THE IMPACT OF REGULATION ON INVESTMENT AND THE U.S. ECONOMY *

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The total cost of regulation in the United States is difficult to calculate, but one estimate puts the cost at $1.75 trillion in 2008.[1] Total expenditures by the U.S. government were about $2.9 trillion in 2008. Thus, out of a total of $4.6 trillion in resources allocated by the federal government, 38% of the total is for regulations.

If regulations always produced goods and services that were valued as highly as market-produced goods and services, then this would not be a cause for alarm. But that is precisely what is not known. In fact, there is evidence to the contrary for many regulations. Where regulations take resources out of the private sector for less valuable uses, overall consumer welfare is diminished. For example, if regulations address minor risks (such as *de minimus* risks from pesticide residues), the additional resources used to address those risks are not used by consumers to address major risks privately, for example, buying safer cars.

Regulation also impacts the creation and sustainability of jobs. For example, regulation can create regulatory compliance jobs at the expense of jobs that are more highly valued by the market (i.e., consumers). Economists refer to this as the misallocation of resources—when capital and labor are directed to less productive or unproductive uses. This can have very real consequences for the economy. For example, when government instituted policies to increase homeownership, people were encouraged to make larger investments in housing than they otherwise would have made. The capital to produce those homes—many of which are now in default and are selling at rock bottom prices—might have been used more productively, purchasing education or saving for retirement.[2]

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* *The ideas presented in this document do not represent official positions of the Mercatus Center at George Mason University.*

[1] Nicole V. Crain and W. Mark Crain, "The Impact of Regulatory Costs on Small Firms," *Small Business Research Summary*, No. 371 (Washington, DC: Small Business Administration, 2010), http://geoffdavis.house.gov/UploadedFiles/The_Impact_of_Regulatory_Costs_on_Small_Firms.pdf.

[2] For a very good discussion of this see Russell Roberts, *Gambling With Other People's Money: How Perverted Incentives Caused the Financial Risk* (Arlington, VA: Mercatus Center at George Mason University, 2010), http://mercatus.org/sites/default/files/publication/RUSS-final.pdf.

From an economic perspective, however, it is important to note that the total number of jobs can be a misleading measure of the costs and benefits of regulation. Bad policies can increase total jobs, and good policies can decrease total jobs.[3]

EFFECTS OF REGULATION ON INVESTMENT AND JOBS

There are several possible avenues for regulations to affect investment and, ultimately, jobs.

Uncertainty: First, investment may be temporarily withheld when there is uncertainty about the size and scope of new regulatory initiatives. This is particularly true for investments that cannot be easily reversed (i.e., reselling capital for its purchase price). Investment in new capital is inevitably accompanied by the hiring of new labor. For firms that must rely on a constant source of financial capital (i.e., smaller firms), one current source of uncertainty is how the new financial rules will affect their abilities to borrow. About 1/3 of small firms rely on regular borrowing to finance capital.[4]

Competitiveness: Regulations also can affect jobs by forcing new investment to move overseas where the investment is subject to less onerous regulations.

Competition and Entry: Regulations that impose large start-up costs on businesses, such as licensing and permitting, may create a "wedge" that prevents new firms from entering an existing industry, which can reduce competition in that industry.

Direct Creation of Jobs: Firms must reallocate resources, including new hires, in order to comply with regulations. The resources utilized to comply with regulations will not be utilized for other productive activities. The net effect on employment is difficult to estimate for any particular regulation. The key question is whether or not the resources that go to compliance are producing a mix of goods and services that consumers value more as compared to what they give up.

Empirical Analysis of Regulation, Investment, and Jobs

A quick review of the empirical literature on the relationship between regulations and employment suggests that, at the macro level, any effects are likely to be small, although probably negative. For example, Cole and Elliott found, "Environmental regulation costs are not found to have a statistically significant effect on employment…" in the United Kingdom between 1980 and 2003.[5]

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[3] One reason that employment is not a good policy goal is that technological progress, which is key to keeping the country competitive, often reduces employment in particular industries. Technological improvements mean that more outputs will be produced more cheaply with fewer inputs including labor. Between 1880 and 1930, the number of labor hours to produce 100 bushels of corn (on 2 ½ acres) was reduced from 80 to 20. By 2002, 100 bushels of corn could be produced on less than 1 acre. A law banning tractors or mechanical harvesters could increase employment dramatically, but it would also lower productivity, reduce farmers' income, and increase food prices dramatically.

[4] William C. Dunkelberg and Holly Wade, *NFIB Small Business Economic Trends* (Washington, DC: National Federation of Independent Business, 2009), http://www.nfib.com/Portals/0/PDF/sbet/SBET200912.pdf. About 1/3 of small firms rely on regular borrowing to finance capital.

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

This will not be the case at the micro level, however, where specific industries may see large productivity decreases and ultimately relocate overseas. The clear effect of regulation, then, is not in the total number of jobs lost or created but in the composition of the workforce—the types of jobs that are lost or created.

Job creation and sustainability are intimately linked with investment, and regulation can have a significant impact on investment. Below we explore in more detail the effects of regulation on uncertainty and international competitiveness and their relationship to investment and jobs.

Uncertainty

Two types of uncertainty can affect decisions by firms to invest: (a) uncertainty about demand for their products (demand uncertainty) and (b) uncertainty about factor costs (labor and capital) (factor uncertainty). Major regulations—such as those recently authorized regarding financial services, health care, or greenhouse gas rules—can affect both demand and factor uncertainty.

As the United States tries to recover from the Great Recession, one key type of factor uncertainty is whether firms will have access to credit in the future. Uncertainty about access to credit has a greater impact on firms, small firms in particular, that need continuous access to credit in order to finance investments. On the other hand, the new Dodd-Frank financial services bill may have created a new kind of uncertainty for large firms with any financial activities. If they are designated as "too big to fail," federal oversight may control their operations. This generates uncertainty about future business operations and potential profits.

