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TESTIMONY

REGULATIONS CONTRIBUTE TO POVERTY

PATRICK A. MCLAUGHLIN
Senior Research Fellow, Mercatus Center at George Mason University

House Committee on the Judiciary, Subcommittee on Regulatory Reform, Commercial and Antitrust Law
Hearing: Triple Threat to Workers and Households: Impacts of Federal Regulations on Jobs, Wages, and Startups

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Chairman Marino, Ranking Member Johnson, and members of the committee: thank you for inviting me to testify today. As an economist and senior research fellow at the Mercatus Center at George Mason University, my primary research focuses on regulatory accumulation and the regulatory process, so it is my pleasure to testify on today's topic.

My testimony focuses on how our regulatory process, contrary to what many expect, contributes to poverty.

Some people maintain the notion that the costs of regulation are limited to compliance costs, and that these costs are paid primarily by businesses. This belief is incorrect. I will highlight two specific ways that the costs of regulation can actually be regressive, meaning that the costs are disproportionately borne by low-income households:

1. Regulations have regressive effects by increasing the prices of basic necessities, such as electricity, housing, and telephone services, which typically consume a larger share of the budget of lower-income households than of wealthier households.

2. Some types of regulations are associated with higher levels of income inequality, most likely because entrepreneurs at the lowest segments of the income distribution have relatively greater difficulty surmounting costly barriers to entry created by regulations.

With those points in mind, I hope to present this problem as an opportunity for policymakers to take positive steps toward regulatory reform—steps that will reduce the harm of federal regulations that are acting to impoverish, rather than help, low-income households.

For more information or to meet with the scholar, contact
Robin Bowen, 703-993-8582, rbowen@mercatus.gmu.edu
Mercatus Center at George Mason University, 3434 Washington Blvd., 4th Floor, Arlington, Virginia 22201

THE REGRESSIVE EFFECTS OF REGULATION

In contrast to the belief that businesses pay the costs of regulation, regulatory growth is in fact associated with increases in the prices of all goods to all consumers. While economists have long known that regulations increase prices, researchers have only recently been able to actually estimate the effect in a comprehensive manner. In a recent study, which I've attached, economists Dustin Chambers and Courtney Collins found that a 10 percent increase in the quantity of federal regulations is associated with an approximately 0.7 percent increase in prices.[1] While 0.7 percent may sound small, consider that this same study found that regulations affecting households grew by 33.6 percent between the years 2000 and 2012.[2] That implies that price inflation of 2.31 percent has been associated with federal regulatory growth over that time period.

That percentage is the average across all households. But the price inflation associated with regulation is worse for low-income households because those households spend more of their income on heavily regulated goods than high-income households. For the most part, these are basic necessities.[3] For example, electricity costs make up more than twice as much of the budgets of low-income households compared to high-income households, with the former spending just over 4 percent of their budgets on electricity, whereas high-income households spend less than 2 percent on it.[4] Similarly, telephone services take up about three times as much space in the budgets of poorer households (about 3.25 percent) relative to that of high-income households (1.1 percent). All of these goods, many of them essentials, are heavily regulated, so the price inflation associated with regulation is also relatively high.

Price volatility is a problem as well. The same study found that regulations are positively correlated with price volatility. Budget-constrained households need to plan future spending, and price volatility hurts them in that regard as well. Low-income households are not only more budget constrained, but they also spend about 15 percent more than high-income households on goods with the highest price volatility.[5] If regulations are contributing to that price volatility, then this is another way that they are contributing to poverty.

REGULATION AND INCOME INEQUALITY

Regulations can also contribute to income inequality. In a study that I have attached, a coauthor and I recently examined a sample of 175 countries to learn more about the relationship between regulation and income inequality. We found that those countries with more stringent entry regulations tend to experience significantly higher levels of income inequality.[6] The explanation for this is pretty straightforward: regulations can act as barriers to entry, and the higher those barriers to entry, the costlier it is for an entrepreneur to start a business. When entrepreneurs cannot legally open a business because of the cost of dealing with regulations, they may abandon the idea altogether.

Consider the long-standing reputation of America as the land of opportunity—where you can lift yourself up by your bootstraps with enough hard work. Indeed, entrepreneurship has historically been one of the best paths from rags to riches.[7] If regulations are inhibiting this process, that means people with low incomes have fewer opportunities to rise from the low end of the income distribution to middle and high levels. In fact, the possibility that regulations are hindering this process is consistent with the growing evidence that regulatory accumulation creates substantial drag on economic growth by impeding innovation and entrepreneurship, as I have previously testified before this subcommittee.[8]

1. Dustin Chambers and Courtney Collins, "How Do Federal Regulations Affect Consumer Prices? An Analysis of the Regressive Effects of Regulation" (Mercatus Working Paper, Mercatus Center at George Mason University, Arlington, VA, February 2016).
2. Author's calculation based on data in column 4 of table 4 of Chambers and Collins, "How Do Federal Regulations Affect Consumer Prices?" Total regulations in 2000 were 83,890, and by 2012 they had grown to 112,092—a difference of 28,202, or 33.6 percent.
3. Ibid., table 2, 25.
4. Ibid., table 2, 25.
5. Ibid., 20.
6. Patrick A. McLaughlin and Laura Stanley, "Regulation and Income Inequality: The Regressive Effects of Entry Regulations" (Mercatus Working Paper, Mercatus Center at George Mason University, Arlington, VA, January 2016).
7. Vincenzo Quadrini, "Entrepreneurship, Saving, and Social Mobility," *Review of Economic Dynamics* 3, no. 1, (2000): 1–40.
8. Patrick A. McLaughlin, "The Searching for and Cutting Regulations That Are Unnecessarily Burdensome Act of 2014" (Testimony

CONCLUDING REMARKS

In conclusion, I have just discussed how regulations are contributing to poverty. First, they have regressive effects caused by increasing prices, particularly for those items that low-income households purchase most. Second, regulations can contribute to income inequality by increasing the costs of starting a business. This makes it more difficult for entrepreneurs to start their own businesses and begin the climb up the income ladder.

Although these facts are surely disheartening, there is good news. Because regulations disproportionately harm low-income households, regulatory reform offers a feasible opportunity to enact a policy that would effectively act like a tax refund by virtue of reducing the price inflation associated with regulations. Additionally, regulatory reform could lead to gains in job growth, increased entrepreneurship, and greater innovation. However, unlike a one-time tax refund, the benefits from regulatory reform would repeat year after year, they would not increase the deficit, and they would be progressive in their nature—accruing foremost to low-income households.

The regulatory process in the United States leads to regulatory accumulation. Federal regulatory code currently contains over 1 million individual regulatory restrictions.[9] If you were insane enough to read regulations as a full-time job, it would take you over three years to read through the entire code.[10] The accumulation of regulation is both undesirable—because of a bevy of unintended consequences associated with it—and avoidable.[11] If this accumulation of regulation is harming not only the economy overall but especially low-income households, it is certainly time to consider ways that we can eliminate regulations that are obsolete, duplicative, ineffective, or otherwise undesirable.

before the House Committee on the Judiciary, Subcommittee on Regulatory Reform, Commercial and Antitrust Law, Mercatus Center at George Mason University, Arlington, VA, February 11, 2014).

9. Omar Al-Ubaydli and Patrick A. McLaughlin, "RegData: A Numerical Database on Industry-Specific Regulations for All United States Industries and Federal Regulations, 1997–2012," *Regulation & Governance* (December 2015).

10. Patrick A. McLaughlin, "The Code of Federal Regulations: The Ultimate Longread," Mercatus Center at George Mason University, April 1, 2015, http://mercatus.org/publication/code-federal-regulations-ultimate-longread-game-thrones-hunger-games.

11. For several of the unintended consequences of regulatory accumulation, see Patrick A. McLaughlin and Robert Greene, "The Unintended Consequences of Federal Regulatory Accumulation," Economic Perspectives, Mercatus Center at George Mason University, May 8, 2014, http://mercatus.org/publication/unintended-consequences-federal-regulatory-accumulation. McLaughlin and Williams, among others, offer suggestions on how such regulatory reform could be achieved. See Patrick A. McLaughlin and Richard Williams, "The Consequences of Regulatory Accumulation and a Proposed Solution" (Mercatus Working Paper, Mercatus Center at George Mason University, Arlington, VA, February 2014).

How Do Federal Regulations Affect Consumer Prices?

An Analysis of the Regressive Effects of Regulation

Dustin Chambers and
Courtney A. Collins

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Abstract

While several scholarly papers have documented potential costs associated with the burden of federal regulations, none have provided a comprehensive empirical analysis of the effect of regulations on consumer prices. This study examines the relationship between regulatory expansion and higher prices and asks whether those price increases have a disproportionately negative effect on low-income households. By combining microdata from the Consumer Expenditure Survey with industry-specific regulation information from RegData and price changes in the Consumer Price Index, we find evidence of regressive regulatory effects. Our results suggest that the poorest households spend a larger proportion of their income on goods that are heavily regulated and subject to both high and volatile prices.

JEL codes: I18, D12, H23, L51

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Author Affiliation and Contact Information

Dustin Chambers, PhD
Associate Professor of Economics
Salisbury University
DLChambers@salisbury.edu

Courtney A. Collins, PhD
Assistant Professor of Economics
Rhodes College
collinsc@rhodes.edu

How Do Federal Regulations Affect Consumer Prices?

An Analysis of the Regressive Effects of Regulation

Dustin Chambers and Courtney A. Collins

1. Introduction

The 2012 *Code of Federal Regulations* includes more than a million individual restrictions, representing a regulatory burden that has grown by more than 28 percent over the previous 15 years (Al-Ubaydli and McLaughlin 2015). Certain industries have experienced even higher regulatory growth over the same time period. For example, federal regulations related to highway and street construction increased by 94 percent over the past decade and a half. The natural gas distribution industry experienced a 109 percent rise in regulations, and the corresponding increase in the water and sewage industry was 125 percent.[1]

There is substantial variation in the types of regulations that exist both across and within industries, as well as in their numerous potential effects on consumers. This study focuses specifically on how regulation growth affects consumers through its impact on prices. While most regulations are not passed with the explicit goal of raising prices (and, in fact, some are created specifically to decrease prices), compliance with regulations often translates into higher costs for businesses, which in turn may drive up prices for consumers. If this rise in prices occurs, regulatory growth is unlikely to affect all consumers equally. Because high- and low-income families have different spending patterns, regulations that increase prices in a particular market sector often have a disparate socioeconomic impact.

[1] All estimates of the regulatory burden are from the RegData database of the Mercatus Center at George Mason University (North American Industry Classification System [NAICS] 2212—natural gas, NAICS 2213—water sewage, and NAICS 2373—highway and street construction).

Recent information from the Consumer Expenditure Survey (CE) reveals that households just below the poverty line spend a substantially larger percentage of their income on transportation and gasoline, utilities, food, and health care than do high-income households (Goldstein and Vo 2012). To the extent that, on balance, regulations raise prices, regulations will cause regressive effects if they are concentrated in the economic sectors where low-income households spend the most. The purpose of this study is to analyze the potential regressive effects of federal regulations—first by documenting differences in consumer spending patterns across income levels and then by examining how regulatory growth has affected the prices of goods and services for consumers across the income distribution spectrum.

By using detailed microdata from the CE, we first assess whether there are meaningful differences in the spending habits of average consumers from different income groups. We join these data with information on regulatory restrictions by industry, available from the RegData database of the Mercatus Center at George Mason University, and data from the Consumer Price Index (CPI) to determine the effect of regulatory expansion on price levels. We allow for differences in the inflation rate by consumer income group to examine potential regressive regulation effects. We find evidence of a statistically significant relationship between regulation and price levels: specifically, a 10 percent increase in total regulations leads to a 0.687 percent increase in consumer prices. We also find that households from the poorest income groups experience both the highest overall levels of inflation and the highest levels of price volatility.

2. Background on the Costs of Federal Regulations

Measuring the full costs of federal regulations is difficult. The Regulatory Right-to-Know Act of 1999 requires the Office of Management and Budget (OMB) to publish an annual report detailing the costs and benefits of major federal regulations. In its May 2014 report, OMB

estimates the annual cost of regulations to be between $74 billion and $110 billion.[2] However, OMB openly acknowledges that this estimate is far from a complete approximation of all federal regulatory costs. For example, the report excludes costs associated with rules that are more than 10 years old and rules that are not defined as *major* (i.e., rules that have an annual economic effect of less than $100 million).

Crain and Crain (2014) estimate that the true comprehensive cost is more than $2 trillion,[3] including all regulations and accounting for many indirect costs, such as reduced economic productivity, that are absent from OMB's analysis. The authors note that some portion of these costs is passed on to consumers in the form of higher prices, although they neither model nor empirically estimate this increased consumer inflation.

Several papers address the potentially harmful unintended consequences of regulations. McLaughlin and Williams (2014) outline some of the adverse outcomes related to regulatory accumulation, or the "buildup" of old or obsolete regulations inherent in the US regulatory system, including lower rates of economic growth, reductions in the establishment of new businesses, and reduced international competitiveness. There is a substantial literature illustrating these regulatory consequences in both the United States and abroad.

For example, Dawson and Seater (2013) examine the specific impact of federal regulations on economic growth and estimate that since 1949 increased regulation has significantly decreased the rate of economic growth, resulting in an accumulated GDP loss of $38.8 trillion by 2011. Other papers report a negative relationship between regulatory growth and economic productivity, including Nicoletti and Scarpetta (2003); Djankov, McLiesh, and

[2] This cost estimate is in 2014 dollars, as quoted by Crain and Crain (2014). The actual estimate cited in OMB (2014) is $68.5 billion to $101.8 billion, in 2010 dollars.
[3] This estimate is in 2014 dollars.

Ramalho (2006); and Crafts (2006). Gørgens, Paldam, and Würtz (2003) explore the possibility of a nonlinear relationship between regulation and economic growth and find that the bulk of the effect stems from a transition from moderate to heavy levels of regulation.

One key channel through which federal regulations are likely to affect economic growth is by creating significant barriers to new business entry. Benson (2004) discusses this barrier as a significant opportunity cost to regulation. Empirical studies find that increased regulatory start-up costs lead to lower rates of new business entry in both Europe (Klapper, Laeven, and Rajan 2006) and the United States (Fisman and Sarria-Allende, 2004). Ciccone and Papaioannou (2007) examine the time it takes new businesses to comply with regulatory entry requirements and find that reducing red tape is associated with increases in the number of start-ups.[4]

A significant body of literature examines the potential unintended consequences and costs of environmental regulations, specifically the Clean Air Act, the Clean Water Act, and their succeeding amendments. Becker and Henderson (2000) show how the Clean Air Act altered businesses' decisions regarding the construction, location, and size of new plants. In response to the new regulations, firms were more likely to build smaller plants in low-pollution areas. Although the firms' decisions were in compliance with environmental legislation, the costs of building inefficiently sized plants in suboptimal locations were significant.[5] Greenstone (2002) documents substantial job losses, decreases in capital investments, and reduced output as a result of the same regulations. Hazilla and Kopp (1990) emphasize the importance of accounting for social costs when evaluating the effects of environmental regulations, rather than simply including private expenditures. They highlight the potential spillover effects outside the industry

[4] For other examples detailing the relationship between regulation and economic growth, see Ardagna and Lusardi (2010) and Benson (2015).
[5] For related research detailing the effects for specific industries, see Becker and Henderson (2001). Additionally, Becker (2003) examines how local community attributes predict the level of investment in pollution abatement.

that are directly affected by the regulations and note that the social costs of regulation likely increase across time.

An additional consequence of federal regulations is their potential regressive effects. While there is a substantial body of literature on the regressive effects of taxation,[6] few studies explore the distributional consequences of regulation. Two exceptions are Crain and Crain (2010) and Thomas (2012). Crain and Crain analyze the effects of regulations on businesses and find that small firms bear a disproportionate burden of compliance costs.

Thomas (2012) argues that many health and safety regulations are regressive because they target risks that often reflect the preferences of high-income households. Relative to their low-income counterparts, high-income households have a stronger preference for reducing low-probability risks that are costly to mitigate. When these risks are addressed by regulations, all market participants (regardless of income) pay the cost—in the form of higher prices for consumers and lower wages for workers. Thomas contends that regulatory costs are disproportionately borne by low-income households, inasmuch as they are obliged to pay for higher levels of health and safety than they would in the absence of regulation. In addition, these costs potentially crowd out private risk-reduction spending by low-income households.

Miller (2012) allows for the possibility of distributional effects in her analysis of the federal energy conservation regulation for new residential dishwashers. The Department of Energy, which issued the new regulation in 2012,[7] estimated that it would increase dishwasher prices by 13 percent. Interestingly, Miller reports that the breakeven point for a consumer to

[6] See Poterba (1991) for an analysis of gasoline taxes, Wier et al. (2005) for an analysis of carbon dioxide taxes, and Borren and Sutton (1992) for an examination of cigarette taxes.

[7] Department of Energy, Direct Final Rule: Energy Conservation Standards for Residential Dishwashers, RIN No. 1904-AC64, May 30, 2012, https://www.federalregister.gov/articles/2012/05/30/2012-12340/energy-conservation-program-energy-conservation-standards-for-residential-dishwashers#h-12.

recover a higher dishwasher price from energy savings is 11.8 years of use, which is longer than the average 9- to 12-year life span of a new residential dishwasher. Miller calculates that the breakeven point for senior adults and low-income households is more than 13 years, suggesting that these consumers are harmed even more than other households by the energy savings regulation.

While studies such as Miller's examine the effect of specific regulations on prices in particular industries, no study to date offers a comprehensive analysis of the impact of regulations on consumer prices in general. This paper contributes to the literature by empirically estimating the relationship between increased regulations and inflation and by examining the extent to which regulations are regressive. We begin by examining basic spending differences across different income strata, using data from the CE and incorporating regulatory restrictions from the RegData database. We then use the expenditure data to create basket weights to construct several CPI-based price indexes. Finally, we use the price indexes in an analysis of the effect of regulations on consumer prices.

3. Differences in Spending Patterns across Income Groups

Our fundamental argument is based on the assumption that low- and high-income households differ in their spending habits. In particular, low-income households spend a larger percentage of their income on particular goods and services relative to high-income households. Before determining how regulations affect consumer prices and exploring any potential heterogeneity in the effect for different types of consumers, it is important to document the differences in spending patterns across income groups. Specifically, we are interested in whether spending by low-income households is more heavily concentrated in consumption categories that are subject to higher levels of regulation.

The Consumer Expenditure Survey

To answer this question, we combine two sets of data: public-use microdata from the CE and industry-specific data on regulatory restrictions from the RegData database. The CE includes quarterly interview surveys, conducted by the Bureau of Labor Statistics (BLS), of approximately 7,000 US households. It is constructed as a rotating panel, in which each household is interviewed once every three months for five quarters and then is dropped from the survey. The survey contains information related to household income levels and demographic characteristics, as well as detailed data that describe household expenditures.

The CE dataset is organized by the Universal Classification Codes (UCC) system, which consists of six-digit codes that categorize goods and services into specific purchase groups. Households are queried about the details of their monthly spending habits. Each purchase is recorded and labeled with an appropriate UCC. The CE also includes income files for each household. Matching the expenditure files with the income files allows us to examine UCC expenditure habits by income level. We examine the spending activities of five income quintiles—the lowest 20 percent of income earners, the second-to-lowest 20 percent of income earners, the middle 20 percent of income earners, the second-highest 20 percent of income earners, and the highest 20 percent of income earners. By aggregating monthly spending values across the year and averaging by income quintile, we derive average annual spending by UCC for each income quintile.

Merging these data with information on the regulatory burden for each expenditure category allows us to determine if there are differences in spending habits in terms of regulations between households of different income levels.

RegData

While *regulations* can be used to refer to the guidelines published in the *Code of Federal Regulations*, it is important for our empirical work that we precisely define the term. Our regulation measures come from RegData, the Mercatus Center's database of industry-specific federal regulations. RegData is unique in its method of measuring regulatory burden. It analyzes rules and guidelines published in the *Code of Federal Regulations*, but instead of reporting page counts or number of rules, it counts each specific binding restriction that appears in the text of policies. Each time a policy includes a word indicating an obligation, such as *must* or *shall*, that word is counted as a restriction.[8] These restrictions are weighted by their industry relevance and summed to produce a regulatory index value.[9] Regulatory index values are reported by industry and by year, so it is possible to track regulatory restrictions within a particular industry over time. All our empirical calculations and estimates of "regulations" refer to this regulatory index from RegData.

RegData reports regulations by two-, three-, and four-digit codes of the North American Industry Classification System (NAICS). To combine this information with the expenditure and income data from the CE, we link NAICS codes to UCCs using commodity input-output tables from the Bureau of Economic Analysis and the Consumer Expenditure/Personal Consumption Expenditure Concordance from the BLS.[10]

We have approximately 350 unique UCCs for each year. To create broader spending categories—and to facilitate an eventual examination of the effect of regulation on prices—we collapse UCCs into the basic CPI expenditure categories used by the BLS. Using the BLS's CE-

[8] Five words are coded as restrictions in RegData: *shall*, *must*, *may not*, *prohibited*, and *required*.
[9] For details on the methodology of calculating measures of regulation, see www.regdata.org/methodology.
[10] For a detailed description of the methodology mapping regulations from the NAICS space onto goods and services in the UCC space, see appendix A.

to-UCC aggregation scheme, we match the 61 expenditure categories from the CE with our regulation dataset indexed by UCC code.[11] Our combined dataset includes data for the years 2000–2012.

By using income information available from the CE, we divide households into five income quintiles. This division allows us to examine spending habits across a broad range of income levels. Our measures of regulation include both *direct regulations*, which capture restrictions affecting a good or service itself, and *input regulations*, which capture restrictions affecting the supply chain of inputs for a particular good or service (see appendix A for details). The variable *total regulations* is the sum of direct and input regulations.

Consumer Expenditure Patterns

Table 1 (page 24) shows the percentage of spending for each income quintile in categories with very high and very low levels of regulation. These numbers represent average values for each income quintile spanning the time period 2000–2012. Households in the highest-income quintile make 54.5 percent of all their expenditures in the 25 most heavily regulated expenditure categories, where regulations for goods and services are measured directly (excluding input regulations). The corresponding number for the lowest-income households is 60.3 percent, which is a 10 percent higher consumption share compared to high-income households. Including all regulations, the relative difference is about 12 percent.

A mirror-opposite pattern is evident when comparing expenditures in the *least regulated* expenditure categories. The highest-income group allocates 32.19 percent of its total spending to

[11] As a starting point, we used the expenditure category to UCC mapping contained in the BLS's Dstub2010.txt aggregation processing file. For missing or sparsely covered expenditure categories, we used an additional expenditure category to the UCC mappings. For more information on this file, see "2010 Consumer Expenditure Diary Survey: Public Use Microdata, User's Documentation," http://www.bls.gov/cex/2010/csxdiary.pdf.

goods and services subject to the fewest direct regulations, while the bottom-income quintile spends 25.64 percent of its total expenditures in the same category. Total regulations reflect the same patterns, with high-income households spending more (38.6 percent) in lightly regulated areas than low-income households (31.9 percent).

Table 2 (page 25) presents the expenditure categories for which the difference in expenditure allocation between the bottom- and top-income quintiles is the greatest.[12] These are areas in which the lowest-income families allocate a larger share of their overall spending than do higher-income families. These categories contain rent and utilities, including electricity, telephone services, and audio and visual equipment and services. Households from the lowest-income quintile spend more than five-and-a-half times as much on rented dwellings than households from the highest-income quintile, as a percentage of total expenditures.[13] They spend almost 85 percent more on electricity as a percentage of total expenditures and 50 percent more on telephone service. Other areas where the poorest households spend a larger proportion of their income are drugs and medical supplies, medical insurance, and miscellaneous food items.

To explore the regulatory restrictions that apply to these categories, figure 1 (page 26) plots annual direct regulations for each of these expenditure categories from 2000 to 2012.[14] For most categories, there is a general upward trend in regulations over the sample period. Exceptions are the cigarette industry, which has experienced a downward trend (at least until recently), and the category that includes medical services and insurance, which experienced a

[12] For a complete list of the top 20 expenditure categories and their corresponding direct and total regulation ranks for each of the five income quintiles, see appendix B.
[13] Note that spending for each quintile is reported as a percentage of overall total expenditures for each income group. The level of total spending in most categories is greatest for households in the top quintile.
[14] RegData contains no federal direct restrictions for the nonalcoholic beverages expenditure category, so we include no corresponding graph of changes in regulation for this category.

sharp initial drop in regulations, followed by a steep increase. The category containing rented dwellings also experienced a recent spike in regulations, following earlier variation across time. Most of the expenditure categories that capture basic utilities show substantial growth in regulations: direct regulations for electricity, telephone service, and audio and visual equipment and services all increased by 33 percent to 37 percent. Regulations in the gasoline industry grew by 33 percent. The largest increase occurred in the drugs and medical supplies category, which experienced an almost 90 percent increase in direct regulations.

Taken together, these data support the argument that there are important differences in consumer spending patterns by income groups. We find that, relative to the wealthiest households, the poorest households spend a larger percentage of their income on goods and services that are more highly regulated and a smaller percentage of their income on goods that are less regulated. There are particularly large differences in spending patterns for utilities, including natural gas, electricity, and cable or satellite television service. The regulatory burden for these industries has increased sharply over time. In most cases, these increases have outpaced the overall average growth rate of all regulations.

4. Calculating Price Changes by Income Group

Given the established differences in spending habits across income groups, we seek to determine whether increased regulations have a disproportionately negative effect on low-income households in the form of higher prices for goods and services, which compose a large share of their expenditures. To explore these potential regressive regulatory effects, we must link our expenditure/regulation dataset with price changes across time. Because our data are organized by CPI expenditure categories, we can easily merge annual CPI price levels into our existing

dataset. The BLS publishes expenditure data by household income quintiles for the same categories, allowing us to examine differences across income groups.[15]

By using these data, we construct consumption expenditure basket weights for five household income groups. We exclude nonconsumption expenditures (e.g., charitable contributions, life insurance payments, and retirement contributions) and match the remaining 61 expenditure categories with the CPI price data.[16] The resulting balanced panel contains price and basket weight data for 61 categories spanning the years 2000–2012 (793 observations). Table 3 (page 27) contains the names of each expenditure category, the average basket weight by income group, and the direct, input, and total regulations for each expenditure category. We also use the expenditure basket weights to construct annual aggregate weighted regulation series for each income group:

$$Reg_t^h = \sum_i w_{it}^h \cdot Reg_{it}, \quad (1)$$

where w_{it}^h are expenditure basket weights equal to the proportion of spending in year t on expenditure category i by households in quintile h ($h = 1, 2, \ldots, 5$), and Reg_{it} are the regulations that apply to expenditure category i in year t. Table 4 (page 29) reports the weighted regulations that apply to the combined, all-households group.

By combining the basket weights and price data, we construct two alternative price indexes for each income group. The first is a classic Laspeyres price index, whereby for each income group (h), fixed basket weights from the base year (2000), denoted by $\overline{w}_{i,2000}^h$, are multiplied by their corresponding current-year category prices (P_{it}) and summed over the expenditure categories (indexed by i) to derive the following index:

[15] See Expenditure Shares Tables by income quintile, 1989–2011: http://www.bls.gov/cex/csxshare.htm.
[16] See Archived Consumer Price Index Detailed Report Information: http://www.bls.gov/cpi/cpi_dr.htm. For the lowest-income quintile, the included categories covered 85.2 percent of expenditures in 2012. For the highest-income quintile, said categories covered 79.9 percent of expenditures in 2012.

$$P_t^{h,Laspeyres} = \sum_i \overline{w}_{i,2000}^h \cdot P_{it}. \quad (2)$$

The widely used Laspeyres price index suffers from a number of well-known problems, most notably substitution bias. To overcome this shortcoming, we calculate the following chained price index:

$$P_t^{h,chained} = P_{t-1}^{h,chained} \times \prod_i \left(\frac{P_{it}}{P_{it-1}}\right)^{\frac{w_{it}^h + w_{it-1}^h}{2}}. \quad (3)$$

Table 5 reports the aggregate price indexes for both foregoing methodologies. Interestingly, regardless of the index used, the rate of inflation is highest for the poorest households, declining with increased income.

