Richard D. Morgenstern, and Peter Nelson, “On the Accuracy of Regulatory Cost Estimates,” *Journal of Policy Analysis and Management* 19(2): 297-322, 2000.

47. Winston Harrington, “Grading Estimates of the Benefits and Costs of Federal Regulation: A Review of Reviews,” Washington, D.C., Resources for the Future, September 2006, pp. 34, 37.

48. Winston Harrington, Richard D. Morgenstern, and Peter Nelson, “How Accurate Are Regulatory Cost Estimates?” Washington, D.C., Resources for the Future, March 5, 2010.

49. Office of Technology Assessment, “Gauging Control Technology and Regulatory Impacts in Occupational Safety and Health: An Appraisal of OSHA's Analytic Approach,” Washington, D.C.: OTA, September 1995, p. 10.

**TABLE 5**

**Compliance with two major OSHA regulations cost much less than expected**

OSHA Regulation	Ex ante cost estimate	Ex post cost estimate	Actual costs as a share of expected costs
Vinyl chloride	\$1 billion (1974 dollars)	\$228 million to \$278 million (1974 dollars)	23%-28%
Cotton dust	\$280 million a year (1982 dollars)	\$83 million a year (1982 dollars)	30%

**SOURCE:** Office of Technology Assessment, *Gauging Control Technology and Regulatory Impacts in Occupational Safety and Health: An Appraisal of OSHA's Analytic Approach*, Washington, D.C., OTA, September 1995.

than expected (**Table 5**).<sup>50</sup> When the vinyl chloride rule was being promulgated, the best available estimate of the total compliance costs of the rule was \$1 billion (1974 dollars). Actual costs turned out to be about one-fourth of that (\$228 million to \$278 million), in part because of an unanticipated improvement in the process of producing polyvinyl chloride resin while reducing exposures to vinyl chloride. OSHA estimated the cost of compliance to its new cotton dust standard as \$280 million a year (1982 dollars). Actual costs turned out to be an estimated \$83 million a year, or less than one third the expected amount. Costs were brought down as the byproduct of a movement toward plant modernization.

A 1997 report by Hodges, focused primarily on environmental emission regulations, examined 12 cases in which two or more cost estimates were prepared for particular regulations. The large majority of the estimates were prepared for government agencies, but a few were industry studies. The paper found that in all but one case the later studies found costs to be *less than half* the costs found by the earlier studies. This study also noted that, while the costs of controlling emissions (preventative measures) are systematically lower than expected, the costs of environmental cleanups (such as the Superfund program) tend to be larger than expected.<sup>51</sup> As a version of this analysis published in *The American Prospect* put it: “Updating *Poor Richard’s Almanac*, an ounce of prevention is clearly worth a pound of cleanup.”<sup>52</sup>

**The track record of regulatory opponents**

*Few of us would want to live in a society without rules that keep our air and water clean; that give consumers the confidence to do everything from investing in financial markets to buying groceries. And the fact is, when standards like these have been proposed in the past, opponents have often warned that they would be an assault on business and free enterprise. We can look at the history in this country. Early drug companies argued the bill creating the FDA would “practically destroy the sale of . . . remedies in the United States.” That didn’t happen. Auto executives predicted that having to install seatbelts would bring the downfall of their industry. It didn’t happen. The President of the American Bar Association denounced child labor laws as “a communistic effort to nationalize children.” That’s a quote. None of these things came to pass. In fact, companies adapt and standards often spark competition and innovation.*

—President Obama, speech to the U.S. Chamber of Commerce, February 7, 2010

50. Ibid., pp. 57, 59.

51. Hart Hodges, “Falling Prices: Cost of Complying With Environmental Regulations Almost Always Less Than Advertised,” Washington, D.C., Economic Policy Institute, November 1, 1997.

52. Eban Goodstein and Hart Hodges, “Behind the Numbers: Polluted Data,” *The American Prospect*, November 1, 1997.

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President Obama’s brief review of the historical record hits on a fundamental truth: Claims by opponents of regulations that new rules will have significant and destructive effects on the economy and on jobs have often been exaggerated, sometimes dramatically so.

A telling case dates back to the last major amendments to the Clean Air Act. The example is particularly timely since much of the current debate over the employment effects of regulation stems from controversial further regulations under this act.