To the extent that manufacturers are uncertain about upcoming changes in the legal and regulatory environments, they are unable to assess the likelihood of positive returns on investment and react by either holding assets in cash, at least temporarily, or finding other, more certain investment environments. The effects of uncertainty are well stated by Richard Fisher of the Federal Reserve Bank of Dallas:

> Operating a business under conditions of excessive uncertainty is like playing a game when you don't know the rules. Without rules, it is impossible to develop a strategy or playbook. Business leaders are forced to call a time-out: They remove their players from the field and anxiously wait on the sidelines until they have a better idea how to play the game. Too much uncertainty can create economic stasis as more and more decisions get delayed, retarding commitments to expansion of payrolls and capital expenditures and slowing the entire economy.[6]

> How will the landscape be sculpted by the new Bureau of Consumer Financial Protection, and how will potential conflicts between this bureau and other financial regulatory agencies be managed? What will come of the Treasury's study, as mandated by the act, of Fannie Mae and Freddie Mac? What capital requirements and eventual exemptions in over-the-counter derivatives transactions will be established?[7]

[6] Richard W. Fisher, "Random Refereeing: How Uncertainty Hinders Economic Growth (With Reference to Lucky Puppies, Pepper...and Salt, Lawrence Summers and Thomas Jefferson)" (Remarks, Greater San Antonio Chamber of Commerce, San Antonio, TX, July 29, 2010), http://dallasfed.org/news/speeches/fisher/2010/fs100729.cfm
[7] Ibid.

Irreversible investments are those investments in capital whose resale value will be less than the price paid. As an outgrowth of his dissertation, Ben Bernanke, currently chairman of the Federal Reserve Board, wrote about the effects of uncertainty on irreversible investments:

> The key observation is that, when individual projects are irreversible, agents must make investment timing decisions that trade off the extra returns from early commitment against the benefits of increased information gained by waiting. In an environment in which the underlying stochastic structure is itself subject to random change, events whose long-run implications are uncertain can create an investment cycle by temporarily increasing the returns to waiting for information.[8]

Other research supports Bernanke's observations. Empirically, using volatility of stock market returns, Leahy and Whited used panel data on 600 U.S. manufacturing firms over the period of 1981 to 1987 and found that uncertainty in returns had a significant negative effect on investment that was irreversible.[9]

Bulan also explores the types of investments that are irreversible. He finds that if uncertainty affects an individual firm, as opposed to the entire industry, there can be as much as 1/3 less investment by the firm.[10] He provides a table that tries to highlight investments that are more likely to be irreversible and hence likely to be more affected by an uncertain regulatory environment. Types of irreversible investments include office and industrial buildings, specialized machinery, electrical equipment, aircraft, and farm buildings and equipment.[11] Firms in these types of industries are likely to need more regulatory certainty over a longer period than others. In addition, Rosenberg found that idiosyncratic uncertainty for Finnish firms reduced both investment and labor demand and had a larger impact on smaller firms and on more diversified firms.[12]

Uncertainty has more to do with future regulations than proposed or existing regulations. Various tools, such as the semi-annual Unified Agenda of Federal Regulatory and Deregulatory Actions and the annual Regulatory Plan that has statements of agency priorities, offer some help. But these tools indicate mainly what the government plans to do in the coming year. Planning horizons for irreversible investments usually have much longer timeframes. Informal signals about possible new regulations and taxes may contradict statements in the unified agenda and regulatory plan. Longer-run priority lists with commitment to sound analysis that will inform policy may be helpful in offsetting some of the uncertainty. A movement in this direction would reduce the number of regulations, have longer periods from the final rules to compliance, and more constant regulatory plans. In the absence of these kinds of changes, capital will always be seeking higher returns, and companies will wait only so long for certainty. Eventually, overseas markets may look more attractive.

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[8] Ben S. Bernanke, "Irreversibility, Uncertainty, and Cyclical Investment," *Quarterly Journal of Economics* 97, 1 (February 1983): 85–106 .

[9] Leahy, John V., and Toni M. Whited, "The Effect of Uncertainty on Investment: Some Stylized Facts," *Journal of Money, Credit and Banking*, XXVIII (1996): 64–83.

[10] Laarni T. Bulan, "Real Options, Irreversible Investment and Firm Uncertainty: New Evidence from U.S. Firms," *Review of Financial Economics: Special Issue on Real Options,* 14 (2005): 255–279, http://people.brandeis.edu/~lbulan/RFE.pdf.

[11] Ibid.

[12] Matts Rosenberg, "Does Uncertainty Affect Investment and Labor Demand? (working paper, Swedish School of Economics and Business Administration, August 2002), http://dhanken.shh.fi/dspace/bitstream/10227/165/2/471-951-555-735-6.pdf.

International Competitiveness

The federal regulatory system is one key factor in determining whether investors continue to invest in the United States. In tough economic times, it should be expected that countries would seek to reform their regulatory systems to compete for international capital. To the extent that U.S. regulations are more onerous than those in other countries—particularly countries that offer similar property rights and infrastructure—the United States risks losing investment capital and jobs.

In the World Bank Doing Business rankings, the United States fell from number one in highest quality regulatory systems a few years ago to number four in 2010, behind Singapore, New Zealand, and Hong Kong (http://www.doingbusiness.org/). In the 1980s, the United States was one of only four countries to require that regulatory impact analysis be done before major regulations could be issued. Now all 30 countries in the OECD, as well as the EU itself, have such programs. Many countries have wider coverage than ours. The 2010 World Bank *Doing Business* study reported that 287 reforms in 183 countries made it easier to do business. The United States, however, did not implement one reform. One might argue that the United States has not suffered an absolute decline in regulatory quality, but it has suffered a relative decline.