5. The Effect of Regulations on Prices

Price Levels

Figure 2 (page 30) provides a scatter plot of the weighted total regulations from each of the five income groups against their corresponding group-specific chained price series. Clearly, there is a strong positive correlation between total regulatory burden and total prices. That said, both prices and regulations trended upward over the sample period (2000–2012), so it is important to explicitly control for this common trend to rule out any spurious correlation. To do this, we compare the growth rate of prices over time (i.e., inflation) against the growth rate of regulations.[17] The simplest model of this relationship is the following autoregressive time series equation:

$$p_t^h = \alpha + \beta reg_{t-1}^h + \rho p_{t-1}^h + u_t^h, \quad (4)$$

where p_t^h is the log first difference of the chained price series for household h, reg_{t-1}^h is the log first difference of the total regulations series for household h lagged one year, and u_t^h is a mean

[17] In practice, we transform the price and regulation data by taking their natural logarithm and first differencing each series. This calculation effectively yields the growth rate of each series.

zero error term. Intuitively, this equation specifies that for a given income group the current rate of inflation (p_t^h) is determined by the prior year's inflation rate (p_{t-1}^h), as well as the prior growth rate in regulations (reg_{t-1}^h), which accounts for the natural lag that exists between creation and publication of new regulations and their measurable impact on the market for goods and services. The estimation results for equation (4) are provided in column 1 of table 6B (page 33). The coefficient on lagged regulatory growth is positive and strongly statistically significant, equaling 0.0648, implying that a 1 percent increase in total regulatory restrictions increases consumer prices by an additional 0.0648 percent.[18]

To ensure that these results are robust and that inclusion of a one-period lag ($t-1$) of prior regulatory growth is appropriate, we consider seven alternative specifications of equation (4), which include every combination of the following three variables: current regulatory growth (t), a one-period lag ($t-1$) of regulatory growth, and a two-period lag ($t-2$) of regulatory growth. The results are reported in table 6A (page 32). Without exception, current regulatory growth and the two-period lag of regulatory growth are statistically insignificant in every variant of equation (4) in which they appear. This result supports our earlier theory that there is a natural gestation period between the publication of new regulatory restrictions and their measurable impact on prices. After the impacted production processes have been altered to comply with new regulatory dictates, there is an associated jump in the price of these goods and services. Moving forward, these regulations do not promote additional inflation as their effect is already captured in the change in the price level of the affected goods and services, suggesting that longer lags of regulatory growth should not have a statistically significant effect on current inflation. We also perform a lag selection exercise, examining the Akaike Information Criterion

[18] We use White (period) robust standard errors throughout unless otherwise specified.

and the Schwarz Information Criterion for alternative versions of equation (4). The version of equation (4) that includes only reg_{t-1}^{h} was selected by both the Akaike and the Schwarz criteria as it possessed the lowest values for both.

One obvious shortcoming of equation (4) is that the rate of inflation for each income group differs (see table 5). Therefore, the common intercept assumption of equation (4) should be replaced with unique intercepts for each income group, as in the following:

$$p_t^h = \alpha^h + \beta reg_{t-1}^h + \rho p_{t-1}^h + u_t^h. \quad (5)$$

Equation (5) is a dynamic fixed-effect panel model. Unfortunately, standard fixed or random effects methods yield biased coefficient estimates in such models. Therefore, we use Arellano and Bond's (1991) generalized method of moments (GMM) estimator, which was specifically developed to estimate dynamic fixed-effect panel models. A brief sketch of this estimation procedure will follow; those interested in a fuller exposition should see Arellano and Bond. To begin, equation (5) is first-differenced to eliminate the income-group fixed effects. Next, a suitable instrument set is constructed, consisting of lagged predetermined endogenous variables expressed in levels (i.e., $p_{t-2}^h, p_{t-3}^h, p_{t-4}^h$) and the exogenous variables expressed in first differences (i.e., Δreg_{t-1}^h).[19] For the Arellano and Bond estimator to yield consistent and efficient estimates, the model's errors cannot be autocorrelated; that is, $E(u_t^h u_s^h) = 0$ for $s \neq t$. Following Arellano and Bond, we use the Sargan test for overidentifying restrictions, which tests the validity of moment restrictions implied by the instruments. Under the null hypothesis that the moment restrictions are valid (which implies the absence of second- or higher-order autocorrelation), the test statistic is asymptotically chi-square distributed.

[19] Arellano and Bond (1991) specify the use of all predetermined lagged endogenous variables, whereas we follow the common practice of using less than the full set of lagged variables (i.e., we use periods $t-2$, $t-3$, and $t-4$ inflation rates but not period $t-5$ and prior). We did use larger instrument sets that included more lags, but the results (not reported in this paper but available on request) were nearly identical.

The Sargan test statistic for equation (5) is equal to 4.95 with an associated p value of .176. Therefore, we cannot reject the null hypothesis that the overidentifying restrictions are valid. Therefore, the *n*-step GMM estimation results reported below are both consistent and efficient.[20]

The estimation results for equation (5) are given in column 2 of table 6B. Despite the major differences in model specification and estimation of equations (4) and (5), the estimated coefficient values are remarkably similar. Specifically, the coefficient on lagged regulatory growth is statistically significant, equaling 0.0687, implying that a 10 percent increase in total regulations increases consumer prices by an additional 0.687 percent.

Our results strongly support the assertion that regulatory restrictions promote inflation across the socioeconomic spectrum, as measured by changes in the cost of baskets of goods and services purchased by various income groups. To ensure that this result is not driven by the basket weights themselves, we eliminate them completely and investigate the relationship between regulatory growth and price changes for each expenditure category (e.g., bakery products, major appliances, men's apparel). Specifically, we estimate the following dynamic panel model, which does not employ *any* household expenditure weights:

$$p_{it} = \alpha_i + \beta reg_{it-1} + \rho p_{it-1} + u_{it}, \tag{6}$$

where p_{it} is the log first difference of the original price series for expenditure category i ($i = 1, \dots, 61$), α_i is the unique intercept for each expenditure category, reg_{it-1} is the log first difference of the regulations that apply to expenditure category i in the prior year, and u_{it} is a

[20] The original Arellano and Bond (1991) estimator involves two steps, whereby an initial consistent estimate of the dynamic panel yields residuals that are used to construct a GMM weighting matrix, that is, used to more efficiently reestimate the dynamic panel. Our software package, Eviews, iteratively repeats this process, each time updating the GMM weighting matrix until convergence is achieved. The result is a more efficient estimator than that proposed by Arellano and Bond.

mean zero error term.[21] Essentially, equations (5) and (6) are very similar except that we are modeling the price increases for individual expenditure categories rather than the broader rate of inflation over a basket of goods. The unique intercepts accommodate different long-run rates of inflation by category type. The results are reported in column 3 of table 6B. While smaller in magnitude, the coefficient on lagged regulatory growth is statistically significant, equaling 0.0360, implying that a 10 percent increase in total category-specific regulatory restrictions increases the price of goods and services in that category by an additional 0.36 percent.

Price Volatility

Clearly, increased regulations promote inflation, which is bad for all households but especially so for poor households as they already experience the highest rate of inflation of any income group (see table 5). Alarmingly, it is also the case that regulations are positively correlated with price volatility. This result is especially important given the potential claim that regulations are a form of social insurance and drive up prices but reduce price volatility. Examining the data, the opposite is true.

For each expenditure category, we calculate its price variance and rank categories from least to most volatile. Next, we divide the 61 categories into quartiles by volatility, with the 15 least volatile categories in quartile 1 and the 16 most volatile categories in quartile 4 (see table 7, page 34). For each quartile, we calculate the average price variance, average price levels, average regulations (direct, input, and total), and average budget shares for each income group over the sample period (2000–2012). The results, provided in table 8 (page 36), are striking. Each successive price variance quartile is much more volatile, and the average price level and average total regulations are also sharply higher. In comparison to wealthier households, poorer

[21] See table 3 for a list of the detailed expenditure categories.

households allocate a much larger share of total expenditures in the most volatile price categories. In the two most stable price quartiles, wealthier households allocated 15.3 percentage points more spending than the poorest households. By contrast, the poorest households allocated 15.3 percentage points more spending than the wealthiest households in the two most volatile quartiles. In summary, poor households spend a substantially larger proportion of their income on more expensive, volatile, and heavily regulated goods and services.

6. Conclusion

A significant and often hidden cost of regulation is its effect on consumer prices. As with taxes, the burden of regulatory costs is likely to be passed along, at least in part, to consumers in the form of higher prices. While the literature explores other specific costs of regulation, noting that increased consumer prices are a probable consequence of heavy regulation, this study is the first to provide a thorough empirical analysis of that relationship across industries. Our dataset, which combines information from the CE, RegData, and price changes from the CPI, allows us to determine the effects of regulations on prices and to ask whether those effects are regressive.

We document consumer spending patterns by income group and find that the lowest-income households spend a larger fraction of their income in areas that are more heavily regulated. The opposite is true of the wealthiest households; they allocate more of their spending to goods and services that are subject to fewer regulations. Our estimates of the effect of increased regulations on price levels suggest a positive and statistically significant relationship. A 10 percent increase in regulations is associated with a 0.687 percent increase in prices. This increase is particularly concerning for low-income households, which face higher levels of overall inflation than high-income households. Finally, our analysis of price volatility suggests that low-income households also face higher price volatility.

It is important to emphasize that these results do not include state regulations. If state regulations have a qualitatively similar impact on consumer prices, the regressive regulatory impact of all regulations on poor households is even greater than what our results suggest. If policymakers want to improve the welfare of the most vulnerable members of society, they should earnestly seek ways to cut the regulatory burden faced by US firms.

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Table 1. Average Percentage of Total Expenditure by Income Quintiles from Consumer Expenditure Survey, 2000–2012

	Bottom 20%	Quintile 2	Quintile 3	Quintile 4	Top 20%	% Difference (Bottom Quintile vs. Top Quintile)
Top 25 Most-Regulated Expenditure Categories						
Direct Regulations	60.15%	58.42%	57.22%	57.22%	54.51%	10.35%
Total Regulations	58.73%	58.13%	56.64%	54.31%	52.23%	12.44%
Top 25 Least-Regulated Expenditure Categories						
Direct Regulations	25.64%	27.28%	28.99%	30.97%	32.19%	-20.35%
Total Regulations	31.88%	32.22%	33.92%	36.07%	38.63%	-17.47%

Source: Authors' calculations using the Consumer Expenditure Survey and the RegData database of the Mercatus Center at George Mason University.

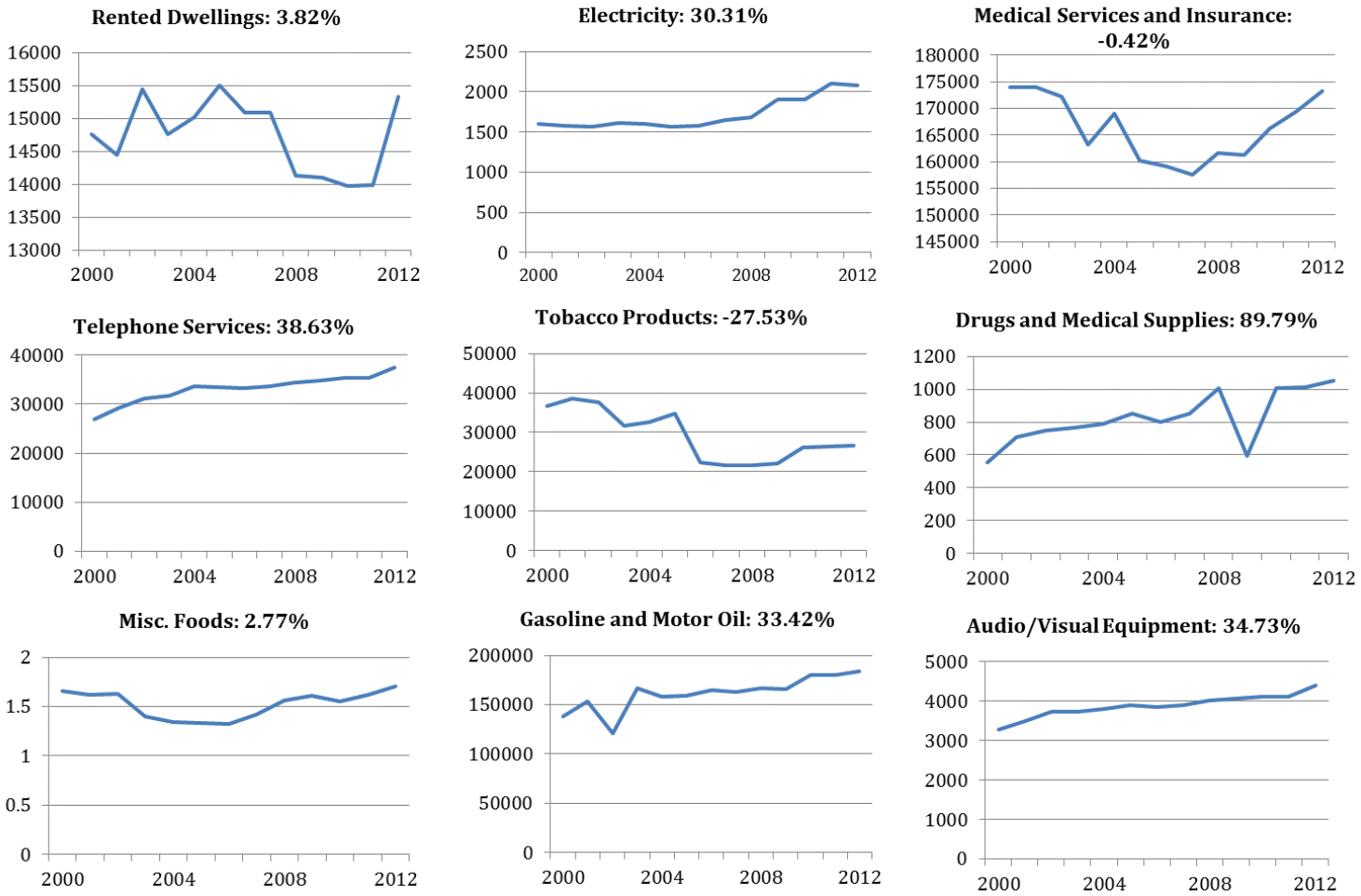
Table 2. Universal Classification Codes Categories with Largest Differences in Spending between Bottom and Top Income Quintiles, 2000–2012

Expenditure Category	Bottom Quintile	Top Quintile	Difference	% Difference
Rented dwellings	14.67%	2.17%	12.50%	576.04%
Electricity	4.19%	2.27%	1.92%	84.58%
Medical services and insurance	5.80%	4.60%	1.20%	26.09%
Telephone services	3.25%	2.14%	1.11%	51.87%
Tobacco products and smoking supplies	1.41%	0.41%	1.00%	243.90%
Drugs and medical supplies	2.07%	1.13%	0.94%	83.19%
Miscellaneous foods	1.86%	1.26%	0.60%	47.62%
Gasoline and motor oil	4.66%	4.21%	0.45%	10.69%
Nonalcoholic beverages	1.04%	0.62%	0.42%	67.74%
Audio and visual equipment and services	2.37%	1.95%	0.42%	21.54%

Note: Numbers represent the percentage of expenditures each income quintile allocates to specific expenditure categories.

Source: Authors' calculations using the Consumer Expenditure Survey.

Figure 1. Changes in Direct Regulations across Time (2000–2012) for Selected Universal Classification Codes



Note: Direct regulations, measured on the y-axes, are measured by way of industry regulation index value; see appendix A for more details. Numbers after chart titles represent the overall percentage growth from 2000 to 2012.

Source: Authors' calculations using the Consumer Expenditure Survey and the RegData database of the Mercatus Center at George Mason University.

Table 3. Average Basket Shares and Regulations by Income Quintile

	Average Basket Weights (2000 to 2012)					Average Regulations		
Expenditure Category	Bottom 20%	2nd Quintile	3rd Quintile	4th Quintile	Top 20%	Direct	Input	Total
Alcoholic beverages	0.98%	0.96%	1.06%	1.13%	1.20%	1,000	18,139	19,140
Audio and visual equipment and services	2.37%	2.34%	2.31%	2.22%	1.95%	3,877	9,396	13,272
Bakery products	1.05%	0.96%	0.87%	0.81%	0.67%	411	15,695	16,106
Beef	0.76%	0.74%	0.65%	0.59%	0.48%	11,219	30,471	41,691
Boys' apparel, ages 2 to 15	0.23%	0.23%	0.23%	0.23%	0.24%	1,255	16,200	17,456
Cars and trucks, new	2.05%	2.72%	3.64%	4.41%	5.29%	101	6,311	6,412
Cars and trucks, used	3.55%	4.47%	4.59%	4.59%	3.33%	0	0	0
Cereals and cereal products	0.56%	0.49%	0.44%	0.39%	0.33%	180	22,418	22,597
Children's apparel, under age 2	0.26%	0.24%	0.23%	0.23%	0.18%	620	14,451	15,071
Drugs and medical supplies	2.07%	2.18%	1.71%	1.40%	1.13%	826	15,754	16,580
Education	3.12%	1.29%	1.31%	1.71%	3.30%	1,917	12,682	14,599
Eggs	0.18%	0.11%	0.11%	0.12%	0.10%	21,764	25,261	47,025
Electricity	4.19%	3.86%	3.39%	2.88%	2.27%	1,725	90,877	92,603
Fats and oils	0.34%	0.31%	0.24%	0.23%	0.16%	8	21,970	21,978
Fees and admissions	0.79%	0.81%	1.04%	1.35%	2.15%	0	29,019	29,019
Fish and seafood	0.38%	0.35%	0.31%	0.29%	0.25%	235,349	147,703	383,052
Floor coverings	0.06%	0.08%	0.09%	0.10%	0.14%	0	14,270	14,270
Food away from home	5.47%	5.61%	6.20%	6.70%	6.90%	473	15,957	16,430
Food prepared by consumer unit on out-of-town trips	0.10%	0.11%	0.11%	0.12%	0.12%	473	15,957	16,430
Footwear	0.99%	0.88%	0.84%	0.79%	0.76%	1,790	25,395	27,184
Fresh fruits	0.64%	0.60%	0.53%	0.49%	0.43%	2	17,568	17,569
Fresh milk and cream	0.53%	0.48%	0.40%	0.35%	0.25%	24	27,026	27,050
Fresh vegetables	0.62%	0.59%	0.51%	0.47%	0.41%	1	14,492	14,493
Fuel oil and other fuels	0.41%	0.39%	0.33%	0.32%	0.28%	116,284	251,824	368,108
Furniture	0.72%	0.75%	0.85%	0.95%	1.35%	17	17,310	17,327
Gasoline and motor oil	4.66%	5.33%	5.58%	5.29%	4.21%	161,726	266,598	428,323
Girls' apparel, ages 2 to 15	0.25%	0.29%	0.30%	0.31%	0.33%	1,236	16,040	17,276
Household operations	1.67%	1.81%	1.81%	2.06%	2.91%	70	6,543	6,613
Household textiles	0.25%	0.30%	0.32%	0.33%	0.37%	71	15,403	15,475
Housekeeping supplies	1.64%	1.63%	1.51%	1.61%	1.42%	9,331	22,819	32,149
Maintenance and repairs	1.62%	1.84%	1.90%	1.90%	1.79%	13,006	11,935	24,941
Major appliances	0.42%	0.47%	0.51%	0.55%	0.59%	217	13,578	13,796

	Average Basket Weights (2000 to 2012)					Average Regulations		
Expenditure Category	Bottom 20%	2nd Quintile	3rd Quintile	4th Quintile	Top 20%	Direct	Input	Total
Medical services and insurance	5.80%	6.60%	6.09%	5.52%	4.60%	166,222	96,644	262,865
Men's apparel, age 16 and over	0.69%	0.71%	0.78%	0.86%	1.00%	1,255	16,200	17,456
Miscellaneous	1.80%	1.99%	2.04%	2.04%	2.05%	34,464	19,803	54,266
Miscellaneous foods	1.86%	1.68%	1.60%	1.54%	1.26%	2	20,638	20,640
Natural gas	1.30%	1.29%	1.14%	1.03%	0.91%	18,733	259,424	278,157
Nonalcoholic beverages	1.04%	0.95%	0.86%	0.80%	0.62%	0	17,400	17,400
Other apparel products and services	0.59%	0.55%	0.54%	0.54%	0.86%	110	16,175	16,286
Other dairy products	0.69%	0.65%	0.62%	0.59%	0.51%	19	24,429	24,448
Other entertainment supplies, equipment, and services	0.57%	0.81%	0.90%	1.23%	1.44%	3,533	17,021	20,554
Other lodging	0.89%	0.76%	0.89%	1.17%	2.27%	5,352	21,054	26,406
Other meats	0.36%	0.34%	0.31%	0.25%	0.25%	20,967	30,794	51,761
Other vehicles and vehicle finance charges	0.45%	0.71%	1.03%	1.24%	0.99%	0	14,706	14,706
Owned dwellings	8.55%	10.24%	12.75%	15.50%	18.55%	84,121	51,666	135,787
Personal care products and services	1.46%	1.48%	1.45%	1.47%	1.48%	613	12,729	13,342
Pets, toys, hobbies, and playground equipment	0.96%	1.27%	1.25%	1.29%	1.31%	868	19,231	20,099
Pork	0.62%	0.55%	0.48%	0.40%	0.30%	12,844	30,525	43,369
Poultry	0.53%	0.47%	0.40%	0.38%	0.29%	11,219	39,140	50,359
Processed fruits and vegetables	0.73%	0.67%	0.55%	0.51%	0.42%	0	22,501	22,501
Public transportation	0.88%	0.85%	0.92%	1.03%	1.64%	382,599	53,333	435,932
Reading	0.30%	0.29%	0.29%	0.31%	0.33%	432	14,104	14,536
Rented dwellings	14.67%	11.38%	8.47%	4.99%	2.17%	14,741	11,343	26,084
Small appliances, misc. housewares, and household equip.	1.58%	1.72%	1.95%	2.15%	2.48%	593	16,964	17,557
Sugar and other sweets	0.41%	0.38%	0.34%	0.34%	0.27%	21	19,472	19,493
Telephone services	3.25%	3.18%	3.04%	2.74%	2.14%	33,094	13,961	47,054
Tobacco products and smoking supplies	1.41%	1.24%	1.10%	0.83%	0.41%	29,159	6,696	35,854
Vehicle insurance	2.23%	2.65%	2.75%	2.61%	2.11%	306,785	170,400	477,185
Vehicle rentals, leases, licenses, and other charges	0.75%	0.84%	1.01%	1.20%	1.53%	0	34,902	34,902
Water and other public services	1.16%	1.17%	1.09%	1.03%	0.84%	27,845	62,090	89,935
Women's apparel, age 16 and over	1.51%	1.37%	1.43%	1.51%	1.66%	1,236	16,040	17,276

Source: Authors' calculations using the Consumer Expenditure Survey and the RegData database of the Mercatus Center at George Mason University.

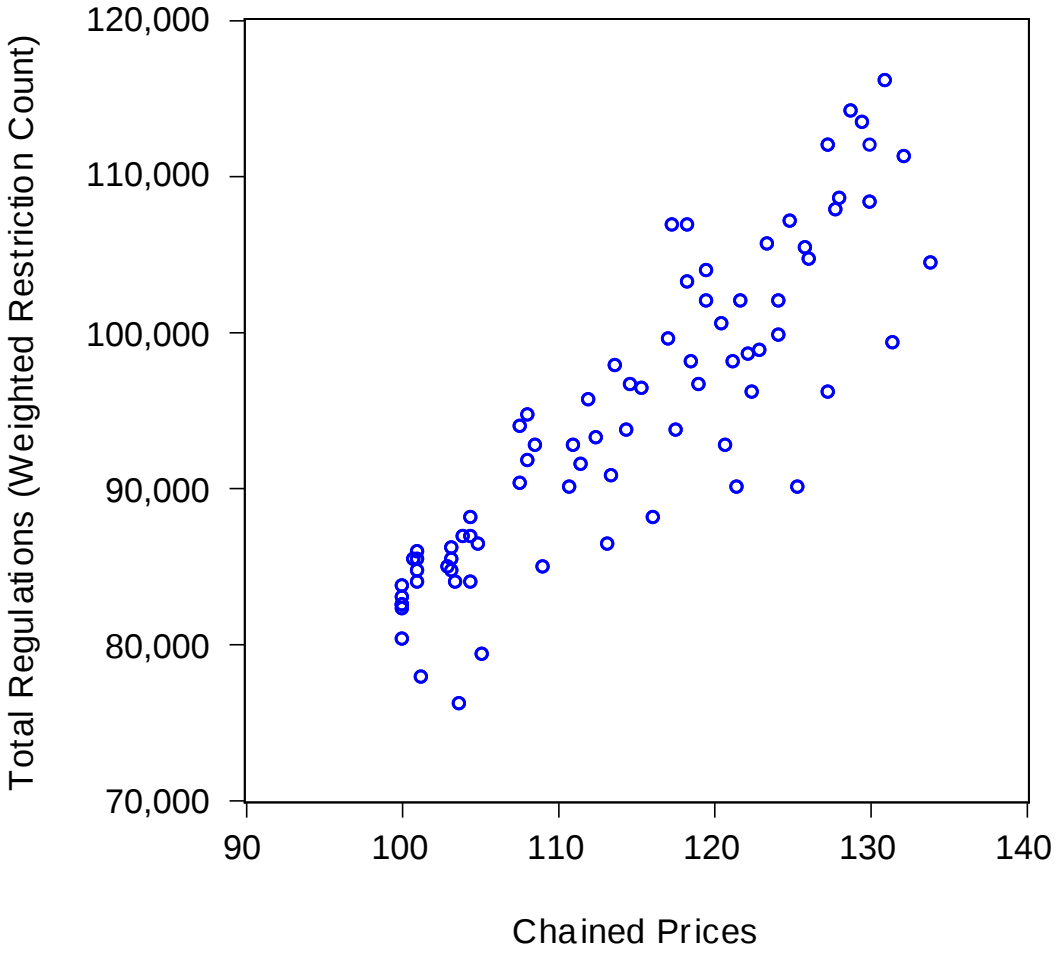
Table 4. Combined Household Weighted Regulations, All Households

Year	Direct Regulations	Input Regulations	Total Regulations
2000	42,283	41,608	83,890
2001	43,454	42,697	86,151
2002	42,998	42,661	85,659
2003	43,578	43,651	87,228
2004	45,786	46,266	92,051
2005	44,926	46,868	91,793
2006	46,056	47,990	94,046
2007	47,627	49,188	96,815
2008	50,214	53,343	103,556
2009	47,575	48,833	96,409
2010	50,569	51,759	102,328
2011	52,399	55,618	108,017
2012	54,523	57,570	112,092

Note: Regulations are measured by way of industry regulation index value; see appendix A for details.

Source: Authors' calculations using the Consumer Expenditure Survey and the RegData database of the Mercatus Center at George Mason University.

Figure 2. Total Regulations vs. Chained Prices



Note: Authors' calculations using the RegData database of the Mercatus Center at George Mason University and the Consumer Price Index.

Table 5. Laspeyres and Chained Price Indexes

Laspeyres						
Year	All Households	Bottom 20%	2nd Quintile	3rd Quintile	4th Quintile	Top 20%
2000	100	100	100	100	100	100
2001	101.114	101.388	101.216	101.149	100.999	101.117
2002	103.395	103.832	103.568	103.449	103.18	103.234
2003	104.8	105.473	105.125	104.847	104.42	104.523
2004	108.431	109.297	108.923	108.517	108.019	107.828
2005	112.241	113.488	112.967	112.342	111.663	111.272
2006	115.064	116.487	115.776	115.141	114.357	114.032
2007	120.292	122.091	121.307	120.522	119.504	118.74
2008	119.927	122.36	121.272	120.115	118.848	118.631
2009	124.303	126.703	125.765	124.819	123.432	122.479
2010	126.459	129.117	128.177	127.099	125.57	124.288
2011	130.628	133.545	132.644	131.392	129.711	128.136
2012	132.976	135.989	135.048	133.772	132.003	130.391
Inflation Rate	2.40%	2.59%	2.54%	2.45%	2.34%	2.24%

Chained						
Year	All Households	Bottom 20%	2nd Quintile	3rd Quintile	4th Quintile	Top 20%
2000	100	100	100	100	100	100
2001	100.937	101.201	101.008	100.88	100.821	100.955
2002	103.225	103.595	103.403	103.186	103.028	103.077
2003	104.479	105.248	104.827	104.35	104.001	104.257
2004	108.019	108.995	108.553	108.063	107.524	107.474
2005	111.638	113.126	112.483	111.865	111.083	110.777
2006	114.326	116.119	115.251	114.56	113.731	113.377
2007	119.122	121.388	120.529	119.649	118.631	117.646
2008	118.218	121.336	119.509	118.279	117.283	117.105
2009	122.411	125.388	124.097	122.958	121.777	120.834
2010	124.121	127.319	126.048	124.829	123.548	122.313
2011	127.872	131.422	130.034	128.741	127.312	125.842
2012	130.085	133.85	132.318	130.983	129.46	127.977
Inflation Rate	2.22%	2.46%	2.36%	2.27%	2.17%	2.08%

Source: Authors' calculations using the Consumer Price Index and the Consumer Expenditure Survey.

