

# **Regulatory Complexity and Policy Uncertainty: Headwinds of Our Own Making**

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## **Abstract**

The U.S. regulatory system grew enormously in scale, scope and complexity in recent decades. U.S. economic policies also became less predictable. I present several pieces of evidence related to these developments and discuss some of their consequences. I then sketch a few ideas to arrest or reverse these developments. In this regard, I stress the importance of simplicity in regulatory design, the advantages of policy designs that foster predictable regulatory responses, and the need for institutions that restrain ineffective, excessively burdensome and capricious regulations.

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## I. Three Principles for a Vibrant Economy

In his essay on how the United States can “Return to a Vibrant Economy,” George Shultz (2013) offers several worthy principles to guide policy makers. Here are three of them:

1. Keep the regulatory system clear, simple, and easy to administer, and then live with it.
2. Keep the tax system as simple as possible.<sup>1</sup>
3. Make economic policies predictable.

Let’s review the U.S. situation in relation to these principles, starting with the regulatory system.

## II. Aspects of the U.S. Situation

### A. An Expanding Regulatory State

Figure 1 shows page counts for the *Code of Federal Regulations (CFR)*, which compiles all federal regulations in effect each year.<sup>2</sup> The *CFR* expanded eight-fold over the past 56 years, reflecting tremendous growth in the scale and complexity of federal regulations. At nearly 180,000 pages, the *CFR* contains as many words as 133 copies of the King James Bible!<sup>3</sup> While Ten Commandments sufficed for the Hebrew God of the Old Testament, the *CFR* contains about one million commandments in the form of “shall,” “must,” “may not,” “prohibited,” and “required.”<sup>4</sup>

Let me hasten to add that *CFR* page counts seriously understate the scale and growth of the regulatory state. Key pronouncements by regulatory authorities often involve various forms of

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<sup>1</sup> Shultz (2013, p. 42) advised “Keep tax rates as low as possible and keep the tax system as simple as possible.” Insofar as a simple tax system means few deductions and a broad tax base, simplicity facilitates lower tax rates.

<sup>2</sup> I construct Figure 1 by splicing data from Dawson and Seater to data from Crews (2016).

<sup>3</sup> See Patrick McLaughlin’s “The Code of Federal Regulations: The Ultimate Longread” at <http://mercatus.org/publication/code-federal-regulations-ultimate-longread-game-thrones-hunger-games>.

<sup>4</sup> See Al-Ubaydli and McLaughlin (2014). Coffey et al. (2016) show that the number of “commandments” in the *CFR* has expanded in proportion to the *CFR* page count.

“regulatory guidance” rather than formal regulations.<sup>5</sup> As the D.C. Circuit Court observed in *Appalachian Power Co. v. EPA* (208 F.3d 1019 (D.C. Cir. 2000)):

The phenomenon we see in this case is familiar. Congress passes a broadly worded statute. The agency follows with regulations containing broad language, open-ended phrases, ambiguous standards and the like. Then as years pass, the agency issues circulars or guidance or memoranda, explaining, interpreting, defining and often expanding the commands in regulations. One guidance document may yield another and then another and so on. ***Several words in a regulation may spawn hundreds of pages of text*** as the agency offers more and more detail regarding what its regulations demand of regulated entities. ***Law is made, without notice and comment, without public participation, and without publication in the Federal Register or the Code of Federal Regulations.*** (Emphasis added)

This passage also flags two other problematic developments. First, a great deal of law making-power resides in regulatory agencies under broad and vague legal authorities. That makes it harder for citizens to redress burdensome laws, because regulators are more insulated from political pressures than elected representatives.<sup>6</sup> While we might imagine a Congress that diligently oversees law making by regulators, the vast scale of the regulatory state precludes full, effective oversight by legislators. They have many other demands on their time and energies. Second, regulators often skirt procedural guidelines designed to ensure adequate consultation, review and notice in their law-making activities. This practice further undermines the capacity of citizens to prevent or remedy capricious and unduly burdensome laws.