Research by Stewart distinguishes between two different kinds of regulation and their effects on international competition: product regulation (e.g., product liability rules, pesticide regulation, taxes on lead content in fuels) and process regulations (e.g., mine reclamation laws, liability for hazardous waste cleanup). He concludes that process regulations are likely to make domestic firms less competitive internationally than product regulations, which he asserts can be more easily harmonized between countries.[13] This, of course, assumes that countries will harmonize these regulations. He concludes that nations that have "more stringent regulatory and liability laws" like the U.S. have a disadvantage as new industrial facilities will locate where compliance costs are lower. He adds that the problem is worse where there are "relatively rigid, legalistic command-and-control" types of regulations.[14]

Competitiveness between countries due to their regulatory regimes can be similar to competition between U.S. states. One report shows that California "lost 79,000 manufacturing jobs between 2003 and 2007, while seven other states with a meaningful percentage of U.S. manufacturing gained 62,000."[15] "Part of the problem," according to the senior managing economist at the (Milken) Institute, "is that regulations change so often in California that it's difficult for companies to plan. The state enacted an average of 15 changes in labor law each year from 1992 to 2002, four times more than state legislatures averaged

[13] Richard B. Stewart, "Environmental Regulation and International Competitiveness," *Yale Law Journal*, 102 (1993): 2039–2106.

[14] Ibid, 2056–57. The Congressional Budget Office studied the effects on productivity from environmental regulation in the mid 1980's. They found "no statistical evidence"… to support the contention that environmental regulation has hampered the efficiency of the U.S. economy in the aggregate." However, they did find that the type of environmental regulation, that is, how flexible the standard (e.g., performance standards versus control over technology) can affect economic performance. Congressional Budget Office, *Environmental Regulation and Economic Efficiency* (Washington, DC: Congress of the United States, 1985), http://www.cbo.gov/ftpdocs/94xx/doc9460/85-CBO-007.pdf.

[15] Alana Semuels, "Losses of factory jobs in California blamed on regulation," *Los Angeles Times* (June 23, 2009), http://www.latimes.com/business/la-fi-factory23-2009jun23,0,3441163.story.

nationwide."[16] This type of effect would also certainly be a problem at the national and international level.

THREE KEY FACTORS FOR QUALITY REGULATION

Regulations can and do affect employment through their effects on productivity, uncertainty, competition, and compliance. Regulation's largest effect is on the composition of U.S. production between market-demanded goods and regulatory goods. Increasing employment to produce regulatory goods that are not as highly valued as market goods raises the risk of a misallocation of resources, which will leave the United States less competitive than other countries. Three factors are key to achieving quality regulations:

- There is evidence, supported by sound science, of a significant and systemic social problem (not just a potential problem), i.e., a market failure, a government failure or an overriding social need, that the regulation will address.
- There is evidence (again, supported by sound science) of at least one solution that will solve a significant part of the problem.
- The agency has a solution that is worth the costs and will not put the United States at a competitive disadvantage.

When examining federal rulemaking processes and specific regulations, we suggest three sources of information to help identify regulations that do not satisfy the above stated criteria.

1. The Mercatus Regulatory Report Card,
2. The International Trade Administration of the Department of Commerce, and
3. Administrative challenges to agency evidence and data under the Data Quality Act.

Mercatus Regulatory Report Card

For the last two years, the Mercatus Center has evaluated the quality and use of economic analysis in the promulgation of economically significant proposed regulations—those for which the costs or benefits are projected to be $100 million or more.[17]

Every president since President Nixon has used an executive order to require agencies to conduct and consider economic analysis before making a decision on whether to promulgate a new regulation. If the information is incomplete or of poor quality, at a minimum it shows that that agencies are ignoring the president's instructions. Given the value of economic analysis in improving regulation, when agencies fail to conduct quality analysis, there is a higher risk the rulemaking process will yield lower quality regulatory policy.

We use three assessment criteria to evaluate rulemakings for the Regulatory Report Card:

1. Openness: How easily can the informed layperson find the analysis, understand it, and verify the underlying assumptions and data?

[16] Ibid.
[17] The Regulatory Report Card can be found at www.Mercatus.org/reportcard.

2. Analysis: How well does the analysis define and measure the outcomes or benefits the regulation seeks to accomplish, define the systemic problem the regulation seeks to solve, identify and assess alternatives, and evaluate costs and benefits?
3. Use: How much did the analysis affect decisions in the proposed rule, and what provisions did the agency make for tracking the rule's effectiveness in the future?

Within those three categories, we selected four questions that will help to identify regulations that may not meet the standards for sound regulations and therefore deserve further scrutiny.[18]

1. Systemic Problem: How well does the analysis identify and demonstrate the existence of a market failure or other systemic problem the regulation is supposed to solve?

   If an agency scores poorly on this, there is no evidence that the agency is addressing a real social problem as opposed to regulating for other reasons.

2. Alternatives: How well does the analysis assess the effectiveness of alternative approaches?

   If an agency has not identified and analyzed a number of approaches, it may mean the agency has settled on an approach without ever knowing if there are more effective ways to solve the problem.

3. Benefit-cost analysis: How well does the analysis assess costs and benefits?

   If an agency has done a poor job on this, it may mean that the there is no theory or evidence that the regulation will solve the problem or do so at a reasonable cost.

4. Net Benefits: Did the agency maximize net benefits or explain why it chose another option?

   If an agency cannot or chooses not to explain why it has not chosen the option that maximizes net benefits for society, the agency may have ignored the evidence that its analysis has produced.

For each of the above four questions (as for all questions in our Report Card), we used a six-point scoring scale (see Table 1) to determine how well the agency did in its regulatory analysis. Each question was scored by at least two reviewers.

Table 1: Regulatory Scorecard Scoring Scale

Score	**Criteria**
5	Complete analysis of all or almost all aspects, with one or more "best practices"
4	Reasonably thorough analysis of most aspects and/or shows at least one "best practice"
3	Reasonably thorough analysis of some aspects
2	Some relevant discussion with some documentation of analysis

[18] As the report card is updated as new rules are proposed, additional rules may be added to this list.