Table 6A. Regulation Lag Length Specification and Robustness

Coefficient	Equation (4): Time Series						
Regulation growth (t)	−0.0159	---	−0.0482	0.0087	−0.0149	---	---
	(0.0434)		(0.0355)	(0.0233)	(0.0263)		
Regulation growth ($t-1$)	0.046*	0.0539**	---	0.0671***	---	0.0648***	---
	(0.0251)	(0.0226)		(0.0197)		(0.0213)	
Regulation growth ($t-2$)	−0.0247	−0.0155	−0.0535	---	---	---	−0.0339
	(0.0394)	(0.0193)	(0.0323)				(0.0221)
Lagged inflation	−0.4855***	−0.5106***	−0.4515***	−0.4761***	−0.4954***	−0.4651***	−0.5408***
	(0.0977)	(0.0405)	(0.0903)	(0.0599)	(0.0509)	(0.0366)	(0.0274)
Observations	50	50	50	55	55	55	50
Goodness of Fit	0.356	0.356	0.347	0.323	0.289	0.322	0.336
Akaike Information Criterion	−5.92	−5.959	−5.946	−6.018	−6.006	−6.053[(a)]	−5.969
Schwarz Information Criterion	−5.729	−5.806	−5.793	−5.872	−5.897	−5.944[(a)]	−5.854

* = statistically significant at the 10% level; ** = statistically significant at the 5% level; *** = statistically significant at the 1% level.
(a) The baseline specification of equation (4), which includes a single, one-period lag of regulation growth, minimizes both the Akaike and Schwarz information criteria.

Note: White robust (period) standard errors are in parentheses.

Table 6B. Inflation and Regulation Growth Regression Results

Coefficient	Equation (4) Time Series	Equation (5) Dynamic Panel	Equation (6) Expenditure Panel
Lagged regulation growth	0.0648*** (0.0213)	0.0687*** (0.0148)	0.0360*** (0.0089)
Lagged inflation	−0.4651*** (0.0366)	−0.4857*** (0.0397)	−0.1998*** (0.0031)
Observations	55	50	610
Sargan test	---	4.95	47.36
Sargan *p*-value	---	0.176	0.1684

*** = statistically significant at the 1% level.

Note: White robust (period) standard errors in parentheses. Intercept for equation (4) not reported; Sargan test not applicable to equation (4). Sargan test fails to reject null hypothesis that overidentifying restrictions are valid at any standard level of significance in equations (5) and (6).

Table 7. Price Volatility of Expenditure Categories

Volatility Rank	Price Quartile	Expenditure Category	Average Price, $	Price Variance, $	Average Total Regulations
61	1	Audio and visual equipment and services	100.7	4.87	13,272
60	1	Cars and trucks, new	97.1	6.3	6,412
59	1	Telephone services	100.8	7.1	47,054
58	1	Women's apparel, age 16 and over	92.6	8.43	17,276
57	1	Furniture	93.2	11.29	17,327
56	1	Footwear	100.2	12.08	27,184
55	1	Vehicle rentals, leases, licenses, and other charges	95.9	12.86	34,902
54	1	Men's apparel, age 16 and over	91.7	14.26	17,456
53	1	Major appliances	100.5	14.68	13,796
52	1	Children's apparel, under age 2	92.5	18.73	15,071
51	1	Floor coverings	105.3	21.72	14,270
50	1	Boys' apparel, ages 2 to 15	87.6	33.52	17,456
49	1	Cars and trucks, used	88.7	37.05	0
48	1	Reading	109.8	40.02	14,536
47	1	Girls' apparel, ages 2 to 15	88.7	40.6	17,276
46	2	Housekeeping supplies	109.3	72.21	32,149
45	2	Nonalcoholic beverages	110.2	73.87	17,400
44	2	Miscellaneous foods	110.6	79.61	20,640
43	2	Personal care products and services	114.5	84.48	13,342
42	2	Fresh fruits	115.1	105.47	17,569
41	2	Pork	113.9	108.06	43,369
40	2	Owned dwellings	118.4	112.38	135,787
39	2	Fees and admissions	118.7	113.53	29,019
38	2	Other lodging	119.1	113.7	26,406
37	2	Alcoholic beverages	115.8	118.07	19,140
36	2	Other apparel products and services	103.9	120.7	16,286
35	2	Small appliances, misc. housewares, and household equip.	83.4	129.19	17,557
34	2	Other meats	118.4	135.48	51,761
33	2	Fresh vegetables	116.3	137.14	14,493
32	2	Other dairy products	116.5	138.32	24,448
31	3	Drugs and medical supplies	119.1	144.12	16,580
30	3	Cereals and cereal products	113.9	148.29	22,597
29	3	Public transportation	111.3	150.23	435,932
28	3	Food prepared by consumer unit on out-of-town trips	117.3	157.54	16,430
27	3	Poultry	118.2	160.35	50,359
26	3	Other entertainment supplies, equipment, and services	77.7	160.89	20,554
25	3	Rented dwellings	121.7	179.32	26,084
24	3	Household operations	121.3	183.93	6,613
23	3	Food away from home	119.7	190.52	16,430
22	3	Fresh milk and cream	118.8	192.91	27,050
21	3	Sugar and other sweets	116.6	193.77	19,493
20	3	Other vehicles and vehicle finance charges	115.2	226.32	14,706
19	3	Maintenance and repairs	122.5	232.8	24,941
18	3	Miscellaneous	124.3	234.73	54,266
17	3	Fish and seafood	115.6	235.39	383,052

Volatility Rank	Price Quartile	Expenditure Category	Average Price, $	Price Variance, $	Average Total Regulations
16	4	Household textiles	75.4	239.28	15,475
15	4	Bakery products	120.8	278.52	16,106
14	4	Vehicle insurance	130.2	284.93	477,185
13	4	Processed fruits and vegetables	123.4	303.96	22,501
12	4	Pets, toys, hobbies, and playground equipment	125.8	354.58	20,099
11	4	Fats and oils	121.1	362.84	21,978
10	4	Electricity	128.4	440.12	92,603
9	4	Medical services and insurance	132.3	451.88	262,865
8	4	Natural gas	120.6	515.35	278,157
7	4	Beef	137	535.25	41,691
6	4	Eggs	129.8	613.05	47,025
5	4	Water and other public services	133.5	704.02	89,935
4	4	Education	144.3	911.07	14,599
3	4	Tobacco products and smoking supplies	151	1831.84	35,854
2	4	Gasoline and motor oil	154	3006.99	428,323
1	4	Fuel oil and other fuels	159.4	3250.45	368,108

Source: Authors' calculations using the Consumer Expenditure Survey, the RegData database of the Mercatus Center at George Mason University, and the Consumer Price Index.

Table 8. Price Volatility vs. Average Regulations and Budget Shares

Price Variance Quartile	Average Price Variance, $	Average Price, $ (2000 = 100)	Average Regulations			Household Quintile Budget Shares (%)					Share Differential (Top − Bottom)
			Direct	Input	Total	Bottom	Q2	Q3	Q4	Top	
1	19	96	3,009	15,211	18,219	17.4	18.8	20.1	21	20.8	3.4
2	109	112	8,997	22,961	31,958	22.3	23.5	26.1	29.5	34.2	11.9
3	186	116	46,465	29,207	75,672	31.7	29.5	27	24.5	22.5	−9.2
4	880	130	54,046	85,485	139,531	28.6	28.2	26.8	25.1	22.4	−6.1

Note: Regulations are measured by way of industry regulation index value; see appendix A for details.

Source: Authors' calculations using the Consumer Expenditure Survey, the RegData database of the Mercatus Center at George Mason University, and the Consumer Price Index.

Appendix A. Methodological Description of the Construction of the Consumer Expenditure Survey/Regulation Dataset

To determine the disparate effects of government regulations on households in different socioeconomic strata, we construct a dataset that maps goods and services from the Consumer Expenditure Survey (CE) onto industry regulations from the Mercatus Center at George Mason University's industry regulation database (RegData).

The CE provides detailed household spending and price data for a wide array of goods and services by income group. These goods and services are organized using the Universal Classification Codes (UCC) system. RegData 2.0, however, reports the level of industry regulation by the two-, three-, and four-digit North American Industry Classification System (NAICS) code for each year between 1997 and 2012. Therefore, to construct a usable database, we map regulations from the NAICS space onto goods and services in the UCC space. The resulting balanced panel dataset contains 9,872 observations, covering 617 UCC-based goods and services over a 16-year period.

To construct the final dataset, the following steps are employed:

1. The RegData 2.0 dataset consists of two-digit, three-digit, and four-digit NAICS-based tables. Each regulation record in the tables contains the name of the government agency imposing the regulation, the year of the regulation, the industry affected by the regulation, the regulatory word count, the restriction count, and the industry regulation index value. For our purposes, we use the industry regulation index value, which equals the regulatory restriction count weighted by industry relevance.[22]

[22] For a description of the methodology used to construct RegData, see http://regdata.org/methodology.

For each industry-and-year pair, the industry regulation index values are summed across federal regulators. Therefore, for each industry-and-year combination, a single-industry regulation index value is derived, equaling the sum of all regulatory restrictions (weighted by industry relevance) imposed on that industry by all federal regulators for that year. The result is three aggregated datasets, one for each two-digit, three-digit, and four-digit NAICS-based table. Last, the three aggregated datasets are combined (stacked) to form a single dataset.

2. The spreadsheet containing the 2007 commodity-by-industry direct requirements (after redefinitions) table was downloaded from the Bureau of Economic Analysis (BEA) website (http://www.bea.gov/industry/xls/io-annual/CxI_DR_2007_detail.xlsx). This spreadsheet contains two work sheets, both of which are used below:
    a. The first work sheet is a concordance that converts the BEA's input-output (I-O) commodity/industry codes into 2007 NAICS codes.
    b. The second work sheet is the I-O direct requirements table, which contains I-O weights (α_{ij}) equal to the amount of input (measured in dollars) from industry (i) required to produce a dollar's worth of output by industry (j). By construction, these weights sum to 1 because, in addition to actual inputs, the BEA includes employee compensation, taxes, and gross operating surplus in the weighting schema.
3. The I-O commodity/industry code to NAICS concordance described in step (2a) above is matched with the aggregate industry regulations from step (1), to create a new table that lists the aggregate industry regulations by I-O commodity/industry code; the resulting table is further summed over commodity code by year to derive a table with a

single total regulation value for each commodity code–year pair. This second round of aggregation after the initial match is necessary because some commodity codes map onto multiple NAICS industries. I-O commodity/industry codes with no associated regulations are assigned an industry regulation index value of 0. The resulting table is a measure of the direct regulations (denoted $DirectReg_{it}$) applicable to a given I-O commodity/industry code.

4. To determine the level of regulation that applies to the inputs/supply chain of a given industry, the I-O direct requirements (α_{ij}) from step (2b) are matched with the direct regulations for each I-O commodity ($DirectReg_{it}$) from step (3) by way of their I-O commodity/industry codes. Note that if a commodity/industry is not needed to produce a given output, the associated input value is 0. This produces a large result set with more than 2.4 million rows of data. This dataset is then "grouped by" output industry (j) and year (t) and summed over the product of the direct input regulations (indexed by i) and I-O weights, producing an estimate of input–supply chain regulation:

$$InputReg_{jt} = \sum_i \alpha_{ij} \cdot DirectReg_{it}.$$

   See figure A1 (page 42) for a graphical summary of steps (1) to (4).

5. The direct regulations by industry and year are matched with the total input regulations by industry and year. The direct and input regulations are summed to determine the total direct and indirect regulations affecting a given industry:

$$TotalReg_{it} = DirectReg_{it} + InputReg_{it}.$$

6. To map regulations onto the UCC codes, a separate set of queries is executed to map the codes onto I-O commodity/industry codes.

a. As a beginning step, we import the personal consumption expenditures (PCE) concordance from the Bureau of Labor Statistics (BLS) (http://www.bls.gov/cex /pce_concordance_2012.xlsx). This file maps UCC codes onto PCE codes from the BEA's national income and product accounts (NIPAs).

b. Next, we import BEA table 2.4.5U (I-O, Personal Consumption Expenditures by Type of Product with 2007 Input-Output Commodity Composition). This latter bridge file (http://www.bea.gov/national/xls/2007-pcs-io-bridge.xls) maps NIPA line numbers onto PCE codes.

c. The tables from steps (6a) and (6b) are matched by way of their common PCE codes. The resulting table serves as a bridge file that maps UCC codes onto NIPA line numbers.

7. Finally, we import the BEA's PCE bridge file, which maps NIPA line numbers onto I-O commodity/industry codes (www.bea.gov/industry/xls/io-annual/PCEBridge_2007 _Detail.xlsx), along with the total value of all purchases of the linked I-O commodity/industry in 2007.

    a. Matching the NIPA line items from the PCE bridge with the results from step (6c) provides a clear mapping from UCC code to I-O commodity/industry codes. See figure A2 (page 43) for a graphic summary of steps (6) and (7).

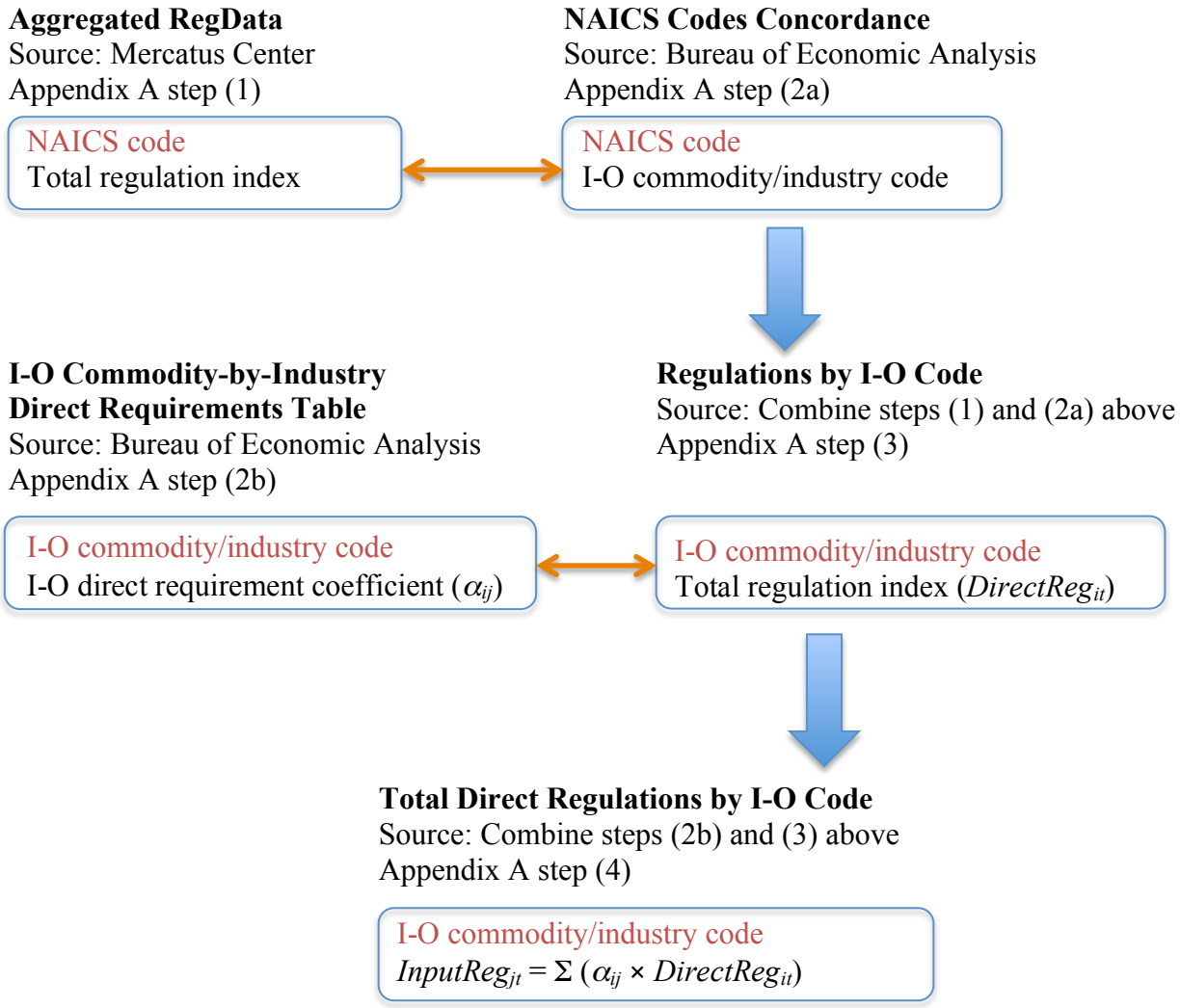
8. The resulting table from step (7a) maps a given consumer product from the CE onto all I-O industries that produce that product. In many cases, more than one industry produces a given UCC product. To produce a single regulation value for each consumer product, we derive industry weights equal to a given industry's 2007 level of output relative to the

total output of all industries that supply a given UCC product.[23] For example, the UCC code for flour is 10110. This consumer product is produced by seven I-O industries. Assigning each of these industries a weight equal to its total output relative to the total output of all seven industries produces a set of weights that sum to 1 (see table A1, page 44). Although it would be preferable to update these weights annually, the BLS derives these output data from the US Census Bureau's Economic Census, which is conducted only every five years.

9. Finally, UCC codes, I-O commodity/industry codes, and output shares from step (8) are matched with the regulation-by-industry data from step (5). These matched data are then "grouped by" UCC code and year and aggregated over the product of industry regulation and output shares.

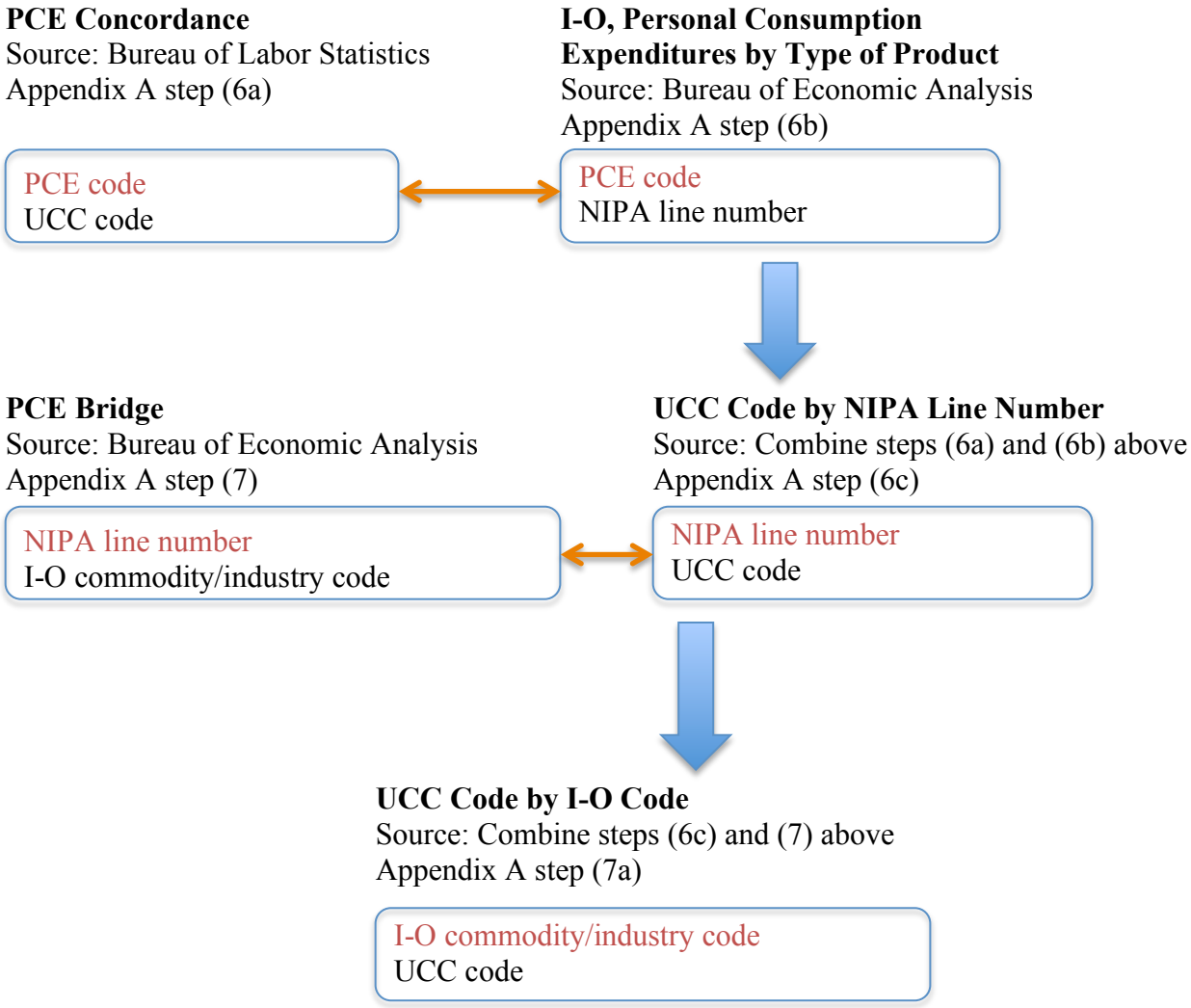
[23] Consumption-based weights equal to each industry's market share for a given commodity would be preferable to weights based on the overall relative size of the industries that produce said commodity. Unfortunately, to our knowledge, such data do not exist.

Figure A1. Mapping Regulations onto Input-Output (I-O) Codes



Note: NAICS = North American Industry Classification System.

Figure A2. Mapping Input-Output (I-O) Codes onto Consumer Expenditure Codes



Note: PCE = personal consumption expenditures; UCC = Universal Classification Codes; NIPA = national income and products accounts.

Table A1. Input-Output Industries that Produce Flour (UCC: 10110)

Commodity Code	Commodity/Industry Description	Purchase Value	Output Share, %
311230	Breakfast cereal manufacturing	12,889	34.7
31122A	Soybean and other oilseed processing	114	0.3
3118A0	Cookie, cracker, pasta, and tortilla manufacturing	16,255	43.8
311210	Flour milling and malt manufacturing	4,659	12.5
311990	All other food manufacturing	660	1.8
1111B0	Grain farming	618	1.7
311420	Fruit and vegetable canning, pickling, and drying	1,939	5.2

Source: Authors' calculations using the Consumer Expenditure Survey, the Bureau of Economic Analysis's PCE bridge file, and the Bureau of Labor Statistics's PCE concordance file.

Appendix B. Top 20 Expenditure Categories by Income Quintile and Corresponding Regulations

Income Quintile 1 (Bottom 20%)					
Expenditure Category	% Expenditure	Direct Reg Rank	Direct Regs	Total Reg Rank	Total Regs
Rented dwellings	14.67%	15	14,741	25	26,084
Owned dwellings	8.55%	7	84,121	8	135,787
Medical services and insurance	5.80%	4	166,222	7	262,865
Food away from home	5.47%	37	473	45	16,430
Gasoline and motor oil	4.66%	5	161,726	3	428,323
Electricity	4.19%	26	1,725	9	92,603
Cars and trucks, used	3.55%	55	0	61	0
Telephone services	3.25%	9	33,094	14	47,054
Education	3.12%	24	1,917	52	14,599
Audio and visual equipment and services	2.37%	22	3,877	58	13,272
Vehicle insurance	2.23%	2	306,785	1	477,185
Drugs and medical supplies	2.07%	33	826	44	16,580
Cars and trucks, new	2.05%	44	101	60	6,412
Miscellaneous foods	1.86%	53	2	31	20,640
Miscellaneous	1.80%	8	34,464	11	54,266
Household operations	1.67%	46	70	59	6,613
Housekeeping supplies	1.64%	20	9,331	20	32,149
Maintenance and repairs	1.62%	16	13,006	26	24,941
Small appliances, misc. housewares, and household equip.	1.58%	36	593	37	17,557
Women's apparel, age 16 and over	1.51%	30	1,236	43	17,276

Income Quintile 2					
Expenditure Category	% Expenditure	Direct Reg Rank	Direct Regs	Total Reg Rank	Total Regs
Rented dwellings	11.38%	15	14,741	25	26,084
Owned dwellings	10.24%	7	84,121	8	135,787
Medical services and insurance	6.60%	4	166,222	7	262,865
Food away from home	5.61%	37	473	45	16,430
Gasoline and motor oil	5.33%	5	161,726	3	428,323
Cars and trucks, used	4.47%	55	0	61	0
Electricity	3.86%	26	1,725	9	92,603
Telephone services	3.18%	9	33,094	14	47,054
Cars and trucks, new	2.72%	44	101	60	6,412
Vehicle insurance	2.65%	2	306,785	1	477,185
Audio and visual equipment and services	2.34%	22	3,877	58	13,272
Drugs and medical supplies	2.18%	33	826	44	16,580
Miscellaneous	1.99%	8	34,464	11	54,266
Maintenance and repairs	1.84%	16	13,006	26	24,941
Household operations	1.81%	46	70	59	6,613
Small appliances, misc. housewares, and household equip.	1.72%	36	593	37	17,557
Miscellaneous foods	1.68%	53	2	31	20,640
Housekeeping supplies	1.63%	20	9,331	20	32,149
Personal care products and services	1.48%	35	613	57	13,342
Women's apparel, age 16 and over	1.37%	30	1,236	43	17,276

Income Quintile 3					
Expenditure Category	% Expenditure	Direct Reg Rank	Direct Regs	Total Reg Rank	Total Regs
Owned dwellings	12.75%	7	84,121	8	135,787
Rented dwellings	8.47%	15	14,741	25	26,084
Food away from home	6.20%	37	473	45	16,430
Medical services and insurance	6.09%	4	166,222	7	262,865
Gasoline and motor oil	5.58%	5	161,726	3	428,323
Cars and trucks, used	4.59%	55	0	61	0
Cars and trucks, new	3.64%	44	101	60	6,412
Electricity	3.39%	26	1,725	9	92,603
Telephone services	3.04%	9	33,094	14	47,054
Vehicle insurance	2.75%	2	306,785	1	477,185
Audio and visual equipment and services	2.31%	22	3,877	58	13,272
Miscellaneous	2.04%	8	34,464	11	54,266
Small appliances, misc. housewares, and household equip.	1.95%	36	593	37	17,557
Maintenance and repairs	1.90%	16	13,006	26	24,941
Household operations	1.81%	46	70	59	6,613
Drugs and medical supplies	1.71%	33	826	44	16,580
Miscellaneous foods	1.60%	53	2	31	20,640
Housekeeping supplies	1.51%	20	9,331	20	32,149
Personal care products and services	1.45%	35	613	57	13,342
Women's apparel, age 16 and over	1.43%	30	1,236	43	17,276

Income Quintile 4					
Expenditure Category	% Expenditure	Direct Reg Rank	Direct Regs	Total Reg Rank	Total Regs
Owned dwellings	15.50%	7	84,121	8	135,787
Food away from home	6.70%	37	473	45	16,430
Medical services and insurance	5.52%	4	166,222	7	262,865
Gasoline and motor oil	5.29%	5	161,726	3	428,323
Rented dwellings	4.99%	15	14,741	25	26,084
Cars and trucks, used	4.59%	55	0	61	0
Cars and trucks, new	4.41%	44	101	60	6,412
Electricity	2.88%	26	1,725	9	92,603
Telephone services	2.74%	9	33,094	14	47,054
Vehicle insurance	2.61%	2	306,785	1	477,185
Audio and visual equipment and services	2.22%	22	3,877	58	13,272
Small appliances, misc. housewares, and household equip.	2.15%	36	593	37	17,557
Household operations	2.06%	46	70	59	6,613
Miscellaneous	2.04%	8	34,464	11	54,266
Maintenance and repairs	1.90%	16	13,006	26	24,941
Education	1.71%	24	1,917	52	14,599
Housekeeping supplies	1.61%	20	9,331	20	32,149
Miscellaneous foods	1.54%	53	2	31	20,640
Women's apparel, age 16 and over	1.51%	30	1,236	43	17,276
Personal care products and services	1.47%	35	613	57	13,342

Income Quintile 5					
Expenditure Category	% Expenditure	Direct Reg Rank	Direct Regs	Total Reg Rank	Total Regs
Owned dwellings	18.55%	7	84,121	8	135,787
Food away from home	6.90%	37	473	45	16,430
Cars and trucks, new	5.29%	44	101	60	6,412
Medical services and insurance	4.60%	4	166,222	7	262,865
Gasoline and motor oil	4.21%	5	161,726	3	428,323
Cars and trucks, used	3.33%	55	0	61	0
Education	3.30%	24	1,917	52	14,599
Household operations	2.91%	46	70	59	6,613
Small appliances, misc. housewares, and household equip.	2.48%	36	593	37	17,557
Electricity	2.27%	26	1,725	9	92,603
Other lodging	2.27%	21	5,352	24	26,406
Rented dwellings	2.17%	15	14,741	25	26,084
Fees and admissions	2.15%	55	0	21	29,019
Telephone services	2.14%	9	33,094	14	47,054
Vehicle insurance	2.11%	2	306,785	1	477,185
Miscellaneous	2.05%	8	34,464	11	54,266
Audio and visual equipment and services	1.95%	22	3,877	58	13,272
Maintenance and repairs	1.79%	16	13,006	26	24,941
Women's apparel, age 16 and over	1.66%	30	1,236	43	17,276
Public transportation	1.64%	1	382,599	2	435,932

Note: Regulations are measured by way of industry regulation index value; see appendix A for details.