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<sup>5</sup> My impression is that federal regulatory guidance and other forms of regulatory “dark matter” grew at an even faster pace than the formal regulations in recent years, but I am unaware of systematic evidence on the point.

<sup>6</sup> My point here is about the making of law, not its administration and enforcement. There are sound reasons to insulate law enforcement and administration from political pressures.

Figure 1 strongly suggests that the regulatory leviathan is a bipartisan creation: The regulatory code consistently grew during both Democratic and Republican presidencies. There are exceptions – the first term of Ronald Reagan, and the first term of Bill Clinton, for example – but they are few and short-lived. This observation carries an important corollary: Simply putting one political party or the other in charge of the federal government is unlikely, by itself, to reverse or permanently arrest the expansion of the regulatory state.<sup>7</sup> That goal requires a more fundamental shift in our approach to regulation.

It's hard to summarize the scale of state and local government regulation, or its growth over time. Consider, instead, just one example: occupational licensing. The fraction of workers who must obtain a government-mandated license to lawfully perform their jobs rose from less than 5 percent in the 1950s to 29 percent in 2008.<sup>8</sup> About one-third of the growth in occupational licensing since the 1960s reflects changes in the mix of jobs.<sup>9</sup> The other two-thirds reflects a greater prevalence of licensing requirements within occupations.

Licensing requirements make sense in a few occupations, as a means to protect people from unscrupulous or incompetent providers. But do we really need onerous licensing requirements for barbers, manicurists, tree trimmers, funeral attendants, massage therapists, auctioneers, sign

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<sup>7</sup> See DeMuth (2016) for an informative account of how and why the federal regulatory state expanded so dramatically.

<sup>8</sup> See Kleiner and Krueger (2013). Carpenter et al. (2012) provide an illuminating description of state licensure requirements in 102 low- and moderate-income occupations. Kleiner (2015) and U.S. Department of the Treasury Office of Economic Policy (2015) provide useful analyses of occupational licensing in the United States, discussions of costs and benefits, and recommendations for reforms. Davis and Haltiwanger (2014) discuss a broad range of factors, including occupational licensing, that contributed to declines in U.S. business dynamism and labor market fluidity in recent decades. They also provide evidence that these developments led to lower employment rates, especially for younger and less educated persons.

<sup>9</sup> U.S. Department of the Treasury Office of Economic Policy (2015), page 20.

language interpreters, and hundreds of other jobs?<sup>10</sup> Worker certification, which preserves consumer choice and competition among suppliers, is usually a better response to concerns about supplier quality. All too often, licensing serves mainly to protect incumbent businesses and workers from competition – to the detriment of customers, young workers, and would-be entrepreneurs.

To be sure, some expansion of the regulatory state can be seen as an efficient, welfare-enhancing response to rising populations and real incomes, and to the increasing complexity of our economy and society.<sup>11</sup> But I find it impossible to see the current U.S. system as an approximately efficient regulatory response to the complexities of modern life. If occupational licensing is really about consumer protection, why does the average cosmetologist spend 372 days in training to obtain a government-mandated license, while the average emergency medical technician spends 33 days?<sup>12</sup> To take another example, does anyone believe that regulatory resistance to Uber’s ride-sharing service is truly motivated by a concern for consumer welfare?

International comparisons reinforce concerns about U.S. regulatory overreach. According to the World Bank’s latest *Doing Business* report, the United States ranks 51st out of 190 countries in the ease of starting a new business.<sup>13</sup>

## **B. A Byzantine Tax Code**

The size and complexity of the U.S. tax code also grew dramatically in recent decades.<sup>14</sup> As of 2011, it takes 70,000 pages of instructions to explain the federal tax code (McCaherty, 2014) –

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<sup>10</sup> These examples are drawn from Table 1 in Carpenter et al. (2012). According to estimates from the Council of State Governments, “over 1,100 jobs were licensed, certified, or registered in at least one state.” (U.S. Department of Treasury Office of Economic Policy, 2015, page 7)

<sup>11</sup> See, for example, Mulligan and Shleifer (2005) and Shleifer (2010). In contrast, Tabarrok and Cowen (2015) argue that increasingly easy access to information about product quality, worker performance and business reputations undermines the traditional case for many forms of economic regulation.