1	Perfunctory statement with little explanation or documentation
0	Little or no relevant content

If an economically significant regulation scores poorly (a "2" or lower) on all four questions, it becomes a reasonable candidate for further review. Table 2 below shows regulations that scored a "2" or worse on each of these four questions. A score of "2" reflects only some relevant discussion with some documentation of analysis. A score of "1" indicates the agency merely offered an assertion with no supporting analysis or data, and a zero indicates that the topic was not even discussed.

Table 2: Poorly Scoring Rules on Four Questions

Rule Title	Agency	Pub Date	Systemic Problem	Alternatives	Benefit-Cost Analysis	Net Benefits
Hazard Communications Standard	Department of Labor	9/30/2009	2	1	2	1
This proposed rule would modify OSHA's existing Hazard Communication Standard to conform with the UN Globally Harmonized System of Classification and for safety data sheets.						
Renewable Fuels Program	Environmental Protection Agency	5/26/2009	1	1	2	1
With this proposed rule, the Environmental Protection Agency is enacting the requirements of the Energy Independence and Security Act of 2007 (EISA).						
Cranes and Derricks in Construction	Department of Labor	10/9/2008	2	2	2	2
OSHA is proposing a rule to protect employees from the hazards associated with hoisting equipment when used to perform construction activities.						
Refuge Alternatives for Underground Coal Mines	Department of Labor	6/16/2008	1	2	2	2
The Mine Safety and Health Administration (MSHA) is proposing requirements for refuge alternatives in underground coal mines and the training of miners in their use.						
HIPAA Electronic Transaction Standards	Health and Human Services	8/22/2008	1	2	2	1
This rule proposes to adopt updated versions of the standards for electronic transactions originally adopted in the regulations entitled, “Health Insurance Reform: Standards for Electronic Transactions.”						

Table 2: Poorly Scoring Rules on Four Questions (cont'd)

Employment Eligibility Verification	Federal Acquisition	6/12/2008	1	2	2	1
The rule proposes to amend the Federal Acquisition Regulation (FAR) to require that certain contracts contain a clause requiring that the contractor and subcontractor utilize the E-Verify System to verify employment eligibility of all newly hired employees of the contractor or subcontractor and all employees directly engaged in the performance of work in the United States under those contracts.						
Modifications to the HIPAA Privacy, Security, and Enforcement Rules	Health and Human Services	7/14/2010	0	0	1	0
The purpose of these modifications is to implement recent statutory amendments under the Health Information Technology for Economic and Clinical Health Act (''the HITECH Act'' or ''the Act''), to strengthen the privacy and security protection of health information, and to improve the workability and effectiveness of these HIPAA Rules.						

International Trade Administration

Another source of information on the potential regulatory impact on competitiveness and jobs is the list of rulemakings commented on by the International Trade Administration (ITA) of the U.S. Department of Commerce. The ITA "consults with U.S. industry and regulatory agencies to assess the impact of proposed domestic and international regulatory policies that affect U.S. industry's competitiveness and the expansion of U.S. exports."[19] The ITA publishes a list of proposed rulemakings by federal agencies for which it offers input at http://trade.gov/mas/ian/industryregulationmasinput/index.asp. Although the website does not detail specific concerns raised by the ITA, the rulemakings in which the ITA has expressed an interest are listed in Table 3.

Table 3: International Trade Administration (Department of Commerce) Manufacturing and Services Input into Federal Rulemaking Process

Proposed Rules

EPA's National Ambient Air Quality Standards for Ozone

Final Rules

DHS' Importer Security Filing Rule

OSHA's Worker Exposure to Hexavalent Chromium Rule

Acropora Critical Habitat Rule

Americans With Disabilities Act

Container Security Initiative

Corporate Average Fuel Economy Standards

Definition of Solid Waste

Electronic Stability Control System Safety Standards

Enhanced Airworthiness Program for Airplane Systems

Ephedrine, Pseudoephedrine, and Phenylpropanolamine Requirements

Global Harmonization Standard

Green Sturgeon Critical Habitat Rule

Industrial Boilers Maximum Achievable Control Technology

[19] http://trade.gov/competitiveness/index.asp

Lead National Ambient Air Quality Standards

Lithium Batteries Rule

Mandatory Reporting of Greenhouse Gases Rule

New Conservation and Management Measures and Resolutions for Antarctic Marine Living Resources Under the Auspices of CCAMLR

Occupational Exposure to Beryllium

Occupational Exposure to Crystalline Silica

Real ID Act

Renewable Fuel Standards (I) and (II)

Rules of Origin

Safety Standards for Cranes and Derricks

Side Impact Protection Safety Standards

Smalltooth Sawfish Critical Habitat Rule

Spill Prevention, Control, and Countermeasure Rules (I) and (II)

Tailpipe Greenhouse Gas Emissions Standards

Transportation Worker Identification Credential

Transporter Continuous Operation

Western Hemisphere Travel Initiative [20]

Data Quality Act

The Data Quality Act, passed in 2001, requires federal agencies to ensure and maximize the "quality, utility, objectivity, and integrity" of information disseminated by the agencies. Each federal agency has produced its own guidelines demonstrating how it intends to comply with this law. There have been some substantive challenges to data, but agency responses are commonly slow, in contradiction to their own guidance.[21] The purpose of the act is to ensure that agencies utilize reliable data and evidence. The current statute does not provide for judicial review of agency decisions. The lack of more substantive penalties for presenting poor data may have limited the challenges that have been offered so far. Though some

[20] http://www.trade.gov/mas/ian/industryregulationmasinput/index.asp

[21] For a discussion on how this law affected EPA early on, see Nina Hardman "Impact of the Data Quality Act on Decisionmaking at the Environmental Protection Agency" (major paper, Virginia Polytechnic Institute and State University, Blacksburg, VA, 2006), http://nr.ncr.vt.edu/major_papers/Nina_Hardman.pdf.

challenges may be spurious, Data Quality Act challenges may offer the best list available of possible problems with evidence used to support proposed regulations. A list of data quality petitions can be found at the Center for Regulatory Effectiveness website, http://thecre.com/quality/petitions.html.