Source: Authors' calculations using the Consumer Expenditure Survey and the RegData database of the Mercatus Center at George Mason University.

Regulation and Income Inequality

The Regressive Effects of Entry Regulations

Patrick A. McLaughlin and
Laura Stanley

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MERCATUS CENTER
George Mason University

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Abstract

We examine the relationship between entry regulations and income inequality. Entry regulations increase the cost of legally starting a business relative to the alternatives—working for someone else, entering illegally, or exiting the labor force. We hypothesize that such regulations may cause greater income inequality, because entrepreneurs at the bottom rungs of the income distribution may have relatively greater difficulty surmounting costly barriers to entry. Combining entry regulations data from the World Bank Doing Business Index with various measures of income inequality, including Gini coefficients and income shares, we examine a pooled cross-section of 175 countries and find that countries with more stringent entry regulations tend to experience higher levels of income inequality. An increase by one standard deviation in the number of procedures required to start a new business is associated with a 1.5 percent increase in the Gini coefficient and a 5.6 percent increase in the share of income going to the top 10 percent of earners. Although we cannot eliminate the possibility of reverse causality, we are unaware of any theory that posits that income inequality causes entry regulations. We therefore offer several simple recommendations designed to minimize regulations' adverse effect on income inequality.

JEL codes: D31, J38, K20

Keywords: income inequality, regulation, regulations, entry regulations, Doing Business, Gini coefficient

Author Affiliation and Contact Information

Patrick A. McLaughlin
Senior Research Fellow
Mercatus Center at George Mason University
pmclaughlin@mercatus.gmu.edu

Laura Stanley
Alumna of the MA Fellowship
Mercatus Center at George Mason University

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Regulation and Income Inequality

The Regressive Effects of Entry Regulations

Patrick A. McLaughlin and Laura Stanley

1. Introduction

Income inequality is a complex phenomenon determined by several factors and has long been a topic of interest among economists. One such factor is regulatory policy surrounding the formation of new businesses. Regulations that inhibit the ability of entrepreneurs to start new businesses can increase income inequality by creating costly barriers to entry that disproportionately affect entrepreneurs with lower incomes or capital bases. Conversely, such regulations may be accompanied by other policies designed to offset regulations' negative effect on start-ups. Thus, the direction and magnitude of the effect of regulations on income inequality remain an open empirical question. The aim of this paper is to empirically assess the relationship between entry regulations and income inequality.

Entry regulations can increase income inequality in at least two ways. First, when entrepreneurs cannot legally enter the market because of the cost of obtaining necessary licensing or approval, they may abandon their first-choice profession, opting instead to work in another, unlicensed profession where their talents may not be used as well, resulting in a lower income. Second, if entrepreneurs cannot legally enter the market, they may choose to operate illegally, which will reduce producer surplus relative to legally operating businesses, all else held equal. For example, if an entrepreneur opens a pest control business illegally, she must use real resources to enforce contracts and to hide from legal enforcement.

We empirically test the relationship between the number of procedures required to start a business and income inequality. Previous research on the determinants of income inequality has

focused primarily on gross domestic product (GDP) growth, the relative returns on capital and labor, economic freedom, and ethnic heterogeneity, but little research has examined the relationship between regulations and inequality. We offer the first cross-country test of this relationship. Examining a cross-section of 175 countries, we find that a greater number of steps required to open a business is associated with higher levels of income inequality. Specifically, we find that an increase of one standard deviation in the number of steps necessary to legally open a business is associated with a 1.5 percent increase in the Gini coefficient and a 5.6 percent increase in the share of income going to the top 10.0 percent of earners.

The remainder of this paper proceeds as follows. We first provide a brief theoretical explanation of the regressive effects of entry regulations, followed by a review of previous literature surrounding the empirical determinants of income inequality. We then describe the data and use the data to evaluate the relationship between entry regulations and income inequality. We conclude with a discussion of policy implications.

2. The Regressive Effects of Entry Regulations

Entry regulations can increase income inequality through two mechanisms. First, entry regulations can increase the costs of entry by requiring minimum educational or training attainments. For example, for a person to obtain a license to legally sell hair-braiding services in Pennsylvania, that person would have to train for 300 hours at a licensed school, have a 10th-grade education, and pass both a theory and a practical exam (McLaughlin 2013). Such costly requirements may deter would-be entrepreneurs, who may instead enter a profession that is not licensed and potentially face lower producer surplus and lower wages. Gittleman and Kleiner (2016) compare the wages of licensed and unlicensed workers across the United States using the

National Longitudinal Survey of Youth and find that obtaining an occupational license is associated with higher pay. Recent studies that incorporate national estimates show that occupational licensing improves the wages of licensed workers by between 15 percent and 19 percent (Kleiner and Krueger 2010, 2013).

Entry regulations can particularly limit labor market opportunities for low-income earners. In the United States, for example, licensing requirements may make entry prohibitively difficult for workers in entry-level occupations such as bus driving, cosmetology, and pest control (de Rugy 2014). Licensing requirements (such as fees, education and training, and exams) are particularly difficult for low-income workers to meet because the costs of these requirements are higher relative to their income. Because low-income earners have fewer resources than high-income earners and receive income that is well below the national average, entry regulations such as licensing requirements can act as a significant barrier to entry for this group and may induce some individuals to quit the labor force altogether.

The second mechanism by which entry regulations can increase income inequality involves the upper and lower ends of the income distribution. Occupational licensing has the effect of rendering the production of some goods and services illegal, if it is done without appropriate license. When a good or service is entirely prohibited by law, producers of that illicit good or service will receive higher prices because supply is severely limited and competition is reduced.[1] However, when goods are produced by both legal (i.e., licensed) and illegal (i.e., unlicensed) producers, the law of one price suggests that producers who operate illegally will tend to receive the same price as legally competing producers if all else is equal (Mankiw 2014). Entrepreneurs who are potentially constrained from legally entering the

[1] For a discussion of the Bootleggers and Baptists theory of regulation, see Yandle (1983).

market may choose to operate illegally. These entrepreneurs will tend to be from the lower end of the income distribution, because the constraint on receiving an occupational license often is an educational requirement that is too expensive for those with low incomes. Workers in legal, unlicensed professions will tend to receive lower wages relative to the licensed professions, all else held equal. Additionally, illegal producers will face higher costs than legal producers because they must use real resources to hide from law enforcement and provide their own contract enforcement.

At the same time, workers who are able to obtain licenses will receive a premium for providing licensed goods or services, for multiple reasons. For one, occupational licensing requirements limit the supply of labor to an occupation. And in the converse of the low-income workers, individuals with relatively high incomes will be more able to afford the cost of schooling or training or may already have received that schooling or training before the enactment of rules requiring it. Furthermore, a license may affect the perception of quality, even if the license does not actually improve quality. This effect can increase demand for the licensed product or service.

Whereas entry regulations diminish opportunities to supply labor, proponents might argue that entry regulations improve the quality of services. Indeed, the main rationale for entry regulations, such as occupational licensing, is to ensure quality providers and service as well as to protect the health and safety of consumers (McLaughlin, Ellig, and Shamoun 2014). If so, any income inequality that entry regulations cause from either diminishing opportunities for entrepreneurship or unlicensed supply of labor could be offset by increases in quality of the goods and services consumed. Empirical evidence, however, indicates that occupational

licensing regulations, at least, usually do not improve the quality of service.[2] Milton Friedman argues that regulations give incumbent producers the opportunity to restrict supply, create monopoly rents, and maximize profits and incomes (Friedman 1962, chap. 9). Moreover, incumbent producers, protected from new competition by entry regulations, do not necessarily have the incentive to provide higher-quality service. Friedman points toward medical licensing and argues that it decreases the availability of medical services and encourages individuals to substitute less reliable medical services (Friedman 1962). Early studies find little empirical support of a relationship between occupational licensing and quality.[3] For example, Carroll and Gaston (1981) find evidence that restrictive licensing of electricians actually lowers the quality of service. They also discover an unfortunate unintended consequence: a positive relationship between the licensing of electricians and the rate of death from accidental electrocutions across states because people do electrical work themselves rather than hiring a professional (Carroll and Gaston 1981). More recently, Dick Carpenter finds that there is little difference between the quality of floral arrangements in Louisiana, where florists are licensed, and in Texas, where florists are not licensed (Carpenter 2012). McLaughlin, Ellig, and Shamoun (2014) review 16 empirical studies on the effects of licensing on quality of service and find that only 3 studies observe a positive correlation between licensing and quality, whereas 13 studies observe a neutral or negative correlation or find mixed or unclear results.[4]

[2] We review some studies of the effects of occupational licensing regulations on quality; however, the evaluation of the benefits of all entry regulations lies far beyond the scope of this study.

[3] For a literature review of the early empirical research surrounding the relationship between occupational licensing and quality, see Gross (1986).

[4] McLaughlin, Ellig, and Shamoun (2014) review three studies that observe a positive relationship between licensing and quality. Feldman and Begun (1985) find that occupational restriction in optometry increases the quality of eye exams, Martin (1982) discovers a positive correlation between reciprocal licensing and quality, and Holen (1978) finds that entry requirements for dentists are associated with a lower rate of dental neglect. The authors reviewed 13 studies that observe a neutral or negative relationship between licensing and quality, including the electrician study by Carroll and Gaston (1981).

3. Determinants of Income Inequality

Besides entry regulations, there are several potential determinants of income inequality. We reviewed literature on the topic to identify other determinants of varying levels of income inequality across countries and to develop an appropriate set of control variables for our analysis. Much research has focused on the relationship between economic development and inequality since Kuznets (1955) argued that income inequality increases during early stages of economic development and eventually decreases as countries become richer and demand more equality. Most research uses GDP per capita as a measurement of development, but Chang and Ram (2000) also examine the effect of growth rates on income inequality. While their evidence on GDP levels supports the Kuznets hypothesis, they find that their income-growth term is associated negatively with income inequality, suggesting that economic growth is an equalizer. Alderson, Beckfield, and Nielsen (2005) and Mahler and McKeever (2009) find a negative relationship between GDP per capita and income inequality across countries. Mahler and McKeever (2009) incorporate relevant controls when measuring the relationship between GDP and income inequality across countries, including ethnic fractionalization and trade. Barro (2000) finds empirical support for the Kuznets hypothesis and shows that higher inequality slows growth in poor countries and encourages growth in rich countries. However, he points out that rates of growth do not explain much of the variation in inequality across countries.

Although little research directly examines the relationship between regulation and income inequality, some scholars have focused on the relationship between economic freedom and income inequality. Carter (2007) finds a positive relationship between economic freedom and income inequality using data from the United Nations University World Institute for

Development Economics Research (UNU-WIDER) World Income Inequality Database[5] and the *Economic Freedom of the World Annual Report*,[6] which incorporates an index of regulatory freedom. Carter points out that theory does not give us a clear idea of the effect of economic freedom on income inequality. On the one hand, economic freedom may provide more opportunities for upward mobility. On the other hand, economically free nations also have the lowest levels of redistribution.

Although we are unaware of research surrounding the effect of entry regulations on income inequality, Calderón, Chong, and Valdés (2004) examine the relationship between labor market regulations and income inequality. They examine cross-country data on de jure regulations on paper and de facto regulations that are put into practice, and they find that de facto labor market regulations are associated with reductions in income inequality. However, this relationship is weak, and they find no evidence that de jure regulations affect income inequality. Calderón, Chong, and Valdés (2004) look at specific labor market regulations such as the minimum wage, union membership, and regulations surrounding the worker environment and find that the de facto labor regulations are associated with reductions in income inequality.

Other scholars have focused on the relationship between other components of economic and political freedom and income inequality besides regulations, including political openness, trade openness, and financial market development. Subrick (2007) finds evidence that financial development and openness to trade reduces income inequality. Some scholars argue that trade leads to economic development and benefits all income earners, but others argue that it benefits those with certain skills at the expense of people with other skills. As globalization increases,

[5] The database can be accessed at https://www.wider.unu.edu/project/wiid-world-income-inequality-database.
[6] The reports and datasets are available from the Fraser Institute at http://www.freetheworld.com/reports.html.

some argue that the *skill premium*, or the gap between college-educated and non-college-educated workers, increases. Mahler and McKeever (2009) find evidence that trade exacerbates income inequality in countries using the KOF Index of Globalization,[7] an index that incorporates economic flows and restrictions, as an independent variable and the Gini coefficient as a dependent variable. They control for varying GDP levels, ethnic fractionalization, political democracy, and government expenditures on education. To measure the effect of ethnic fractionalization on inequality, Mahler and McKeever (2009) use an index compiled by James Fearon (2003) that attempts to measure the ethnic homogeneity within a country, and they find a strong positive relationship between ethnic fractionalization and posttax and pretax inequality. Mahler and McKeever (2009) argue that heterogeneous countries find it more difficult to redistribute income than homogeneous countries. Overall, research suggests that GDP per capita, political openness, and ethnic heterogeneity may affect income inequality in different ways. In our empirical analysis, we control for the other determinants of income inequality revealed in our review in an effort to reduce the possibility of omitted variables influencing our estimation of the relationship between entry regulations and income inequality.

4. Data

For our analysis, we use two measures of income inequality. The first is the Gini coefficient, a standard measure of a country's income distribution. The data for the Gini coefficient come from Frederick Solt's Standardized World Income Inequality Database (SWIID) of Gini coefficients (Solt 2009). Solt provides an expansive data set as well as Gini coefficients for pretax, pretransfer and posttax, posttransfer incomes. We use the posttax, posttransfer Gini coefficient to

[7] The KOF Index of Globalization is available at http://globalization.kof.ethz.ch/.

account for redistributive policies.[8] We also use the World Top Incomes Database (WTID), which provides data on top income shares across countries over an expansive time period.[9] Whereas the Gini coefficient provides an aggregate measure of inequality, top income shares provide information on the top of the distribution. As alternatives to the Gini coefficient and for robustness, we use the share of income going to the top 10 percent of earners, the share of income going to the top 5 percent of earners, and the share of income going to the top 1 percent of earners.

The variables of interest relate to entry regulation and come from the World Bank's Doing Business dataset.[10] The dataset includes variables that measure the ease of doing business, including the number of procedures and the length of time required to start a new business. We gathered data for 175 countries between 2003 and 2011, which is the latest year in which we have data on income shares and Gini coefficients. Procedures are defined as any interaction between an entrepreneur and outside parties that is required to legally start the business, and the number of procedures ranges from 1 to 19 in our sample. The Doing Business dataset exhibits significant variation across countries in requirements and time cost for legally opening a business. For example, in 2004, an entrepreneur who wanted to open a new business in Colombia needed, on average, to complete 19 steps, to spend 28.0 percent of his or her income, and to wait 60 days. In the same year, an entrepreneur who wanted to open a new business in the United States needed only to complete six steps, to spend 0.7 percent if his or her income, and to wait six days.

[8] The Gini coefficient is a measure of income inequality where the numerator is the area between the Lorenz curve and the line of perfect equality and the denominator is the area under the line of perfect equality.
[9] The WTID was developed by Facundo Alvaredo, Anthony B. Atkinson, Thomas Piketty, and Emmanuel Saez and can be accessed at http://topincomes.g-mond.parisschoolofeconomics.eu/. As of October 2015, the WTID became the World Wealth and Income Database.
[10] The Doing Business database is available at http://www.doingbusiness.org/data.

In addition to the variables of interest, we use control variables, including credit market development, GDP per capita, ethnic heterogeneity, trade openness, and democratization. We chose these controls because existing literature, as mentioned in the previous section, has suggested they are important determinants of income inequality. Data for credit market development come from the World Bank and are measured as domestic credit to the private sector as a percentage of GDP. We expect that countries with more developed credit markets will have lower levels of income inequality because low-income individuals are more likely to have access to credit. Data for GDP per capita comes from the Center for International Comparisons of Production, Income, and Prices at University of Pennsylvania Penn World Table (Heston, Summers, and Aten 2006). Data for ethnic fractionalization come from an indicator compiled by Fearon (2003) that quantifies ethnic heterogeneity across countries. This variable ranges from 0 to 1, where a higher value represents more ethnic fractionalization.[11] The data for the variable for trade openness come from the World Bank[12] and are measured as the ratio of the sum of exports and imports to GDP. The data for democratization come from the Freedom House ratings of civil liberties (Freedom House 2014). The ratings range from 1 to 7, where 1 represents the highest level of civil liberties and 7 represents the lowest level of civil liberties. The variables used in our study are summarized in table 1.

[11] The data for ethnic fractionalization are calculated only for the early 1900s, so we extrapolate the data and use them for the years we have entry regulation data under the assumption that ethnic fractionalization is slow to change.
[12] The data are from the World Development Indicators database at http://data.worldbank.org/data-catalog/world-development-indicators.

Table 1. Descriptions of Variables

Variable	Description
Gini	Measure of posttax income inequality
Top_ten	Share of income going to the top 10 percent of earners
Top_five	Share of income going to the top 5 percent of earners
Top_one	Share of income going to the top 1 percent of earners
Steps	Number of procedures required to start a new business
GDPC	Purchasing power parity–adjusted GDP per capita
Trade	Ratio of the sum of exports and imports to GDP
Ethnic	Indicator that quantifies ethnic heterogeneity across countries and ranges from 0 to 1
Private	Domestic credit to the private sector as a percentage of GDP
Democracy	Rating of civil liberties that ranges from 1 to 7

Table 2 reports the summary statistics from the variables used in the regressions. The WTID, from which we took the income shares variables, consists primarily of Organisation for Economic Co-operation and Development countries, whereas Gini coefficient data cover more countries. For the Gini coefficient data, the highest Gini coefficient in the sample is 80.41, which belongs to Maldives in 1998. In the same year, the United States had a Gini coefficient of 36.97. A Gini coefficient of 0 represents perfect income equality, while a Gini coefficient of 100 represents maximum income inequality. By 2004, Maldives' Gini coefficient had dropped to 44.63. South Africa is a notable outlier with consistently high levels of measured income inequality. Between 1995 and 2014, South Africa had Gini coefficients that varied from 55.42 to 60.87. In the other sample—the WTID—the United States had the highest share of income going to the top 10 percent and 5 percent of earners in 2011. Between 1985 and 2011, the average share of income going to the top 10 percent of earners in the United States was 41.53. Colombia, in

1996, has the highest share of income going to the top 1 percent of earners. The dataset does not include data on the share of income going to the top 10 percent and 5 percent of earners in Colombia. The country with the lowest share of income going to the top 10 percent of earners was Mauritius in 2005. The data for top income shares cover a much smaller range of countries than do the data for the Gini coefficients. Data for the share of income going to the top 10 percent, 5 percent, and 1 percent of earners cover 23 countries over many years with up to a total of 451 observations. Data for the Gini coefficients cover more than 100 countries over many years, totaling 3,995 observations. In our regressions, we pool all data for which we have observations on either the Gini coefficient or the shares of incomes and data on entry regulations. Thus, our pooled cross-section includes 3,995 observations for regressions using the Gini coefficient as the dependent variable and 451 observations for regressions using the shares of income as the dependent variable.

Table 2. Summary Statistics

Variable	Mean	Standard deviation	Minimum	Maximum
Gini	38.12	10.75	15.37	80.41
Top_ten	31.87	6.29	13.96	46.63
Top_five	20.78	5.15	8.93	33.98
Top_one	9.06	3.61	2.65	21.30
Steps	8.73	3.52	1.00	19.00
Cost	55.71	143.13	0.00	1,540.20
GDPC	9,724.27	11,491.37	207.47	95,540.91
Trade	82.37	53.43	10.95	447.06
Ethnic	0.43	0.25	0.01	1.00
Credit	49.85	47.31	0.82	319.46
Democracy	3.24	1.72	1.00	7.00

Note*:* GDPC = GDP per capita adjusted for purchasing power parity.

For the entry regulations data from the World Bank's Doing Business database, Colombia had the highest number of steps necessary to open a business in 2004. Uganda has the second-highest number of steps necessary to open a business. From 2004 to 2009, it took 18 steps to open a business in Uganda. In 2004, it took an entrepreneur, on average, 168 days to open a business in Indonesia, but by 2012 that number had dropped to 48. Between 2009 and 2012, it took an entrepreneur in New Zealand, on average, half a day to open a business. Entrepreneurs in Sierra Leone in 2004 faced the highest costs to open a business in the sample. On average, an entrepreneur in Sierra Leone had to spend 1,540.2 percent of his or her income to open a business in 2004. During the same year, an entrepreneur in Denmark had to spend on average 0 percent of his or her income to open a business.

5. Model

To investigate whether entry regulations are associated with higher levels of income inequality, we estimate ordinary least squares (OLS) models of the posttax Gini coefficient and top income shares as functions of entry regulations. At the same time, we include a number of possible control variables that might explain cross-country differences in income inequality. The OLS model takes the following forms:

$$Income\_inequality_i = \alpha + \beta Steps_i + \boldsymbol{\gamma}\mathbf{X_i} + \varepsilon_i, \quad (1)$$

where *Income_inequality* will be measured by the Gini coefficient, *Top_ten*, *Top_five*, or *Top_one*; *i* indicates the country; α is the intercept; *Steps* is the independent variable of interest that is measured by the number of steps it takes to open a business, ***X*** is a vector of country characteristics, and ε is the error term. β and the vector **γ** are parameters to be estimated.

The first control variable in the vector ***X*** is the natural log of GDP per capita adjusted for purchasing power parity (*ln(GDPC)*). Because few countries are preindustrial, we expect that—following Kuznets's hypothesis—economic growth is associated with lower levels of income inequality and that the estimated coefficient will be negative.

A second control variable is openness to trade (*Trade*). The relationship between openness to trade and income inequality is ambiguous. Some argue that openness to trade benefits those with certain skills and increases the income gap between college-educated and non-college-educated workers (Mahler and McKeever 2009). Others argue that nations that engage in international trade also have better technology and economic growth than do nations that engage relatively less in international trade. Hence, they argue that trade can lead to an increased demand for redistribution and lower levels of inequality.

Another control variable is ethnic fractionalization (*Ethnic*). Theory suggests that ethnically heterogeneous societies will have higher income inequality than relatively homogeneous societies. The reasoning is that heterogeneous societies may find it relatively more difficult to redistribute and provide public goods that help low-income workers because of a larger number of competing special-interest groups (Subrick 2007). If this relationship holds, the expected sign on the estimated coefficient is positive.

Credit market development (*Credit*) is another independent control variable. Countries with more developed credit markets have lower levels of income inequality because low-income individuals are more likely to have access to credit. Credit market development is measured as domestic credit to the private sector as a percentage of GDP. In this case, the estimated coefficient is expected to be negative.

A final variable of interest is democratization (*Democracy*). Theoretically, more democratic countries should experience lower levels of income inequality. Citizens in democratic countries are better able to place political pressure on the government to redistribute income and wealth relative to countries with lower levels of democratization. The ratings range from 1 to 7, where 1 represents the highest level of civil liberties and 7 represents the lowest level of civil liberties.

6. Results

In table 3, we report our regressions of the Gini coefficient on our primary variable of interest—*Steps*—and our control variables. Each column reports a single regression, and all regressions include *Steps*. Control variables are added in stepwise fashion in columns 2 through 6. Finally, column 7 includes only those variables that are statistically significant in all other regressions in which they are included. Each regression includes 3,995 observations. All estimations include robust standard errors.

Our primary variable of interest, *Steps*, is positive and statistically significant at the 1 percent level in all regressions. The estimated coefficient on *Steps* ranges from 0.38 (column 2) to 0.80 (column 1). In our preferred specification (column 7), the estimate on *Steps* is 0.44, which means that a one-step increase in the number of steps necessary to open a business is associated with a 0.44 increase in the Gini coefficient. The magnitude of the coefficient on entry regulation is notable. Consider the average country in this dataset. The average country had a Gini coefficient of 38.12 and entrepreneurs faced 8.73 steps to open a business. What if the average country increased the required amount of steps to open a business by one standard deviation? The results suggest that, all else equal, the 3.52 increase in the number of steps required to open a business would have resulted in an estimated increase in the Gini coefficient

of 1.5. Because the Gini coefficient ranges from 0 to 100, the country's Gini coefficient would be an estimated 1.5 percent higher.

How does this estimation compare with the other estimated coefficients? The log of GDP per capita (*ln(GDPC)*) has a negative and statistically significant relationship with inequality in all regressions that include it. In column 7, for example, our estimate shows that a 1 percent increase in per capita income is associated with a 1.02 reduction in the Gini coefficient, all else held equal ($p < 0.01$). Ethnic fractionalization (*Ethnic*) has a consistently positive and statistically significant ($p < 0.01$) relationship with inequality. In our preferred specification, a one-unit increase in the measure of ethnic fractionalization is associated with a 6.996 increase the Gini coefficient, all else equal. The measure of ethnic fractionalization ranges from 0 to 1, where 1 represents the highest level of fractionalization. To understand the magnitude of the coefficient, consider the average country. The average country has an ethnic fractionalization measure of 0.43. What if that country sees an increase of one standard deviation in its measured ethnic fractionalization? The regression results suggest that this 0.25 increase in measured ethnic fractionalization is associated with a 1.70 increase in the Gini coefficient. The estimated coefficient on democratization (*Democracy*) is also positive and statistically significant ($p < 0.01$). The results in column 7 suggest that a one-unit increase in the civil liberty rating is associated with a 0.9997 increase in the Gini coefficient, all else equal. The control variables openness to trade (*Trade*) and credit market development (*Credit*), when included in the model, are rarely statistically significant, and the estimated coefficients are small in magnitude.

To investigate whether entry regulations contribute to higher levels of income inequality, we also regress the share of income going to the top 10 percent of earners on *Steps* and include similar control variables that might explain cross-country differences in income inequality. The

Table 3. OLS Regression Results; Dependent Variable: Gini Coefficient

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Steps	0.7985984*** (0.000)	0.3750152*** (0.000)	0.4185527*** (0.000)	0.5076215*** (0.000)	0.4874048*** (0.000)	0.4308272*** (0.000)	0.4356867*** (0.000)
ln(GDPC)		−2.527023*** (0.000)	−2.622934*** (0.000)	−1.799097*** (0.000)	−1.498925*** (0.000)	−0.8594474** (0.042)	−1.025867*** (0.004)
Trade			0.0143062*** (0.009)	0.0021325 (0.761)	0.003594 (0.591)	−0.0009599 (0.878)	
Ethnic				6.2025*** (0.000)	6.776973*** (0.000)	7.021226*** (0.000)	6.996472*** (0.000)
Credit					−0.0051902 (0.502)	−0.0016666 (0.825)	
Democracy						0.961159*** (0.001)	0.9974908*** (0.000)
R^2	0.0994	0.20	0.21	0.2385	0.2281	0.2432	0.2594

* = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level.

Note: *p* values are in parentheses.

regressions are reported in table 4. The regressions in table 4 each include 451 observations. All estimations include robust standard errors. As in table 3, we add control variables in a stepwise fashion. Unlike table 3, there is no column 7, because a regression including only statistically significant variables from column 6 would be identical to column 2. We therefore discuss the coefficient estimates from column 2.

In column 2, both of the variables (*Steps* and *ln(GDPC)*) are statistically significant at the 1 percent level. The estimated coefficient on entry regulation is 1.59, which means a one-step increase in the number of steps necessary to open a business is associated with a 1.59 increase in the share of income going to the top 10 percent of earners. The magnitude of the coefficient on entry regulation is again notable in this model. Consider the average country in this dataset. In the average country, 31.87 percent of income goes to the top 10 percent of earners, and entrepreneurs face 8.73 steps to open a business. What if the average country increases the required amount of steps to open a business by one standard deviation? The results suggest that, all else being equal, the 3.52 increase in the number of steps required to open a business would result in an estimated increase in the share of income going to the top 10 percent of earners by 5.6 percent. Adding additional control variables does not change the statistical significance of the coefficient on entry regulation and does not have a notable effect on the size of the coefficient.

We also consider the share of income going to the top 5 percent and 1 percent of earners and include similar control variables that might explain variations in cross-country differences in income inequality. The results are in table 5 and table 6. Coefficient estimates on our variable of interest, *Steps*, remain positive and significant in every specification, and coefficient estimates on other covariates are remarkably similar in sign and statistical significance to those in tables 3 and 4. For the sake of brevity, we report only the results here and dispense with further discussion.

Table 4. OLS Regression Results; Dependent Variable: Share of Income Going to Top 10 Percent of Earners

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
Steps	0.8157735*** (0.000)	1.592129*** (0.000)	1.606395*** (0.000)	1.435213*** (0.000)	1.500973*** (0.000)	1.372834*** (0.000)
ln(GDPC)		9.24049*** (0.000)	9.183916*** (0.000)	9.527141*** (0.000)	11.57721*** (0.000)	11.71863*** (0.000)
Trade			0.0033084 (0.500)	0.0024919 (0.655)	−0.0002636 (0.963)	−0.0102227 (0.300)
Ethnic				1.493245 (0.661)	0.8533234 (0.783)	0.6647955 (0.818)
Credit					−0.0065343 (0.727)	−0.0041137 (0.842)
Democracy						1.290083 (0.279)
R^2	0.1037	0.31	0.31	0.3018	0.3762	0.3895

* = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level.