<sup>12</sup> Carpenter et al. (2012).

<sup>13</sup> World Bank (2017), page 228

roughly another 50 bibles! The code has about four million words and 67,000 sections, subsections and cross-references.<sup>15</sup> It's all crystal clear if you read the instructions carefully. However, you will need to reread every year to stay current. There were about 4,400 changes to the tax code from 2000 to 2010, 579 changes in 2010 alone.<sup>16</sup> As the Internal Revenue Service's own Taxpayer Advocate laments, "Individual taxpayers find return preparation so overwhelming that about 94 percent of them used a preparer or tax software in processing year 2013."<sup>17</sup>

The federal tax code is so large and complex partly because policy makers (and citizens) insist on using it to bestow financial favors on certain activities and groups. This fact is evident in the enormous volume of "tax expenditures" – tax revenues foregone because of rules that grant tax breaks under particular conditions and for certain taxpayers. The Taxpayer Advocate estimates that fiscal year 2015 tax expenditures amount to about \$1.4 trillion.<sup>18</sup> By way of comparison, all direct federal spending was about \$3.5 trillion in 2014.

Aside from the sheer complexity of its tax system, the United States fares poorly compared to other countries in terms of tax burdens on business activity – young businesses, in particular. Djankov et al. (2010) gather comparable data for 85 countries to compute effective tax rates on corporate profits for a successful, mid-size startup business engaged in light manufacturing and

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<sup>14</sup> See, for example, the discussions in Joint Committee on Taxation (2001) and National Taxpayer Advocate (2012, 2014).

<sup>15</sup> National Taxpayer Advocate (2014, Volume I, page 104).

<sup>16</sup> National Taxpayer Advocate (2012, Volume I, page 4).

<sup>17</sup> National Taxpayer Advocate (2014, Volume I, page 104). For a review of research on taxpayer compliance costs, see Fichtner and Feldman (2013). For a sketch of several proposals to simplify the federal income tax code, see "Complexity Is the Root of All Evil (at Least in the Tax Code)" by Nina E. Olson, *Wall Street Journal*, 17 April 2017.

<sup>18</sup> National Taxpayer Advocate (2014, Volume I, page 104).

retail activity. For the United States, they compute an effective five-year tax rate of 32 percent. That places the United States third from the bottom, just ahead of Pakistan.<sup>19</sup>

### C. A Drift Away from Predictable Policies

Figure 2 plots a newspaper-based index of economic policy uncertainty (EPU) for the United States that I developed with Scott Baker and Nick Bloom.<sup>20</sup> Our EPU index relies on frequency counts of newspaper articles that contain terms pertaining to the economy, policy and uncertainty.<sup>21</sup> The index shown in dark blue rises by a factor of more than five from the mid 1960s to the 2010-2012 period, which points to a large upward drift in concerns about policy-related economic uncertainty – at least as perceived by newspaper journalists, and presumably by their readers as well.<sup>22</sup>

A potential concern about this inference involves possible changes over time in newspaper topical coverage. Perhaps, for example, newspapers gradually shifted coverage to articles about economic matters for reasons apart from greater policy uncertainty per se. That concern motivates an alternate version of the index, shown in light blue, which scales the frequency of EPU articles by the frequency of articles about economy, business, industry and commerce. The alternate EPU index rises by a factor of nearly four from 1965 to 2012. In other words, there has been a large increase in the share of newspaper articles about policy-related uncertainty among those articles that discuss matters of economics, business and commerce.

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<sup>19</sup> For additional discussion of U.S. corporate tax burdens in comparison to other countries, see Hassett and Mathur (2009).

<sup>20</sup> See Baker, Bloom and Davis (2016).