CONSIDERATIONS FOR THE FUTURE

Congress has not engaged in a comprehensive review of regulatory processes and standards since the passage of the Administrative Procedures Act in 1946. As a result of subsequent laws and executive orders, there is a somewhat more transparent process as well as more analysis. However, there is room for much improvement.[22] As Wray points out, "The Government Accountability Office (GAO) asserts that a thorough review of the regulatory process is particularly timely now because of the long-term fiscal imbalance facing the United States."[23]

First, analysis from the Mercatus Regulatory Report Card shows that, for many economically significant regulations, the quality of regulatory analysis is generally low, varies widely, and has not improved much between the last two administrations.[24] This condition exists despite decades-old requirements to conduct in-depth economic analysis and use it in decision making. What's more, although the Office of Information and Regulatory Affairs exercises at least some check over executive branch agencies' quality and use of analysis, no such check exists for "independent agencies." Some, such as the Securities and Exchange Commission, do some economic analysis, but many do not, and there is no mechanism for oversight of those that do.

Second, a key concern that has surfaced from the Mercatus Regulatory Report Card is that many agencies provide no evidence that they use the analysis they produce. This occurs despite the fact that Executive Order 12866 has a fairly easy test to meet: agencies are required to show that costs are "justified" by benefits. One study found that many agency economists felt that their analysis was at best ignored or, at worst in some cases, they were ordered to come to the "right" conclusion.[25] Potential solutions to this problem are discussed below.

Third, it is not clear whether the Data Quality Act in its present form—because it is too new or because there have not been that many challenges—ensures that agencies present high-quality evidence. However, it is clear that challenges to data quality begin with the agency and end within the executive branch. There is no challenge beyond the executive branch. Some consideration might be given to either judicial or congressional oversight of data challenges.

Fourth, the General Accounting Office and others have highlighted the problems associated with "ensuring outcome-oriented performance measurement and accountability for individual rules."[26] Ultimately, if agencies are to assess whether a regulation has achieved its objective, the agencies must

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[22] See for example, http://mercatus.org/publication/assessing-quality-regulatory-analysis.

[23] Henry Wray, "Performance Accountability for Regulations," *21st Century Regulation: Discovering Better Solutions for Enduring Problems* (Arlington, VA: Mercatus Center at George Mason University, 2007) 23, citing U.S. Government Accountability Office, *Regulatory Reform: Prior Reviews of Federal Regulatory Process Initiatives Reveal Opportunities for Improvements* (Washington, DC: GAO, 2005) 11.

[24] Ibid.

[25] Richard Williams, "The Influence of Regulatory Economists in Federal Health and Safety Agencies" (working paper, Mercatus Center at George Mason University, 2008), http://mercatus.org/publication/influence-regulatory-economists-federal-health-and-safety-agencies-0.

[26] Henry Wray, "Performance Accountability for Regulations," *21st Century Regulation: Discovering Better Solutions for Enduring Problems* (Arlington, VA: Mercatus Center at George Mason University, 2007) 23 and Scott Farrow, "Improving the Regulatory Process Throughout its Life Cycle: Nine Recommendations to a New Administration," *21st Century Regulation: Discovering Better Solutions for Enduring Problems* (Arlington, VA: Mercatus Center at George Mason University, 2007), 37.

begin with clear, outcome-oriented objectives. All regulations should articulate outcomes, such as the number of childhood asthma cases prevented by an environmental regulation, rather than inputs or activities, such as the number of people "protected" (i.e., covered by) the regulation. Next, they should have measurable targets with timeframes for achievement of those targets. In many cases, this also should include an end point that indicates when a problem can be considered "solved." Achievement of these goals should be a major determinant of an agency's budget.[27]

Fifth, even having sound economic analysis available to decision makers in bureaucracies does not necessarily change the incentives within those agencies. Golden writes, "…beginning with the New Deal era in Washington and the behavioral era in the social sciences, scholars identified a variety of factors that led them to believe that the career bureaucracy was insufficiently responsive to elected presidents."[28] A number of incentives might cause agency decision makers to go a different direction than that desired by the president or Congress. In some cases, personal philosophies will dominate decisions—whether those are pro- or anti-business or anti-capitalism. In some cases, decisions are made just to reduce pressure from the media or political pressure. Some decisions are intended to reward specific stakeholders, whether businesses or activists. Finally, some are taken to build up a bureaucratic empire or simply attain promotion. Congress can help to keep agencies on track by taking a more active role in monitoring regulations to ensure that bureaucracies follow the spirit as well as the letter of the law.

With the above in mind, a number of things can be done to improve the regulatory process, including:

1) Require that all agencies, including independent agencies, conduct economic analysis (including effects on international competition). Also require that all analyses must be approved by the Office of Management and Budget. Further, in order to be certain that decision makers (and other interested parties) have access to the data, models, and conclusions of these analyses, they should be published at least six months prior to the issuance of the proposed regulation.
2) Ensure that all regulations are tied to Government Performance and Results Act goals. Require agencies to track progress in meeting those goals. Tie agencies' budgets to their success or failure rates.
3) Consider reforms that require Congress to exercise more oversight over regulations, which may also include conducting independent economic research.

Finally, there is the issue of too many federal rules overall. The *Federal Register* contains all rules, proposed rules, presidential documents, and notices. In 2008, there were 31,879 of these.[29] Since 2002, each annual addition has contained more than 70,000 pages.[30] These pages are dense. For a person to keep up, she would need to read every page, the equivalent of one person reading 400 novels per year.[31] By contrast, the first volume of the *Federal Register*, published in 1936, was 11 pages long.[32]

Final rules are codified in the *Code of Federal Regulations (CFR)*. In 2009, these rules were published in 226 books, which took 163,333 pages.[33] There is no prioritization, and there is no way to search by type

[27] Three Mercatus scholars—Maurice McTigue, Henry Wray, and Jerry Ellig—will outline how regulatory agencies should be held accountable for results in a forthcoming book to be published by Taylor and Francis.
[28] Marissa Martino Golden, *What Motivates Bureaucrats? Politics and Administration During the Reagan Years* (New York: Columbia University Press, 2000), 4.
[29] http://www.federalregister.gov/learn/fr_facts.pdf.
[30] Ibid.
[31] This calculation assumes that each page in the *Federal Register* is about twice the length of the page of a paperback novel and that the average novel has around 350 pages.
[32] Ibid.
[33] Ibid.

of industry to see which rules apply to which industries. The language is also dense. (See the appendix of the rules for the quality of green beans for an example.) Assuming an individual could read and comprehend the *CFR* at a rate of about 5 minutes per page and could read for 10 hours a day, it would take nearly 4 years to read the entire *CFR*.