Note: *p* values are in parentheses.

Table 5. Regression Results; Dependent Variable: Share of Income Going to Top 5 Percent of Earners

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Steps	1.059505*** (0.000)	0.6123488*** (0.000)	1.150698*** (0.000)	1.183129*** (0.000)	1.117789*** (0.000)	1.340096*** (0.000)	1.214167*** (0.000)
ln(GDP)	7.741427*** (0.000)		6.683652*** (0.000)	6.635765*** (0.000)	7.550144*** (0.000)	10.54851*** (0.000)	11.23107*** (0.000)
Trade				0.0074577* (0.081)	0.0048903 (0.321)	−0.0018362 (0.720)	−0.0187294** (0.012)
Ethnic	4.307801 (0.104)				4.689531 (0.115)	6.352909** (0.022)	6.618022*** (0.008)
Credit						−0.0328574* (0.058)	−0.0339845* (0.055)
Democracy	1.017763** (0.023)						2.019667** (0.018)
R^2	0.3996	0.0848	0.34	0.358	0.3742	0.4613	0.5035

* = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level.

Note: *p* values are in parentheses.

Table 6. Regression Results; Dependent variable: Share of Income Going to Top 1 Percent of Earners

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Steps	0.3892394*** (0.005)	0.3959242*** (0.000)	0.3563039*** (0.007)	0.375776*** (0.004)	0.4565014*** (0.003)	0.5884958*** (0.000)	0.3645827** (0.011)
ln(GDP)	1.841895* (0.066)		−0.3462619 (0.737)	−0.4025514 (0.703)	1.423784 (0.224)	4.05569*** (0.001)	4.886498*** (0.000)
Trade				0.0038859 (0.291)	0.0000631 (0.986)	−0.0046332 (0.185)	−0.0195606*** (0.000)
Ethnic	6.229424*** (0.001)				7.708205*** (0.000)	9.057802*** (0.000)	7.724658*** (0.000)
Credit						−0.0311738*** (0.001)	−0.0233417** (0.016)
Democracy	1.121199*** (0.001)						2.10891*** (0.000)
R^2	0.3126	0.0957	0.1014	0.1096	0.243	0.3239	0.4369

* = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level.

Note: *p* values are in parentheses.

7. Discussion

Our results suggest that entry regulations are highly correlated with the levels of income inequality across countries. These results obtain in simple bivariate regressions, and when we control for several other possible determinants of income inequality, including ethnic fractionalization, credit market development, openness to trade, GDP per capita, and levels of civil liberties. In our preferred specification, we find that an increase of one standard deviation (3.52 steps) in the number of steps necessary to open a business is associated with an increase in the Gini coefficient of 1.5 percent. Although we cannot demonstrate causality, the results of this paper may indicate that reducing the stringency of entry regulations could help countries avoid larger levels of income inequality. Furthermore, we cannot think of a plausible alternative theory that would explain our results or would point to reverse causality. Nonetheless, we hope that future research will help determine the directions of causality in this relationship.

Public choice theory suggests that entry regulations will be difficult to remove because entrenched interests will lobby for the restrictions. Nonetheless, as far as policy options go, it may be easier for policymakers to remove entry regulations than to reduce ethnic fractionalization or to increase the level of civil liberties in their country.

Three broad policy goals could help mitigate the effects of entry regulation on inequality. First, entry regulations that do not solve a demonstrable social problem should be avoided. Before implementing an entry barrier, regulators should identify the social problem that they hope to solve and provide evidence that the social problem is widespread or systemic.[13] McLaughlin, Ellig, and Shamoun (2014) point out that performing this analysis can direct

[13] In fact, this is supposed to be the first step undertaken by a regulatory agency when performing an economic analysis of a proposed rule. See Ellig and McLaughlin (2012) and Ellig, McLaughlin, and Morrall (2013).

attention toward actual systemic social problems and prevent regulation in cases where it is likely to be ineffective.

Second, legislators and regulators should evaluate a broad suite of alternative policies when considering intervention to solve a social problem. By examining alternative policies, regulators may discover that it is optimal to implement a less restrictive form of entry regulation. Many entry regulations are justified as tools that protect consumer safety and reduce information asymmetries. However, it is possible to provide consumers with adequate information through other regulations, such as mandatory labeling or information disclosure. McLaughlin, Ellig, and Shamoun (2014) point toward three alternatives to occupational licensing: registration, certification, and titling. By examining these less restrictive forms of occupational licensing, countries and states may be able to mitigate barriers to entry that limit opportunities for low-income workers.

Third, legislators and regulators should examine current licensing restrictions for effectiveness and unintended regressive effects. By conducting retrospective reviews of current occupational licensing restrictions, policymakers can attempt to discover whether the regulation resulted in any reductions in the relevant market failure or social problem. If entry regulations turn out to be ineffective, this analysis may encourage legislators to remove burdensome entry barriers that hurt low-income earners.

8. Conclusion

We have examined the relationship between income inequality and entry regulations. In a pooled cross-section of 175 countries, we find that countries with more stringent entry regulations tend to experience higher levels of income inequality.

The results also are consistent with the public choice theory that incumbent producers benefit from entry regulations such as occupational licensing, which skew income toward politically connected producers and away from individuals who lack the resources necessary to navigate the legal and regulatory framework. We propose three broad policy goals aimed to mitigate the effects of entry regulation on inequality. First, legislators and regulators should avoid ineffective entry regulations. Second, they should consider alternative policies to address relevant social problems. Third, legislators and regulators should examine current licensing restrictions for unintended regressive effects.

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ECONOMIC PERSPECTIVES

The Unintended Consequences of Federal Regulatory Accumulation

PATRICK MCLAUGHLIN AND ROBERT GREENE
Senior Research Fellow and Project Coordinator

Federal regulators often have good intentions when proposing new rules, such as increasing worker safety or protecting the environment. However, policymakers typically view each regulation on its own, paying little attention to the rapid buildup of rules—many of them outdated and ineffective—and how that regulatory accumulation hurts economic growth.

The continuous accumulation of rules over the last several decades has not only slowed economic growth but has also reduced employment opportunities and disproportionately harmed low-income households. Unless Congress and agencies address this growing backlog, it will continue to stifle innovation and entrepreneurship.

BUILDUP OF RULES HARMS THE ECONOMY

According to the Mercatus Center's RegData—a tool that uses text analysis to quantify the federal regulations targeting each industry in the United States—total regulatory restrictions have increased nearly 20 percent since 1997 to more than 1 million. Multiple studies have quantified how the growth of rules slows economic growth:

- A recent study published in the *Journal of Economic Growth* found that between 1949 and 2005 the accumulation of federal regulations slowed US economic growth by an average of 2 percent per year. Had the amount of regulation remained at its 1949 level, 2011 gross domestic product (GDP) would have been about $39 trillion—or three and a half times—higher, which translates into a loss of about $129,300 for every person in the United States.
- A 2005 World Bank study found that a 10-percentage-point increase in a country's regulatory burdens slows the annual growth rate of GDP per capita by half a percentage point.[1] Based on this finding, an increase in regulatory burdens can translate to thousands of dollars in lost GDP per capita growth in less than a decade.
- Other economists have estimated that a heavily regulated economy grows two to three percent slower than a moderately regulated one.

IMPROVING REGULATORY SYSTEMS SPURS ECONOMIC GROWTH

Conversely, large-scale efforts to reduce regulatory burdens can result in increased investment and economic growth.

- According to a World Bank study, moving from the 25 percent most burdensome to the 25 percent least burdensome regulatory environment (as measured by the World Bank's Doing Business index) can increase a country's average annual GDP per capita growth by 2.3 percentage points.

1. Calculated by using the method of estimation set forth by Table 3B, setting the governance index at the world median (0.46), and setting overall regulation to 0.1 to represent a 10-percentage-point increase along the study's index.

- When the United States and the United Kingdom reduced regulation in the utility, communications, and transportation industries in the late 1970s and early 1980s, investment in those sectors as a percentage of capital stock more than doubled—from 3.7 percent in 1975 to 8.15 percent in 1998. During that same time, investment rates decreased by 5 percent in continental European countries that did not implement large-scale deregulatory reforms, including Italy, France, and Germany.

HOW REGULATIONS HURT THE LABOR MARKET

The rapid growth in the number of federal rules has likely hindered the struggling labor market. An increasing regulatory burden can harm workers in various ways. As former Bureau of Labor Statistics Commissioner and Mercatus Center senior research fellow Keith Hall explains in a recent study:

- Regulation adds to costs, increasing prices for regulated goods and services and reducing the final amount bought and sold. As production declines, so does the demand for workers engaged in production.
- This shrinkage in the size of the market can decrease employment not only in these regulated industries but also in industries downstream that use the now more expensive goods and services.
- More regulation also leads to a shift of workers from production to regulatory compliance jobs, which reduces overall economic efficiency.
- Even if displaced workers eventually find new employment, they often face permanent losses in lifetime earnings, which can be as high as almost three years of the previous annual income. This is largely due to skill mismatches between the jobs lost and the new jobs created in the economy.

REGULATIONS CAN BE REGRESSIVE

Proponents of federal regulations often use the need to protect society as a whole, particularly lower-income individuals, to justify regulation despite potential economic costs. However, numerous regulations disproportionately *burden* poor Americans, who are least able to afford them.

- Mercatus Center research finds that federal regulations often address small risks impacting a targeted group but spread costs uniformly. As a result, these rules cost up to six to eight times more as a share of income for low-income households than for high-income households.
- In 2005 the Food and Drug Administration banned the use of chlorofluorocarbons as propellants in medical inhalers, such as asthma inhalers, for environmental reasons. Shortly thereafter, the price of asthma inhalers tripled. As Mercatus Center senior research fellow Patrick McLaughlin explained in a 2013 Senate testimony, this higher price disproportionately harms lower-income persons and may lead to the choice not to buy an inhaler or leave an asthma attack untreated.
- The minimum wage acts as a regulation that prohibits the exchange of a service below a certain price. This also harms workers with the least skills and experience. A recent Mercatus Center study found that a proposed 13.8 percent increase in New Jersey's minimum wage (from $7.25 to $8.25 per hour), which voters passed into law, would not directly affect the college-educated and presumably wealthier workers. However, the wage hike could increase unemployment by as much as two percentage points for young workers without high school diplomas.

SOLUTIONS TO REDUCE THE REGULATORY BURDEN

There are many obstacles to reducing duplicative, outdated, and harmful regulations.

- Special interests will pressure agencies and Congress to keep rules in place that result in concentrated benefits to their constituency but spread costs to the rest of the population.
- Agencies have few incentives to determine which regulations are obsolete or to eliminate their own rules.

- Agency employees are rewarded for creating new regulations and thus have little incentive to provide information that would lead to a rule's elimination.
- Removing regulation may require congressional consent, and certain statutes' authors may reject the notion that regulations from those statutes are no longer necessary.

In a 2014 Mercatus Center study, "The Consequences of Regulatory Accumulation and a Proposed Solution," scholars Patrick McLaughlin and Richard Williams found the most effective strategy to overcome the obstacles listed above would be for Congress to create an independent commission tasked with reducing unnecessary regulatory burdens. To maximize the commission's ability to curb regulatory accumulation and improve economic growth, they suggest the following:

- The commission would use a transparent method of assessment that focuses on whether and how rules lead to the outcomes desired.
- While the commission would receive input from stakeholders and agencies, it should be explicitly directed to consider how underrepresented stakeholders are affected by regulations.
- The commission would produce a report of regulations and programs to be modified, consolidated, or eliminated.
- Similar to the process used with the Base Realignment and Closure Commission, Congress would need to pass a joint resolution of disapproval to prevent the commission'srecommendations from going into effect.

CONTACT

Robin Bowen, (703) 993-8582, rbowen@mercatus.gmu.edu
Mercatus Center at George Mason University, 3434 Washington Blvd., 4th Floor, Arlington, VA 22201

ABOUT THE AUTHORS

Patrick A. McLaughlin is a senior research fellow at the Mercatus Center at George Mason University. His research primarily focuses on regulations and the regulatory process, and he is the creator and cofounder of RegData. His work has been featured in numerous scholarly journals, including *American Law and Economics Review*, *Administrative Law Review*, *Regulation & Governance*, *Risk Analysis*, and *Public Choice*. McLaughlin received his PhD in economics from Clemson University.

Robert Greene is the project coordinator in the Regulatory Studies Program and Financial Markets Working Group at the Mercatus Center at George Mason University. His research focuses on financial regulations, the regulatory process, and labor markets.

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WORKING PAPER

THE CONSEQUENCES OF REGULATORY ACCUMULATION AND A PROPOSED SOLUTION

by Patrick A. McLaughlin and Richard Williams

MERCATUS CENTER
George Mason University

About the Authors

Patrick A. McLaughlin
Senior Research Fellow
Mercatus Center at George Mason University
pmclaughlin@mercatus.gmu.edu

Richard Williams
Director of Policy Research
Mercatus Center at George Mason University

Abstract

The American regulatory system has no working, systematic process for reviewing regulations for obsolescence or poor performance. Over time, this has facilitated the accumulation a vast stock of regulations. Regulatory accumulation can negatively affect GDP growth, labor productivity, innovation, and safety—perhaps explaining why every president since Jimmy Carter has recognized it as a problem. We examine previous, presidentially led efforts to initiate a review of existing regulations in the United States, and show that these efforts have not materially altered the stock of regulations. In contrast, we examine other, successful government reform efforts in order to identify their characteristics. After outlining the obstacles to regulatory cleanup that previous efforts in the United States failed to address, we suggest a process that could be adopted in order to eliminate or modify obsolete or otherwise undesirable regulations. Finally, we evaluate our proposal alongside other recent proposals with regard to how well they overcome the previously identified obstacles to regulatory review and cleanup.

JEL codes: H1, H23, K23, L51, J810

Keywords: regulation, regulatory accumulation, regulatory cleanup, retrospective review, retrospective analysis, consequences of regulation, unintended consequences, economic growth, regulatory improvement commission, regulatory review commission, BRAC for regulations, regulation and safety, nonfunctional rules, risk reduction, risk management, workplace safety

The Consequences of Regulatory Accumulation and a Proposed Solution

Patrick A. McLaughlin and Richard Williams

1. Introduction

While every American president for the past 30 years has embraced the notion of performing economic analysis on new regulations before their implementation, no president has successfully reexamined the enormous stock of previously existing regulations that he inherited nor materially altered the growth of the stock of regulations. Yet this stock of federal regulations in the United States is enormous and growing. In 2012, the Code of Federal Regulations—the series of books that contain all the currently applicable federal regulations—comprised over 170,000 pages of dense legal text. Importantly, as the quantity and scope of regulations grow, so does the degree to which they can negatively affect people and the economy.

The buildup of regulations is a consequence of a reactive regulatory system. As economists Michael Mandel and Diana Carew recently wrote, "The political system, understandably, reacts to major events—new technologies, corporate accounting scandals, environmental discoveries, or reports of tainted food or faulty products." When regulations are created in reaction to major events, "new rules are [placed] on top of existing reporting, accounting, and underwriting requirements. . . . For each new regulation added to the existing pile, there is a greater possibility for interaction, for inefficient company resource allocation, and for reduced ability to invest in innovation. The negative effect on U.S. industry of regulatory accumulation actually compounds on itself for every additional regulation added to the pile."[1]

[1] Michael Mandel and Diana G. Carew, "Regulatory Improvement Commission: A Politically-Viable Approach to U.S. Regulatory Reform" (Policy Memo, Progressive Policy Institute, Washington, DC, May 2013), 3–4, http://www.progressivepolicy.org/2013/05/regulatory-improvement-commission-a-politically-viable-approach-to-u-s-regulatory-reform/.

The existing regulatory system requires that executive branch agencies "adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs."[2] Unfortunately, this requirement only involves prospective analysis, and not retrospective analysis. As a former chief economist of the Council of Economic Advisers put it, "The single greatest problem with the current system is that most regulations are subject to cost-benefit analysis only in advance of their implementation."[3] While prospective analysis can certainly help avoid some regulatory pitfalls, only in hindsight can an analysis determine whether the benefits that a rule was intended to achieve are actually being realized and whether those benefits do indeed justify the costs of the rule.

The need to eliminate or modify some regulations from the accumulated stock has been widely recognized by members of Congress and every president since Carter.[4] In his 2011 State of the Union address, for example, President Obama noted, "There are twelve different agencies that deal with exports. There are at least five different agencies that deal with housing policy. Then there is my favorite example: The Interior Department is in charge of salmon while they are in fresh water, but the Commerce Department handles them when they're in saltwater. I hear it gets even more complicated when they are smoked."[5] Nonetheless, executive branch attempts to examine and revise or eliminate existing regulations have primarily relied on executive orders for review of the need for regulations, rather than creating a streamlined and evidence-based, analytical process that could accomplish large-scale reform. Economist Randall Lutter terms retrospective *review* an "administrative process" that uses the Administrative Procedure Act to

[2] Executive Order 12866, 58 Fed. Reg. 51734 (1993).
[3] Michael Greenstone, "Toward a Culture of Persistent Regulatory Experimentation and Evaluation," in *New Perspectives on Regulation*, ed. David Moss and John Cisternino (Cambridge, MA: Tobin Project, 2009), 113.
[4] Mandel and Carew, "Regulatory Improvement Commission."
[5] Barack Obama, "Remarks by the President in State of Union Address," January 25, 2011, Washington, DC (White House, Office of the Press Secretary), http://www.whitehouse.gov/the-press-office/2011/01/25/remarks-president-state-union-address.

ultimately revise or eliminate rules.[6] He differentiates that from retrospective *analysis*, which uses economics and science to "assess the benefits and costs of existing regulations relative to a hypothetical scenario without such regulations." To date, there has been neither large-scale retrospective analysis nor the creation of a process that would eliminate failing regulations.[7] Congress recognized the problem in 2000, passing the Regulatory Right-to-Know law that asks OMB to recommend areas for reform, including information on the effects of federal rules and paperwork "in the aggregate, by agency and agency program, and by major rule."[8] Despite this effort, regulations continue to accumulate, and the ability of presidential administrations to clean up obsolete or otherwise undesirable regulations appears rather limited.

Most efforts at regulatory cleanup have relied on the agencies that originally created the rules and have no incentive or inclination to remove them. In fact, even if agencies were to attempt to eliminate or modify rules in bulk, they must do so through the informal rulemaking process established by the Administrative Procedure Act. Doing so would, of course, attract comments from special interest groups that may have vested interests in preserving existing rules, making their modification or elimination that much more difficult. Furthermore, retrospective review without congressional authority is limited: even if they were so inclined, agencies can only remove those rules that were allowed, but not required, by statute.

This paper outlines why a congressional regulatory reform effort to eliminate obsolete, inefficient, or ineffective regulations, which we later describe as "nonfunctional" rules, is necessary and develops some recommendations on how to do that. Several attempts at

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[6] Randall Lutter, "The Role of Retrospective Analysis and Review in Regulatory Policy" (Mercatus Working Paper No. 12-14, Mercatus Center at George Mason University, Arlington, VA, April 2012), 6, http://mercatus.org/sites/default/files/Lutter_Retrospective_v1-2.pdf.
[7] Ibid., 7.
[8] Regulatory Right-to-Know Act, 31 U.S.C. § 1105 (2000).

eliminating or modifying government programs are evaluated, including relatively unsuccessful attempts at regulatory cleanup as well as largely successful attempts at eliminating waste and obsolescence, such as the Base Realignment and Closure Commissions. Based on these reviews, the key obstacles that a successful attempt at regulatory cleanup must overcome are explained. Recommendations designed to overcome these obstacles are given in the last section, which details our proposal to create a Regulatory Review Commission. This independent commission would be tasked with assessing the effectiveness of existing regulations and recommending changes to or repeals of regulations to Congress, with the objective of achieving a reduction of regulations equal to or greater than some predetermined, quantitative threshold.

To streamline this process and eliminate the possibility of pork-barrel politics, our recommendation stipulates that Congress can only halt the recommendations of the commission from going into effect with a joint resolution of disapproval of the entire package. In sum, a commission identifies rules or programs for elimination or modification, and Congress is given only the possibility of doing nothing—implying acceptance—or producing a joint resolution of disapproval, without amendments. This waters down the influence of special interest groups by eliminating Congress's ability to "cherry pick."[9]

The remainder of this paper proceeds as follows. In section 2, we review evidence of the problems caused by regulatory accumulation. Section 3 reviews previous efforts to address regulatory accumulation in the United States and other, more successful efforts at serious government reform in the United States and elsewhere. Section 4 discusses lessons learned from those efforts and develops a framework for evaluating proposals for regulatory cleanup based on

[9] By "cherry pick" we mean the ability of members to choose certain regulations or programs to keep that are in their best interests, such as programs that benefit their constituents, and accept the recommendations to eliminate other regulations.

those lessons. Section 5 focuses on our recommendations on how to create a streamlined process for eliminating obsolete or otherwise undesirable regulations. Section 6 evaluates our proposal within the context of the framework developed in section 3, alongside five other bills that were proposed in the 112th or 113th Congresses that also address the topic of regulatory cleanup. Section 7 concludes.

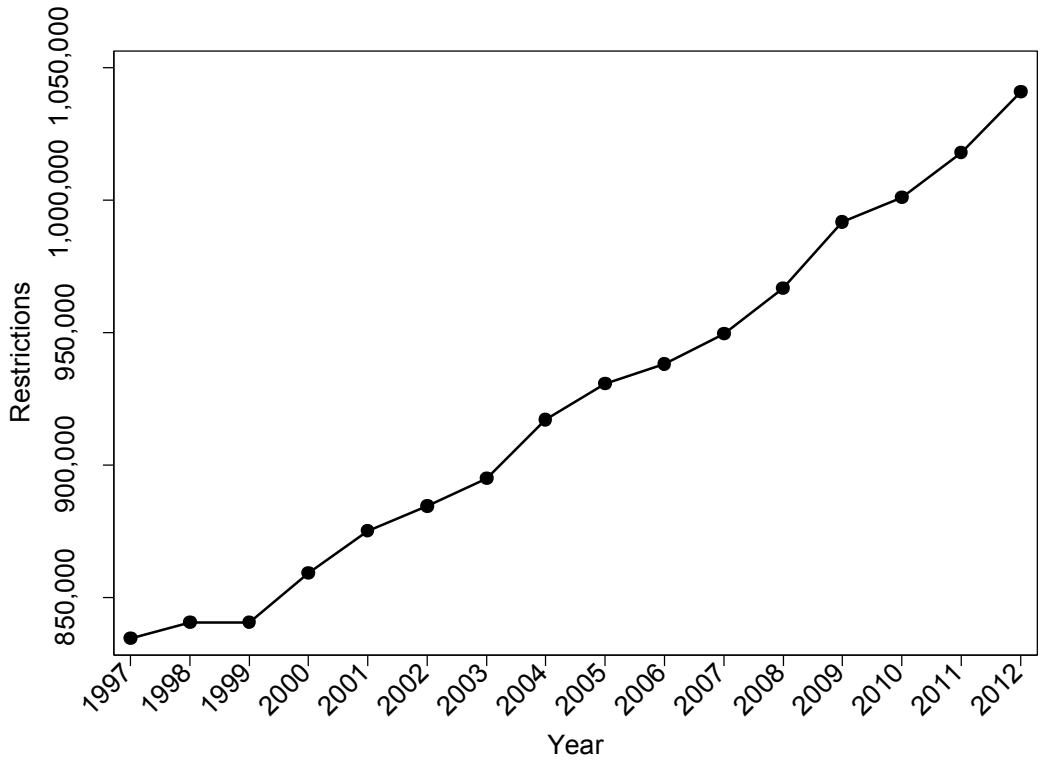
2. The Problems of Regulatory Accumulation

By all measures, regulation has been increasing for several decades. Figure 1 shows the growth of federal regulations from 1997 to 2012, as measured by counting the number of restricting words, such as "shall," "must," or "required" (hereafter called "restrictions"), that are printed in the *Code of Federal Regulations* each year.[10] The total number of restrictions in federal regulations has grown from about 835,000 in 1997 to over 1 million by 2010. That averages out to nearly 12,000 new restrictions created each year.

Large-scale retrospective analysis, coupled with a streamlined mechanism for eliminating obsolete or otherwise undesirable regulations, can dramatically improve economic performance. Additionally, and in a way that is most likely related, regulatory cleanup may positively affect international competitiveness, entrepreneurship, and safety. The existing stock of regulations is so large that any regulatory reform effort that focuses only on new regulations while ignoring the accumulated stock, as several executive orders, guidance memos, acts of Congress, and bills currently under consideration do, is bound to miss significant opportunities to improve the US economy via regulatory cleanup.

[10] Omar Al-Ubaydli and Patrick A. McLaughlin, "RegData: The Industry-Specific Regulatory Constraint Database (IRCD)" (Mercatus Working Paper No. 12-20, Mercatus Center at George Mason University, Arlington, VA, July 2012), http://mercatus.org/publication/industry-specific-regulatory-constraint-database-ircd.

Figure 1. Federal Regulation Restrictions, 1997–2012



2.1. Regulation and Economic Performance

A recent study by economists John W. Dawson and John J. Seater found that between 1949 and 2005 the accumulation of federal regulations slowed economic growth by an average of 2 percent per year.[11] Dawson and Seater's study is groundbreaking in that they use the page count of the *Code of Federal Regulations* as a measure for regulatory growth, allowing them to consider all federal regulations over a long period of time, instead of a specific group or type of regulations over a short timeframe. However, it is not an outlier. Several earlier studies using broad indexes, such as those produced by the World Bank and OECD, have permitted cross-country comparisons of the effects of certain types of regulations, such as barriers to entry. These

[11] John W. Dawson and John J. Seater, "Federal Regulation and Aggregate Economic Growth," *Journal of Economic Growth* 18 (2013): 137–77.

earlier studies also reveal the negative impacts regulation can have on economic growth. One widely cited example is "Regulation and Growth" by Simeon Djankov and his colleagues, which finds that a country's improvement from the first to the fourth quartile of business regulations, as measured by the World Bank's Doing Business index, implies a 2.3 percentage point increase in annual GDP growth.[12]

Another study published by the World Bank finds that, holding a country's level of governance (a measure of how effectively a country is governed) equal to the world median, a one standard deviation increase in regulatory burdens as measured by the study's synthetic regulatory index (comprising separate indexes, including those developed by the World Bank, KPMG, the PRS Group, the Fraser Institute, and the Heritage Foundation) leads to a 0.3 percentage point decrease in GDP per capita.[13] Economists Gorgens et al. (2003) find that a heavily regulated economy will likely have economic growth lower on average by 2 to 3 percentage points versus less regulated economies.[14] They use the Fraser Institute's Economic Freedom Index as their measure of regulatory burden.

The negative economic effects of widespread regulation are also revealed by the positive effect that large-scale deregulatory efforts across developed countries historically have had on investment and economic growth. For example, Alberto Alesina and his colleagues find that deregulation in the United Kingdom's transportation and communications sectors during the mid-1980s led to an increase in the investment rate of about 3 percentage points.[15] They find that

[12] Simeon Djankov, Caralee McLiesh, and Rita Maria Ramalho, "Regulation and Growth," *Economics Letters* 92, no. 3 (2006): 400.
[13] Norman V. Loayza et al., "The Impact of Regulation on Growth and Informality: Cross-Country Evidence" (World Bank Policy Research Working Paper No. 3623, 2005), 8.
[14] Tue Gorgens, Martin Paldam, and Allan Würtz, "How Does Public Regulation Affect Growth?" (Working Paper No. 2003-14, University of Aarhus, 2003), 15.
[15] Alberto Alesina et al., "Regulation and Investment," *Journal of the European Economic Association* 3, no. 4 (2005): 810.

when the United States and the United Kingdom liberalized product markets in the late 1970s and early 1980s, both nations realized significant surges in investment as a share of capital stock—from 3.7 percent in 1975 to 8.15 percent in 1998. On the other hand, during that same time, investment rates in continental European countries where large-scale deregulatory reforms were not implemented—such as Italy, France, and Germany—decreased 5 percentage points.