<sup>21</sup> In constructing our EPU index, we scale the frequency of articles about economic policy uncertainty by the number of all articles in the same newspaper and month. The EPU index in Figure 2 is from Baker et al. (2014). The historical version in Baker, Bloom and Davis (2016) – and available at [www.PolicyUncertainty.com](http://www.PolicyUncertainty.com) – adds “war” and “tariff” to the policy term set, a modification that matters little after World War II.

<sup>22</sup> Baker et al. (2014) point to the expansion of government involvement in the economy and rising political polarization as potential drivers of the upward drift in U.S. policy uncertainty.

Other evidence also supports the face-value interpretation of Figure 2. Baker, Bloom and I find more frequent Beige Book discussions of policy-related uncertainty in recent years, especially from 2010 to 2014. This pattern indicates that Beige Book survey respondents and interviewees – business people, market experts, economists, and the like – also perceive higher levels of policy uncertainty in recent years. In sharp contrast to the U.S. experience, our newspaper-based EPU index for the United Kingdom shows no secular drift over the past 50 years. The U.K. evidence tells us there was no general tendency for English-language newspapers to devote increasing attention to policy-related uncertainty irrespective of actual developments. In Taylor’s (2012) account, U.S. policy became more interventionist in the 1960s and 1970s, shifted to a more rules-oriented approach in the 1980s and 1990s, and then swung back to more discretionary, less predictable policies after the early 2000s. Taylor’s characterization is roughly in line with the alternate index (light blue) in Figure 2.

Figure 3 plots a monthly index of economy policy uncertainty for the United States that runs through December 2016. It shows persistently high and volatile levels of policy uncertainty from 2008 through early 2013. U.S. policy uncertainty returned to high levels in 2016 in response to two major political surprises: a victory for the leave campaign in the U.K. Brexit referendum in June, and Donald Trump’s win in the U.S. presidential election in November. Davis (2016) constructs an index of global economic policy uncertainty by aggregating newspaper-based indices for 17 countries that account for two-thirds of global output. The average value of the global index is 60 percent higher from July 2011 to the end of 2016 than in the previous 15 years and 22 percent higher than in 2008-09. The global index reaches its historic peak in late 2016 in reaction to Brexit, the U.S. elections, concerns about China, and political turmoil in Brazil, France and South Korea, among others countries.



#### **D. Elevated Uncertainty about Healthcare Policy, Financial Regulation and Tax Policy**

My work with Baker and Bloom also develops category-specific EPU indices. Our approach is simple: Within the set of newspaper articles that discuss policy-related economic uncertainty, we identify and quantify those that discuss particular areas of policy such as national security, monetary policy, tax policy, and so on. I consider healthcare policy, financial regulation and tax policy here. Our 2016 paper contains additional discussion, and our website at [www.PolicyUncertainty.com](http://www.PolicyUncertainty.com) provides data for twelve policy categories, with regular updates.

Figure 4 displays our Healthcare Policy Uncertainty Index.<sup>23</sup> Three episodes stand out: First, the failed healthcare reform initiative in the first term of President Clinton. Second, President Bush's Medicare reform initiative announced in his January 2003 State of the Union Address, which led to passage of the Medicare Prescription Drug Act of 2003. And third, the Affordable Care Act (ACA), which involved several years of intense legislative and electoral battles, uncertainty about its economic effects, doubts about its political durability, close-call constitutional challenges, and major implementation snafus. These ACA-related developments brought much higher levels of healthcare policy uncertainty and greater volatility. Donald Trump's surprise victory in the presidential contest, coupled with Republican control of the House and Senate, has renewed uncertainty about the trajectory of U.S. healthcare policy.

Figure 5 displays our Financial Regulation Uncertainty Index.<sup>24</sup> It peaked with the full-force eruption of the financial crisis in September 2008,<sup>25</sup> which led monetary policymakers and

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<sup>23</sup> We use the following terms to construct the Healthcare Policy Uncertainty Index (in addition to requiring an article to meet our Economic, Policy and Uncertainty criteria): health care, Medicaid, Medicare, health insurance, malpractice tort reform, malpractice reform, prescription drugs, drug policy, Food and Drug Administration, FDA, medical malpractice, prescription drug act, medical insurance reform, medical liability, part d, Affordable Care Act, Obamacare.