The penalties for not knowing what is in the *CFR* are huge. As one author put it, "Failure to learn of and conform to regulations can have serious legal consequences, including criminal penalties. Failure to find the cheapest way to conform can be expensive. Failure to learn of proposal for new laws or regulations and to participate in hearings and use other channels to help shape their final form can bring permanently higher costs or loss of markets. So can failure to foresee changes in laws and regulations and to take timely action in advance to minimize losses or maximize gains from the change."[34]

The federal government has been adding rules since the very first regulatory agency and, with a few notable exceptions, not subtracting many.[35] Many studies from different branches of social science find perverse effects from having too many rules. Hwang and Lin report that "if information load keeps increasing and finally exceeds the capacity of decision makers, information processing will cease being increased. Instead, decision makers will decrease information processing as they experience a phenomenon termed 'information overload."[36] Another author identified a problem with additional rules in the nuclear power industry: "Regulators and industry officials come to view conformity or compliance with the rules rather than actual performance indicators as the measure of safety. So much time and attention are devoted to these surrogate measures of safety ('complying with the regulations') that the larger goal of such regulation is frequently neglected."[37] Hale cites railway, nuclear, and chemical industries, where he analyzes the attempt to turn humans into robots where "rulebooks continually grew and never diminished." This practice ends up making staff into "habitual and professional violators of rules, just to get their work done."[38]

One interesting approach to solving the problem may come from other areas, particularly the creation of a mechanism similar to that used by the Base Realignment and Closing Commission (BRAC). Mercatus scholar Jerry Brito has analyzed why BRAC succeeded and found that it was politically feasible for members to vote for the principle of closing bases, but not for particular base closures.[39] BRAC allowed members to vote mostly on the principle, not on the specifics, by grouping bases together and requiring an up or down vote on the group. Establishing a BRAC-type commission for every major area of federal regulation might provide an objective mechanism for identifying and eliminating regulations that are no longer necessary or as effective as needed.

CONCLUSION

Federal regulations govern every aspect of our lives and affect nearly every major business decision. Yet, for most Americans, both the costs and the benefits of regulations are hidden. Many of the historical reasons for regulation, such as information failures, are dissipating in a modern world dominated by web-based communication. As evidenced by the recent financial crisis and the last several decades of study,

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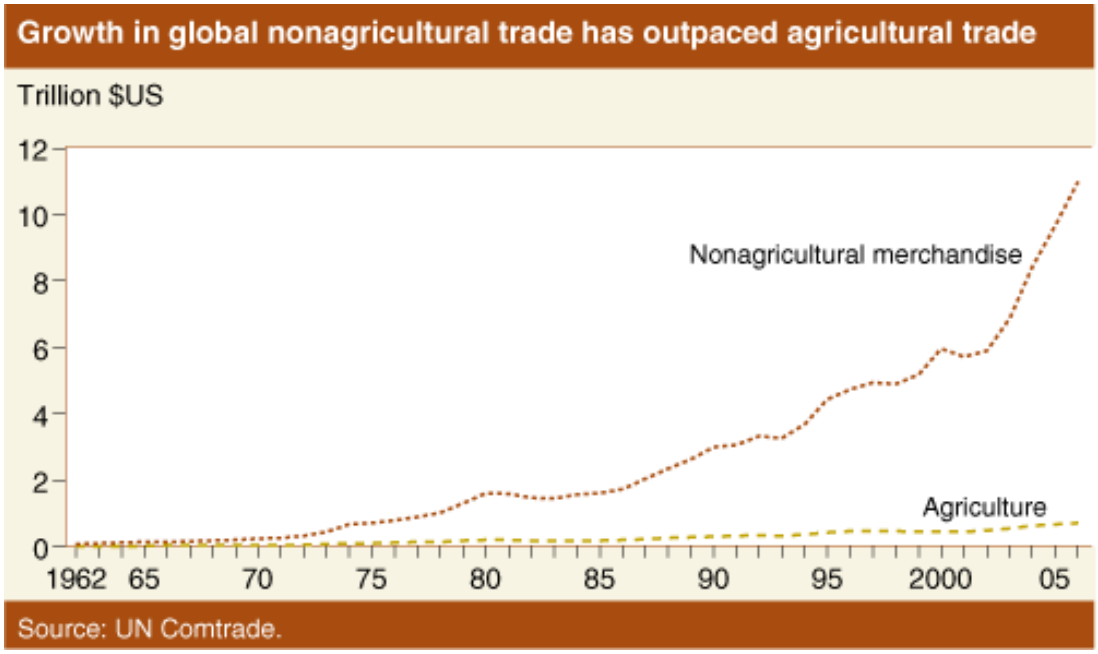
[34] Edward Fulton Denison, *Accounting for Slower Economic Growth: the United States in the 1970's* (Washington, DC: The Brookings Institution, 1979), 130.
[35] Airline deregulation was on notable exception.
[36] Mark I. Hwang and Jerry Lin, "Information Dimension, Information Overload and Decision Quality," *Journal of Information Science* 25 (1999): 213.
[37] Jack N. Barkenbus, "Is Self Regulation Possible?" *Journal of Policy Analysis and Management* 2 (1983): 578.
[38] Andrew Hale, "Railway Safety Management: The Challenge of the New Millennium," (keynote address, Occupational Safety & Health Conference of the Union Internationale des Chemins de Fer, Paris, France, September 1999), 7-8.
[39] Jerry Brito, "The BRAC Model for Spending Reform," *Mercatus on Policy* 70 (February 2010), http://mercatus.org/publication/brac-model-spending-reform.

government failures are as real, and can impose just as severe consequences, as market failures. If the United States is to remain competitive, it must not waste society's valuable resources. Ultimately, it is not a victory if there is a temporary growth in jobs, but those jobs produce goods and services that prevent the United States from being internationally competitive. Other countries have been looking carefully to reduce their regulatory burdens.[40] As international trade grows (see Chart 1), the United States cannot afford to shackle itself with rules that are inefficient or ineffective.