A large number of rules also make it difficult to start new businesses, likely contributing to the drag on economic growth discussed above. According to *Forbes*, entrepreneurs start about 540,000 new US companies every month.[16] An extensive body of literature has documented a negative effect of regulation on entrepreneurship, and one likely reason may be the sheer difficulty of sorting through over 1 million federal requirements, in addition to all of the state and local (and possibly international) regulations to begin a business.[17]

Finally, the growing stock of regulations in the United States is one issue that has contributed to this country being increasingly disadvantaged in international competiveness. The United States has slipped to tenth place from fourth (1995) in Heritage's 2013 Index of Economic Freedom.[18] The Fraser Institute's Economic Freedom of the World index shows an even more precipitous decline for the United States, falling from third best in its ranking for the regulation category in 2001 to seventeenth in 2011.[19] This decline is partially driven by the

[16] Cheryl Conner, "Who's Starting America's New Businesses? And Why?" *Forbes.com*, July 22, 2012, http://www.forbes.com/sites/cherylsnappconner/2012/07/22/whos-starting-americas-new-businesses-and-why/.
[17] See, for example, Bruce Benson, "Opportunities Forgone: The Unmeasurable Costs of Regulation," *Journal of Private Enterprise* 19, no. 2 (2004): 1–25; Leora Klapper, Luc Laeven, and Raghuram Rajan, "Entry regulation as a barrier to entrepreneurship," *Journal of Financial Economics* 82, no. 3 (2006): 591–629; Stefano Scarpetta et al., "The Role of Policy and Institutions for Productivity and Firm Dynamics: Evidence from Micro and Industry Data" (Working Paper No. 329, OECD Economics Department, 2002); and Kristina Nyström, "The Institutions of Economic Freedom and Entrepreneurship: Evidence from Panel Data," *Public Choice* 136, no. 3–4 (2008): 269–82.
[18] "2014 Index of Economic Freedom," Heritage Foundation, accessed Jan. 27, 2014, http://www.heritage.org/index/.
[19] James Gwartney, Robert Lawson, and Joshua Hall, "2012 Economic Freedom Dataset," published in *Economic Freedom of the World*: *2012 Annual Report*, Economic Freedom Network, 2012, http://www.freetheworld.com/countrydata.php?country=C135.

failure to improve the regulatory system and clean up obsolete and inefficient regulations, and it has contributed to the United States' overall ranking in economic freedom decreasing from third best in 1980 to nineteenth in 2010.

2.2. Regulation, Health, and Safety

In traditional models, many government interventions consist of addressing risks to reduce overall risk profiles. That is, risks are discovered, and, in response, governments pass laws and regulations to address those risks. But is it true that overall risk is diminished as a result of these interventions? In theory, a primary goal of many government interventions—especially environmental, health, and safety regulation—is to reduce overall risk profiles. However, a regulatory system that facilitates the accumulation of risk regulations contains a self-defeating characteristic: the proliferation of static regulatory requirements that may inhibit risk managers from dynamically responding to more pressing and relevant risk issues. To effectively address both large and small risks, as well as new and existing risks, requires constant readjustment of priorities by those who must actually manage risk reduction (as opposed to social decision-makers). Currently, a lack of risk information associated with regulations and legal constraints prevents prioritization of risks. Nevertheless, like all resources, risk management resources are constrained. With a resource constraint, as more regulations are added to the mix, fewer resources can be devoted to managing each risk.

We start with the premise that regulations can be roughly divided into two categories, what we will call "functional" and "nonfunctional." Those that are functional address current, significant risks, mitigate some amount of those risks through compliance with the regulations, and do not have significant unintended effects or excessive compliance costs relative to their

benefits. Those that are nonfunctional are missing one or more of these features. There are a number of ways in which rules can be nonfunctional.

Nonfunctional rules. To be categorized as functional, a rule must address current and significant risks (or, more generally, problems). Rules may not do that if they are outdated, but it may also be the case that they never actually did. It is also possible that the regulations addressing particular risk issues have worked and the risks have been reduced to safe (*de minimis*) levels.[20] In other cases, the rules may be addressing significant risks but not actually mitigating those risks. Again, it may be the case that they did mitigate the risk at some point but do not now. Table 1 below shows our proposed first test for whether a rule is functional or nonfunctional.

Table 1. The First Test for Functionality of a Rule

	Significant risk	**Nonsignificant risk**
Current risk	Functional	Nonfunctional
Noncurrent risk	Nonfunctional	Nonfunctional

However, even if a rule qualifies as functional in the first test, a second wave of tests may still find it nonfunctional. These tests include the weighing of unintended consequences, including risk-risk tradeoffs; the duplication of and possible interference with other rules; and a current benefit-cost analysis.

First in that wave of secondary tests is the weighing of unintended consequences. Some existing rules have unintended harmful consequences that may more than offset the direct benefits of the rules. These consequences may not have manifested themselves immediately after

[20] It may be that even though risks are reduced to *de minimis* levels, further enforcement is needed if it is found that market mechanisms have not supplied sufficient incentives to stay at those risk levels.

the rule's promulgation, but may have grown apparent over time. In some cases, these unintended consequences should have been foreseeable but were not analyzed.[21] If these unintended consequences, such as risk-risk tradeoffs, are severe enough to offset the benefits of the primary risk being reduced, then the rule is nonfunctional. A risk-risk issue arises as an attempt to reduce one risk increases other risks.[22]

All activities that humans engage in, and all substances humans are exposed to, create some risk, however small. This is the lesson from the founding principle of toxicology: "All things are poison, and nothing is without poison; only the dose permits something not to be poisonous."[23] This statement has been generalized to mean "the dose makes the poison." This is true of both (1) exposure to substances (chemicals, microbial agents, radiation and physical hazards) and (2) activities (work, play). Given that every substance and activity creates risk, every attempt to exchange one activity for another or substitute one substance for another has the possibility of increasing countervailing risks. Because there is often tremendous uncertainty regarding both risk decreases caused, for example, by regulation and increases in countervailing risks, there will often be uncertainty about whether overall risk has increased.

Second, rules may directly reduce safety if they interfere with other rules. This is the result of adding more safety rules that eventually begin to interfere with the ability to consider other safety issues, possibly leading to less overall safety. The assumption that more rules equals more safety was referred to as a *linear assumption* by sociologist Elizabeth Nichols

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[21] Sherzod Abdukadirov, "The Unintended Consequences of Safety Regulation" (Mercatus Research, Mercatus Center at George Mason University, Arlington, VA, June 4, 2013), http://mercatus.org/sites/default/files /Abdukadirov_UnintendedConsequences_v1.pdf.

[22] For a discussion of countervailing risks, see John D. Graham and Jonathan Baert Wiener, *Risk vs. Risk: Tradeoffs in Protecting Health and the Environment* (Cambridge, MA: Harvard University Press, 1997).

[23] B. Madea, F. Mußhoff, and G. Berghaus, *Verkehrsmedizin: Fahreignung, Fahrsicherheit, Unfallrekonstruktion* (Cologne: Deutscher Ärzte-Verlag, 2007), 435.

and political scientist Aaron Wildavsky.[24] They noted, "Adding new safety devices and procedures is no guarantee of increased safety. Operational safety is not merely additive or linear but highly conditional and contingent. Unforeseen interactions may foil the purpose of the new addition. That is, new dangers can arise from the added safety effort itself."[25] For example, the worst nuclear accident to date at the time they wrote the article, the Chernobyl nuclear power accident, was at least in part the result of adding more safety checks while the plant was online. It was a safety test that caused the actual accident. They noted that similar problems were found at the Three Mile Island nuclear facility. These types of countervailing risks are most likely to occur with design rules, where regulators try to anticipate every possible contingency in complex systems by requiring compliance with detailed instructions. As the number of rules increases, the likelihood of rules interfering with each other increases. Even if they do not directly cause interference, it may also useful to classify rules that are duplicative as nonfunctional, in order to at least reduce the cost of learning about two regulations instead of one.

Finally, more generally, the benefits of complying with existing rules may no longer be worth the cost. In all of the above cases, this general condition would be necessary to make the rule nonfunctional. OMB has stated, "The only way we know to distinguish between the regulations that do good and those that cause harm is through careful assessment and evaluation of their benefits and costs."[26]

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[24] Elizabeth Nichols and Aaron Wildavsky, "Does Adding Safety Devices Increase Safety in Nuclear Power Plants?," in *Searching for Safety*, by Aaron Wildavsky (Social Philosophy and Policy Center, Transactions Publishing, 1988), 128.
[25] Ibid., 139.
[26] Office of Management and Budget, Report to Congress on the Costs and Benefits of Federal Regulations, 1997.

Reasons for nonfunctional rules. Rules may be nonfunctional because they are obsolete. The United States began creating regulations 140 years ago and, as most observers have noted, we rarely remove them from the books. In many cases, the problems they address no longer exist. For example, the Food and Drug Administration has been creating rules since its inception in 1906. Food production, packaging, and distribution have changed a great deal in the last 100 years, but most of the original rules are still on the books. For example, there is still a regulation on FDA's books that governs the width of strings in canned string beans.[27]

In addition, some rules were created using faulty or misleading information that caused regulatory decision-makers to make choices that they would not have made with better information. For example, EPA states in its policy guidance that "EPA's policy is that risk assessments should not knowingly underestimate or grossly overestimate risks. . . ."[28] If EPA were to objectively estimate risks, it would not knowingly under- *or* overestimate risks. To emphasize underestimating risks leads to conservative estimates of risk (overestimates). One problem with conservatively estimating risks is that there is no way for decision-makers to know how conservative the risk estimate is. But no matter how conservative the estimate is, when risks are conservatively estimated, risk managers will believe that their regulations address larger risks than they actually do. The same thing would be true if the existing risk estimate were objectively estimated as a "most likely" risk, where the baseline risk is a central estimate but the amount of risk the regulation is expected to reduce is overestimated. Over time, as agencies continue to regulate to ever lower levels of risk, conservative regulations piled on top of other conservative regulations lead to vastly overregulated compounds, which are likely to be nonfunctional to a degree that is not known.

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[27] 21 C.F.R. 155.120 (2013).

[28] US Environmental Protection Agency, Office of the Science Advisor, "An Examination of EPA Risk Assessment Principles and Practices," Staff Paper (EPA/100/B-04/001), 2004, at 13, available at http://www.epa.gov/osa/pdfs /ratf-final.pdf.

Risk managers can also create nonfunctional rules if they choose to be excessively precautionary in their selection of a regulatory option. Over time, if the regulations are not revisited, the rules may prove to be excessively conservative (costs are too high relative to the benefits), which creates the same problem with conservative analysis, leading to the same result. Of course, many older rules were created with no analysis, which could also cause this problem.

Finally, an extensive literature indicates that rules can be created for political reasons to reward special constituencies. In these cases, rules are promulgated to satisfy special interests and benefit politicians and bureaucrats, without any particular concern about whether they will solve problems.[29] Those seeking these rules could range from firms that will financially benefit from raising rivals' costs[30] or receiving subsidies to special-interest activists who want rules to limit choices even when the rules themselves are nonfunctional. Whether the problem begins with the enacting legislation or special influence on the agency creating regulations, many of these rules will not be functional.

Nonfunctional rules can decrease safety. Given that there are both resource constraints and nonfunctional rules, regulatory accumulation will reduce overall safety if risk managers cannot or are not allowed to prioritize rules. Risk managers—either individuals or actual managers in a firm—are faced with a mix of hazards that are older and static as well as risks that new and rapidly changing. To see this, imagine that all risks currently being managed require

[29] The special-interest capture theory of regulation was first formally intimated by Stigler, but has been repeatedly corroborated in the 35 years since Stigler's seminal paper was published. See, for example, Simeon Djankov et al., "The Regulation of Entry," *Quarterly Journal of Economics* 117, no. 1 (2002): 1–37, which examines the regulation of entry of start-up firms across 85 countries and finds "the evidence is inconsistent with the public interest theories of regulation, but supports the public choice view that entry regulation benefits politicians and bureaucrats" because they receive the support of those industries that are protected with regulation.

[30] Steven C. Salop and D. T. Scheefman, "Raising Rivals' Costs," *American Economic Review* 73, no. 2 (1983): 267–71.

100 percent of resources allocated to risk management, such as time, attention, and capital, to manage. Furthermore, imagine that these risks are addressed by regulation via 10 rules. Compliance with these rules produces a benefit of $10, with 10 units of resources used, and each unit of resources costs $1. Thus, each rule has $1 devoted to managing it. Add a nonfunctional rule to be managed and, if all rules are utilizing equal resources (because risk overseers cannot prioritize rules), then each rule will only have about 0.91 units of resources devoted to it.[31] Resources devoted to the nonfunctional rule are just wasted, but there are now fewer resources devoted to actual risks, diminishing overall safety.

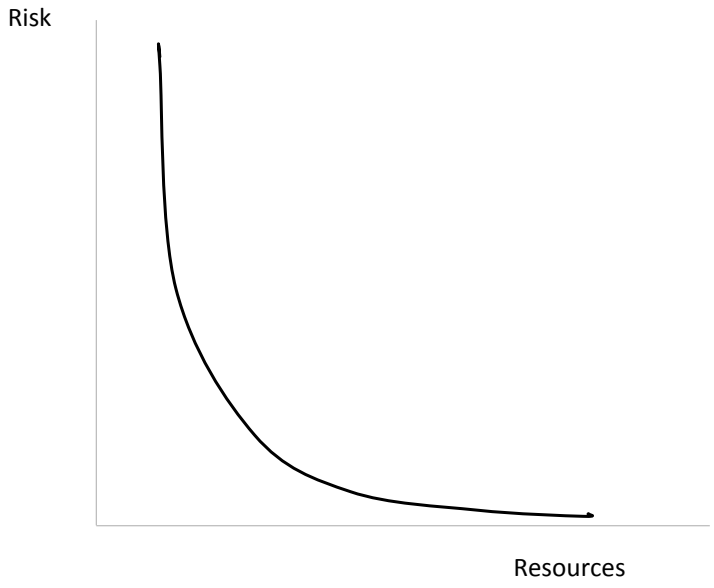
As with most activities, individuals and firms (i.e., risk managers) likely receive diminishing marginal returns to increases in resources devoted to reducing a given risk, as shown in figure 2 below. Figure 2 ranks risk reduction activities along the horizontal axis according to their marginal benefits per unit of resources devoted to compliance, with the activities with the greatest marginal benefit on the left.

As more resources are devoted (horizontal axis) to risk reduction, for example, by complying with a rule or a requirement within a rule, risk (vertical axis) is reduced, albeit with diminishing marginal effectiveness. As an example of this, take a common food safety requirement that firms monitor critical control points within the production process. The rules requiring this typically require a hazard analysis, establishment of critical points where hazards may enter or be controlled, monitoring critical limits at the critical control points, and remedial action when a critical limit has been established. A small amount of resources may just be a manager telling an employee to quickly go through the plant and establish a few critical control points, critical limits,

[31] This simple example assumes no opportunity to reduce profits, cut wages, or increase prices to as to add more resources. Certainly in the long run these options may exist, but there may be frictional forces in the short run that force these kinds of trade-offs.

and plans to remedy deviations. More resources might be employed to do a thorough scientific hazard analysis to ensure all the right critical control points are discovered. More analysis might look at what the critical limits must be and more resources could go into intensive monitoring. The plan could be even further enhanced and management resources brought to bear on when a production line should be stopped due to a critical limit violation. Further, there could be a plan to continually revise the entire plan based on feedback. Up to a point, more resources will decrease risk, but at some point the reduction in risk achieved per dollar of additional resources devoted to it will decrease. Eventually, the costs will outweigh the benefits.

Figure 2. Diminishing Returns to Resources Devoted to a Given Risk



In sum, as regulatory requirements increase, and some requirements are nonfunctional, fewer resources can be expended on those that are functional, leading to an overall safety decrease, at least in the short run. Firms may not know which regulatory requirements are functional and which are not. In fact, without a comprehensive and systematic analysis, it is

doubtful that anyone knows, which may contribute to the lack of progress that has been observed with past retrospective review efforts (as discussed elsewhere in this paper). In addition, even if they did know, as OMB has pointed out, equal effort must be applied to all regulations, whether functional or nonfunctional: "Some regulations are critically important (such as safety criteria for airlines or nuclear power plants); some are relatively trivial (such as setting the times that a draw bridge may be raised or lowered). But each has the force and effect of law and each must be taken seriously."[32] Separately or together, this means that firm managers cannot prioritize risks so as to control "worst things first."[33] Thus, when nonfunctional regulations are enforced, they will crowd out compliance with functional regulations.

The second activity crowded out by compliance with nonfunctional rules is private efforts to reduce risks. Firm managers have numerous incentives to address risks. For some risks facing workers, the possibility of tort liability provides some incentives for managers to exercise due diligence with respect to workplace safety. For consumer products, where legitimate negative externalities at some time in the past caused harm to third parties, the growth of interest in these externalities coupled with Internet monitoring and transmission of problems means that managers must also exercise due diligence to protect their brand names, as well as to prevent costly recalls and possible court cases.[34]

For consumers, paying higher prices for products as firms pass on costs may crowd out more efficient, private risk expenditures. For example, consumers who desire to move to safer neighborhoods, drive safer cars (even if all are regulated), or install smoke detectors (even when not

[32] Office of Management and Budget, *Report to Congress on the Costs and Benefits of Federal Regulations*, 1997, 2, http://www.whitehouse.gov/omb/inforeg/chap1.aspx.
[33] Adam Finkel and Dominic Golding, eds., *Worst Things First: The Debate over Risk-Based National Environmental Priorities* (Washington: Resources for the Future, 1994).
[34] Richard Williams, "A New Role for the FDA in Food Safety" (Mercatus Working Paper No. 10-69, Mercatus Center at George Mason University, Arlington, VA, November 2010).

required) in their houses can make these expenditures on a discretionary basis only after spending resources complying with regulations (usually in form of higher-priced products).[35] All these risks are generally greater than, for example, those risks addressed by EPA rules concerned with reducing the lifetime exposure to certain chemicals. Left with their own resources, consumers would be able to choose to reduce more risk per dollar spent on risk-reduction than many government regulations can.[36] As we get more rules that are less and less efficient on a dollar-per-unit risk-reduced price, these crowding-out effects are more likely to be exacerbated and lead to decreased safety.

Perhaps more importantly though, regulations tend to be static[37] and managers must deal with dynamic risks. As the technology changes, new risks emerge. Regulations take years to develop and are often dated by the time they are created.[38] Dealing with nonfunctional and static regulations crowds out scarce resources that could be devoted to newer, emerging risks. These risks could come from new technologies, new production methods, new products, or new sources of labor.

For firms, increasingly complex and detailed rules build a rigid structure that is not flexible enough to innovate in the face of new threats. These rules present opportunity risks by removing the choices to continually improve or develop resiliency. As Wildavsky notes, safety lies in trial

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[35] Diana Thomas, "The Regressive Effects of Regulation: Who Bears the Cost?" (Research Summary, Mercatus Center at George Mason University, Arlington, VA, February 2013). See also Ralph L. Keeney, "Personal Decisions Are the Leading Cause of Death," *Operations Research* 56, no. 6 (November–December 2008): 1335–47.

[36] See, for example, Aaron Wildavsky, *Searching for Safety* (Piscataway, NJ: Transaction Publishers, 1988); Randall Lutter and John F. Morrall III, "Health-Health Analysis: A New Way to Evaluate Health and Safety Regulation," *Journal of Risk and Uncertainty* 8, no. 1 (1994); Ralph. L. Keeney, "Mortality Risks Induced by Economic Expenditures," *Risk Analysis* 1990; Ralph L. Keeney, "Mortality Risks Induced by the Costs of Regulations," *Journal of Risk and Uncertainty* 8, no. 1 (1994); Jackie Teague, Don Anderson, and Fred Kuchler, "Health Transfers: An Application of Health-Health Analysis to Assess Food Safety Regulations," *Risk* 10 (1999); and Diana Thomas, "Regressive Effects of Regulation" (Mercatus Working Paper No. 12-35, Mercatus Center at George Mason University, Arlington, VA, November 2012).

[37] The term "static" here means addressing risks that are relatively unchanging over time, but it is also true that the regulations addressing those risks are static in the sense that they are rarely modified.

[38] "The Costs of Regulatory Delay," Center for Progressive Reform, accessed January 27, 2014, http://www .progressivereform.org/regdelay.cfm.

and error, a search process over time, not rigidity.[39] For managers and workers in firms to be entrepreneurial when facing and solving new threats, they must "own the problems." Industrial psychologists Andrew Hale and David Borys have extensively investigated this phenomenon of rule ownership and note that "problems must have an owner if they are to be solved, and a too-large set of rules undermines companies' sense of ownership of the risks inherent in their processes."[40] For firms that are closest to the problems and should be able to see problems as they emerge, rather than taking ownership of the solutions, they end up simply following (government) rules. Alternatively, when the quantity of rules to follow reaches the point of information overload, some managers and workers may just ignore the rules until cited by inspectors. In other words, private innovative solutions are crowded out.[41] A study of mine safety rules in New South Wales reached a similar conclusion about the effect of too many rules and concluded,

> (a) Management and regulators should not continue to produce more and more rules and regulations to cover every aspect of mining. Miners will not read nor comprehend to this level of detail.
> (b) Detailed prescriptive regulations, detailed safe work procedures, and voluminous safety management plans will not 'connect' to the miner. The aim should be to operate with a framework of fewer rules but of the highest quality.[42]

Finally, compliance with nonfunctional regulations may crowd out efforts to ensure resilience—that, if risks are realized, there will be ways to minimize and quickly address the consequences. For example, food safety problems with pathogens are never likely to be eliminated given the prevalence of pathogens in the environment. But systems that can quickly respond and target and stop outbreaks may reduce illnesses much faster (and also provide

[39] Wildavsky, *Searching for Safety*, 207.
[40] Andrew Hale, David Borys, and Mark Adams, "Regulatory Overload: A Behavioral Analysis of Regulatory Compliance" (Mercatus Working Paper No. 11-47, Mercatus Center at George Mason University, Arlington, VA, November 2011), 31.
[41] Israel Kirzner, "Competition, Regulation, and the Market Process; An 'Austrian' Perspective," Cato Institute, 1982, http://www.cato.org/sites/cato.org/files/pubs/pdf/pa018.pdf.
[42] David Laurence, "Safety Rules and Regulations on Mine Sites—The Problem and a Solution," *Journal of Safety Research* 36 (2005): 49.

incentives to not have the problem in the first place), compared to increasing preventive controls. Resilience may come from modifying existing rules or putting systems in place to respond rapidly to problems. Either requires resources and can be a valid response to different kinds of risks. Most of our regulatory system is based on *ex ante* anticipation, which would be preferred for those risks that are fairly stable and predictable. But if there is uncertainty about where problems may emerge, so-called black swans,[43] resiliency may be the better strategy.

As rules accumulate, some proportion of them is likely to be, or to become, nonfunctional. As individuals and firms must continue to comply with rules that are nonfunctional, more effective risk-reducing activity may be crowded out, decreasing overall safety.

3. Previous Efforts at Regulatory Cleanup and Similar Large-Scale Reforms

Since 1975, the *Code of Federal Regulations* (CFR) has expanded in 30 of 37 years. In those 30 expansionary years, 117,294 pages were added to the CFR. In contrast, in the seven contractive years, 17,871 pages were subtracted from the CFR—for net growth of nearly 100,000 pages. Previous efforts to eliminate obsolete regulations—discussed further below—have removed only very small percentages of existing regulations from the books.

3.1. Previous Efforts to Reexamine Existing Regulations in the United States

Policymakers have long recognized the need to formalize the process of regulation creation, and over the decades that have passed since the Administrative Procedure Act, reforms to the process have been undertaken. Despite these reforms, numerous problems remain. For example, it may be that many of the more than 1 million restrictions in the *Code of Federal Regulations* are

[43] See, for example, Nassim Nicholas Taleb, *The Black Swan: The Impact of the Highly Improbable* (New York: Random House, 2008).

outdated, duplicative, inefficient, or ineffective (i.e., continuing compliance is expected to have costs exceeding benefits) based on one or more of the reasons given above. Note that even new regulations may fall into these categories. It is perhaps for these reasons that each of the past five administrations from Reagan forward (as well as Congress) has made some explicit attempt to weed out nonfunctioning regulations.

The need to reduce the existing regulatory burden is not new. This section details efforts to modify or eliminate nonfunctioning regulations that were undertaken by each of the past five presidents. Notably, none of these efforts resulted in either substantial reductions relative to the total size of the *Code of Federal Regulations* or sustained changes in the rate of adding new regulations to the *Code of Federal Regulations*. Nonetheless, there does appear to be a presidential consensus on the benefits of regulatory reform, as the next section explains.

"Reduce the burdens of existing and future regulations" —President Reagan. One of President Reagan's first actions after his election was to issue Executive Order 12291 in 1981, which, in addition to creating OIRA and requiring centralized review of major rules and their economic analyses, required agencies to review their existing major rules. Generally speaking, this requirement of review of existing rules was interpreted to mean that agencies should determine which regulations could be withdrawn or scaled back.[44]

President Reagan created the Presidential Task Force on Regulatory Relief, which was led by then-Vice President George H. W. Bush, to oversee the regulatory review process. This review may have been partly responsible for the diminutions in pages in the CFR in 1982 and 1985 shown in figures 3 and 4.

[44] OMB, *Report to Congress on the Costs and Benefits of Federal Regulations*, 1997, http://georgewbush-white house.archives.gov/omb/inforeg/chap1.html#trbrp.

Figure 3. Total Pages in the *Code of Federal Regulations*, Number of Pages Added or Subtracted Each Year, and Percentage Changes from Previous Year, 1975–2012

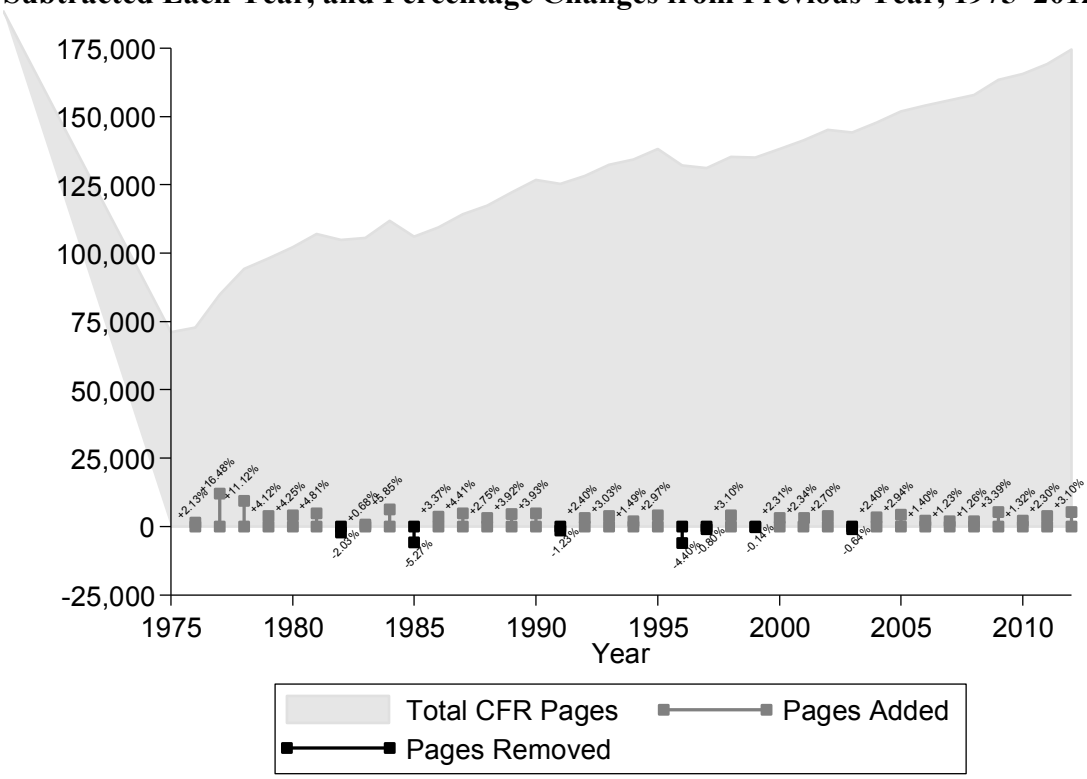
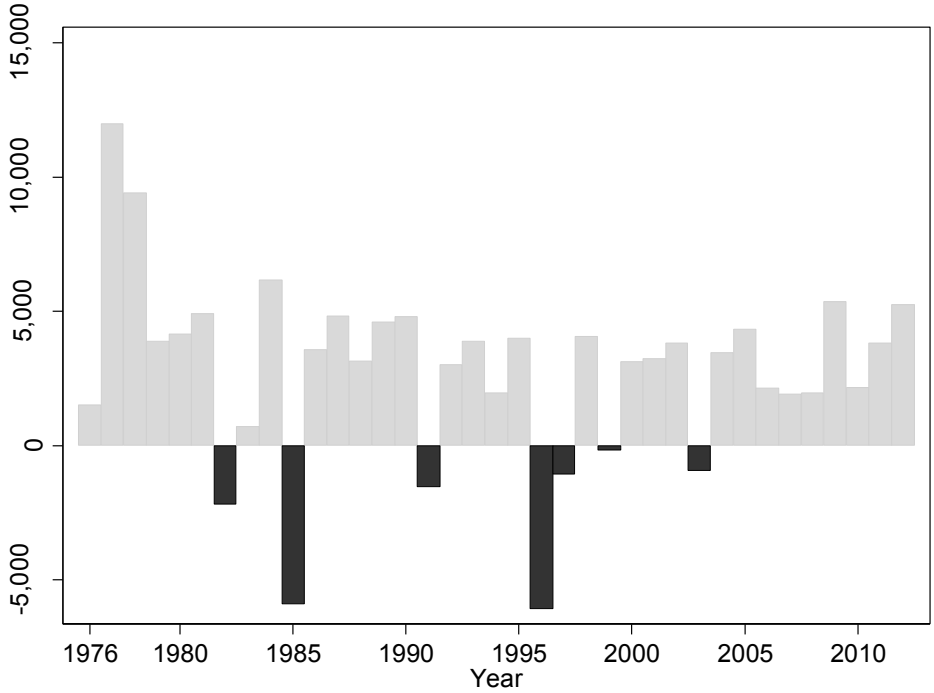


Figure 4. Pages Added to or Subtracted from the *Code of Federal Regulations*, 1976–2012



However, simultaneous deregulatory efforts that originated in the Carter administration and came through Congress in the form of the Airline Deregulation Act of 1978, the Staggers Rail Act of 1980, and the Motor Carrier Act of 1980 also led to substantial reductions in the number of pages in the CFR. For example, because of the Airline Deregulation Act, the Civil Aeronautics Board was completely abolished, but that was not completed until 1985 when the last vestiges of the Civil Aeronautics Board were either eliminated from the CFR altogether or transferred to the Office of the Secretary of the Department of Transportation. The elimination of the Civil Aeronautics Board's pages from the CFR is at least partially responsible for the decrease in pages seen in 1985 in figure 3.

