



Analysis of an Estimate of the Total Costs of Federal Regulations

Curtis W. Copeland
Specialist in American National Government

April 6, 2011

Congressional Research Service

7-5700

www.crs.gov

R41763

Summary

Some policy makers have expressed an interest in measuring total regulatory costs and benefits (e.g., the Congressional Office of Regulatory Analysis Creation and Sunset and Review Act of 2011, H.R. 214, 112th Congress), and estimates of total regulatory costs have been cited in support of regulatory reform legislation (e.g., H.R. 10, the Regulations from the Executive In Need of Scrutiny (REINS) Act, H.R. 10, 112th Congress). However, measuring total costs and benefits is inherently difficult. This report examines one such study to illustrate the complexities of this type of analysis.

A September 2010 report prepared by Nicole V. Crain and W. Mark Crain for the Office of Advocacy within the Small Business Administration (SBA) stated that the annual cost of federal regulations was about \$1.75 trillion in 2008. This cost estimate was developed by adding together the estimated costs of four categories or types of regulation: economic regulations (estimated at \$1.236 trillion); environmental regulations (\$281 billion); tax compliance (\$160 billion); and regulations involving occupational safety and health, and homeland security (\$75 billion). Some commenters have raised questions about the validity and reliability of this estimate.

For example, Crain and Crain's estimate for economic regulations (which comprises more than 70% of the \$1.75 trillion estimate) was developed by using an index of "regulatory quality." One of the authors of the regulatory quality index said that Crain and Crain misinterpreted and misused the index, resulting in an erroneous and overstated cost estimate. Other commenters have also raised concerns about using the index to estimate regulatory costs, and about the regression analysis that the authors used to produce the cost estimate. Crain and Crain said that they believe they interpreted and used the regulatory quality index correctly.

Crain and Crain's estimates for environmental, occupational safety and health, and homeland security regulations were developed by blending together academic studies (some of which are now more than 30 years old) with agencies' estimates of regulatory costs that were developed before the rules were issued (some of which are now 20 years old). Although the agency estimates were typically presented as low-to-high ranges, Crain and Crain used only the highest cost estimates in their report. The Office of Management and Budget has said that estimates of the costs and benefits of regulations issued more than 10 years earlier are of "questionable relevance."

Crain and Crain's estimate for the cost of tax paperwork was based on data from the Internal Revenue Service and the Tax Foundation, but OMB data indicate that the number of hours of tax paperwork may be much higher than Crain and Crain's estimate. On the other hand, the authors' assumptions regarding the cost of completing the paperwork may be too high. A threshold question, however, is whether tax paperwork should be considered in the same category as regulatory costs. OMB does not include tax paperwork in its annual reports to Congress.

Crain and Crain said they did not provide estimates of the benefits of regulations, even when the information was readily available, because the SBA Office of Advocacy did not ask them to do so. OMB's reports to Congress have generally indicated that regulatory benefits exceed costs. Crain and Crain said their report was not meant to be a decision-making tool for lawmakers or federal regulatory agencies to use in choosing the "right" level of regulation. This report will not be updated.

Contents

Introduction	1
The Crain and Crain Report	1
How Crain and Crain Developed the \$1.75 Trillion Estimate of Regulatory Costs	2
Economic Regulations	3
Composition of the Regulatory Quality Index.....	4
Comments Regarding the Estimate of the Cost of Economic Regulations	6
Environmental Regulations	11
Comments Regarding the Estimate of the Cost of Environmental Regulations	13
Tax Compliance	14
Occupational Safety and Health and Homeland Security Regulations	16
Comparison of Crain and Crain’s 2008 Estimate to Crain’s 2004 Estimate.....	17
Comparison of Crain and Crain’s 2008 Estimate to OMB’s Estimates.....	18
OMB’s Early Estimates of Total Regulatory Costs and Benefits	18
OMB’s Reports Since 2001	20
OMB’s 2009 Report to Congress.....	22
How OMB’s and Crain and Crain’s Estimates Differ	23
Concluding Observations	23
Regulatory Benefits	25
Policymaking and the Crain and Crain Estimate	26

Figures

Figure 1. Economic Regulations Were More Than 70% of Crain and Crain’s Estimate of Total Regulatory Costs	3
---	---

Tables

Table 1. Estimates of Costs and Benefits of Environmental Rules in OMB Reports to Congress	13
Table 2. Changes in Estimates of the Costs of Federal Regulations: 2004 to 2008.....	18
Table 3. Estimates of the Total Benefits and Costs of Major Rules by Agency: October 1, 1998 – September 30, 2008.....	22
Table A-1. CRS Regression Analysis.....	28

Appendixes

Appendix. CRS Sensitivity Analysis.....	27
---	----

Contacts

Author Contact Information 29

Introduction

Regulation, like taxing and spending, is a basic function of government. Each year, federal agencies issue between 3,000 and 4,000 final rules on topics ranging from the timing of bridge openings to the permissible levels of arsenic and other contaminants in drinking water. Unlike taxing and spending, however, the costs that nonfederal entities pay to comply with federal regulations are not accounted for in the federal budget process. Some policy makers have expressed an interest in measuring total regulatory costs and benefits. For example, the Congressional Office of Regulatory Analysis Creation and Sunset and Review Act of 2011 (H.R. 214, 112th Congress) would require the newly created office to issue “an annual report including estimates of the total costs and benefits of all existing Federal regulations.” As discussed later in this report, for nearly 14 years, Congress has required the Office of Management and Budget (OMB) to prepare a report each year on the aggregate costs and benefits of federal rules.¹

However, measuring total regulatory costs and benefits is inherently difficult. For example, researchers must determine the baseline for measurement (i.e., what effects would have occurred in the absence of the regulation) and aggregating the results of studies conducted years earlier with different methodologies and quality can be highly problematic. Some observers, including OMB, currently doubt whether an accurate measure of total regulatory costs and benefits is possible.

The Crain and Crain Report

In September 2010, the Office of Advocacy within the Small Business Administration (SBA) released a report prepared for the office by Nicole V. Crain and W. Mark Crain entitled “The Impact of Regulatory Costs on Small Firms.”² Among other things, the report stated that the annual cost of federal regulations in 2008 was about \$1.75 trillion. The September 2010 report was the fourth such report prepared for the SBA Office of Advocacy in the previous 15 years:

- In 1995, Thomas D. Hopkins estimated annual federal regulatory costs that year to be between \$416 billion and \$668 billion.³
- In 2001, W. Mark Crain and Hopkins estimated the annual cost of regulations in the year 2000 at \$843 billion.⁴

¹ The current requirement is in Section 624 of the Treasury and General Government Appropriations Act, 2001, (31 U.S.C. § 1105 note), sometimes referred to as the “Regulatory Right-to-Know Act.”

² See <http://www.sba.gov/sites/default/files/rs371tot.pdf> to view a copy of this report. Hereafter, this report is referred to as “Crain and Crain.” In addition to estimating the annual cost of federal regulations, the report also provided information indicating that regulatory costs fall particularly hard on small businesses. The report was developed under a contract with the SBA Office of Advocacy (contract number SBAHQ-08-M0466). Although the report cover states that it “contains information and analysis that was reviewed and edited by officials of the Office of Advocacy,” it also says that the “final conclusions of the report do not necessarily reflect the views of the Office of Advocacy.”

³ Thomas D. Hopkins, “Profiles in Regulatory Costs,” available at <http://www.sba.gov/sites/default/files/files/rs1995hoptot.pdf>.

⁴ W. Mark Crain and Thomas D. Hopkins, “The Impact of Regulatory Costs on Small Firms,” available at <http://www.sba.gov/sites/default/files/files/rs207tot.pdf>. For an analysis of this estimate, see CRS Report RL32339, *Federal Regulations: Efforts to Estimate Total Costs and Benefits of Rules*, by Curtis W. Copeland.

- In 2005, W. Mark Crain estimated annual regulatory costs in 2004 at about \$1.1 trillion.⁵

The \$1.75 trillion estimate of regulatory costs has been widely quoted in the press,⁶ by witnesses at congressional hearings,⁷ and by Members of Congress,⁸ and it has been cited as evidence of the need for regulatory reform legislation and congressional oversight actions.⁹ Other observers, however, have criticized the estimate, saying that it overstates the total cost of federal regulations.¹⁰

This report examines how Crain and Crain developed the \$1.75 trillion estimate of federal regulatory costs in 2008. It also compares the \$1.75 trillion estimate for 2008 with the \$1.1 trillion estimate for 2004, and with OMB's estimates of regulatory costs in 2008.

How Crain and Crain Developed the \$1.75 Trillion Estimate of Regulatory Costs

Crain and Crain developed their \$1.75 trillion estimate of total regulatory costs by adding together cost estimates for each of four categories or types of regulation: economic regulations (\$1.236 trillion); environmental regulations (\$281 billion); tax compliance (\$160 billion); and

⁵ W. Mark Crain, "The Impact of Regulatory Costs on Small Firms," available at <http://www.sba.gov/sites/default/files/files/rs264tot.pdf>.

⁶ See, for example, Chad Moutrey, "To cure the economy, fix the business environment," *Washington Post*, January 10, 2011, available at <http://www.washingtonpost.com/wp-dyn/content/article/2011/01/07/AR2011010705681.html>; "Obama's reformer disguise; Accountability is the solution to government red tape," *Washington Times*, January 26, 2011, p. B2; and Mark Tapscott, "Washington is the Reason the Economy Is Not Growing," *The Examiner*, December 2, 2010, p. 39.

⁷ See, for example, testimony of Thomas M. Sullivan, before the House Committee on Education and Workforce, Subcommittee on Workforce Protections, February 15, 2011, available at http://edworkforce.house.gov/UploadedFiles/02.15.11_sullivan.pdf; and testimony of Karen Harned, before the House Committee on the Judiciary, Subcommittee on Courts, Commercial and Administrative Law, February 10, 2011, available at <http://judiciary.house.gov/hearings/pdf/Harned02102011.pdf>.