The 1990 amendments, which were signed into law by President George H.W. Bush, were primarily designed to reduce the acid rain caused by emissions from power plants and to reduce toxic emissions from chemical plants. In his book on employment and environmental regulation,<sup>53</sup> Goodstein depicts a pattern of industry overstatement of the economic effects of regulation, with a particularly long description of the discussion surrounding the Clean Air Act Amendments of 1990.

During the debate over the amendments, the Business Roundtable sponsored a study that, after noting that jobs lost in one industry might be offset by job gains in another, predicted how many jobs might be lost in the affected industry:

*There is, however, **no doubt** that, across the CAA Amendment titles studied, there are a minimum of several hundred thousands of jobs at various levels of severity of risk—even with more moderate administration-like CAA Amendment proposals. Furthermore, depending on the residual risk assumptions, this study leaves little doubt that **a minimum** of 200,000 (plus) jobs will be quickly lost, with plants closing in dozens of states. This number could easily exceed one million jobs—and even two million job—at the more extreme assumptions about residual risk [emphasis in original].<sup>54</sup>*

To gauge how many jobs actually were lost due to the Clean Air Act Amendments, Goodstein examined how many workers applied for the special displaced workers assistance the legislation established. He found that “[b]etween 1990 and 1997 less than 7,000 workers in total received aid because their jobs were affected by the CAA Amendments.” While this figure is unlikely to fully capture the employment impacts of the amendments (not all displaced workers may have applied for aid, and arguably the amendments could have contributed to slower job growth and not just direct layoffs), it does strongly suggest that any negative employment effects were nowhere close to the immediate number estimated by the study prepared for the Business Roundtable. In addition, the extended mass layoff data from the 1990s show few dislocations due to environmental regulations. It also bears repeating the findings of the new study of these amendments that were discussed earlier (and summarized in Table 2): The overall benefits from these amendments have dramatically exceeded their costs.

This story is also illustrative because of Goodstein’s explanation of what the Business Roundtable study got wrong, which was the pace and power of the innovative response. Cost estimates of regulations—whether prepared by consultants for industries, academics, or the government—are often overstated for this reason. Cost estimates of proposed regulations are based, for instance, on what is known about existing technologies, but they fail to account for how technologies will advance in response to regulations or new challenges.

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53. Eban Goodstein, *The Trade-Off Myth*, op. cit., pp. 41-45.

54. Goodstein quoted from the executive summary of Robert Hahn and Wilbur Steger, “An Analysis of Jobs at Risk and Job Losses From the Proposed Clean Air Act Amendments,” Pittsburgh, Pa., CONSAD Research Corporation, 1990.



**TABLE 6**

**Industry estimates of compliance costs tend to be exaggerated**

<b>Regulation</b>	<b>Ex ante estimate by Industry</b>	<b>Ex post or revised ex ante estimate</b>
<i>Acid rain</i>	\$5.5 billion a year initially, \$7.1 billion a year in 2000	\$1.1 billion - \$1.8 billion a year
<i>Air bags</i>	\$800 per vehicle	\$300 per vehicle
<i>Benzene</i>	\$350,000 per plant	Approximately \$0 per plant
<i>Catalytic converters</i>	\$860 per vehicle	\$288 per vehicle
<i>CFCs–Auto air conditioners</i>	\$650-\$1,200 per car	\$40-\$400 per car

**SOURCE:** Pew Environment Group, "Industry Opposition to Government Regulation," October 2010 (for acid rain, air bags, and catalytic converters); Hart Hodges, "Falling Prices: Cost of Complying With Environmental Regulations Almost Always Less Than Advertised," Economic Policy Institute, November 1, 1998 (for benzene and CFCs–auto air conditioners).

**Table 6** provides several other examples of how industry estimates of the costs of proposed regulations have proved to be greatly exaggerated. In the case of the regulation of benzene emissions, control costs were estimated at \$350,000 per plant by the chemical industry, but soon thereafter the plants developed a new process in which more benign chemicals could be substituted for benzene, thereby reducing control costs to essentially zero.