Chart 1: Growth in International Trade



Source: Anne Effland et al. "World Trade Organization and Globalization Facilitate Growth in Agricultural Trade," *Amber Waves* 6 (June 2008): 26, http://www.ers.usda.gov/AmberWaves/June08/Features/WTO.htm.

[40] The EU15 project is an example. "In the wake of worst economic downturn since the Great Depression, the importance of effective regulation has never been as obvious as it is now. EU15 aims to stimulate debate on regulatory policy and how to do it better, to bring about real reform that improves lives." *http://www.oecd.org/document/24/0,3746,en_2649_34141_41909720_1_1_1_1,00.html*

APPENDIX

Standard of Quality for Green Beans

21 CFR Part 155, Subpart B Section 120

(b)*Quality.* (1) When tested by the method prescribed in paragraph (b)(2) of this section:

(i) In the case of cut beans and diagonal cut beans under paragraphs (a)(2)(iii) (*c*) and (*d*) of this section and mixtures of two or more optional forms under paragraph (a)(2)(iii)(*g*) of this section, not more than 60 units per 340 g (12 oz) drained weight are less than 13 mm (0.50 in) long: *Provided,* That where the number of units per 340 g (12 oz) drained weight exceeds 240, not more than 25 percent by count of the total units are less than 13 mm (0.50 in) long.

(ii) In case there are present pods or pieces of pods 10.7 mm (27/64-inch) or more in diameter, there are not more than 12 strings per 340 gm (12 ounces) of drained weight which will support 227 gm (one-half pound) for 5 seconds or longer.

(iii) The deseeded pods contain not more than 0.15 percent by weight of fibrous material.

(iv) There are not more than 10 percent by weight of blemished units of which amount not more than one-half may be materially damaged by insect or pathological injury. A unit is considered blemished when the aggregate blemished area exceeds the area of a circle 3 mm (1/8in) in diameter. Materially damaged means that the unit is damaged to the extent that the appearance or eating quality of the unit is seriously affected.

(v) There are not more than 8 unstemmed units per 340 g (12 oz) drained weight.

(vi) The combined number of leaves, detached stems, and other extraneous vegetable matter shall not average more than 3 pieces per 340 g (12 oz) drained beans.

(2) Canned beans shall be tested by the following method to determine whether they meet the requirements of paragraph (b)(1) of this section:

(i) Determine the gross weight of the container. Open and distribute the contents of the container over the meshes of a U.S. No. 8 circular sieve with openings of 2.36 mm (0.0937 in), which has been previously weighed. The diameter of the sieve is 20.3 cm (8 in) if the quantity of contents of the container is less than 1.36 kg (3 lb) and 30.5 cm (12 in) if such quantity is 1.36 kg (3 lb) or more. The bottom of the sieve is woven-wire cloth that complies with the specifications of such cloth set forth in "Official Methods of Analysis of the Association of Official Analytical Chemists," 15th ed. (1990), vol. 2, p. xii, Table 1, "Nominal Dimensions of Standard Test Sieves (USA Standard Series)," under the heading "Definitions of Terms and Explanatory Notes," which is incorporated by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from the AOAC INTERNATIONAL, 481 North Frederick Ave., suite 500, Gaithersburg, MD 20877, or may be examined at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:*http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.* Without shifting the material on the sieve, incline the sieve 17 to 20deg. to facilitate drainage. Two minutes after drainage begins, weigh the sieve and the drained material. Record in grams (ounces) the weight so found, less the weight of the sieve, as the drained weight. Dry and weigh the empty container

and subtract this weight from the gross weight to obtain the net weight. Calculate the percent of drained liquid in the net weight.

(ii) Pour the drained material from the sieve into a flat tray and spread it in a layer of fairly uniform thickness. Count the total number of units. For the purpose of this count, loose seeds, pieces of seed, loose stems, and extraneous material are not to be included. Divide the number of units by the drained weight recorded in paragraph (b)(2)(i) of this section and multiply by 340 to obtain the number of units per 340 g (12 oz) drained weight.

(iii) Examine the drained material in the tray, weigh and record weight of blemished units, count and record the number of unstemmed units; and, in case the material consists of the optional ingredient specified in paragraph (a)(2)(iii) (*c*), (*d*) or (*f*) of this section, count and record the number of units which are less than 13 mm (0.50 in.) long. If the number of units per 340 g (12 oz.) is 240 or less, divide the number of units which are less than 13 mm (0.50 in.) by the drained weight recorded in paragraph (b)(2)(i) of this section and multiply by 340 to obtain the number of such units per 340 g (12 oz.) drained weight. If the number of units per 340 g (12 oz.) exceeds 240, divide the number of units less than 13 mm (0.50 in.) long by the total number of units and multiply by 100 to determine the percentage by count of the total units which are less than 13 mm (0.50 in.) long.

(*a*) Divide the weight of blemished units by the drained weight recorded in paragraph (b)(2)(i) of this section and multiply by 100 to obtain the percentage by weight of blemished units in the container.

(*b*) Divide the number of unstemmed units by the drained weight recorded in paragraph (b)(2)(i) of this section and multiply by 340 to obtain the number of unstemmed units per 340 g (12 oz.) of drained weight.

(iv) Remove from the tray the extraneous vegetable material, count, record count, and return to tray.