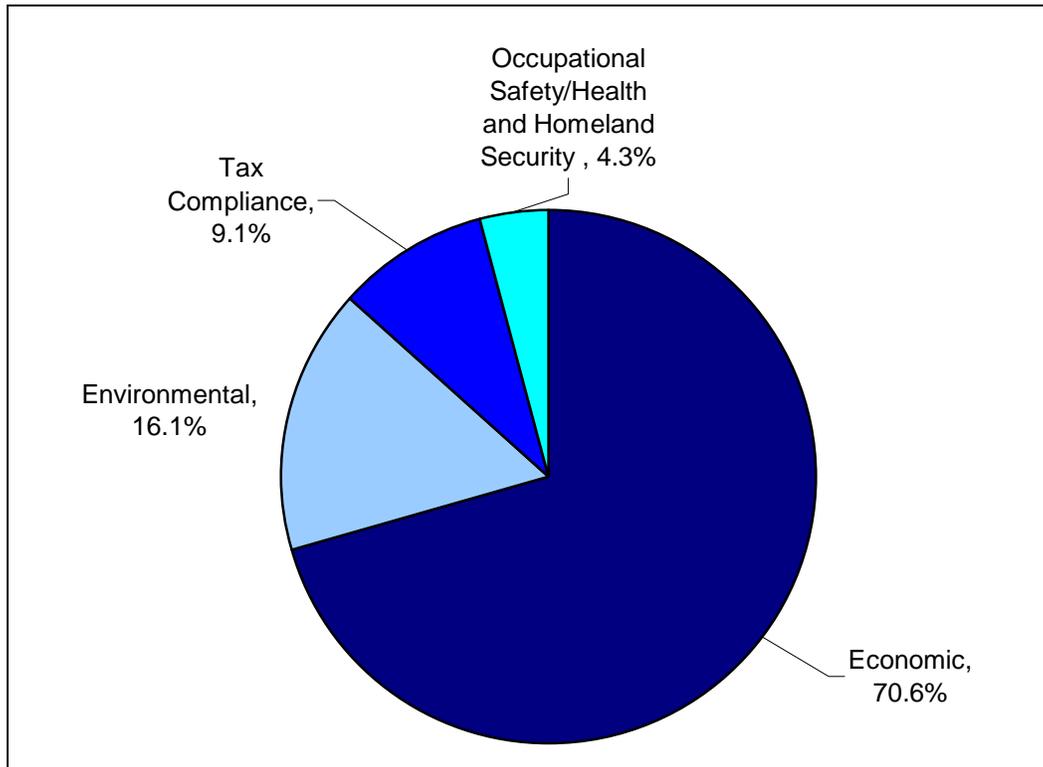
⁸ See, for example, Senator Dan Coats, "Coats Says Excessive Regulation is Hindering Private Sector Job Growth," Press Statement in support of S. 358, February 16, 2011, available at <http://coats.senate.gov/newsroom/press/release/?id=F6E06668-FE12-460E-9D04-4ED611EAB111>; Opening statement of Representative Sam Graves, Chairman, House Committee on Small Business, February 16, 2011, available at http://smbiz.house.gov/UploadedFiles/2011.02.16_State_of_SmBiz_Opening.pdf; and a letter to President Barack Obama by four House committee chairmen, available at http://geoffdavis.house.gov/UploadedFiles/POTUS_Letter_031011.pdf.

⁹ See, for example, <http://www.geoffdavis.house.gov/Legislation/reins.htm>, and <http://www.geoffdavis.house.gov/News/DocumentSingle.aspx?DocumentID=208463>, in support of the "Regulations from the Executive In Need of Scrutiny (REINS) Act," H.R. 10 in the 112th Congress; http://snowe.senate.gov/public/index.cfm/pressreleases?ContentRecord_id=49fe01bb-b475-4ff1-b9e1-7ea6eda50b7e&ContentType_id=ae7a6475-a01f-4da5-aa94-0a98973de620&Group_id=2643ccf9-0d03-4d09-9082-3807031cb84a&MonthDisplay=3&YearDisplay=2011, in support of the Small Business Regulatory Freedom Act of 2011, S. 474 in the 112th Congress; and H.Rept. 112-6, "Directing Certain Standing Committees to Inventory and Review Existing, Pending, and Proposed Regulations and Orders from Agencies of the Federal Government, Particularly With Respect to Their Effect on Jobs and Economic Growth," Report to accompany H.Res. 72, February 8, 2011.

¹⁰ Carl Bialik, "The Numbers Guy: Small Business Regulatory 'Burden' Is Tough to Quantify," *Wall Street Journal*, January 29, 2011, p. A2; and Sidney A. Shapiro, Ruth Ruttenberg, and James Goodwin, "Setting the Record Straight: The Crain and Crain Report on Regulatory Costs," Center for Progressive Reform White Paper #1103, February 2011, available at http://www.progressivereform.org/articles/SBA_Regulatory_Costs_Analysis_1103.pdf ("CPR report").

regulations involving occupational safety and health, and homeland security (\$75 billion). As **Figure 1** below illustrates, the estimated cost of economic regulations was more than 70% of the authors' estimate of total regulatory costs.

Figure 1. Economic Regulations Were More Than 70% of Crain and Crain's Estimate of Total Regulatory Costs



Source: CRS, based on data from Crain and Crain, September 2010.

Note: Due to rounding, the individual segments total 100.1%.

Economic Regulations

According to the Crain and Crain report, “[e]conomic regulations include a wide range of restrictions and incentives that affect the way businesses operate—what products and services they produce, how and when they produce them, and how products and services are priced and marketed to consumers.”¹¹ They said such regulations affect both domestic and international business operations, and include quotas and tariffs on foreign imports that “limit competition from outside the United States, restrict production and employment, raise prices, and generally curtail U.S. economic activities.”¹² To develop an estimate of the cost of economic regulations, Crain and Crain used a Worldwide Governance Index (WGI) of “regulatory quality” that was developed by Aart Kraay and Massimo Mastruzzi of the World Bank, and Daniel Kaufmann of

¹¹ Crain and Crain, p. 17.

¹² Ibid.

the Brookings Institution.¹³ According to Crain and Crain, the WGI regulatory quality index “measures perceptions of the ability of governments to formulate and implement sound policies and regulations that permit and promote private sector development.”¹⁴ Crain and Crain said the index was calibrated to range between -2.5 and +2.5, and that +2.5 represented “the minimal amount of regulation.”¹⁵ In 2008, the WGI regulatory quality index score for the United States was +1.579.

Crain and Crain used regression analysis¹⁶ in an effort to determine the impact of changes in the regulatory quality index on real Gross Domestic Product (GDP) per capita, holding constant four other variables that they said the literature suggests explain differences in economic development across countries and over time: country population, primary education as a share of the eligible population, foreign trade as a share of GDP, and fixed broadband subscribers per 100 people. Using this approach, Crain and Crain concluded that a one-unit change in the WGI regulatory quality index (e.g., a change from +1.5 to +2.5 on the scale) represented a 9.4% change in real GDP per capita. Because the regulatory quality index for the United States in 2008 was +1.579, Crain and Crain said that the 0.921 difference between that value and the +2.5 maximum represented an 8.7% reduction in GDP (0.094 times 0.921) because of economic regulations. Because GDP in the United States was about \$14.2 trillion in 2008, Crain and Crain concluded that the types of economic regulations included in the regulatory quality index reduced real GDP per capita in the United States by about \$1.236 trillion (\$14.2 trillion times 0.087).¹⁷

Composition of the Regulatory Quality Index

According to Kaufmann, Kraay, and Mastruzzi, the WGI index of regulatory quality for the United States in 2008 was determined by aggregating six expert-based measures and two surveys, each of which was scored on a 0 to 1 scale.¹⁸ The six expert-based measures, their scores, and the particular factors considered in each measure were as follows:

- Economist Intelligence Unit (scored at 0.70), a commercial business information provider headquartered in London, England. The score is based on its experts’ judgment of 16 factors, including “protectionism in the country negatively affects the conduct of business,” “access to capital markets (foreign and domestic) is easily available,” “real corporate taxes are non distortionary,” “labor regulations hinder business activities,” and “easy to start a business.”

¹³ In addition to “regulatory quality,” the WGI indices include five other governance indicators: “voice and accountability,” “political stability and absence of violence,” “government effectiveness,” “rule of law,” and “control of corruption.” The WGI methodology is described in Kaufmann, Kraay and Mastruzzi (2010). “The Worldwide Governance Indicators: Methodology and Analytical Issues” World Bank Policy Research Working Paper No. 5430, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1682130.

¹⁴ Crain and Crain, p. 19.

¹⁵ *Ibid.*, p. 24.

¹⁶ Regression analysis is used to understand how the value of a dependent variable (e.g., real GDP per capita) changes when one of the independent variables is varied (e.g., the index of regulatory quality), while the other independent variables (e.g., country population) are held fixed.

¹⁷ Here, and elsewhere in the Crain and Crain report, cost estimates are provided for 2008 in 2009 dollars. It is unclear why Crain and Crain used 2009 dollars to present cost estimates for 2008.

¹⁸ See <http://info.worldbank.org/governance/wgi/pdf/rq.pdf>. Documentation for each individual source is available at <http://info.worldbank.org/governance/wgi/sources.htm>.

- Global Insight Business Conditions and Risk Indicators (scored at 0.94). Global Insight is a commercial business information provider headquartered in Boston, Massachusetts. The score is based on its experts' assessment of two factors: (1) "tax effectiveness," defined as "how efficient the country's tax collection system is"; and (2) "legislation," defined as "whether the necessary business laws are in place, and whether there any outstanding gaps."
- Global Insight Global Risk Service (scored at 0.95). Global Risk Service is a commercial business information provider headquartered in Boston, Massachusetts. The score is based on its experts' judgment of five factors: (1) "export regulation," (2) "import regulation," (3) "other business regulation," (4) "nonresident business ownership restrictions," and (5) "nonresident equity ownership restrictions."
- Heritage Foundation Index of Economic Freedom (scored at 0.73). The Heritage Foundation is described by the WGI index as a "nongovernmental research and educational institute headquartered in Washington, United States, advocating conservative public policies." The index score is based on its experts' judgment of two factors: (1) "foreign investment" and "banking/finance."
- Institutional Profiles Database (scored at 0.89), which is provided by the French government's Ministry of the Economy. The score is based on its experts' judgment of four factors: (1) "ease of starting a business," (2) "administered prices and market prices," (3) "competition: productive sector: ease of market entry for new firms," and (4) "competition between businesses: competition regulation arrangements."
- Political Risk Services International Country Risk Guide (scored at 1.00). Political Risk Services is a commercial business information provider headquartered in Syracuse, New York. The score is based on their experts' judgment of one factor entitled "investment profile," summarizing the investment environment.

The two surveys used to develop the regulatory quality index, their values, and the particular factors considered in each survey were as follows:

- Institute for Management and Development World Competitiveness Yearbook (scored at 0.50). The Institute for Management Development is an educational and research organization headquartered in Lausanne, Switzerland. The score is based on a survey of business people working in the United States, who are asked to comment on the same 16 factors used by the Economist Intelligence Unit mentioned above (e.g., "protectionism in the country negatively affects the conduct of business," "access to capital markets (foreign and domestic) is easily available," "real corporate taxes are non distortionary," "labor regulations hinder business activities," and "easy to start a business").
- World Economic Forum Global Competitiveness Report (scored at 0.62). The World Economic Forum is an international organization based in Switzerland. Its survey asked domestic and foreign-owned firms their views regarding seven statements: (1) "administrative regulations are burdensome," (2) "tax system is distortionary," (3) "import barriers/cost of tariffs as obstacle to growth," (4) "competition in local market is limited," (5) "it is easy to start company," (6)

“anti-monopoly policy is lax and ineffective,” and (7) “environmental regulations hurt competitiveness.”

Some observers have questioned whether WGI indices, such as the regulatory quality index, “measure what they purport to measure,”¹⁹ and the authors of the WGI have responded to those concerns.²⁰ Crain and Crain noted in their report that the World Bank Development Research Group published a detailed description of how the WGI indices were developed,²¹ and noted that the WGI indices were correlated with an index of economic regulations developed by the Organization for Economic Cooperation and Development (OECD) that Crain had used in his 2005 study of federal regulatory costs.²² Crain and Crain said they used the WGI regulatory quality index in their 2010 study because it covered more countries for a longer period of time than the OECD index, and because it used a variety of sources and dimensions.