During President Reagan's term the Regulatory Flexibility Act of 1980 was enacted. Section 610 of that act requires periodic agency reviews of rules:

> which will have a significant economic impact on a substantial number of small entities anytime with 10 years of promulgation . . . to determine . . . whether such regulations should be continued as written or should be amended or rescinded consistent with the stated objectives of applicable statues, to minimize their impact on small entities.[45]

However, this law only requires review of rules affecting small entities in a significant way and has had very little impact on the totality of rulemaking, as will be seen below.

Figure 4 shows that in two of the eight Reagan years, the total number of pages in the CFR diminished. In 1982, pages decreased by 2 percent relative to the year before, and in 1985, by 5.3 percent. Even if these diminutions are fully attributed to the Presidential Task Force rather than any of the transportation deregulatory acts of Congress, they do not seem to have done much to stem the overall growth of regulations under his administration. During the Reagan years, 23,047 pages were added to the CFR, while 8,066 were subtracted, for a net gain of 14,981 pages.

[45] The Regulatory Flexibility Act, Pub. L. 96-354, 94 Stat. 1164 (1980).

"Provide regulatory relief" —President George H. W. Bush. Subsequently, President George H. W. Bush appointed Vice President Dan Quayle to head another task force, called the Competitiveness Council. Created in 1990, the Competitiveness Council's mission was "to provide regulatory relief."[46] The efforts of this council may have led to the slight subtraction of pages from the CFR seen in figures 3 and 4 in 1991. However, in percentage terms as shown in figure 3, the only decrease in total CFR pages that occurred during the George H. W. Bush years amounted to a decrease of just 1.2 percent in 1991.[47] Overall, the George H. W. Bush years saw 11,700 pages added to the CFR and 1,562 taken away, for a net gain of 10,138 pages.

"Cut obsolete regulations" —President Clinton. In 1993, President Bill Clinton and Vice President Al Gore created a task force consisting of about 250 career civil servants called the National Performance Review (later renamed the National Partnership for Reinventing Government). This task force had a broad mission of creating a government that "works better, costs less, and gets results Americans care about."[48] Beginning in February 1995, the task force was instructed to help 65 regulatory agencies to "cut obsolete regulations, [and] reward results, not red tape," among other directives.[49] Notably, the efforts of this task force and the cooperating agencies led to the elimination of 16,000 pages of regulation from the *Code of Federal Regulations*.[50] Indeed, this effort appears to have caused one of the few substantive reductions in

[46] Office of Management and Budget, "Draft Report to Congress on the Costs and Benefits of Federal Regulations," 62 Fed. Reg. 140 (July 22, 1997), 39356, http://www.gpo.gov/fdsys/pkg/FR-1997-07-22/pdf/97-19082.pdf.
[47] 1,562 pages removed from a stock of 126,892 pages in 1990: −1,562/126,892 = −1.231%.
[48] Bob Stone, "Creating 'Reinvention University,'" *Public Manager* 27, no. 1 (1998): 47.
[49] National Partnership for Reinventing Government, "History of the National Partnership for Reinventing Government—Implementing Recommendations—1994," accessed January 29, 2014, http://govinfo.library.unt.edu/npr/whoweare/historypart3.html#governing.
[50] Ibid.

the total number of pages published in the *Code of Federal Regulations*, as figure 4 shows. However, despite the relative success of the National Partnership, the Clinton years saw a net increase of 9,053 pages added to the CFR. Additionally, President Clinton issued Executive Order 12866 in the same spirit as Reagan's Executive Order 12291. Executive Order 12866 also formalized the regulatory analysis process that agencies must perform when creating new, significant regulations, including requirements to consider several alternatives and to assess their costs and benefits. Section 5 of Executive Order 12866 required agencies to submit to OIRA a program to periodically review existing significant regulations to determine whether they should be "modified or eliminated."[51]

Regulatory reform and burden reduction under President George W. Bush. President George W. Bush also attempted to eliminate obsolete regulations, or at least announced efforts to do so. In 2001 and 2002 OIRA, under the leadership of John Graham, launched a public nomination process for eliminating or modifying existing rules.[52] One of the major sets of regulations eliminated were those protecting consumers from deceptive airline ticketing information.[53] Another episode of interest during the George W. Bush years was the administration's attempt to slow or stop midnight regulations, a surge in rulemaking during the lame-duck period of an outgoing administration.[54] Despite the administration's efforts, rulemaking during the final year of the administration still surged, and rules produced during

[51] Executive Order 12866, 58 Fed. Reg. 190 (Oct. 4, 1993), http://www.archives.gov/federal-register/executive-orders/pdf/12866.pdf.
[52] John D. Graham, Paul R. Noe, and Elizabeth L. Branch, "Managing the Regulatory State: The Experience of the Bush Administration," *Fordham Urban Law Journal* 33, no. 4 (2005): 121.
[53] Ibid., 122.
[54] Susan E. Dudley, "Regulatory Activity in the Bush Administration at the Stroke of Midnight," *Engage* 12, no. 2 (2009).

the midnight period were accompanied by lower-quality regulatory analysis.[55] This demonstrates the degree to which a president appears to have limited ability to control the regulatory output of agencies. All told, the George W. Bush years witnessed a net increase of 25,284 CFR pages.

"Retrospective analysis" under President Obama. Executive Order 13563, issued by President Barack Obama in January 2011, ordered executive branch agencies to "consider how best to promote retrospective analysis of rules that may be outmoded, ineffective, insufficient, or excessively burdensome, and to modify, streamline, expand, or repeal them in accordance with what has been learned."[56] Furthermore, the agencies were ordered to place these retrospective analyses online "whenever possible," and to submit plans to the Office of Information and Regulatory Affairs that would detail the agencies' plans for periodic review of existing significant regulation. The goal was similar to that expressed in previous administrations: to "determine whether any such regulations should be modified, streamlined, expanded, or repealed so as to make . . . regulatory program[s] more effective or less burdensome in achieving the regulatory objectives."[57]

Regardless of whether this attempt at retrospective review achieves any degree of success (see discussion below), it is unlikely to affect independent agencies. Executive Order 13579, issued in July 2011, was directed at independent agencies and repeated the retrospective analysis

[55] Patrick A. McLaughlin, "The Consequences of Midnight Regulations and Other Surges in Regulatory Activity," *Public Choice* 147 (2011); Patrick A. McLaughlin and Jerry Ellig, "Does OIRA Review Improve the Quality of Regulatory Impact Analysis? Evidence from the Final Year of the Bush II Administration," *Administrative Law Review* 63 SE (2011).
[56] Executive Order 13563, 76 Fed. Reg. 14, Sec. 6. (Jan. 21, 2011), 3822, http://www.gpo.gov/fdsys/pkg/FR-2011-01-21/pdf/2011-1385.pdf.
[57] Ibid.

and review language of Executive Order 13563, except that the word "shall" was replaced with the word "should."[58]

Neither effort appears to have done much to slow the accrual of pages in the CFR despite a concerted effort to do so.[59] Over the first three years of President Obama's first term, 11,212 pages were added to the CFR.

3.2. Successful Reforms of Problems Similar to Regulatory Accumulation

Some reform programs have successfully eliminated significant governmental waste and obsolescence. One successful government reform program that overcame obstacles similar to those faced in regulatory reform was the removal and realignment of military bases under the Base Realignment and Closure Act.

In 1988, Congress created the Base Realignment and Closure (BRAC) Commission to address an impasse: nearly everyone agreed that toward the end of the Cold War, many military bases were no longer necessary, but no one could agree on which specific base(s) to close. This was because each base had a literal constituency and "designated champion" in Congress—the member from the base's congressional district.[60] Congress created the BRAC Commission and its process to overcome pork-barrel politics (which effectively would have prevented any bases from being closed) by requiring members to agree to abide by the recommendations of an independent commission—the BRAC Commission. The commission—composed of independent experts—was given a mission of assessing military bases primarily

[58] Executive Order 13579. This language is significant because an executive order has the force and effect of law on regulatory agencies so that use of the word "shall" becomes a suggestion rather than an order.
[59] White House, "Campaign to Cut Waste," accessed February 6, 2014, http://www.whitehouse.gov/21stcenturygov/actions/21st-century-regulatory-system.
[60] Jerry Brito, "Running for Cover: the BRAC Commission as a Model for Federal Spending Reform," *Georgetown Journal of Law & Public Policy* 9, no. 1 (2011).

according to their military value, and, in conjunction with the Department of Defense, submitting a list of bases to Congress that would be recommended for closure or realignment based on their military value. As legal scholar Jerry Brito put it, "A clear mission (identify bases to be cut) along with guiding criteria (military need) positioned the commission to make empirically defensible choices."[61]

Once the BRAC Commission's recommendations were made, Congress's ability to stop those bases' closure or realignment was limited to a joint resolution of disapproval. Barring that, the recommendations of the commission would be implemented. Additionally, BRAC changed the burden of proof. Before the creation of the BRAC Commission, those who wished to close bases had to prove that those bases were unnecessary. The BRAC Act instead placed the burden on those who sought to keep a base open.[62] As a result, the first BRAC Commission recommended 11 major bases for closure. In comparison, no bases were successfully closed between 1977 and 1988.

Another successful program may be even more relevant to the topic of eliminating or modifying nonfunctional regulations: the Administrative Burden Reduction Programme in the Netherlands. In 2003, the Dutch set for themselves a specific goal of reducing regulatory costs by 25 percent, called the Administrative Burden Reduction Programme (the Dutch Programme).[63] The Dutch Programme required all regulatory ministries—analogous although not identical to agencies in the United States—to measure the cost of their regulations using the Standard Cost Model. Economist Joshua Hall explains,

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[61] Ibid., 12.
[62] Ibid., citing Charlotte Twight, "Department of Defense Attempts to Close Military Bases: The Political Economy of Congressional Resistance," in *Arms, Politics, and the Economy: Historical and Contemporary Perspectives*, ed. Robert Higgs (New York: Holmes & Meier, 1990), 264.
[63] "International Standard Cost Model Manual," International SCM Network to reduce administrative burdens, October 2005, http://www.oecd.org/regreform/regulatory-policy/34227698.pdf.

> The Standard Cost Model (SCM) was developed in the Netherlands as a consistent methodology for measuring administrative costs and burdens resulting from business regulations in both ex ante and ex post situations. The model is designed to break down administrative burdens and costs to businesses, ensuring that even obligations not imposed by regulation (for example, voluntary information obligations) are measured, allowing for a complete overview of all information obligations (IOs) and simplifying the identification of unnecessary regulation. The SCM strictly measures costs to businesses; it does not consider whether the regulations from which the costs stem are "reasonable."[64]

This simple model does not identify or quantify the entire burden of a regulation, but because it is simple and replicable, all agencies were able to evaluate their regulations in a manner that allowed consistent comparison. Furthermore, this simplicity helped avoid subversion. It is hard to claim someone incorrectly calculated administrative costs when the methodology is clear and when a newly created, independent monitoring agency is overseeing the evaluations. Thus, although the Standard Cost Model does not pretend to assess the total cost, including opportunity cost, of a given regulation, it does represent a simple and transparent way to consistently measure some costs of regulations. Once all the ministries had assessed the costs of their regulations according to the Standard Cost Model, the next task was to eliminate 25 percent of those costs by 2007.

Importantly, the Dutch Programme established an independent monitoring agency to monitor each ministry's measurement and reduction processes.[65] This independent agency helped ensure the integrity of each ministry's assessments as well as prod the ministries to complete the reduction of 25 percent of administrative burden by 2007. Another office was created within the Ministry of Finance "to manage the political side of organizing the process between the various ministries and to overcome political obstacles."[66]

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[64] Joshua Hall and Michael Williams, "A Process for Cleaning Up Federal Regulations: Insights from BRAC and the Dutch Administrative Burden Reduction Programme" (Mercatus Research, Mercatus Center at George Mason University, Arlington, VA, December 20, 2012), 7–8, http://mercatus.org/sites/default/files/Hall_BRAC_final.pdf.
[65] Ibid., 7.
[66] Ibid.

Both the BRAC Commission and the Dutch Programme shared some characteristics that offer insights into attempted retrospective review schemes. First, each created an independent body to help accomplish the task. Second, each assigned a clear mission to the independent bodies. For the BRAC Commission, the mission was to identify bases for realignment or closure according to military value. For the Dutch Programme, the mission was to have ministries assess the costs of their regulations using the Standard Cost Model, and then facilitate the elimination of 25 percent of the costs of those regulations in each ministry.

In contrast to the relative success of the BRAC process and the Dutch Programme, none of the attempts to eliminate obsolete regulations by executive order produced results similar in magnitude to those of the BRAC Commission or the Dutch Programme. Some of these efforts were composed of individuals who were arguably independent of the agencies themselves, but notably none of them gave these individuals the power to actually bypass agency input into the decision on whether to eliminate the targeted regulations. The analogy to the BRAC process is strong: in the BRAC process, individual legislators had incentive to fight to save individual bases when it served their interest. In previous attempts to eliminate obsolete regulations, individual agencies had similar incentive to protect individual regulations from elimination. The first BRAC commission circumvented congressional members' ability to protect individual bases by only giving Congress input at the final stage in the form of a joint disapproval. Executive Order 13563, as an example in counterpoint, relied on the agencies themselves not only to produce the information used to identify target regulations but also to decide whether to eliminate or otherwise modify the targeted regulations.

4. Lessons from Previous Successes and Failures

Why did the BRAC Commission and the Dutch Programme succeed while attempts to eliminate obsolete regulations in the United States have largely failed? Perhaps inadvertently or perhaps by design, the BRAC Commission and the Dutch Programme built in devices such as independent commissions and an expedited legislative process that overcame some of the main obstacles to government reform. We explain some of the primary obstacles below, and point out how the BRAC Commission and Dutch Programme overcame them.

Obstacle 1

Decision-makers need adequate information to determine which regulations are obsolete, but agencies lack incentives to produce this information.

One of the reasons for the failure of previous attempts to eliminate obsolete regulations is information. Simply put, agencies often lack the information necessary to decide which regulations are obsolete, and they also lack the incentives to produce the necessary information. It's hard to imagine how any attempt to eliminate nonfunctional regulations—not just the latest attempt—could be successful without enough information to decide whether a regulation is nonfunctional in the first place.

A recent study demonstrates this. In the study mentioned earlier, Lutter thoroughly examines the results of the efforts of four agencies—EPA, FDA, the National Highway Traffic Safety Administration, and the Securities and Exchange Commission—in response to President Obama's retrospective review directives contained in Executive Orders 13563 and 13579.[67] Although Executive Order 13563 specifically stipulates that the regulatory system "must

[67] Lutter, "Role of Retrospective Analysis."

measure, and seek to improve, the actual results of regulatory requirements," Lutter finds little evidence of progress toward improving measurement (analysis) of actual results. Indeed, Lutter finds that very few retrospective analyses of existing regulations performed by these agencies even provide sufficient information to evaluate whether the benefits of continuing those regulations exceed their ongoing costs. This is the information problem for regulatory reform and the first obstacle. Agencies are not currently required by statute to analyze their existing regulations to determine ongoing costs and benefits or, more simply, even whether the regulations are effective.

Ideally, whether a rule or a regulatory program should be continued, modified, or eliminated would rely on research indicating whether a systemic problem still exists; whether the rule continues to produce benefits exceeding costs; whether there are unintended consequences, such as countervailing risks, that have not been accounted for; whether additional regulations in the area (e.g., food safety) are likely to produce benefits exceeding costs; whether states and localities (or markets or courts) might be better able to address the problems; and whether the program continues to be a high federal priority. However, agencies tend to expend their resources not on researching these questions but on producing new rules that expand their budgets and control over their portion of the economy.[68] Researching existing rules is not likely to ever be high on their agendas.

The BRAC Commission's and the Dutch Programme's Solutions to Obstacle 1

Both the BRAC Commission and the Dutch Programme utilized information from the agency closest to the programs being evaluated. In the case of BRAC, the Department of Defense (DOD)

[68] William A. Niskannen, "Bureaucracy," in *The Elgar Companion to Public Choice*, ed. William F. Shughart and Laura Razzolini (Northhampton, ME: Edward Elgar, 2001).

had incentive to provide the most accurate information because elimination of inefficiency would permit DOD to execute its mission better. For the Dutch Programme, agencies did not necessarily have incentive to provide the most accurate information (as they wished to protect, not eliminate rules), but they were given little choice. The Standard Cost Model is simple and transparent enough that any misinformation would presumably be easily sighted.

Obstacle 2

Agencies are stakeholders with respect to their own regulations.

Even if agencies had the necessary information available to them, they have little incentive to modify or eliminate existing rules. Agencies often spend many years developing rules, and asking agencies to eliminate their own rules can be comparable to asking them to admit failure. Further, even if the public desired that some regulations be eliminated, agencies' preferences may deviate from those preferences. This is analogous to what industrial organization and financial economists refer to as the principal-agent problem.[69] In this case, government agencies are the agents, and private individuals are the principals.[70] When the incentives of agents do not align with those of the principals, suboptimal outcomes tend to ensue. In the case of government agencies, agencies have incentive to grow, regardless of whether that growth would be optimal for individuals. There are many theories about why bureaucracies grow, such as the desire to maximize their discretionary budgets.[71] Over time, these theories have been supplemented with literature describing bureaucratic desires such as "influence on

[69] See Michael Jensen and William Meckling, "Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure," *Journal of Financial Economics* 3 no. 4 (1976): 305–60.
[70] It is also true that agencies are agents for Congress, the principals.
[71] Niskannen, "Bureaucracy," 269.

public policy, power or simply utility."[72] Agencies' budgets expand if their regulatory programs expand, so those agents' incentives may lead them to pursue a different course than the one preferred by their principals.

The BRAC Commission's and the Dutch Programme's Solutions to Obstacle 2

The BRAC Commission was not directly faced with a principal-agent problem. The DOD actually desired to close military bases that had little military value so that it could reallocate scarce resources and personnel to locations of greater military value.

The Dutch Programme, on the other hand, tackled this problem head-on by requiring that all agencies meet a quantified target—a reduction of costs by 25 percent.

Obstacle 3

Individuals in agencies have little incentive to provide information that would lead to a rule's elimination or the choice not to produce a rule.

This obstacle is a corollary of the previous principal-agent problem and is a reflection of how agencies tend to reward their employees.[73] In general, employees—including economists—are professionally rewarded for being part of teams that create new regulations or expand

[72] Ronald Wintrobe, "Modern Bureaucratic Theory," in *Perspectives on Public Choice*, ed. Dennis C. Mueller (Cambridge: Cambridge University Press, 1997), 431.

[73] Trying to produce evidence to get rid of regulations would be viewed in agencies as different from providing evidence to support a regulation. It would be viewed as if it came from someone outside the agency. As one coauthor of this paper has described his experience as an agency economist, "If your views are not mainstream, you are saying something different that is not going to be welcomed. . . . It is an oppressive atmosphere." Richard Williams, "The Influence of Regulatory Economists in Federal Health and Safety Agencies" (Working Paper No. 08-15, Mercatus Center at George Mason University, Arlington, VA, July 2008), http://mercatus.org/sites/default/files/publication/WP0815_Regulatory%20Economists.pdf.

existing regulatory programs.[74] Conversely, employees are rarely rewarded for deciding that a regulation should not be created. This is unfortunate, because specialists in agencies are likely to have some relevant information about which rules are nonfunctional. However, no one has yet discovered how to change the incentives of individuals in agencies so that they have a reason to provide accurate information and have no fear of retaliation should that information indicate that growth in the number or scope of the agency's regulations is not optimal.

The BRAC Commission's and the Dutch Programme's Solutions to Obstacle 3

The BRAC Commission embraced independence as the solution to obstacle 3. The independent commission exists for only a finite period, and its mission is clear. This independence limits the degree to which others can create incentive for commissioners to deviate from their mission.

The Dutch Programme had two components that address obstacle 3. First, the Dutch Programme adopted a clear and transparent model that agencies had to use to provide information about rules' costs. This limited economists to either providing cost information or to providing nothing at all. Second, in order to ensure that all agencies provided cost information (rather than nothing at all), the Dutch Programme created an independent agency to oversee the application of the Standard Cost Model in all the agencies.

Obstacle 4

Decision criteria for classifying regulations as nonfunctional can be subverted if they are not clear and objective.

[74] Williams quotes one economist as saying, "Success is putting out 10 regulations a year and bigger regulations are bigger successes." Ibid.

Before the creation of the BRAC Commission, attempts at the base closures were hampered by congressional members' ability to subvert one of the several criteria considered by Congress before the BRAC Act created the BRAC Commission.[75] As Representative Richard Armey put it in 1988,

> An environmental impact statement can take as long as two years and cost over $1 million to complete. Once completed, any congressman or well-organized citizens' group can take the military to court and insist that it be redone to consider some previously unnoticed aspect. After that, the second statement can be found wanting, and a third can be ordered. By this time, several years after the base closing was first announced (a move that by itself has already hurt the local economy), the local citizenry and members of Congress are thoroughly aroused, and the political pressures to cancel the closing order are all but insurmountable.

The base closure process and its consideration of complex and subjective criteria, at least before the 1988 BRAC Act, made it easy for any legislator to stop a military base from closing. As a result, each member of Congress possessed a *de facto* veto on any single base's closure.

Similarly, any analysis—even quantitative analyses—can be subverted. For example, an agency might produce a regulatory impact analysis that purports to show that a regulation's anticipated benefits outweigh its costs, whereas an independent analysis would show the opposite. Of course, the agency has incentive to show that, and it is difficult for a nonexpert to tell whether the regulatory impact analysis is objective and thorough. It is possible for the agency to subvert regulatory impact analyses to serve the agency's purposes, such as to expand its budget.

The BRAC Commission's and the Dutch Programme's Solutions to Obstacle 4

One characteristic shared by the BRAC Act and the Dutch Programme is that they both set out simple criteria by which to judge whether to keep military bases and regulations, respectively.

[75] Jerry Brito, "A Spending Commission Modeled on BRAC" (Mercatus Research Summary, Mercatus Center at George Mason University, Arlington, VA, Jan. 19, 2010), http://mercatus.org/sites/default/files/Brito-BRAC-Research-Summary.pdf.

Importantly, the simplicity, clarity, and objectivity of these criteria minimized subversion of the reform efforts by individuals, agencies, or special interest groups. The vaguer the criteria, the easier it would be for an individual, agency, or special interest group to manipulate them into serving its purposes, rather than objectively analyzing relevant data.

Obstacle 5

Individual regulations can cause concentrated benefits and dispersed costs.

All regulatory programs originate in Congress, whether by the organic statute that created an agency and an agency mission, or a statute that attempts to specifically elicit regulatory intervention from agencies. All the same dynamics that lead to congressional pork in legislation can apply to regulation. As a result, if members of Congress are given the option to consider which regulations to eliminate on a one-by-one basis, individual members who have constituencies or backers that benefit substantially from the regulation will fight to keep that regulation intact. In other words, Congress must overcome the public choice problem of concentrated benefits and dispersed costs in order to agree to eliminate regulations.

The BRAC Commission's and the Dutch Programme's Solutions to Obstacle 5

The BRAC process overcame obstacle 5 by grouping all bases considered to be candidates for closure into a single list. Congress was provided this list from the BRAC Commission, and Congress by default was assumed to approve the list. The only way Congress could stop the closure of all bases on the list was to pass a majority vote of disapproval. For regulations, this means that groups of regulations that are sent to Congress must not be able to be stopped by oversight committees that govern those regulations.

Despite the success of the first BRAC Commission, some worried that even this independent commission was not devoid of political influence—especially in subsequent rounds. Brian T. Kehl surmised that logrolling and special interests played a role in the removal of certain bases from the closure list after the list was leaked to the *New York Times* a week before its official submittal from DOD to the commission in 1993. In the interim, three bases in California were removed from the list, leading Kehl to conclude, "The special interests of California and its Congressional delegation were undoubtedly successful at bringing pressure to bear on the Pentagon."[76] Furthermore, as Jerry Brito points out,

> No member of the relevant defense committees has ever had a base closed in their districts. In 1991, DoD recommended 31 major bases for closure. The BRAC commission removed four from this list, three of which were represented on the Senate Armed Services Committees. In 1993, of the nine bases removed from the list, only one was not represented on the Senate Armed Services Committee or the Senate Defense Appropriations Committee. Certainly one obstacle to reforming or removing regulations will be the committees themselves. Although regulations generally don't favor one state or region over another, Committee program chairs may not wish to decrease the regulations in their particular area of oversight.[77]

The Dutch Programme did not explicitly address obstacle 5. However, a quantified threshold is analogous to creating a list of bases that is adequately long to ensure no particular special interest group can stop the entire scheme, so long as the threshold is high enough. Additionally, it appears that the Dutch Programme accepted that horse-trading and logrolling would likely occur—even if 25 percent had to be cut, a savvy politician might try to make sure those cuts would only affect other constituencies—and created an separate agency "to manage

[76] Brian T. Kehl, "The Pentagon vs. Congress: The Political Economy of Military Base Closures during BRAC" (PhD dissertation, George Mason University, 2003), 40, http://handle.dtic.mil/100.2/ADA416525.
[77] In contrast, however, a recent study found no evidence of political influence in the 2005 round of the BRAC closures. Scott A Beaulier, Joshua C. Hall, and Allen K. Lynch, "The Impact of Political Factors on Military Base Closures," *Journal of Economic Policy Reform* 14, no. 4 (2011): 333–42. Nonetheless, the point remains that even so-called independent commissions may be subject to political influence.

the political side of organizing the process between the various ministries and to overcome political obstacles."[78]

Obstacle 6

Removing regulation requires congressional consent.

Ultimately, it is acts of Congress that direct agencies to create regulations. Even if agencies were to identify nonfunctional regulations that they want to eliminate or modify because of, for example, obsolescence, statutes might not allow the agencies to make the changes. Thus, any reform will require congressional consent before beginning the exercise. Otherwise, the authors of certain statutes may become defensive when agencies point out that regulations stemming from those statutes are no longer necessary or are even counterproductive.

The BRAC Commission's and the Dutch Programme's Solutions to Obstacle 6

The problem of base realignment and closure was similar in that prior to the BRAC Commission's creation, congressional approval was required before a base could be closed. This problem was overcome by the obtainment of congressional approval to close or realign all bases on the list proffered by the BRAC Commission, without amendment.

The Dutch Programme appears to have succeeded in overcoming obstacle 6 largely through a commitment of all major political parties of Parliament to reduce business costs.[79] Given this commitment, Parliament would facilitate the reductions, rather than hinder them.

[78] Hall and Williams, "Process for Cleaning Up Federal Regulations," 2012, 7.
[79] World Bank Group, *Review of the Dutch Administrative Burden Reduction Programme*, 2007, http://www.doing business.org/~/media/FPDKM/Doing%20Business/Documents/Special-Reports/DB-Dutch-Admin.pdf.

Obstacle 7

The creation of the list of target regulations can be subject to logrolling and special interests' influence.

Reform efforts to roll back regulations are generally not successful at including those people who are typically most harmed by existing regulations. Regulations cause consumers to pay higher prices for goods, but consumers are rarely represented in an organized fashion in these efforts. Additionally, small firms are at a competitive disadvantage in knowing about, understanding, and complying with high fixed-cost rules.[80] Finally, potential entrepreneurs face higher barriers to entry as a result of regulatory accumulation. Groups that generally promoted the regulations to begin with tend to be the only active players in a program to eliminate them. Those that benefit from regulations include large firms that often lobby for new regulations in order to put their smaller competitors at a disadvantage, as well as the agencies that created the rules in the first place. In addition, activists who generally favor regulation associated with their particular social agenda do not typically account for the effects of the mass of rules or their unintended consequences.