<sup>24</sup> We use the following terms to construct the Financial Regulation Uncertainty Index: banking (or bank) supervision, Glass-Steagall, TARP, thrift supervision, Dodd-Frank, financial reform, Commodity Futures Trading Commission, CFTC, House Financial Services Committee, Basel,

financial regulators to undertake a series of extraordinary responses unlike anything seen in the United States since the 1930s. Other prominent episodes of elevated uncertainty about financial regulation include the period surrounding passage of the Sarbanes-Oxley Act in July 2002, the Dodd-Frank Act of 2010, and the presidential election contest between Barack Obama and Mitt Romney, who offered starkly different views about financial regulation and economic policy more generally. Our Financial Regulation Uncertainty Index also displays a sizable jump in response to the November 2016 elections, reflecting the now greater likelihood of major regulatory changes, the precise nature of which are currently uncertain.

My work with Baker and Bloom concludes that tax policy is the single largest source of elevated U.S. policy uncertainty in recent years. Evidence for this claim emerges in our content analyses of newspapers and the Fed's periodic Beige Book releases. Figure 6 provides another type of evidence about the nature and evolution of U.S. tax policy uncertainty.<sup>26</sup> It shows an enormous upswing after the early 2000s in the (discounted) dollar volume of tax code provisions set to expire in the future. These provisions are a source of uncertainty because Congress has often waited till the last hour before deciding whether and how to actually let them expire, undermining the predictability of tax rates and revenues.

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capital requirement, Volcker rule, bank stress test, Securities and Exchange Commission, SEC, deposit insurance, FDIC, FSLIC, OTS, OCC, FIRREA.

<sup>25</sup> The monthly version of the Financial Regulation Uncertainty Index jumped from 92 in August 2008 to 878 in September and 730 in October.

<sup>26</sup> Figure 6 is an improved version of the tax code expirations index in Baker, Bloom and Davis (2012) and early drafts of our 2016 paper. To construct the figure, we draw on Congressional Budget Office sources that list federal tax code provisions scheduled to expire over the next ten years and their projected revenue effects. Specifically, in any given year, we compute the absolute dollar value of expiring tax code provisions for the current and next ten years, discount future expirations at a 50 percent annual rate, and sum the discounted absolute revenue effects over the current and next ten years. We apply a high discount rate on the view that uncertainty about tax code provisions set to expire in the out years are unlikely to be a major source of current concern.

A clear and important example involves the Bush-era tax cuts initially set to expire at the end of 2010. As the original expiration date grew closer, Democrats and Republicans staked out opposing positions about whether to preserve or reverse the tax cuts and, if so, for which taxpayers. Rather than resolving the uncertainty in advance, Congress waited until mid-December 2010 – only two weeks before new tax rates were set to take effect – before passing the Tax Relief Act and extending the Bush rate cuts for all taxpayers. Even this uncertainty resolution was limited and short-lived, because Congress extended the rate cuts for only two years. That set the stage for what became an even higher-stakes political battle over the so-called “Fiscal Cliff” in late 2012.<sup>27</sup> This time around Congress waited until the early hours of 2013 to resolve the uncertainty about 2013 tax rates and projected tax revenues.

Looking at Figure 6, we see a tiny volume of discounted tax expirations before 2003, a bump in 2003-2004 that reflects the expiration of accelerated capital depreciation allowances, greatly elevated levels from 2009 to 2012, and a very sharp drop off in 2013 that reflects the last-minute resolution of the Fiscal Cliff. The overall pattern shows a dramatic increase in temporary tax measures subject to continual renewal, debate and uncertainty. This heavy reliance on scheduled tax code expirations is a recent phenomenon in the U.S. policymaking process. It needlessly injects uncertainty into the economic environment facing households and businesses. Last-minute resolutions of political fights over the federal government’s debt ceiling and threats to shut down large parts of the federal government have the same character. These practices undermine predictability in government policy, and they create a more challenging and uncertain economic environment for households and businesses.