In a “Frequently Asked Questions” page on the World Bank’s website, the WGI authors indicated that indices such as the regulatory quality index are “useful as a first tool for broad cross-country comparisons and for evaluating broad trends over time,” but cautioned that they are “often too blunt a tool to be useful in formulating specific governance reforms in particular country contexts.” They went on to say that such reforms “need to be informed by much more detailed and country-specific diagnostic data that can identify the relevant constraints on governance in particular country circumstances.”²³

Comments Regarding the Estimate of the Cost of Economic Regulations

The validity and accuracy of Crain and Crain’s estimate of the cost of economic regulations depends on at least two factors: (1) whether the WGI index of “regulatory quality” can be used as part of a formula to measure the cost of economic regulations, and (2) whether the authors interpreted the regulatory quality index in the way it was intended. Several commenters on the Crain and Crain study have addressed one or both of these issues.

Comments from Aart Kraay of the World Bank

On January 27, 2011, Aart Kraay, a lead economist in the Development and Research Group at the World Bank, and one of the authors of the WGI regulatory quality index, contacted Crain and Crain by e-mail and provided his views on their use of the index in their September 2010 report on regulatory costs.²⁴ Kraay said that although “in principle an exercise like this could make

¹⁹ See, for example, M.A. Thomas, “What Do the Worldwide Governance Indicators Measure?” *European Journal of Development Research*, vol. 22 (2010), pp. 31-54.

²⁰ Daniel Kauffman, Aart Kraay, and Massimo Mastruzzi, “Response to ‘What Do the Worldwide Governance Indicators Measure?’” *European Journal of Development Research*, vol. 22 (2010), pp. 55-58.

²¹ Daniel Kaufman, Aart Kraay, and Massimo Mastruzzi, “Governance Matters VIII: Aggregate and Individual Governance Indicators 1996 – 2008,” World Bank Development Research Group, Macroeconomics and Growth Team, Policy Research Working Paper 4978, June 2009.

²² See G. Nicoletti, Scarpetta, and O. Boylaud, “Summary Indicators of Product Market Regulation and Employment Protection Legislation for the Purpose of International Comparisons,” OECD Economics Department Working Paper No. 226 (2000).

²³ World Bank, “World Governance Indicators: Frequently Asked Questions,” available at <http://info.worldbank.org/governance/wgi/faq.htm>.

²⁴ Kraay provided CRS with a copy of his January 27, 2011, e-mail to Crain and Crain on March 4, 2011.

sense,” he said that he believed there were two “basic problems with how you use our data.” First, he said that although Crain and Crain interpreted higher values of regulatory quality as “less stringent regulations,” “[t]his isn’t a good characterization of what the [regulatory quality, or RQ] index measures—rather RQ seeks to measure perceptions of the overall quality of the regulatory environment, which is very different from simply measuring whether it is ‘stringent’ or not.” Kraay noted that the United States came in at about the 90th percentile of all countries in the world, and that countries like Finland and Sweden rank ahead of the United States on regulatory quality. “So by this standard,” he said, “it is hard to say that the RQ measure ‘rewards’ deregulation.” He also said that he and the other WGI authors had “indicated throughout that the WGI indicators are not literally true and have non-trivial margins of error, indicating that there is of course imprecision in how countries are ranked.”²⁵

The second major issue that Kraay noted was that Crain and Crain “may be misinterpreting the units of the WGI” by comparing the United States’ score of +1.579 to +2.5—what the authors referred to in the report as “the minimal amount of regulation,”²⁶ and what Nicole V. Crain had referred to in a *Wall Street Journal* article as a “conceptual regulatory environment.”²⁷ In his e-mail to the authors, Kraay said the following:

You claim that 2.5 is the “best possible” score on the WGI. But this isn’t really correct as the WGI are measured in units which don’t have a fixed upper or lower boundary (technically the units are those of a standard normal random variable). It would make a lot more sense for you to compare the US score on RQ with that of a country whose regulatory environment you prefer, and then use that difference in score to calibrate the costs of regulations. So for example the highest numbers we see on WGI-RQ in 2009 are around 1.8 for countries like Singapore, followed closely by Denmark (!). The US comes in at around 1.4. So a more relevant comparison would be between the US and Denmark, rather than between the US and 2.5. This of course would mean that your estimated costs of regulation would be a lot smaller, since the distance between the US and Denmark is much smaller than the distance between the US and 2.5.²⁸

(Kraay told CRS that the WGI authors periodically make minor revisions to WGI data for previous years, thus explaining the difference between the +1.579 regulatory quality index that Crain and Crain cited, and the “around 1.4” value that he noted in his e-mail to Crain and Crain.)²⁹ Using the same 2008 data that Crain and Crain used in their study, the nation with the highest regulatory quality index was Ireland, with a value of +1.915.³⁰ Subtracting the United States’ regulatory index value from that of Ireland yields a difference of 0.336 (1.915 minus 1.579). As noted earlier, Crain and Crain used regression analysis to conclude that a one-unit change in the regulatory quality index represented a 9.4% change in real GDP per capita. If this

²⁵ In his comments to Crain and Crain, Kraay continued by saying that “one should not make a big deal of the fact that Sweden and Finland come in a bit ahead of the US, as the difference is not statistically significant (the margins of error overlap). But this does give you a good indication that WGI-RQ is not just measuring ‘less regulation’ as you seem to interpret it.”

²⁶ Crain and Crain, p. 24.

²⁷ Carl Bialik, “The Numbers Guy: Small Business Regulatory ‘Burden’ Is Tough to Quantify,” *Wall Street Journal*, January 29, 2011, p. A2.

²⁸ E-mail from Aart Kraay to Crain and Crain, January 27, 2011.

²⁹ E-mail to the author from Aart Kraay, World Bank, March 4, 2011.

³⁰ To view the data, see http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2009/06/29/000158349_20090629095443/Rendered/PDF/WPS4978.pdf. Two other jurisdictions had higher scores than Ireland in 2008, but they are technically not countries (Hong Kong, at 1.998, and Singapore, at 1.918).

measure is correct, the 0.336 difference between the Ireland and United States regulatory quality indices suggests a 3.16% reduction in GDP (0.094 times 0.336 equals 0.0316) in the United States compared with Ireland, the country with the least “stringent” regulatory climate. Therefore, the monetary “cost” of this GDP reduction would be about \$448 billion (0.0316 times \$14.2 trillion GDP in 2008), or about \$788 billion less than the \$1.236 trillion that Crain and Crain calculated. However, all of the above calculations assume that higher values on the regulatory quality index reflect “less stringent regulations,” which Kraay indicated it does not.

Kraay also told CRS that he had concerns about the quality of Crain and Crain’s regression analysis. He said “The problem is simply that high scores on regulatory quality are correlated with a lot of other good policies and institutions which also matter for GDP per capita. And so it is hard to sort out how much of the correlation between RQ and GDP per capita is due to the regulatory environment per se, and how much is due to other stuff.”³¹ He also said that “unless one can perfectly control for all these other factors (which is nearly impossible), the econometric estimates [that Crain and Crain] provide will reflect not just the effects of regulation on output, but also of all those other policies that are correlated with regulation.”

When contacted by CRS for comment, Crain and Crain said that they understood Kraay’s conceptual argument that the regulatory quality index might not reflect changes in the “stringency” of regulation, but they said that “the empirical evidence indicates that it does in practice.” They said the index captures the extent of regulation from a variety of stakeholders’ perceptions, and noted the nature of the questions used to construct the index (e.g., “How problematic are labor regulations for the growth of your business?” and “How problematic are customs and trade regulations for the growth of your business?”). Crain and Crain also said they did not compare the United States to another country (e.g., Denmark) because to estimate the cost of regulations to small and large businesses (what they contracted with SBA to do), they needed to estimate the total cost of all regulations. They also said they do not believe that they misinterpreted the WGI measure because the documentation provided by the WGI authors indicates that the index values range from about -2.5 to +2.5, and they selected +2.5 as the “best approximation of the regulatory environment that we were trying to capture in our estimate.”³²

Other Commenters

Before publishing the Crain and Crain report, the SBA Office of Advocacy had the study peer reviewed by two economists—Bob Litan of the Kauffman Foundation,³³ and Richard Williams of the Mercatus Center³⁴ at George Mason University.³⁵ Litan’s complete comments were “I looked it over and it’s terrific. Nothing to add.” Williams’s comments were more extensive. Overall, he said that the study was a “great project,” and he hoped his comments would make it stronger. In relation to the estimate of the costs of economic regulations, he said the use of the index of

³¹ E-mail to the author from Aart Kraay, World Bank, March 4, 2011.

³² E-mail to the author from Nicole V. Crain and W. Mark Crain, March 7, 2011.

³³ The Ewing Marion Kauffman Foundation is described on its website as one of the largest foundations devoted to entrepreneurship. See <http://www.kauffman.org/>.

³⁴ The Mercatus Center is described on its website as the world’s premier university source for market-oriented ideas. See <http://mercatus.org/>.

³⁵ According to a March 7, 2011, e-mail to the author from Radwan Saade of SBA’s Office of Advocacy, the study was sent to the two peer reviewers “that identified as credible researchers and contributors to the discussion on regulatory costs.” He said other researchers were contacted but were unavailable to serve as peer reviewers.

regulatory quality was an “innovative idea,” but said he was “concerned that the index may not measure what the authors say it measures, and even if it does, it may overstate the costs of regulation when used in conjunction with the other measures.”³⁶ Among other things, he said that the study “might over-estimate the total costs of regulation because the effect of the Regulatory Quality Index on GDP may also capture some or all of the effects of environmental, workplace, security, and tax regulations.” On the other hand, Williams also said that “there are reasons to believe that [the index] may underestimate costs.”³⁷ He said some of the problems “could perhaps be solved simply with a better and more careful explanation of what the Regulatory Quality Index really measures. To guard against over-estimating costs, however, the authors would either need to control for the effects of other types of regulation on GDP, or refrain from adding some or all of the costs that are estimated via other methods.”

In February 2011, the Center for Progressive Reform (CPR) issued a report criticizing the Crain and Crain study, and has requested that SBA’s Office of Advocacy withdraw its sponsorship of the report.³⁸ In relation to the estimate of economic regulatory costs, CPR said (among other things) that (1) the WGI authors did not intend the regulatory quality index to be a proxy measure for regulatory burden, or as a tool for critiquing a particular country’s regulatory stringency; (2) the lack of a clear definition of “economic regulations” raises the possibility that it includes other types of regulatory costs, which could lead to double counting; (3) the regression analysis used in the report assumes a simplistic relationship between regulatory “stringency” and GDP; and (4) the report gives the false impression that the index of regulatory quality in the United States is low, even though the United States ranked 11th out of more than 200 countries.³⁹

*CRS Analysis of Crain and Crain’s Linear Regression*⁴⁰

The Crain and Crain report analyzed data for 25 OECD countries in order to assess the effect of economic regulation on GDP per capita, a common measure of the standard of living.⁴¹

³⁶ Comments of Richard Williams, Mercatus Center, George Mason University, available at <http://www.sba.gov/sites/default/files/files/TheImpactofFederalRegulatoryCostsonSmallFirmsPRFY2010.pdf>.

³⁷ Williams said “You can start with the fundamental idea of opportunity costs. Resources that are devoted to complying with regulations are not used to produce GDP that responds to normal market forces (demand). Both activities, complying with regulations and normal market activities add to GDP. What has been estimated here is the difference between the two, GDP with resources that would have been devoted to normal market forces minus GDP with resources devoted to complying with regulation. That difference is, I think, one component of the cost of regulation. However, that may leave, (if I am thinking about this correctly) the cost of complying with regulation that is picked up by GDP. That is, a person can produce 10 widgets that comply with regulation and 15 widgets if employed normally by the market, and this model would estimate the costs of the regulation at 5 widgets (the difference in GDP). But that doesn’t count the original 10 widgets of expenditure that adds to GDP and is also a cost and must be weighed against the benefits.”