The Small Business Regulatory Enforcement and Fairness Act, which was designed to give teeth to the Regulatory Flexibility Act, passed the Senate by a vote of 98 to 0. This shows that many in Congress understand that small businesses need protection as most are not engaged in the regulatory processes and are often the target of their larger competitors. Moreover, potential start-up competitors, not yet being in the industry, can be harmed by a surplus of rules that make it harder to start a business. So the three groups most affected by excess rules—

[80] High fixed-cost rules are those that impose "fixed costs," such as pieces of equipment, as opposed to costs that vary with the size of what is being produced, like labor.

consumers, small businesses, and potential entrepreneurs—are typically not engaged in demanding fewer, more efficient rules.

The BRAC Commission's and the Dutch Programme's Solutions to Obstacle 7

It is actually not clear that either the BRAC Commission or the Dutch Programme successfully dealt with obstacle 7. It is possible that special interests affected which regulations were eliminated or modified in the Dutch Programme. In fact, businesses were overtly included and consulted from the beginning of the Programme's implementation.[81] Of course, consulting businesses does not necessarily indicate special interests' influence, and under the right leadership, business input can help identify obsolete or otherwise undesirable regulations.

5. Recommendations

In order to successfully undertake retrospective review, we must chart a different path than that of the last 30 years. The primary lesson of previous attempts at retrospective review is that assessment and decision-making authority should generally be removed from agencies and the Administrative Procedure Act. Because of the technical nature of regulations, however, recommendations must come from people who have expertise in the field and with the nature of regulations. Because of the political problems, the experts must be independent of political influences.

Below, we outline several characteristics of successful reform. Many of these are derived directly from lessons learned by studying the BRAC process, the Dutch Programme, and previous attempts at retrospective review in the United States.

[81] World Bank Group, *Dutch Administrative Burden Reduction Programme*, 2007, 5, stating that businesses were permanently represented on the independent monitoring agency and that staff from enterprises were sent on 1- to 2-year short-term assignments to work for the agency in charge of overcoming political obstacles.

1. **Before any specific regulations, agencies, or subject areas are broached, Congress must agree on the general principle** that we need to eliminate or modify nonfunctional rules. The mention of specific regulations, agencies, or subject areas will put too many members on the defensive.
2. **The process should entail independent assessment of whether regulations are nonfunctional.** This likely requires analysts and others who are experts in the areas being addressed and giving them sufficient time and information/data.[82]
3. **The process should ensure there is no special treatment of any group or stakeholder.** Stakeholder input can help the assessment of regulations, but it should not be the only source of information. Consumers and small businesses may be underrepresented in comments/stakeholder input. The process should explicitly direct an assessment to consider how underrepresented stakeholders are affected by the regulations.
4. **The unit of analysis must be broad enough to identify potentially duplicative regulations.** If only one rule or one agency is examined, the process might miss duplication caused by another rule or agency. Instead, subjects such as air quality, automobile safety, food safety, or workplace safety should be examined: e.g., the Occupational Health and Safety Administration makes workplace safety rules, but so does the Federal Railroad Administration. They may or may not overlap.
5. **The process should use a standard method of assessment that is difficult to subvert.** The criteria of assessment and the sources of information for determining which regulations are nonfunctional must be established first. Failure to establish these criteria is an invitation for politics and logrolling. Even with explicitly determined criteria, the

[82] Experts may include economists who are experts in efficiency (benefit-cost analysis), subject matter experts, and legal experts.

analysis can be subverted. Even "independent commissioners" can be influenced—they are political appointees, after all. In light of this, it is important to adopt a simple and transparent procedure for assessment because that will minimize opportunities for subversion.

6. **Whatever the procedure for assessment, assessments of specific regulations or regulatory programs should focus on whether and how they lead to the outcomes desired.** Unless regulations are associated with outcomes (as opposed to outputs), it is difficult to assess whether they are successful.[83]
7. **Regulatory agencies should be recognized as another important stakeholder**, **with incentives to keep and increase regulation.** Agency information is useful, just like industry and consumer information. However, agencies are likely to provide information that serves their own interests of maintaining their stock of existing regulations. Agency deference should be eliminated in the process of assessing regulations.
8. **The list of regulations for elimination or modification should be long enough to overcome the public choice problem.** If $1 billion is saved by eliminating or modifying some small set of regulations, but one member is losing benefits to his district/state of $100 million, it's easy for that member to oppose cutting those regulations. But if $100 billion is saved, and many states/districts are also losing $100 million, any individual member has less incentive to oppose the entire set of recommended changes. In order to ensure that the set of regulations considered is large and broad enough, we recommend including a quantifiable threshold—e.g., 25 percent—as the minimum that must be eliminated or modified for each subject area.

[83] A good discussion of this point can be found in Jerry Ellig, Maurice McTigue, and Henry Wray, *Government Performance and Results: an Evaluation of GPRA's First Decade* (Boca Raton, FL: CRC Press, 2011).

9. **Modifications to regulations should be limited. Only improvement from design standards to performance standards or other cost-reducing/innovation-inducing improvements should be suggested.** Agencies already have mandates to protect health, safety, the environment, etc. (i.e., to achieve benefits), and these mandates are executed under the Administrative Procedure Act.
10. **Congressional action—such as a joint resolution of disapproval—should be required in order to stop the recommendations, as opposed to a vote to enact or not enact.** BRAC did this, and that allows members to complain, fight, or save face publicly, while privately supporting the recommendation.
11. **The review process should repeat indefinitely.** The limited successes seen in previous efforts such as the National Partnership were followed by a reversion to the long-term trend of regulatory growth. If agencies' missions will always entail creating more regulations, then a counterbalancing cleanup process should also be in place.

5.1. A Model Regulatory Review Commission

To achieve the goal of eliminating or modifying nonfunctional regulations or regulatory programs that are redundant, inefficient, or obsolete, we propose the creation of a Regulatory Review Commission. First, however, Congress would need to pass a Regulatory Review Act. This act would accomplish three things:

1. formally recognize that both the economy and safety could improve substantially from eliminating nonfunctional regulations;
2. create the Regulatory Review Commission, an independent commission that would be charged with identifying regulations to eliminate, modify, or consolidate; and

3. bind Congress to accepting the recommendations of the Regulatory Review Commission, unless a bicameral resolution of disapproval is passed.

The details of the Regulatory Review Act would primarily lay out how the Regulatory Review Commission is structured and how the commissions fit into the process of regulatory review. We describe our proposed process below, which attempts to incorporate the key lessons outlined above.

5.2. Structure of the Commission

The Regulatory Review Commission would be given a narrow mission of identifying nonfunctional regulations. The commission would identify those regulations using a predetermined evaluation method, such as the Standard Cost Model or another simple, transparent model for evaluating the regulation. In addition to evaluating each regulation according to a predetermined model, the commission would have a mission to identify duplicative regulations.

We suggest that the commission be appointed for a limited time (e.g., five years) and that there be seven members. For example, the commission might include two commissioners selected by the Senate majority leader, two by the House majority leader, one by the Senate minority leader, and one by the House minority leader—the president would select the final commissioner, who would also serve as the chair.

Upon its creation and the appointment of its members, the commission would be responsible for dividing up regulatory programs into manageable areas for review. The areas to be reviewed would address a particular outcome of concern. All regulatory text produced across all agencies that attempts to bring about a common outcome would be considered part of a single area of review. Outcomes of concern would be defined by the commission, but an

example of a regulatory program might be all regulatory text that attempts to reduce the risk of premature cancer in humans caused by the respiration of airborne contaminants. This would include, therefore, some regulations promulgated by EPA under the Clean Air Act, but it may also include regulations from DOT, FDA, and other agencies. Another outcome of concern could be "food safety." The commission would then oversee a review of all federal food safety regulatory programs, including those from USDA, FDA, EPA, and Commerce. The commission would initially choose, for example, four of these outcomes for review. The outcomes chosen could be based on solving the most pressing problems first, including factors such as likely total ongoing costs of the programs; possibility for replacing design with performance rules; absence of benefits, particularly compared to ongoing costs; or effects on domestic or international competition.

Once the four areas for review are chosen, the commission would oversee the creation of corresponding expert committees—one for each area of review. These committees would consist of experts in the area of review, including primarily scientists, risk assessors, and economists who are experts in the area, but also including experts in the agencies that write regulations likely to be reviewed by the committee. To extend our example, suppose the commission chose the following four areas of review: air quality, food safety, automobile safety, and workplace safety (note: these areas are merely examples of areas for review and not necessarily the areas the commission should choose). The commission would assemble committees of experts in those four areas, and the committees would hold public hearings, seek advice from OIRA and the relevant agencies and stakeholders, commission research, and gather information to make recommendations for regulatory programs and individual regulations. The recommendations for changes would be limited to elimination, consolidation, or modification

from a design standard to a performance standard or other cost-reducing modification. The committees would not be permitted to recommend an increase in the stringency or number of regulations, as that mission is already well served by the missions of agencies and the Administrative Procedure Act.

One thing common to successful committees is that they have clear, quantitative goals. In this case, the goal should be defined in the context of whatever model of assessment is adopted. The Dutch Programme, for example, adopted a quantitative goal of eliminating 25 percent of administrative burden in each agency. Without a clear quantitative goal—a minimum threshold that must be achieved—the commission would likely have minimal impact. In the context of committees and areas of review, the quantitative goal would need to relate to the specific area rather than a specific agency. For example, if the area of review is food safety, the committee responsible for food safety would need to identify food safety regulations that could be eliminated—perhaps because they are duplicative, because they do not contribute to the outcomes desired, or because there are better methods now available to achieve the desired outcome. If the threshold chosen is 25 percent, and the model of assessment is the Standard Cost Model, then the committee would produce a list of regulations to eliminate, modify, or consolidate such that the administrative burden caused by all food safety regulations is reduced by 25 percent.

The committees would make regular reports to the commission, which, in turn, would report to the appropriate committees in the House and Senate and to the president. These reports could explain, for example:

1. The outcomes being considered for categorization of regulatory units.
2. The definitions of regulatory units.

3. The definitions of regulatory programs.
4. The assessments of regulations according to the chosen model.
5. Lists of potentially redundant regulations identified so far (i.e., regulatory units that attempt to achieve the same outcome).

Near the end of the term of the commission, the commission would produce a report of regulations and programs to be modified, consolidated with other regulations, or eliminated. Where necessary, the recommendation would include modification or elimination of enabling legislation.

As with the BRAC structure, the recommendations in the report would be considered acceptable unless Congress passed a joint resolution to reject it. An acceptable report would go to the president for signature.

This process would be repeated for a different set of areas of review after the first commission's cycle had ended. Eventually, areas of review would be repeated.

6. A Comparison of Regulatory Review Bills Produced in the 112th and 113th Congresses and Our Proposed Regulatory Review Commission

Above, we listed primary obstacles behind the ongoing inability of the federal government to implement a process for regulatory cleanup. In this section, we evaluate bills from the 112th and 113th Congresses that address the phenomenon of regulatory accumulation with respect to how successful they might be in overcoming these obstacles, alongside our own proposed regulatory review commission.

6.1. A Brief Review of Seven Bills Addressing Regulatory Accumulation (See Appendix for a Summary Table)

S 1390: "Regulatory Improvement Act of 2013"

The Regulatory Improvement Act of 2013 proposes the creation of a Regulatory Improvement Commission. This independent commission would be charged with reviewing existing regulations and developing recommendations for these regulations' modification, consolidation, or repeal, for the purpose of reducing compliance costs, encouraging growth and innovation, and improving competitiveness. A press release related to the bill states that the proposal "employs a balanced approach to evaluating existing regulations—one that involves identifying regulations that are not essential to broad priorities like the environment, public health, and safety, but instead are outdated, duplicative, or inefficient."[84]

Strengths:

- creates an independent commission to decide which rules to change or eliminate, thereby avoiding some incentive-related obstacles
- requires of Congress only an up-or-down vote on the commission's recommendations, with no amendments allowed
- the commission's recommendations would cover a single sector area to examine, which would allow examination of duplication across agencies
- the commission's guidelines—to reduce compliance costs, encourage growth and innovation, and improve competitiveness—for selecting regulations to alter are broad enough to allow serious reform

[84] Office of Senator Angus King, "Senators King & Blunt Introduce Legislation to Review and Streamline Regulations and Stimulate Economic Growth," news release, July 30, 2013, http://www.king.senate.gov/newsroom/press-releases/senators-king-and-blunt-introduce-legislation-to-review-and-streamline-regulations-and-stimulate-economic-growth.

Weaknesses:

- limits the regulations that the commission can consider to only regulations that were finalized more than 10 years before the commission is established and that have not been amended after being finalized
- relies on public comments to provide suggestions for the sector to focus on; past experience suggests that the primary groups that comment are those that benefit from regulations
- unclear what model, if any, the commission will use to identify regulations for change or elimination
- no mechanism for further reform after the commission is done with proposing changes to one sector area
- the commission would have to be recreated by Congress in order to address any other sector areas; the bill does not propose a repeated commission or a new agency
- limits which regulatory programs can be considered

HR 214: "Congressional Office of Regulatory Analysis Creation and Sunset and Review Act of 2011"

This bill would create a Congressional Office of Regulatory Analysis (CORA) to analyze new rules and would set up a sunset review provision for existing regulations.

Strengths:

- CORA would be a step toward independent Benefit-Cost Analysis (CBA)[85] of proposed rules and would require a more independent CBA to be provided to Congress for all proposed major rules
- sunset review groups rules by subject area across agencies to look for duplication
- places all significant rules under sunset review at once, overcoming public choice problem
- creates new position/officer in each agency who is responsible for review, which may help align incentives away from subversion

Weaknesses:

- initial review by CORA applies only to major rules
- CORA has no enforcement mechanism—it's just information for Congress
- CORA could be more useful if it performed CBA on legislation before its creation
- sunset review applies only to major rules and rules suggested for review (by the public or Congress)
- leaves sunset review in the hands of the agencies using same criteria as APA rulemaking procedures
- other rules may be suggested for initial and sunset review by members or the public, which may allow subversion by special interests
- unclear where resources for agency-led review would come from, but could not be accomplished with existing resources

[85] Benefit-cost analysis is a decision-making aid that uses a systematic way to examine a problem and assess the benefits and costs of multiple possible ways to solve the problem.

- unclear how OIRA could afford resources for this (OIRA would provide input into CORA's activities), especially for grouping rules or programs
- unclear whether non-significant rules can be considered in a group (for duplication, etc.)
- exemptions of independent federal bank regulatory agencies will prevent identification of duplication (especially in Dodd-Frank)
- judicial review is not changed from status quo, which means continued deference to agencies on their statutory interpretations

HR 309: "Regulatory Sunset and Review Act of 2013"

This bill would require sunset review of major rules and rules suggested for review by the public or Congress. Its test appears mostly identical to that of the sunset review section of HR 214 above.

Strengths:

- sunset review groups rules by subject area across agencies to look for duplication
- places all sign rules under sunset review at once, overcoming public choice problem
- creates new position/officer in each agency who is responsible for review, which may help align incentives away from subversion
- requires legislative recommendations if statutes prevent changes to rules

Weaknesses:

- leaves sunset review in the hands of the agencies using same criteria as APA rulemaking procedures, with same standards—but given current incentives, it is unlikely that anything would change
- other rules may be suggested for initial and sunset review by members or the public, which may allow subversion by special interests

- unclear where resources for agency-led review would come from, but could not be accomplished with existing resources
- unclear how OIRA could afford resources for this, especially for grouping
- unclear whether rulemakings to revise, consolidate, or eliminate rules can be conducted jointly or have to be done one at a time (i.e., for each CFR Part individually or for all in a group at once)
- unclear whether nonsignificant rules can be considered in a group (for duplication, etc.)
- exemptions of independent federal bank regulatory agencies will prevent identification of duplication (especially in Dodd-Frank)
- judicial review is not changed from status quo, which means agency deference

HR 3181: "Stop the Regulation Invasion Please Act of 2011"

This bill proposes a moratorium and perhaps a repeal of all regulations created since October 1, 1991.

Strengths:

- blanket repeal of all rules unless the rule can be defended
- flips the burden of proof, requiring agencies to defend the continued existence of rules

Weaknesses:

- no treatment for rules as groups that work together
- requires CBA from OMB within 90 days; likely only to get a repeat of RIAs and attempts to justify rules' existence
- exemptions and exceptions are so broad and vague that all of Dodd-Frank could continue to be implemented

HR 3392: "Regulatory Review Act of 2011"

This bill proposes periodic review of major rules—every 10 years.

Strengths:

- review of all major rules, without exemption
- requirement to analyze all viable alternatives, including repeal
- determinations of keep, amend, or repeal by agencies are to be based on CBA; required to pick most cost-effective option of accomplishing rule objective
- requires judicial review of determination by agency, which will limit agency ability to subvert analysis

Weaknesses:

- doesn't clearly define rules or allow rules to be analyzed as groups
- CBA still in agency hands, although judicial review helps
- review wouldn't be triggered until 10 years after enactment
- unclear where agency resources or OIRA resources for review would come from for their part in directing this
- unclear who defines "objective" of rule; probably the agency, which will be key to subversion

HR 6333: "Sunset Act of 2012"

This bill would require congressional approval to create any new rule. It also requires annual review of rules currently in effect.

Strengths:

- requires Congress to be responsible for its own actions (indirectly) by requiring approval for rule creation or approval for existing rule continuation
- default is that a rule cannot be created or continued without joint resolution of approval, putting burden of proof on agencies
- specifically prevents reissuance of the same rule if one is disapproved or discontinued
- limits ability of Congress to amend or debate approvals

Weaknesses:

- relies on information (CBAs) provided by agencies
- agency analysis/info is not subject to judicial review
- despite attempts to limit debate and amendments to joint resolutions of approval, there will likely be ample room for individual members to hold up individual rules—allowing special interests and pork-barrel politics in

Conclusion

Despite broad and bipartisan recognition that the accumulation of regulations in the United States likely has significant negative economic and possible risk consequences, the problem continues to grow. Every attempt by presidents to direct agencies to review their own regulations in order to eliminate nonfunctional regulations has yielded poor results. This likely stems from fundamental misalignment of incentives: agencies, despite direction from the president, have incentives to maintain and grow their regulations in order to maximize their budgets. In turn, in order to retain regulations that would be eliminated otherwise, agencies may either hide or fail to produce information that would help identify obsolete regulations in the first place. This paper

examined these and several other obstacles that must be overcome before retrospective review and elimination of nonfunctional regulations can be accomplished in the United States.

In contrast to the repeated failures of the United States to clean up regulations, the Dutch Administrative Burden Reduction Programme successfully eliminated 25 percent of the administrative costs imposed by regulations. We examined the Dutch Programme and another innovative program—the BRAC Commission in the United States—as models for how to overcome some of the obstacles heretofore preventing the cleanup of the stock of regulations in the United States.

The primary characteristics of the BRAC Commission's effort that overcame the obstacles to government reform were the following:

1. The BRAC Act set up an independent commission.
2. The commission was given a mission with clearly defined criteria.
3. Congress's ability to disapprove was limited to a joint resolution of disapproval. Barring that, the recommendations of the commission would be implemented.

Similarly, the Dutch Programme has some characteristics that helped overcome some of the obstacles preventing regulatory reform in the United States:

1. The Programme established an independent monitoring agency to monitor each agency's measurement and reduction processes.[86]
2. Agencies were given a clearly defined mission: eliminate 25 percent of administrative costs that stem from regulations by 2007.
3. The criteria used to evaluate regulations' administrative costs were also clear, simple, and transparent: the Standard Cost Model.

[86] Hall and Williams, "Process for Cleaning Up Federal Regulations," 7.

Based on our examination of the obstacles to successful regulatory cleanup and the models of successful government reform, we recommend the creation of an independent Regulatory Review Commission. The commission would be charged with evaluating regulations that cover predetermined, outcome-related topics, such as clean air or food safety, according to a simple and transparent model, such as the Standard Cost Model. The commission would have to suggest changes that would achieve some quantifiable threshold, such as a reduction of 25 percent of administrative burden. These changes would be presented to Congress, and by default the changes would become law unless Congress passed a joint resolution of disapproval. Finally, this process would be repeated for other outcome-related topics on an ongoing basis. After all, there is a process for creating regulations that continues in perpetuity, so it makes sense to have a corollary process for eliminating regulations that are no longer useful.

Appendix: Evaluating Regulatory Reform Proposals with Respect to the Obstacles to Regulatory Cleanup

Table 2 briefly assesses whether and how each of the bills and proposals discussed above addresses the obstacles to regulatory cleanup. For brevity, we have included a rating system that conveys to the reader our opinion about whether the proposal would help overcome the obstacle, maintain the status quo, or, in some cases, exacerbate the problem described by the obstacle.

Table 2. How Do the Bills Deal with the Obstacles to Regulatory Cleanup?

−1 = exacerbates problem described by the obstacle, **0** = maintains status quo,
+1 = may make marginal improvements, **+2** = likely to help overcome the obstacle

Obstacles	HR 309: Reg Sunset and Review Act	HR 3392: Reg Review Act	HR 214: CORA Creation and Sunset and Review Act	HR 3181: STRIP Act	HR 6333: Sunset Act	S 1390: Regulatory Improvement Act	Regulatory Review Commission (our proposal)
Decision-makers lack information to determine which regulations to eliminate or change	**+1** Little change with this bill—the information would still come from agencies, although the creation of a regulatory review officer in agencies may help improve the quality of agency-provided info.	**+2** Agencies would perform CBA on major regulations every 10 years, creating new info on reg performance. Agency info would be subject to judicial review, which should improve info quality.	**+1** CORA would provide new information to Congress on costs and benefits of proposed major rules. Presumably Congress could use that info to stop a rule under the CRA. There's little change in sunset review—the information would still come from agencies, although the creation of a regulatory review officer in agencies may help improve agency-provided info.	**0** CBA info to come from OMB (maybe OIRA?) within 90 days of act. Info is likely to be a repeat of agency analysis—meaning no new info.	**0** Congress might get more info because agencies have to prove that a rule needs to be made. Info still comes from agencies and is not subject to judicial review, so quality is questionable.	**+2** The independent commission established by this act would be tasked with gathering and producing information, including quantitative metrics, to determine which regulations to eliminate or change.	**+2** Similar to the RIA, the independent commission established in our proposal would be tasked with gathering and producing information, including quantitative metrics, to determine which regulations to eliminate or change.

Obstacles	HR 309: Reg Sunset and Review Act	HR 3392: Reg Review Act	HR 214: CORA Creation and Sunset and Review Act	HR 3181: STRIP Act	HR 6333: Sunset Act	S 1390: Regulatory Improvement Act	Regulatory Review Commission (our proposal)
Agencies are stakeholders with different objectives than citizens (recognizing the principal-agent problem)	**0** Unclear. Although the bill centralizes regulatory review under a Regulatory Review Officer, this person may not be inclined to reduce regulations within his or her own agency.	**0** No change with this bill—agency objectives aren't changed.	**+1** CORA objectives would be to provide info, but then Congress would have to act on it. This may lessen principle-agent problem perhaps, but only for new regs. For sunset review, creation of a regulatory review officer in agencies may change objectives somewhat, although it's not explicit.	**0** No change.	**0** No change.	**+2** The act seems to treat agencies as information providers, similar to other possible information providers, such as citizens, trade associations, and businesses.	**+2** Similar to the RIA, our proposal would treat agencies as information providers, similar to other possible information providers, such as citizens, trade associations, and businesses.
Agencies lack incentive to provide information on regulations; agency regulators rewarded for expanding regulations	**0** Creation of a regulatory review officer in agencies may change incentives somewhat, although it's not explicit. There's likely minimal change on info from agencies unless incentives change.	**+2** Agency info would be subject to judicial review, which should improve info quality. Agencies would still be rewarded for expanding regs, however.	**+1** CORA, if successfully independent, would have incentive to provide high-quality CBA info on new regs. For sunset review of old regs, creation of a regulatory review officer in agencies may change incentives somewhat, although it's not explicit. There's likely minimal change on info from agencies.	**0** Slight change with this act, perhaps because agencies must prove need for rules to Congress. Agencies would still be rewarded for expanding regs, however.	**0** Slight change with this act, perhaps because agencies must prove need for rules to Congress. Agencies would still be rewarded for expanding regs, however.	**0** While agencies would be required to provide information upon request to the commission, agency incentives do not change. Agencies would still be rewarded for expanding regs, however.	**0** Similar to the RIA, while agencies would be required to provide information upon request to the commission, agency incentives do not change. Agencies would still be rewarded for expanding regs, however.

Obstacles	HR 309: Reg Sunset and Review Act	HR 3392: Reg Review Act	HR 214: CORA Creation and Sunset and Review Act	HR 3181: STRIP Act	HR 6333: Sunset Act	S 1390: Regulatory Improvement Act	Regulatory Review Commission (our proposal)
Decision criteria can be subverted	**0** Agency remains responsible for producing its own CBA, which can be bent to its objectives. No judicial review to limit this or other independent review.	**+2** Agency CBA procedure would be to analyze alternatives and pick the best option. Judicial review applies, which limits ability to subvert analysis.	**0** Agency remains responsible for producing its own CBA, which can be bent to its objectives. No judicial review to limit this or other independent review.	**0** Unclear. It appears that OMB would be required to perform its own CBA, which could be subverted by executive branch.	**0** Agency remains responsible for producing its own CBA, which can be bent to its objectives. No judicial review to limit this or other independent review.	**+1** Act is similar to BRAC, except the proposal does not specify that simple and predetermined metrics or methodologies would necessarily follow. The independent commission would be given the mission of examining the effectiveness of regulations using "quantitative metrics, testimony from industry and agency experts, and research . . ." This limits how much the criteria can be subverted but does not eliminate the possibility.	**+2** Commission is similar to BRAC. Independent commission would be given the mission of examining the effectiveness of regulations using quantitative metrics, using a pre-established and simple methodology. The commission would also be required to address enough regulations to achieve some minimum reduction threshold (e.g., 25% reduction in compliance costs).
Public choice problem of "concentrated benefits and dispersed costs"	**+1** Act places all significant rules under review at once. Changes and elimination appear to require individual rulemakings, which could bring a return to the status quo.	**+2** Act requires review of all rules after 10 years have passed, without exemptions.	**−1** CORA exacerbates this problem. However, for sunset review, it places all significant rules under review at once. Changes and elimination appear to require individual rulemakings, which could bring a return to the status quo.	**+1** Act repeals all rules unless the rule can be defended. Act flips the burden of proof, requiring agencies to defend the continued existence of rules. Some members may dedicate themselves to defense of individual rules.	**−1** Each rule must be approved—making this problem worse.	**+2** Act would send all proposed changes and repeals to Congress for a simple up-or-down vote. However, it could be more effective if it followed the BRAC example and required a vote of disapproval to stop the proposed changes.	**+2** Commission would send all proposed changes and repeals to Congress, following the BRAC example and requiring a vote of disapproval to stop the proposed changes.

Obstacles	HR 309: Reg Sunset and Review Act	HR 3392: Reg Review Act	HR 214: CORA Creation and Sunset and Review Act	HR 3181: STRIP Act	HR 6333: Sunset Act	S 1390: Regulatory Improvement Act	Regulatory Review Commission (our proposal)
Statutes may make it difficult for agencies to eliminate regulations	**0** Unclear. It appears a decision to eliminate a rule could still be countered by statutory requirements.	**0** Unclear.	**+2** Act explicitly states that if legislation stops a change or elimination, the agency should recommend changes to the legislation.	**0** Unclear.	**+1** Act requires congressional approval for new rules or continuation of existing rules, so presumably Congress could simultaneously change statutes, if necessary.	**0** It is unclear what agencies would do when required by the commission to eliminate an ineffective regulation that was required by another act of Congress. Would they just recreate the rule?	**0** It is unclear what agencies would do when required by the commission to eliminate an ineffective regulation that was required by another act of Congress. Would they just recreate the rule?
Horse-trading/ logrolling and special interests' influence may occur, regardless of decision criteria	**+1** Decision rule for review is "major," which limits the possibility of horse-trading. However, provisions for the public or Congress to recommend regs for review could exacerbate the problem.	**+1** Regulatory review is required for all major rules, without exemptions. Influence could happen in agency CBA.	**0** CORA review of new, major rules may be more independent and less susceptible to influence initially, but closeness to Congress may lead to horse-trading/congressional influence. For sunset review, decision rule for review is "major," which limits the possibility of horse-trading. However, provisions for the public or Congress to recommend regs for review could exacerbate the problem.	**0** OMB would produce CBAs; act may be highly susceptible to special interests or executive influence unless specifically walled off.	**0** Despite attempts to limit debate and amendments to joint resolutions of approval, there will likely be ample room for individual members to hold up individual rules—allowing special interests and pork-barrel politics in.	**+2** The independence of the commission coupled with only an up-or-down vote, without amendments, on the complete package of proposed changes or repeals minimizes this possibility, unless special interests can influence individual commissioners.	**+2** The independence of the commission coupled with the default acceptance of the committee's recommendations, without amendments, on the complete package of proposed changes or repeals minimizes this possibility, unless special interests can influence individual commissioners.