Table 6 includes some of the most prominent regulations put in place in recent decades. It focuses on the costs of the regulations, but the benefits from these regulations have proven significant. They include dramatic reductions in pollutants—and consequent improvements in health—from environmental regulations, and tens of thousands of lives saved from the air bag requirements.<sup>55</sup>

As the debate over the role of regulation picks up again, a raft of new and revived claims about the large, damaging effect of regulations on jobs are being issued. New industry studies are again suggesting millions of jobs will be lost due to particular regulations, but reviews by independent academics find that some of these studies would fail to pass muster even in an undergraduate class.<sup>56</sup> The Congressional Research Service investigated one of these studies, which had predicted 338,000 jobs would be “at risk” from the implementation of a proposed EPA rule;<sup>57</sup> CRS found that “little credence can be placed in CIBO’s [the Council of Industrial Boiler Owners] estimate of job losses.”<sup>58</sup> The industry study, for example, erroneously assumed that every dollar spent on compliance is equivalent to a dollar reduction in output; there is no theoretical basis for such an assumption, and any actual changes in output depend on how the increase in a dollar of compliance translates into an increase in prices (not necessarily a one-to-one ratio) and how demand changes in response to any price increase. The industry study also ignores altogether those employed by each dollar of pollution abatement, and assumes compliance costs far in excess of those estimated by the EPA.

55. National Highway Traffic Safety Administration, “Air Bag Safety,” Washington, D.C. NHTSA (<http://www.safercar.gov/Air+Bags>). The NHTSA reports that air bags saved 25,782 lives between 1987 and 2008.

56. See Laurie Johnson, “Industry Reports Attacking Clean Air Rules Earn Poor Grades From Professors,” New York, National Resources Defense Council Switchboard, October 28, 2010. [http://switchboard.nrdc.org/blogs/ljohnson/industry\\_reports\\_attacking\\_cle.html](http://switchboard.nrdc.org/blogs/ljohnson/industry_reports_attacking_cle.html)

57. IHS Global Insight for CIBO, “The Economic Impact of Proposed EPA Boiler/Process Heater MACT Rule on Industrial, Commercial, and Institutional Boiler and Process Heater Operators,” Burke, Va. CIBO, August 2010.

58. James E. McCarthy, “EPA’s Boiler MACT: Controlling Emissions of Hazardous Air Pollutants,” Washington, D.C., Congressional Research Service, January 24, 2011, pp. 9-10.

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In two reports in March 2011 the Economic Policy Institute analyzed a U.S. Chamber of Commerce study which purported to show that state regulatory policies in the labor arena—such as plant closing notifications or state minimum wage laws—have a significant effect on state unemployment rates. EPI found the following:

- Individual studies of the specific labor regulations examined by the chamber do not show that they undermine job creation.<sup>59</sup>
- Labor costs are lower today than in 2007, when the unemployment rate was less than half the current level. In other words, it is not rising labor costs that created the dismal current labor market.
- The regression model used in the chamber’s study is fatally flawed. For example, the model’s finding of a relationship between state labor regulations and state unemployment rates does not stand up to a rudimentary check to confirm statistical reliability. Indeed, a much more robust finding that can be found using the chamber’s model is that strong state employment protection is associated with higher state income.<sup>60</sup>

One of the most widely used studies today purporting to show extraordinarily large costs to the economy of regulation was prepared by Crain and Crain for the Small Business Administration’s Office of Advocacy.<sup>61</sup> The lead finding is that the annual cost of federal regulations was more than \$1.75 trillion in 2008, or \$8,086 per worker.

The Crain and Crain study builds on three earlier versions that also found enormous regulatory costs. The 2005 version<sup>62</sup> estimated the cost of federal regulations to be \$1.1 trillion (in 2001 dollars). Although this estimate was significantly lower than the most recent estimate, it was not credible. In a lengthy review of various estimates of the costs and benefits of federal regulation, Harrington describes a series of significant technical problems with the economic model used for the 2005 study, such as the limited amount of information it incorporates, the lack of a theoretical justification for choosing it, the absence of transparency concerning the tests the authors performed, and the likelihood the model double counted changes in the economy due to regulations. Harrington concluded that “there is very little basis for the startling [regulatory cost] estimates produced by Crain and Hopkins.”<sup>63</sup>

The most recent study is also flawed, for the following reasons:

- The absence of any discussions of the benefits of regulation by the Crain and Crain study creates a distorted and imbalanced picture. As the Center for Progressive Reform noted in a critique of the study released in February 2011, “...using Crain and Crain’s methodology, practically any economic transaction—from the purchase of a loaf of bread to the construction of a manufacturing plant—would be counted as a drain on the economy, because they only include the costs not the benefits.”<sup>64</sup>

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59. Ross Eisenbrey, “The Chamber of Commerce’s Employment Regulation Index,” Washington, D.C., Economic Policy Institute, March 16, 2011.