³⁸ Sidney A. Shapiro, Ruth Ruttenberg, and James Goodwin, “Setting the Record Straight: The Crain and Crain Report on Regulatory Costs,” February 2011, available at http://www.progressivereform.org/articles/SBA_Regulatory_Costs_Analysis_1103.pdf. See http://www.progressivereform.org/articles/SBA_Letter_020811.pdf for a copy of the letter requesting that SBA’s Office of Advocacy withdraw its sponsorship of the Crain and Crain report. In a March 11, 2011, letter to CPR, the Chief Counsel of SBA’s Office of Advocacy said that he disagreed with CPR’s assessment, and stood behind the findings of the Crain and Crain report.

³⁹ *Ibid.*, pp. 4-6.

⁴⁰ This section of the report was written by D. Andrew Austin, Analyst in Economic Policy, Congressional Research Service.

⁴¹ The OECD has 34 member states. Chile, Slovenia, and Israel joined in 2010, and Estonia is in the final stages of formal accession. Some historical data for those new entrants is unavailable. See OECD website (<http://www.oecd.org>) for details.

Economists generally believe that a country's standard of living is affected by a variety of factors, including the availability of (1) land and natural resources, (2) labor and human capital, (3) capital and infrastructure, (4) the level of technology and sophistication of business practices, and (5) opportunities to trade with other countries.⁴² Most economists also believe that government interventions in the economy (e.g., through taxes, spending, and regulation) can affect a country's standard of living.⁴³

As noted previously in this report, Crain and Crain used linear regression analysis to examine the relationship between GDP per capita and the regulatory quality index, controlling for the effects of four other independent variables: country population; foreign trade as a share of GDP; primary education as a share of the eligible population; and fixed broadband subscribers per 100 people.⁴⁴ These four control variables may not capture all of the factors that affect GDP per capita, and other measures of those factors may be more appropriate. For example, "fixed broadband subscribers per 100 people" may or may not capture all aspects of capital investment, and may also partially reflect other factors (e.g., the state of information technology investment, population density, and per capita income levels).⁴⁵ The Crain and Crain report did not discuss how the authors selected the control variables used in their analysis.

Crain and Crain also used an estimation strategy that appears non-standard. Like many researchers, Crain and Crain analyze data for several countries over multiple years, known as a cross-country panel data set. Linear regressions on panel data often include country-specific control variables (fixed effects) to take into account national idiosyncrasies that do not vary over time and year-specific control variables to account for shocks that affected all countries in the sample in a given year.⁴⁶ Crain and Crain, however, reported that year-specific control variables that were estimated to be statistically insignificant in an unreported first-stage regression were then omitted from the reported second-stage regression results.⁴⁷ The statistical properties of this two-stage estimation strategy, which appears to be novel, has apparently not been explored in peer-reviewed journals.

CRS asked Crain and Crain to provide us with a copy of the data that they used in their study, but the authors did not do so. In an effort to assess the sensitivity of their results, CRS ran a linear regression using similar, but somewhat different, data and methods.⁴⁸ The results indicated that the regulatory quality index had no discernable independent effect on GDP per capita, suggesting

⁴² Rudiger Dornbusch, Stanley Fischer, and Richard Startz, *Macroeconomics* (10th ed.), (New York: McGraw-Hill, 2008), ch. 1 and 2.

⁴³ Randall G. Holcombe, *Public Finance*, (Minneapolis: West, 1996).

⁴⁴ For details on the linear regression model and its statistical properties, see Peter Kennedy, *A Guide to Econometrics* (4th Edition), (Cambridge, Massachusetts: MIT Press, 1998), ch. 3, "The Classical Linear Regression Model."

⁴⁵ In another study, Crain and Crain used a measure of equipment investment in an article that example determinants of GDP per capita for a sample of 99 countries. See Nicole V. Crain and W. Mark Crain, "Terrorized Economies," *Public Choice*, vol. 128, pp.317-349.

⁴⁶ Badi Baltagi, *Econometric Analysis of Panel Data* (4th ed.), (New York: Wiley, 2008). If certain technical conditions hold, this approach can generate estimates with desirable statistical properties. See William H. Greene, *Econometric Analysis* (New York: Prentice Hall, 2003), ch. 13, "Models for Panel Data."

⁴⁷ See notes to Table 2 in Crain and Crain (2010).

⁴⁸ The primary education variable was replaced with two demographic variables: the proportion of the population under age 14, and the proportion of the population over age 65. The data were for 30 OECD countries for the same time period as the Crain and Crain study (2002 – 2008). The analysis used a standard fixed-effects panel estimator with year dummy variables.

that the analysis is highly sensitive to the choice of control variables and measures. **Appendix** of this report discusses this sensitivity analysis and the results in greater detail.

While most economists believe that economic regulation, like other forms of government intervention, can affect a country's standard of living, those effects may be too subtle for a seven-year cross-country panel to pick up. A country's regulatory environment may evolve slowly, and may interact with social and political conditions, other instruments of public policy such as taxation. Understanding the relationship between a measure of regulatory quality and GDP per capita (or other measures of economic well being) may require more focused empirical tools.

Environmental Regulations

Crain and Crain said they developed their cost estimates for environmental regulations by following the same basic approach as used by OMB in its annual reports to Congress. For environmental regulations issued through the first quarter of the year 2000, the authors used OMB's estimate of environmental costs from its 2001 report to Congress⁴⁹ (which was drawn in part from a study by Robert W. Hahn and John A. Hird),⁵⁰ which the authors converted into 2001 dollars.⁵¹ For environmental regulations issued from April 1999 through September 2001, Crain and Crain used the estimate of the cost of major environmental rules from OMB's 2002 report.⁵² For each subsequent fiscal year (October through September), the authors used estimates of the cost of major environmental rules from the subsequent OMB report. By adding together all of these cost estimates and converting the estimates from 2001 dollars to 2009 dollars, the authors concluded that environmental regulations cost between \$175 billion and \$280 billion in 2009. However, to develop the cumulative cost of all regulations, Crain and Crain used only the \$280 billion estimate. The authors said their use of only the upper-end estimate "reflects a judgment that cost estimates are absent for important environmental regulations and that government agencies tend to be conservative in estimating regulatory costs."⁵³

The data that Crain and Crain used to estimate the costs of environmental rules represent a mix of academic estimates of the cost of all rules prior to 1988, agency estimates of the costs of all rules issued between 1987 and the first quarter of 2000, and agency estimates of the costs of major rules (e.g., those with a \$100 million or more annual impact on the economy) issued from April

⁴⁹ See <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/inforeg/costbenefitreport.pdf> for OMB's 2001 report.

⁵⁰ Robert W. Hahn and John A. Hird, "The Costs and Benefits of Regulation: Review and Synthesis," *Yale Journal of Regulation*, vol. 8 (1991), pp. 233-278. Hahn and Hird provided estimates for all rules issued prior to 1988. The estimate for rules issued from 1987 through the first quarter of 2000 were from agencies' estimates of all rules.

⁵¹ In its 2001 report, OMB estimated environmental costs as of the first quarter of 2000 at between \$96 billion and \$170 billion, in 1996 dollars. In 2001 dollars, Crain and Crain said the costs were between \$108.359 billion and \$191.887 billion.

⁵² See http://www.whitehouse.gov/sites/default/files/omb/assets/omb/inforeg/2002_report_to_congress.pdf for OMB's 2002 report. In this and all subsequent reports, OMB's estimates were in 2001 dollars. As used in this report, the term "major rule" includes all rules meeting the definition in the Congressional Review Act (5 U.S.C. § 804(2) (e.g., an annual effect on the economy of \$100 million or more). For a discussion of "major rules," see CRS Report R41651, *REINS Act: Number and Types of "Major Rules" in Recent Years*, by Curtis W. Copeland and Maeve P. Carey.

⁵³ Crain and Crain, p. 27. In a March 7, 2011, e-mail to the author, Crain and Crain noted that the OMB data do not include regulations whose costs are expected to be below \$100 million, or costs that are not monetized. Therefore, they said, using the upper bound is an attempt to correct for this omission in a systemic and reasonable way. They also said that agency cost estimates are unlikely to include costs associated with negotiated enforcement.

1999 through September 2008. Therefore, the unit of analysis is not the same for all of the years (i.e., all rules prior to the year 2000 versus major rules starting in April 1999), and the methodologies differ (i.e., academic studies prior to 1988, and agencies' ex ante estimates of regulatory costs after 1988). In its 2000 report to Congress, OMB said that summarizing the total costs and benefits of regulations by adding together diverse sets of individual studies was an "inherently flawed approach" because the studies vary in quality and methodology, use differing assumptions, and seldom analyze the interaction effects among tens of thousands of regulations.⁵⁴

Also, the time periods covered by the cost estimates that Crain and Crain used overlap in some years, raising the possibility of double counting. For example, both the Hahn and Hird estimate and the agency estimates cover rules that were issued in calendar year 1987. In addition, the baseline estimates of rules issued through the first quarter of 2000 overlap with the estimates for the period April 1, 1999, to September 30, 2001 (i.e., both cover the period April 1, 1999, through March 31, 2000).

In two of the one-year periods covered by the Crain and Crain analysis, the authors appear to have incorrectly recorded the information on environmental regulatory costs from the OMB reports:

- For the period October 2002 through September 2003, the authors said that OMB's estimate was \$335 million (in 2001 dollars). Actually, OMB reported those costs as \$360 million (in 2001 dollars).⁵⁵
- For the period October 2003 through September 2004, the authors said that OMB's estimate was \$3,840 million to \$4,073 million (in 2001 dollars). Actually, OMB reported those costs as \$3,060 million to \$3,211 million (in 2001 dollars).⁵⁶

Also, Crain and Crain did not report any of OMB's estimates of the benefits of environmental regulations. As discussed later in this report, the authors indicated that regulatory benefits were not included because they researched the topic as required by the Office of Advocacy.⁵⁷ **Table 1** below shows both the estimated costs and estimated benefits of environmental rules from OMB's reports. Overall and in eight of the nine time periods covered by the table, the average estimated benefits were higher than the average estimated costs. In six of the nine time periods covered by the table, the lowest estimated benefits were higher than the highest estimated costs. The highest estimated benefits were lower than the lowest estimated costs in only one of the time periods (October 1, 2002, to September 30, 2003).

⁵⁴ See <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/inforeg/2000fedreg-report.pdf>, p. 15.

⁵⁵ See http://www.whitehouse.gov/sites/default/files/omb/assets/omb/inforeg/2004_cb_final.pdf, p. 7, Table 1.

⁵⁶ See http://www.whitehouse.gov/sites/default/files/omb/assets/omb/inforeg/2005_cb/final_2005_cb_report.pdf, Table 1-3. The \$3,840 million to \$4,073 million cost estimate in this report is for rules issued by the Departments of Health and Human Services and Transportation, and the Environmental Protection Agency.

⁵⁷ E-mail to the author from Nicole V. Crain and W. Mark Crain, March 7, 2011.