(v) Remove from the tray one or more representative samples of 99 to 113 g (31/2to 4 ounces) covering each sample as taken to prevent evaporation.

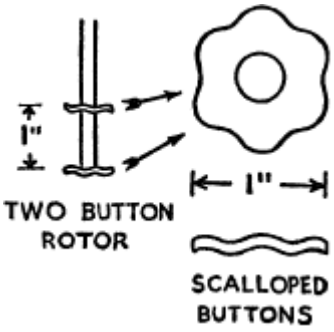
(vi) From each representative sample selected in paragraph (b)(2)(v) of this section, discard any loose seed and extraneous vegetable material and detach and discard any attached stems. Except with optional style of ingredient specified in paragraph (a)(2)(iii)(*b*) of this section (pods sliced lengthwise), trim off, as far as the end of the space formerly occupied by the seed, any portion of pods from which the seed has become separated. Remove and discard any portions of seed from the trimmings and reserve the trimmings for paragraph (b)(2)(viii) of this section. Weigh and record the weight of the trimmed pods. Deseed the trimmed pods and reserve the deseeded pods for paragraph (b)(2)(viii) of this section. Remove strings from the pods during the deseeding operation. Reserve these strings for testing as prescribed in paragraph (b)(2)(vii) of this section. In the case of pods sliced lengthwise, remove seed and pieces of seed and reserve the deseeded pods for use as prescribed in paragraph (b)(2)(viii) of this section.

(vii) If strings have been removed for testing, as prescribed in paragraph (b)(2)(vi) of this section, test them as follows:

Fasten clamp, weighted to 250 g (8.8 oz.), to one end of the string, grasp the other end with the fingers (a cloth may be used to aid in holding the string), and lift gently. Count the string as tough if it supports the 250 g (8.8 oz.) weight for at least 5 seconds. If the string breaks before 5 seconds, test such parts into which it breaks as are 13 mm (1/2in.) or more in length; and if any such part of the string supports the 250 g (8.8 oz.) weight for at least 5 seconds, count the string as tough. Divide the number of tough strings by

the weight of the sample recorded in paragraph (b)(2)(v) of this section and multiply by 340 to obtain the number of tough strings per 340 g (12 oz.) drained weight.

(viii) Combine the deseeded pods with the trimmings reserved in paragraph (b)(2)(vi) of this section, and, if strings were tested as prescribed in paragraph (b)(2)(vii) of this section, add such strings broken or unbroken. Weigh and record weight of combined material. Transfer to the metal cup of a malted-milk stirrer and mash with a pestle. Wash material adhering to the pestle back into cup with 200 cc of boiling water. Bring mixture nearly to a boil, add 25 cc of 50 percent (by weight) sodium hydroxide solution and bring to a boil. (If foaming is excessive, 1 cc of capryl alcohol may be added.) Boil for 5 minutes, then stir for 5 minutes with a malted-milk stirrer capable of a no-load speed of at least 7,200 rpm. Use a rotor with two scalloped buttons shaped as shown in exhibit 1 as follows:



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Transfer the material from the cup to a previously weighed 30-mesh monel metal screen having a diameter of about 9-10 cm (31/2to 4 in.) and side walls about 2.5 cm (1 in.) high, and wash fiber on the screen with a stream of water using a pressure not exceeding a head (vertical distance between upper level of water and outlet of glass tube) of 152 cm (60 in.), delivered through a glass tube 7.6 cm (3 in.) long and 3 mm (1/8in.) inside diameter inserted into a rubber tube of 6 mm (1/4in.) inside diameter. Wash the pulpy portion of the material through the screen and continue washing until the remaining fibrous material, moistened with phenolphthalein solution, does not show any red color after standing 5 minutes. Again wash to remove phenolphthalein. Dry the screen containing the fibrous material for 2 hours at 100 deg. C, cool, weigh, and deduct weight of screen. Divide the weight of fibrous material by the weight of combined deseeded pods, trimmings, and strings and multiply by 100 to obtain the percentage of fibrous material.

(ix) If the drained weight recorded in paragraph (b)(2)(i) of this section was less than 340 g (12 oz.), open and examine separately for extraneous material, as directed in paragraph (b)(2)(iv) of this section, additional containers until a total of not less than 340 g (12 oz.) of drained material is obtained. To determine the number of pieces of extraneous vegetable material per 340 g (12 oz.) of drained weight, total the number of pieces of extraneous vegetable material found in all containers opened, divide this sum by the sum of the drained weights in these containers and multiply by 340.

(3) Determine compliance as specified in 155.3(b) except that a lot shall be deemed to be in compliance for extraneous plant material based on an average of all containers examined.

(4) If the quality of the canned green beans or canned wax beans falls below the standard of quality prescribed by paragraph (b)(1) of this section, the label shall bear the general statement of substandard quality specified in 130.14(a) of this chapter, in the manner and form therein specified; but in lieu of the

words prescribed for the second line inside the rectangle the following words may be used, when the quality of canned green beans or canned wax beans falls below the standard in one only of the following respects:

(i) "Excessive number very short pieces", if the canned green beans or canned wax beans fail to meet the requirements of paragraph (b)(1)(i) of this section.

(ii) "Excessive number blemished units", if they fail to meet the requirements of paragraph (b)(1)(iv) of this section.

(iii) "Excessive number unstemmed units", if they fail to meet the requirements of paragraph (b)(1)(v) of this section.

(iv) "Excessive foreign material", if they fail to meet the requirements of paragraph (b)(1)(vi) of this section.

ABOUT RICHARD WILLIAMS

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Dr. Williams is an expert in benefit-cost analysis and risk analysis, particularly associated with food safety and nutrition. He has published in *Risk Analysis* and the *Journal of Policy Analysis and Management* and has addressed numerous international governments, including the United Kingdom, South Korea, Yugoslavia, and Australia.

Dr. Williams received his PhD and MA in economics from Virginia Tech in Blacksburg, VA, and his BS in business administration from Old Dominion University in Norfolk, VA.

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