60. Josh Bivens, “Why Do Some States Have Higher Unemployment Rates: The New Chamber of Commerce Report Doesn’t Provide the Answer,” Washington, D.C., Economic Policy Institute, March 9, 2011.

61. Nicole V. Crain and W. Mark Crain, “The Impact of Regulatory Costs on Small Firms,” for the Small Business Administration Office of Advocacy, Washington, D.C., September 2010.

62. Mark W. Crain, “The Impact of Regulatory Costs on Small Firms,” Washington, D.C., Small Business Administration Office of Advocacy, 2005. The two other earlier studies were Mark W. Crain and Thomas D. Hopkins, “The Impact of Regulatory Costs on Small Firms,” Small Business Administration Office of Advocacy, 2001, and Thomas Hopkins, “Profiles of Regulatory Costs,” Report to the U.S. Small Business Administration, U.S. Department of Commerce, National Technical Information Service, 1995.

63. Winston Harrington, “Grading Estimates of the Benefits and Costs of Federal Regulation,” *op. cit.*, p. 4.

64. Sidney A. Shapiro, Ruth Ruttenberg, and James Goodwin, “Setting the Record Straight: The Crain and Crain Report on Regulatory Costs,” Washington, D.C., Center for Progressive Reform, February 2011.

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- The large majority (70%) of the regulatory costs tabulated by Crain and Crain is based on a regression analysis to determine the costs of “economic” regulations, such as financial regulations. The approach employed contains a series of problems. As the Center for Progressive Reform also found, the Crain and Crain model relies on a proxy measure for regulatory burden that is based on a World Bank compilation of opinion polls; this is not sound methodology, especially since “[t]he authors of the World Bank Report warn that its results should not be used for exactly the type of extrapolations made by Crain and Crain, because their underlying data are too crude.” The authors also do not specify the baseline for their findings—that is, whether the costs are relative to a world of no regulation, or to a country somehow found to have the best regulations—further complicating understanding. In addition, their method likely double counts certain regulatory costs.
  - The Economic Policy Institute has tried to use the information in the Crain and Crain paper on the authors’ modeling approach in order to replicate their results. Repeated efforts to do so have so far failed. Efforts to obtain further background data from Crain and Crain on the approach they used, which researchers typically provide to one another, have also so far failed. This is no small problem: It is standard research practice as well as standard government practice for research to be transparent and reproducible. Otherwise, the merits of the research cannot be truly assessed.
  - The Crain and Crain estimates for the costs of environmental regulations, the second-largest category of regulatory costs according to the study, rely solely on the high end of the range of cost estimates used by OMB, even though OMB emphasizes the importance of the range of costs, and even though the government’s own cost estimates tend to be overstated.

This critique is not meant to suggest that every one of the claims by opponents of regulation about the economic or jobs effects has been invalid. But it is meant to say that the track record of such claims, particularly when they describe catastrophic outcomes, is poor. This critique also highlights the need for close scrutiny of current claims about the damaging role regulations are now playing in job creation.

## **Conclusion**

Given today’s extraordinarily weak labor market, it is imperative that assessments of government policies consider effects on the economy and employment levels. At the same time, however, this concern should not lead to unwarranted efforts to weaken government regulators and regulations.

The lessons of the Great Recession and of decades of government regulation point in the opposite direction. An emphasis on deregulation can contribute to enormous economic dislocation, and this review of the studies of regulations in place finds little evidence of significant negative effects on employment. Overall, the picture that emerges from this review is a positive one. For decades, regulations have generally and consistently struck a reasonable balance, with their benefits to health, safety, and well-being far exceeding their costs.