Table I. Estimates of Costs and Benefits of Environmental Rules in OMB Reports to Congress

Years Rules Were Issued	Estimated Costs (millions of 2001\$)	Estimated Benefits (millions of 2001\$)	Source
Through 03/31/2000	\$108,359 to \$191,887	\$109,490 to \$1,817,280	OMB, 2001, Table 2
04/01/1999 to 09/30/2001	\$11,380 to \$12,812	\$25,338 to \$56,141	OMB, 2002, Table 7
10/01/2001 to 09/30/2002	\$192	\$1,250 to \$4,818	OMB, 2003, Table 1
10/01/2002 to 09/30/2003	\$360	\$204 to \$355	OMB, 2004, Table 1
10/01/2003 to 09/30/2004	\$3,060 to \$3,211	\$10,935 to \$100,703	OMB, 2005, Table 1-3
10/01/2004 to 09/30/2005	\$2,609 to \$3,373	\$14,512 to \$161,708	OMB, 2006, Table 1-3
10/01/2005 to 09/30/2006	\$2,720 to \$2,965	\$5,113 to \$42,109	OMB, 2007, Table 1-3
10/01/2006 to 09/30/2007	\$7,475 to \$7,584	\$21,143 to \$170,391	OMB, 2008, Table 1-3
10/01/2007 to 09/30/2008	\$7,591 to \$8,780	\$7,475 to \$37,810	OMB, 2008, Table 1-3
Total	\$143,746 to \$228,274	\$195,460 to \$2,391,315	OMB, 2001 to 2008

Source: OMB's annual reports on the costs and benefits of regulations, available at http://www.whitehouse.gov/omb/inforeg_regpol_reports_congress/.

Notes: The estimates of rules issued "Through 03/31/2000" includes all rules. All of the other time periods include only major rules.

Comments Regarding the Estimate of the Cost of Environmental Regulations

Crain and Crain said their report "assumes that OMB's coverage of environmental regulations has been relatively complete."⁵⁸ Peer reviewer Richard Williams's only comment about the estimate of environmental regulatory cost was that this statement should be noted as an assumption.

As noted earlier, Crain and Crain said they used only OMB's upper estimate of environmental costs because they believed cost estimates were absent for some important environmental regulations, and "government agencies tend to be conservative in estimating regulatory costs."⁵⁹ The authors stated in a footnote that several regulatory experts have drawn a similar conclusion about OMB environmental cost estimates, but also noted that "considerable debate continues."⁶⁰ Crain and Crain cited studies indicating that government agencies systematically overestimate benefits and underestimate costs, but also cited one study by Winston Harrington and others that reportedly concluded that overestimation of unit costs occurs about as often as underestimation.⁶¹

⁵⁸ Crain and Crain, p. 25.

⁵⁹ Crain and Crain, p. 27.

⁶⁰ Ibid.

⁶¹ Ibid, footnote 27. Actually, the Harrington study concluded that agencies' estimates of direct costs appeared to be too (continued...)

In its analysis of the Crain and Crain report, the Center for Progressive Reform said that agencies' estimates of environmental costs tend to be too high, reflecting estimates provided to them by industry, whom CPR said have an incentive to overstate costs. CPR also said that industry cost estimates (and therefore the agency estimates) do not take into account technological innovations that reduce the cost of compliance. To support its position on this issue, CPR cited four studies indicating that agencies' initial cost estimates tended to be too high.⁶² CPR also questioned Crain and Crain's use of the Hahn and Hird study to estimate the cost of environmental regulations prior to 1988, noting that the study was more than 20 years old, synthesized other estimates developed by a small group of economists, and some of those studies used data that are now more than 30 years old.

In responding to comments on one of its reports to Congress on the costs and benefits of regulations, OMB noted the "theory that agency estimates, upon which many but not all of our estimates are based, systematically understate costs and overstate benefits because agency self-interest lies in regulation." OMB went on to say the following:

Although this view of agency behavior enjoys widespread support among academics as a theoretical matter, there is little documentation available to support it—perhaps because there are several potentially offsetting factors. For example, much of the data that agencies use to make their estimates of costs comes from the regulated entities who generally have the opposite incentives—namely, they will likely overstate costs to help convince decision makers not to issue the regulation. Also, as noted in our report, competitive firms over time frequently find more cost-effective ways, including new technologies, to comply with regulations than had been envisioned *ex ante*. Some commenters pointed to a set of case studies that is about to be published to support this contention. On the other hand, there is a large body of literature that shows that agencies tend to overestimate the benefits of their programs because, over time, technological progress—in communications to energy exploration to infectious disease—has reduced the long run expected benefits of earlier regulations.⁶³

Tax Compliance

To estimate the costs associated with complying with federal tax paperwork, Crain and Crain said they compiled data from the Internal Revenue Service (IRS), and in some cases the Tax Foundation,⁶⁴ on the amount of time required to complete each type of tax form, and the number of filings per form. The authors concluded that businesses, individuals, and nonprofits devoted about 4.3 billion burden hours to completing tax paperwork in 2008 (about 2.28 billion burden hours for business and about 2.02 billion burden hours for individuals and nonprofits). To

(...continued)

high in 12 rules, and too low in 6 rules. The authors' conclusions regarding per-unit abatement costs only applied to EPA and OSHA regulations. See Winston Harrington, et al., "On the Accuracy of Regulatory Cost Estimates," available at <http://www.rff.org/documents/RFF-DP-99-18.pdf>.

⁶² Sidney A. Shapiro, Ruth Ruttenberg, and James Goodwin, "Setting the Record Straight: The Crain and Crain Report on Regulatory Costs," p. 7.

⁶³ Office of Management and Budget, "Appendix: Summary of Public Comments," available at http://www.whitehouse.gov/omb/inforeg_appendix.

⁶⁴ The Tax Foundation is a nonpartisan tax research group based in Washington, D.C. For more information, see <http://www.taxfoundation.org/about/>. Crain and Crain said they used information from the Tax Foundation's 2005 report, but did not provide a citation for that report.

monetize that burden, Crain and Crain estimated the cost of completing business paperwork at \$49.77 per hour for businesses (which they said was the average hourly rate for “human resources professionals” in 2009 from the Bureau of Labor Statistics website) and \$31.53 per hour for individuals and nonprofits (which they said was the average hourly rate for “accountants and auditors” in 2009), for a total cost of about \$159.6 billion.

Crain and Crain did not indicate in their report how they “compiled” data from the IRS website and the Tax Foundation to arrive at the estimated 4.3 billion hours of tax paperwork in 2008. According to the Information Collection Budget that OMB develops annually, the government-wide paperwork burden in FY2008 was about 9.71 billion burden hours, of which the Department of the Treasury accounted for about 7.78 billion burden hours.⁶⁵ Although the Information Collection Budget did not separately identify the number of burden hours for the IRS, in May 2009, the IRS represented about 77.8% of the government-wide estimate, and about 99.5% of the Treasury estimate.⁶⁶ If those same ratios applied in 2008, IRS paperwork would have been about 7.5 billion burden hours—about 3.2 billion hours higher than in the Crain and Crain report.

Certain aspects of how Crain and Crain monetized IRS burden hours are also unclear. For example, it is unclear why the authors assumed that “human resources professionals” would be completing all business tax paperwork, that all individuals and nonprofits would have their returns prepared by “accountants and auditors,” or where on the “Bureau of Labor Statistics website” the hourly rates for human resources professionals (\$49.77 per hour) and accountants and auditors (\$31.53) were derived. According to the Bureau of Labor Statistics’ Occupational Employment Statistics, in May 2009, tax preparers received an average salary of \$17.34 per hour (median salary was \$14.45 per hour).⁶⁷ Even if one assumed that total compensation (including benefits and overhead) was one-third higher, the average compensation for tax preparers would still be just over \$23 per hour (\$17.34 times 1.33). Using this figure for all tax compliance may balance out those businesses and individuals who prepare their returns themselves and those who use more expensive preparers.⁶⁸ Therefore, multiplying 7.5 billion burden hours times \$23 per hour yields a total cost of about \$172.5 billion—about \$12.9 billion higher than the Crain and Crain estimate.

A threshold issue, however, is whether tax paperwork should be included in estimates of regulatory costs at all. OMB does not include tax paperwork in its annual reports to Congress on the costs and benefits of federal regulations. In one of the first of those reports, OMB said that “filling out tax forms is not the result of ‘regulations’ but rather of the tax code itself, with most regulations merely providing interpretations and clarifications of tax law.”⁶⁹ Also, in testimony before the House Committee on Government Reform in July 2003, John D. Graham, administrator of the Office of Information and Regulatory Affairs (OIRA) within OMB, said the following:

⁶⁵ Office of Management and Budget, *Information Collection Budget: 2009* (reporting on FY2008), available at http://www.whitehouse.gov/sites/default/files/omb/assets/inforeg/icb_2009.pdf.

⁶⁶ See CRS Report R40636, *Paperwork Reduction Act (PRA): OMB and Agency Responsibilities and Burden Estimates*, by Curtis W. Copeland and Vanessa K. Burrows.

⁶⁷ See <http://www.bls.gov/oes/current/oes132082.htm> for these data.

⁶⁸ For example, BLS data indicated that accountants and auditors were paid an average of \$32.42 per hour in May 2009. See <http://www.bls.gov/oes/current/oes132011.htm>.

⁶⁹ Office of Management and Budget, *Report to Congress on the Costs and Benefits of Federal Regulations*, September 30, 1997, available at http://www.whitehouse.gov/omb/inforeg_rcongress/.

To a greater extent than for other agencies and programs, IRS paperwork burden is driven by a statute (the Tax Code), and in particular the complexities of the Code. To ensure taxpayer compliance with our tax laws, IRS must collect a tremendous amount of information. This task is complicated by a massive, complex Tax Code that is subject to continuous revision. In the 15 years following the 1986 overhaul of the Code, Congress passed 84 tax laws. These laws required IRS to create and/or revise reporting and recordkeeping requirements, which in turn increased taxpayer burden. The Internal Revenue Service also had to make several changes to the 1040 schedules to implement the Economic Growth and Tax Relief Reconciliation Act of 2001. These statutorily driven revisions increased the burden on taxpayers by 47 million hours. Moreover, there are other factors totally outside the control of IRS—most notably increases in the number of tax filings due to economic and population growth over the years—that increase the aggregate IRS burden hours but not—and this is important—the average burden on individual taxpayers.⁷⁰

Occupational Safety and Health and Homeland Security Regulations

Because the “economic regulations” category included many types of workplace regulations, Crain and Crain said that their final category of regulatory costs included only workplace regulations that deal with safety and health, primarily those issued by the Occupational Safety and Health Administration (OSHA) within the Department of Labor, as well as regulations related to homeland security. To estimate the cost of occupational safety and health regulations prior to 2001 (estimated at more than \$64.3 billion in 2009 dollars), the authors used information from a 2005 study by Joseph M. Johnson that reportedly synthesized and evaluated other studies of workplace regulations.⁷¹ Crain and Crain said they then added data from OMB’s 2009 report to Congress on regulatory costs and benefits on (1) 2001 to 2008 occupational safety and health regulatory costs (estimated at \$471 million in 2009 dollars), and (2) all homeland security costs through 2008 (estimated at about \$10.4 billion in 2009 dollars). Adding these elements together, the authors concluded that the total cost for occupational safety and health and homeland security regulations in 2008 was about \$75.2 billion.

Crain and Crain said they obtained the estimate for occupational safety and health regulatory costs between 2001 and 2008 from Table 1-2 in OMB’s 2009 report to Congress. That table reports the estimated costs and benefits of major federal rules within selected programs from October 1, 1998, through September 30, 2008. One of the programs was labeled “Occupational Safety and Health Administration,” with the costs associated with four rules estimated at between \$362 million and \$389 million (in 2001 dollars). Several of those years (October 1998 through December 2000) appear to overlap with estimates provided in Johnson’s study of costs prior to 2001, raising the issue of possible double counting.⁷² Also, converting the OMB estimate to 2009 dollars yields a range of \$440 million to \$471 million. Therefore, although the authors did not explicitly say so, it appears that Crain and Crain only used the upper-end of OMB’s estimated cost range for these regulations (as they did for environmental regulations).

⁷⁰ See http://www.whitehouse.gov/omb/legislative_testimony_graham_030722_graham/ for a copy of this testimony.

⁷¹ Cited by Crain and Crain as Joseph M. Johnson, “A Review and Synthesis of the Cost of Workplace Regulations, in *Cross-Border Human Resources*, Labor International: Netherlands, 2005, pp. 433-467.

⁷² Although Crain and Crain said (in Table 5 on p. 30 of their report) that they only used rules issued between 2001 and 2008, the 2009 OMB report does not identify when the four Occupational Safety and Health Administration rules were issued. Also, conversion of OMB’s upper-end estimate for all four rules (\$389 million in 2001 dollars) into 2009 dollars yields an estimate of \$471 million—the same figure used in Crain and Crain’s report.

Crain and Crain said they obtained their estimate for homeland security costs from page 18 of OMB's 2009 report. There, OMB reported that since the Department of Homeland Security was created, "agencies have finalized 17 major homeland security regulations that impose a total annual cost on the economy of between \$4.2 billion to \$8.6 billion. Converting these estimated costs in 2001 dollars to 2009 dollars yields a range of \$5.1 billion to \$10.4 billion. Therefore, although they did not say so in their report, it appears that Crain and Crain again only used OMB's upper-end of the estimated cost range. As noted earlier in this report, the authors said that their use of the upper-end of OMB's estimates for environmental rules reflected a judgment that cost estimates were absent for important regulations and that government agencies tend to be conservative in estimating regulatory costs.⁷³ On the other hand, OMB has said that there is little evidence that agencies' cost estimates are too conservative.⁷⁴

The Center for Progressive Reform's analysis of the Crain and Crain report stated that the cost estimates that the authors used for occupational safety and health costs (both the Joseph M. Johnson study and the agency estimates of costs before the rules are published) likely overstate true compliance costs because they are based on information provided by regulated industries. CPR also said that the Johnson study inflates OSHA's original cost estimates by multiplying them by 5.5, which was reportedly done to take into account non-major rules for which costs were not estimated, and for fines imposed for violations of OSHA standards. CPR said it saw no justification for counting such fines as "regulatory costs." "Under this logic," CPR said, "mass lawbreaking raises regulatory costs, enabling regulatory opponents to argue that we need to reduce regulations because of these regulatory costs."⁷⁵

Comparison of Crain and Crain's 2008 Estimate to Crain's 2004 Estimate

As noted previously and as shown below in **Table 2**, in 2005, W. Mark Crain estimated total federal regulatory costs in 2004 at about \$1.11 trillion. In 2010, Crain and Crain estimated those costs in 2008 at about \$1.75 trillion—an increase of about \$639 billion (57.4%) in four years. Some of this increase is due to inflation,⁷⁶ but the authors said that the main reason for the increase was a change in the methodology used in developing their estimate of the cost of economic regulations.⁷⁷ As **Table 2** below indicates, were it not for the increase in the cost

⁷³ Crain and Crain, p. 27. In a March 7, 2011, e-mail to the author, Crain and Crain noted that the OMB data do not include regulations whose costs are expected to be below \$100 million, or costs that are not monetized. Therefore, they said, using the upper bound is an attempt to correct for this omission in a systemic and reasonable way. They also said that agency cost estimates are unlikely to include costs associated with negotiated enforcement.

⁷⁴ Office of Management and Budget, "Appendix: Summary of Public Comments," available at http://www.whitehouse.gov/omb/inforeg_appendix.

⁷⁵ CPR, p. 9.

⁷⁶ Crain and Crain said that the \$1.1 trillion estimate of regulatory costs in 2004 would be \$1.26 trillion in 2009 dollars.

⁷⁷ Crain and Crain, p. 20. The authors said that the 2005 study used an index of economic regulations developed by the Organization for Economic Cooperation and Development (OECD), supplemented by information from the International Trade Commission and other sources. Crain and Crain said they used the World Bank index of regulatory quality because it was a more comprehensive index of economic regulations. Had the 2005 study used the methodology used in the 2010 study, the authors said that the total cost would have been \$1.7 trillion, an increase of \$43 billion between 2004 and 2008 after adjusting for inflation.

estimate for economic regulations, the total estimated cost of the three other types of regulations would have decreased by about \$6 billion between 2004 and 2008.

Table 2. Changes in Estimates of the Costs of Federal Regulations: 2004 to 2008

Type of Regulation	2004	2008	Increase/Decrease (%)
Economic	\$591 billion	\$1,236 billion	\$645 billion increase (+109.1%)
Environmental	\$221 billion	\$281 billion	\$60 billion increase (+27.1%)
Workplace	\$106 billion	\$75 billion	\$31 billion decrease (-29.2%)
Tax Compliance	\$195 billion	\$160 billion	\$35 billion decrease (-17.9%)
Total	\$1,113 billion	\$1,752 billion	\$639 billion increase (+57.4%)

Source: The 2004 data are from Crain (2005), and the 2008 data are from Crain and Crain (2010).

Notes: In Crain and Crain's 2010 report, "workplace" regulations were termed "occupational safety and health, and homeland security" regulations.

Comparison of Crain and Crain's 2008 Estimate to OMB's Estimates

For nearly 15 years, Congress has required OMB to submit annual reports on the costs and benefits of federal regulations. The first such requirement was in Section 645 of the Treasury, Postal Service and General Government Appropriations Act, 1997 (P.L. 104-208), which required the director of OMB to submit a report by September 30, 1997, that provided (among other things) "estimates of the total annual costs and benefits of federal regulatory programs, including quantitative and nonquantitative measures of regulatory costs and benefits." Similar requirements were contained in other appropriations bills in subsequent years.

In 2001, Section 624 of the Treasury and General Government Appropriations Act, 2001, (31 U.S.C. § 1105 note), sometimes known as the "Regulatory Right-to-Know Act," put in place a permanent requirement for an OMB report on regulatory costs and benefits. Specifically, it requires OMB to prepare and submit with the President's budget an "accounting statement and associated report" containing an estimate of the total costs and benefits (including quantifiable and nonquantifiable effects) of federal rules and paperwork, to the extent feasible, (1) in the aggregate, (2) by agency and agency program, and (3) by major rule. The accounting statement is also required to contain an analysis of the impacts of federal regulation on state, local, and tribal governments, small businesses, wages, and economic growth.

OMB's Early Estimates of Total Regulatory Costs and Benefits

For the first several years, OMB provided estimates of total regulatory costs and benefits, and those estimates (particularly the benefits estimates) varied substantially from year to year.

- In its 1997 report, OMB estimated total federal regulatory costs in 1997 at \$279 billion, and estimated the benefits of federal regulations at \$298 billion.⁷⁸
- In its 1998 report, OMB estimated federal regulatory costs at between \$170 billion and \$230 billion (in 1996 dollars as of 1998), and estimated regulatory benefits at between \$260 billion and \$3.5 trillion.⁷⁹ The dramatic increase in the benefits estimate (by a factor of 12) was almost entirely due to the inclusion of an Environmental Protection Agency (EPA) estimate of the benefits associated with the Clean Air Act. Many observers had serious questions regarding the use of this EPA estimate, and EPA itself said it had only a small probability of being correct.
- In its 2000 and 2001 reports, OMB estimated the cost of all social regulations at between \$146 billion and \$229 billion (in 1996 dollars as of 1999), and estimated benefits at between \$254 billion and nearly \$1.8 trillion.⁸⁰ The nearly 50% drop in the upper-bound benefits estimate (from \$3.5 trillion to \$1.8 trillion) was primarily caused by a significant drop in the previously mentioned EPA estimate of the benefits of the Clean Air Act (from \$3.2 trillion to \$1.45 trillion).

Each year, OMB presented its aggregate cost and benefit estimates with strong caveats. For example, in its first report in 1997, OMB said “it is extremely difficult, if not impossible, to estimate the actual total costs and benefits of all existing Federal regulations with any degree of precision.”⁸¹ The next year OMB said “there is not yet a professional consensus on methods that would permit a complete, consistent accounting of total costs and benefits of Federal regulation.”⁸² Some of the methodological problems that OMB pointed out in these and other reports included the following:

- The baseline for measurement is often not clear (i.e., what costs and benefits would have occurred in the absence of the regulation). Regulatory requirements sometimes become standard business practice (e.g., requirements to remove lead from gasoline or to put air bags in automobiles), so cost or benefit reductions would be unlikely to occur if the rules were eliminated entirely.
- It is difficult to attribute costs or benefits to federal regulations as opposed to state or local rules, voluntary standards organizations, insurance requirements, or the tort system.
- Technological change can make previous estimates of benefits and costs extremely inaccurate.
- Aggregating the results of different studies is highly problematic, as the studies vary in the quality, methodology, and types of regulatory impacts they include.⁸³

⁷⁸ See http://www.whitehouse.gov/omb/inforeg_rcongress/ for a copy of this report.

⁷⁹ See <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/inforeg/costbenefitreport1998.pdf>, Table 3.

⁸⁰ See <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/inforeg/costbenefitreport.pdf>, Table 2.

⁸¹ See http://www.whitehouse.gov/omb/inforeg_chap2.

⁸² See <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/inforeg/costbenefitreport1998.pdf>, p. 1.

⁸³ Specifically, in its 1997 report, OMB said “studies that have attempted to tote up the total costs and benefits of Federal regulations have basically added together a diverse set of individual studies. Unfortunately, these individual studies vary in quality, methodology, and type of regulatory costs included. Thus we have an apples and oranges problem, or, more aptly, an apples, oranges, kiwis, grapefruit, etc., problem.” See <http://www.whitehouse.gov/omb/> (continued...)

- It is unclear which rules should be included in any tabulation of regulatory costs and benefits (e.g., “transfer” regulations such as crop subsidy payments).

In developing its estimates of total regulatory costs, OMB did not include “transfer” rules (which OMB said were about \$140 billion in costs and benefits in 1997) because it considered them to be payments that reflect a redistribution of wealth rather than social costs to society as a whole. OMB also excluded the costs associated with filling out tax paperwork (which OMB estimated were about \$140 billion in 1997) because it did not consider filling out income tax forms “regulations” in the traditional sense. Neither did it include estimates for rules published after 1987 for which agencies did not conduct cost-benefit analyses (e.g., rules with less than a \$100 million impact on the economy).

OMB’s Reports Since 2001

OMB’s “Regulatory Right-to-Know Act” reports since 2001 have differed from the office’s previous reports in that they have not presented cost or benefit estimates for all rules in existence. Instead, OMB has presented information for all regulations that it reviewed within a particular time-frame that (1) had costs or benefits of at least \$100 million annually and (2) the costs and benefits had been monetized by either the rulemaking agency or OMB. Specifically:

- OMB’s report for 2002 presented information on the costs and benefits of all regulations meeting those criteria that it reviewed for a six-and-one-half year period from April 1, 1995, to September 30, 2001. OMB said the total cost of those rules was about \$50 billion to \$53 billion (in 2001 dollars), and the benefits ranged from \$48 billion to \$101 billion.⁸⁴
- In its 2003 report, OMB provided estimates of the costs and benefits of 107 regulations meeting the above criteria that it reviewed during the 10-year period from October 1992 through September 2002. OMB estimated that the total costs of these rules ranged from nearly \$37 billion to nearly \$43 billion (in 2001 dollars), with benefits ranging from \$146 billion to \$230 billion. OMB noted that four rules issued by EPA accounted for a substantial fraction of the aggregate benefits for all 107 rules.⁸⁵

Each report since 2003 has provided information for rules meeting the above criteria during the previous 10 years. In its 2002 report, OMB said its decision to present data for only certain rules during a limited time-frame was driven by the inconsistent and increasingly aged nature of many of the studies used to develop aggregate estimates. OMB went on to say that “we do not believe that the estimates of the costs and benefits of regulations issued over ten years ago are reliable or

(...continued)

inforeg_chap2.

⁸⁴ Office of Management and Budget, Office of Information and Regulatory Affairs, *Stimulating Smarter Regulation: 2002 Report to Congress on the Costs and Benefits of Regulations and Unfunded Mandates on State, Local, and Tribal Entities*, 2002, available at http://www.whitehouse.gov/sites/default/files/omb/assets/omb/inforeg/2002_report_to_congress.pdf.

⁸⁵ Office of Management and Budget, Office of Information and Regulatory Affairs, *Informing Regulatory Decisions: 2003 Report to Congress on the Costs and Benefits of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities*, 2003, available at http://www.whitehouse.gov/sites/default/files/omb/assets/omb/inforeg/2003_cost-ben_final_rpt.pdf.

very useful for informing current policy decisions.”⁸⁶ Therefore, OMB said that “in keeping with the spirit of OMB’s new information-quality guidelines, we have decided not to reproduce the aggregate estimates that were contained in Appendix C of the draft report.”⁸⁷ The report went on to say that the total costs and benefits of all federal rules then in effect “could easily be a factor of ten or more larger.” In its 2003 report, OMB said that estimates prepared for rules adopted prior to the 10-year period “are of questionable relevance now.”⁸⁸

This point was elaborated by John D. Graham, former administrator of OIRA, in testimony before the House Committee on Government Reform in July 2003:

The fact that attempts to estimate the aggregate costs of regulations have been made in the past, such as the Crain and Hopkins estimate of \$843 billion . . . , is not an indication that such estimates are appropriate or accurate enough for regulatory accounting. Although the Crain and Hopkins estimate is the best available for its purpose, it is a rough indicator of regulatory activity, best viewed as an overall measure of the magnitude of the overall impact of regulatory activity on the macro economy. The estimate, which was produced in 2001 under contract for the Office of Advocacy of the Small Business Administration, is based on a previous estimate by Hopkins done in 1995, which itself was based on summary estimates done in 1991 and earlier, as far back as the 1970s. The underlying studies were mainly done by academics using a variety of techniques, some peer reviewed and some not. Most importantly, they were based on data collected ten, twenty, and even thirty years ago. Much has changed in those years and those estimates may no longer be sufficiently accurate or appropriate for an official accounting statement. Moreover, the cost estimates used in these aggregate estimates combine diverse types of regulations, including financial, communications, and environmental, some of which impose real costs and others that cause mainly transfers of income from one group to another. Information by agency and by program is spotty and benefit information is nonexistent. These estimates might not pass OMB’s information quality guidelines. In particular, many of the studies they relied upon for these aggregate estimates are not sufficiently transparent about the data and methods to facilitate the reproducibility of the information by qualified third parties. That is why we have opted in the most recent Reports to Congress to report just the costs and benefits of major regulations prepared by agencies and reviewed by OMB over the last ten years.⁸⁹

Later that year, testifying on the Paperwork and Regulatory Improvements Act of 2004 (H.R. 2432, 108th Congress), Graham said that requiring agencies to submit annual estimates of the cost and benefits of all their rules, and mandating preparation of a complete inventory of the costs and benefits of all federal rules and paperwork requirements, was “not workable.”⁹⁰

⁸⁶ See http://www.whitehouse.gov/sites/default/files/omb/assets/omb/inforeg/2002_report_to_congress.pdf, p. 40.

⁸⁷ *Ibid.*, p. 41. Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, generally known as the “Data Quality Act” or the “Information Quality Act,” amended the Paperwork Reduction Act and directed OMB to issue government-wide guidelines that “provide policy and procedural guidance to Federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies.”

⁸⁸ See http://www.whitehouse.gov/sites/default/files/omb/assets/omb/inforeg/2003_cost-ben_final_rpt.pdf, p. 7. In its 2010 report to Congress, OMB continues to say that estimates that are more than 10 years old are of “questionable relevance.” See http://www.whitehouse.gov/sites/default/files/omb/legislative/reports/2010_Benefit_Cost_Report.pdf, p. 11.

⁸⁹ Testimony of John D. Graham before the House Committee on Government Reform, July 22, 2003, available at http://www.whitehouse.gov/omb/legislative_testimony_graham_030722_graham.

⁹⁰ “Chief of OMB Regulatory Review Opposes Ose Bill on Regulatory Accounting, Budgeting,” *BNA Daily Report for Executives*, July 23, 2003, p. A-43.

OMB's 2009 Report to Congress

OMB's 2009 report to Congress provided estimates of the total annual benefits and costs of 98 regulations reviewed by OMB during the 10-year period from October 1, 1998, to September 30, 2008. The 98 rules were those that (1) were estimated to generate benefits or costs of approximately \$100 million in any one year; and (2) a substantial portion of the benefits and costs were quantified and monetized by the agency or, in some cases, monetized by OMB. As **Table 3** below shows, OMB said that the estimated costs of these rules ranged from nearly \$51 billion to nearly \$60 billion, and the benefits were estimated to be between about \$126 billion and about \$663 billion (in 2001 dollars). Because the estimates were provided for only 98 rules meeting the above criteria, and because not all benefits and costs for even those rules could be assessed, OMB noted that the estimates were "not a complete accounting of all of the benefits and costs of all regulations issued during this period."⁹¹

Table 3. Estimates of the Total Benefits and Costs of Major Rules by Agency: October 1, 1998 – September 30, 2008

(in millions of 2001 dollars)

Agency	Number of Rules	Benefits	Costs
Department of Agriculture	6	\$906 – \$1,315	\$1,014 – \$1,353
Department of Education	1	633 – 786	349 – 589
Department of Energy	6	4,954 – 5,391	3,067 – 3,118
Department of Health and Human Services	18	20,522 – 32,426	3,879 – 4,387
Department of Homeland Security	1	20 – 29	13 – 99
Department of Housing and Urban Development	1	190	150
Department of Justice	1	275	108 – 118
Department of Labor	6	481 – 1,605	320 – 347
Department of Transportation	18	11,256 – 19,098	5,218 – 8,968
Environmental Protection Agency	40	87,042 – 601,469	36,853 – 40,851
Total	98	126,277 – 662,584	50,973 – 59,978

Source: OMB's 2009 Report to Congress, Table I-1.

As in its previous reports, OMB said it presented information only for a 10-year period because "pre-regulation estimates prepared for rules adopted more than ten years ago are of questionable relevance today."⁹² OMB also said the following:

⁹¹ OMB's 2009 report to Congress, p. 9.

⁹² Ibid.

Aggregating benefit and cost estimates of individual regulations—to the extent they can be combined—provides significant insight about the effects of regulations. But the resulting estimates are neither precise nor complete. Individual regulatory impact analyses vary in rigor and rely on different assumptions, including baseline scenarios, methods, and data. Summing across estimates involves the aggregation of analytical results that are not strictly comparable.⁹³

How OMB's and Crain and Crain's Estimates Differ

It is difficult to compare OMB's estimates of regulatory costs and Crain and Crain's estimates because they were constructed in very different ways, and because the presentation categories were different (e.g., by agency in OMB's study, and by type of regulation in the Crain and Crain study). For several reasons, Crain and Crain's estimates of annual regulatory costs in 2008 were much larger than the estimates provided by OMB.

- Crain and Crain included estimates of costs associated with all rules for certain periods, and major rules for other periods. Their estimates attempt to measure the cumulative costs of all rules. OMB's estimates included only major rules that met certain criteria that had been issued during a 10-year period.
- Crain and Crain included estimates of the cost of “economic regulations,” whereas OMB's estimate did not include economic regulations.⁹⁴
- Crain and Crain included costs associated with tax paperwork, whereas OMB's estimate did not include tax paperwork.

Concluding Observations

Although accurate measures of the costs and benefits of all federal rules would be useful, decision makers using studies of aggregate regulatory costs and benefits to guide public policy need to be aware of those studies' conceptual and methodological underpinnings. The validity and reliability of Crain and Crain's \$1.75 trillion estimate of total federal regulatory costs in 2008 depends on the validity and reliability of its individual elements. More than 70% of the overall estimate (\$1.236 trillion) is based on the WGI index of regulatory quality for the United States, with the authors determining the extent to which economic regulations reflected in that index reduces per capita real GDP in the United States. However, one of the authors of the regulatory quality index has said that Crain and Crain misinterpreted the index, and that higher values on the index cannot be interpreted as “less stringent regulations.” Even if it could, he said that the index for the United States should be compared to a country with a preferable index, not to an idealized “best possible” score on the index. Comparing the United States' regulatory quality index in 2008 to the country with the highest index that year (Ireland) would have reduced Crain and Crain's estimate of the cost of economic regulations by nearly two-thirds. Other commenters (including one of the peer reviewers of the Crain and Crain study) raised similar concerns about whether the

⁹³ Ibid., p. 8.

⁹⁴ OMB's report did, however, provide some information on rules issued by certain independent regulatory agencies (e.g., the Board of Governors of the Federal Reserve System and the Securities and Exchange Commission) as provided to OMB by the Government Accountability Office. The agencies typically did not provide information on costs and benefits.

regulatory quality index could be used to measure the cost of economic regulations, and about the regression analysis used to produce the cost estimate. Responding to these criticisms, Crain and Crain said that they continue to believe that the regulatory quality index indicates the stringency of a country's economic regulations, and believe that it was appropriate for them to compare the index for the United States to a "conceptual regulatory environment" represented by a 2.5 score rather than to another country with a somewhat higher index score. The World Bank indicates on its website that measures like the regulatory quality index are "often too blunt a tool to be useful in formulating specific governance reforms in particular country contexts."

Crain and Crain's estimates for environmental, occupational safety and health, and homeland security regulations were developed by mixing together academic studies (some of which were more than 30 years old) with agencies' estimates of regulatory costs that were developed before the rules were issued (some of which are now 20 years old). OMB has said that adding together diverse sets of individual studies to develop a summary measure of regulatory costs is an "inherently flawed" approach. The agency estimates that Crain and Crain used were drawn from OMB reports to Congress on the estimated costs and benefits of regulations, which were typically presented as low-to-high ranges. However, Crain and Crain used only the highest cost estimates from these reports, stating that they did so because the OMB estimates did not cover all regulations, and because they believe "government agencies tend to be conservative in estimating regulatory costs." OMB has said that there is little documentation to support this view, and empirical studies of agencies' regulatory cost estimates have not resolved the issue. Also, OMB has concluded that estimates of the costs and benefits of regulations issued more than 10 years earlier are of "questionable relevance." Since 2003, OMB's annual "Regulatory Right-to-Know Act" reports to Congress have only included information on the costs and benefits of major rules issued during the previous 10 years. Although OMB has recognized that this approach understates total regulatory costs and benefits, OMB has said it does not believe older estimates are reliable or useful in informing policy decisions.

In one of its first reports to Congress on this issue, OMB also said that the incremental costs of regulations (i.e., over and above what businesses and individuals would have done in the absence of regulations) tend to decrease over time, as companies' business practices and consumers' expectations change.

Thus, although the National Highway Traffic Safety Administration has significantly increased the safety of automobiles, it is not likely that if the agency's regulations were eliminated the automobile companies would discontinue the safety features that had been mandated. Consumers demand safer cars than they used to and automobile companies are concerned about product liability. This same phenomenon exists with the environment, although probably to a lesser extent. Environmentally responsible behavior has become good for the bottom line.... Over time, this "rising baseline" phenomenon reduces the true costs and benefits of health, safety, and environmental regulations. Estimates of the aggregate costs and benefits of regulation that include unadjusted estimates from aging studies are thus likely to be over estimates of the current costs and benefits of those regulations.⁹⁵

⁹⁵ Office of Management and Budget, *Report to Congress on the Costs and Benefits of Federal Regulations*, September 30, 1997, available at http://www.whitehouse.gov/omb/inforeg_rcongress/.

OMB went on to say that “it does not seem implausible that, for environmental and other social regulations over ten years old, no more than half of compliance costs would likely be saved if these Federal regulations magically disappeared over night.”⁹⁶

Crain and Crain’s estimate for the cost of tax paperwork was reportedly based on data from the IRS and the Tax Foundation, but data in OMB’s annual Information Collection Budget suggests that the number of hours of tax paperwork may be much higher than the authors used in their report. On the other hand, Crain and Crain’s assumptions regarding the per hour cost of completing the paperwork may be too high (e.g., the assumption that “human resources professionals” paid at nearly \$50 per hour would be completing all business paperwork). However, a threshold question is whether tax paperwork should be considered in the same category as regulatory costs. OMB does not include tax paperwork in its annual reports to Congress on regulatory costs and benefits.

Regulatory Benefits

Although Crain and Crain attempted to determine all of the costs associated with federal regulations, their report did not discuss the benefits of those regulations—even when information on regulatory benefits was readily available in the OMB reports that they used to determine regulatory costs. In their report, the authors said that it “does not address the benefits of regulation, an important challenge that would be a logical next step toward achieving a rational regulatory system.”⁹⁷ Crain and Crain told CRS that they did not include regulatory benefits in their study “because we researched the topic as required by the Office of Advocacy.”⁹⁸ The SBA Office of Advocacy confirmed that Crain and Crain “were not asked to look at benefits, as the task for this last iteration was to update the previous study, which also looked at costs and the disproportionality between small and large businesses.”⁹⁹

Executive Order 12866 requires covered agencies to “assess both the costs and the benefits of the intended regulation and, recognizing that some costs and benefits are difficult to quantify, propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs.”¹⁰⁰ It also says that agencies should generally select regulatory approaches that “maximize net benefits.” OMB’s reports to Congress on the aggregate costs and benefits of federal regulations have generally indicated that the estimated benefits exceed the estimated costs. For example, see the following:

- In the report for 2010 covering major rules reviewed by OMB from October 1999 through September 2009 for which benefits and costs were monetized, the aggregate costs were estimated to be between \$43 billion and \$55 billion, and the aggregate benefits were estimated to be between \$128 billion and \$616 billion. Of the 16 major rules issued during FY2009 for which benefits and costs were

⁹⁶ Ibid.

⁹⁷ Crain and Crain, p. 10.

⁹⁸ E-mail to the author from Nicole V. Crain and W. Mark Crain, March 7, 2011.

⁹⁹ E-mail to the author from Radwan Saade, SBA Office of Advocacy, March 7, 2011. See https://www.fbo.gov/?s=opportunity&mode=form&tab=core&id=8ffd890376c03038eb0e7f3fa657f7c1&_cview=1 to view the solicitation for this study.

¹⁰⁰ Executive Order 12866, “Regulatory Planning and Review,” 58 *Federal Register* 51735, Oct. 4, 1993.

- monetized, the costs were estimated at between \$3.7 billion and \$9.5 billion, and the benefits were estimated at between \$8.6 billion and \$28.9 billion.¹⁰¹
- In the draft report for 2011 covering major rules reviewed by OMB from October 2000 through September 2010 for which benefits and costs were monetized, the aggregate costs were estimated to be between \$44 billion and \$62 billion, and the aggregate benefits were estimated to be between \$136 billion and \$651 billion. Of the 18 major rules issued during FY2010 for which benefits and costs were monetized, the costs were estimated at between \$6.5 billion and \$12.5 billion, and the benefits were estimated at between \$23.3 billion and \$82.3 billion.¹⁰²

Each year, however, there were a number of rules in which the agencies only quantified or monetized benefits or costs, but not both. Most commonly, the agencies quantified or monetized only costs.

Policymaking and the Crain and Crain Estimate

As noted at the beginning of this report, Crain and Crain's estimate that federal regulations cost \$1.75 trillion in 2008 has been cited as evidence of the need for regulatory reform legislation. However, Crain and Crain told CRS that their report was "not meant to be a decision-making tool for lawmakers or federal regulatory agencies to use in choosing the 'right' level of regulation. In no place in any of the reports do we imply that our reports should be used for this purpose. (How could we recommend this use when we make no attempt to estimate the benefits?)"¹⁰³

As Crain and Crain suggest, information on regulatory costs alone, whether for individual rules or for all rules in the aggregate, provides only one piece of information that Congress and other policymakers can use in determining how to proceed. For example, even if all federal regulations did cost \$1.75 trillion in 2008 (which at least some commenters believe may not be correct), if the monetized benefits of those regulations were determined to be greater than those costs, then policymakers may conclude that those costs were (in the words of Executive Order 12866) "justified." On the other hand, if the monetized benefits of federal regulations were estimated to be less than the estimated costs, policymakers may reach another conclusion, or may decide to examine any non-monetized costs and benefits of those rules. But a valid, reasoned policy decision can only be made after considering information on both costs and benefits.

¹⁰¹ See http://www.whitehouse.gov/sites/default/files/omb/legislative/reports/2010_Benefit_Cost_Report.pdf for a copy of this report.

¹⁰² See http://www.whitehouse.gov/sites/default/files/omb/legislative/reports/Draft_2011_CBA_Report_AllSections.pdf for a copy of this report.

¹⁰³ E-mail to the author from Nicole V. Crain and W. Mark Crain, March 7, 2011.

Appendix. CRS Sensitivity Analysis

In an effort to assess the sensitivity of Crain and Crain's results, CRS ran a linear regression using similar, but somewhat different, data and methods.¹⁰⁴ Specifically, CRS compiled a dataset for 30 OECD countries over the period 2002-2008 using the same dependent variable (GDP per capita in constant 2000 dollars) and four of the five independent variables that were used by Crain and Crain. The four identical independent variables were (1) the World Governance Indicators regulatory quality index, (2) broadband penetration rates, (3) country population, and (4) foreign trade as a percentage of GDP. Data for these four variables were obtained from the OECD website (<http://www.oecd.org>).

Crain and Crain also included one other variable in their analysis: primary school enrollment as a share of the eligible population. In their analysis, the associated coefficient had an unexpected negative sign (indicating that as primary school enrollment went up, GDP per capita went down). Crain and Crain told CRS that the negative coefficient could be due to "aging pyramid" demographic effects. In the CRS analysis, two variables were added to account for such demographic effects: the proportion of the population under 14 and the proportion of the population over 65. These variables were calculated from data obtained from the U.S. Census Bureau international population statistics.¹⁰⁵ These demographic measures may capture "aging pyramid" effects more directly than the primary education variable.

CRS ran a cross-country fixed effects panel estimator with year indicator variables. Natural logarithms of all variables except the regulatory quality index were used in the regression. Estimation results using Stata 11 xtreg procedure, using robust (White) standard errors that are used by most empirical researchers. Estimation results run with conventional standard errors, which are very similar, are available upon request.

The estimation output is shown in **Table A-1** below. The estimated coefficient on the World Governance Indicators regulatory quality index is very small and is not significantly different from zero. The coefficient on population is also statistically insignificant, although other estimated coefficients have expected signs and are statistically significant at conventional levels of confidence.

¹⁰⁴ This appendix was written by D. Andrew Austin, Analyst in Economic Policy, Congressional Research Service.

¹⁰⁵ The U.S. Census Bureau International Population Data Base is available at <http://www.census.gov/ipc/www/idb/informationGateway.php>. The regulatory quality index was taken from the World Bank's World Governance Indicators website, available at <http://info.worldbank.org/governance/wgi/index.asp>. The OECD data were taken from data portal available at <http://www.oecd.org>.

Table A-1. CRS Regression Analysis
 Estimated determinants of log real GDP per capita

Independent Variables	Estimated Marginal Contribution	Robust Standard Error	t-statistic	P> t	95% Confidence Interval	
Regulatory Quality Index	.0001609	.0217325	0.01	0.994	-.0442871	.0446089
Population (log)	.2132556	.2595086	0.82	0.418	-.317499	.7440102
Broadband Penetration Rate (log)	.0233723	.0035276	6.63	0.000	.0161575	.0305872
Percent Population Under 14 (log)	-1.449251	.1967557	-7.37	0.000	-1.851661	-1.04684
Percent Population Over 65 (log)	-.3208979	.1686001	-1.90	0.067	-.6657239	.0239281
Foreign Trade as % of GDP (log)	.1051034	.0493794	2.13	0.042	.0041111	.2060957
sigma_u	.6039017	sigma_e .0206743				
Rho	.99882937	(fraction of variance due to u_i)				

Source: CRS.

Notes: Estimated using fixed-effects ordinary least squares regression with year dummies. Huber/White robust standard errors are reported.

Number of observations = 210. Number of groups = 30. Observations per group: 7. F(12,29) = 86.57.

R-square: within = 0.9003; between = 0.0521; overall = 0.0409. Corr(u_i, Xb) = -0.7610.

The point estimate of the coefficient regulatory quality index (.0001609) can be used to estimate the economic effect of shifting the United States from the 2008 regulatory quality index value (1.508) to the 2008 level of Ireland (1.856). According to that calculation which presumes that the regression specification reflects the true structure of the economy, that shift would result in an increase of \$2.14 in per capita GDP (measured in year 2000 dollars). Because the point estimate of the effect of the regulatory quality index is so imprecise, however, the calculated effect of a hypothetical shift of U.S. regulatory quality to the Irish level is also imprecise.

One test statistic (rho, a measure of intercountry correlation) indicates that 99.9% of the variance in the model results from differences among countries, rather than time-series variation within countries. This could suggest that estimating the effects of variables that generally change slowly over time, such as the regulatory environment in economically advanced countries, may be challenging using panel estimation methods that employ highly aggregated country-level data. Other econometric approaches that focus on more specific changes in regulatory environment may provide a better path for understanding the effects of regulation on economic activity.

Author Contact Information

Curtis W. Copeland
Specialist in American National Government
cwcopeland@crs.loc.gov, 7-0632