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<sup>27</sup> Planned government spending cuts under the Budget Control Act of 2011 were also part of the Fiscal Cliff.

## E. Regulation and Policy as Sources of Business Risks

In 2005, the U.S. Securities and Exchange Commission (SEC) issued a regulation that requires most publicly held firms to include a discussion of “Risk Factors” in Part 1A of their annual 10-K filings.<sup>28</sup> In “How to Read a 10-K” at [www.sec.gov/answers/reada10k.htm](http://www.sec.gov/answers/reada10k.htm), the SEC describes Part 1A as follows:

**Item 1A - “Risk Factors”** includes information about the most significant risks that apply to the company or to its securities. Companies generally list the risk factors in order of their importance. In practice, this section focuses on the risks themselves, not how the company addresses those risks. Some risks may be true for the entire economy, some may apply only to the company’s industry sector or geographic region, and some may be unique to the company.

Following Baker, Bloom and Davis (2016), I use the text of Part 1A to quantify the role of regulation and government policy as sources of business risk. To do so, I measure the fraction of sentences in Part 1A that refer to regulatory and policy matters. After obtaining this fraction for each 10-K filing, I average across firms by year and plot the results in Figure 7.<sup>29</sup> The lower curve shows the fraction of Part 1A that refers to financial regulation, labor regulation, energy & environmental regulation, competition and intellectual property policy, the regulation of housing and land management and a few other categories of regulations. The middle curve adds healthcare policy to the mix. The top curve adds other policy categories – taxes, monetary policy, government spending, trade policy, national security policy, transportation policy, public utilities and more, as detailed in the appendix.

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<sup>28</sup> See Campbell et al. (2014) for a discussion and analysis of this regulatory development.

<sup>29</sup> See the appendix for details. The average length of Part 1A has grown steadily over time, perhaps because firms provide increasingly detailed discussions of Risk Factors. Thus, I scale by the total number of sentences, so as not to overstate the rising importance of policy risk factors.

Figure 7 contains two main results. First, regulation and other government policy matters account for a growing share of business risks since 2006. The average share of sentences that refer to regulatory and policy matters rose from 11.7% in calendar year 2006 (fiscal year 2005) to 15.5% in 2016. Almost the entire rise occurred from 2009 to 2016. Second, regulation per se is the most prevalent source of policy-related business risks in Part 1A, at least for my set of terms.<sup>30</sup> These results differ somewhat from the content analysis of U.S. newspapers in my work with Baker and Bloom. In particular, discussions of uncertainty about monetary policy, tax policy and government spending loom larger in newspapers than in Part 1A of 10-K filings. And our newspaper-based economic policy uncertainty in Figure 3 drops off in 2014 and 2015, unlike the time-series pattern in Figure 7.

Despite these differences, both newspapers and 10-K filings point to higher levels of uncertainty about U.S. regulation and government policy since 2008. The same conclusion emerges from the textual analysis of Federal Reserve System Beige Books in my work with Baker and Bloom and in the analysis of corporate earnings calls in Hassan et al. (2016).

### **III. Taking Stock**

So how does the U.S. policy situation measure up to the three Shultz principles for a vibrant economy? Poorly – and that’s a charitable assessment. The regulatory apparatus has become increasingly expansive and complex over time. The federal tax code has grown hugely

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<sup>30</sup> One could also read Figure 7 as saying that regulatory and policy matters account for a modest share of all business risks. However, my analysis here does not probe what, if any, factors receive attention in the Part 1A sentences that contain none of my policy terms. Perhaps my list of policy factors is too limited. Or perhaps a sizable fraction of sentences in Part 1A refer to no specific business risk factors. Clearly, there is room for further analysis here.

complicated. Policy has become less predictable.<sup>31</sup> Rather than embrace the Shultz principles, we have been marching away from them in haste. I now consider some of the consequences.

### **A. Breeding Complexity and Uncertainty**

The good Catholic Sisters who saw to my moral instruction in primary school devoted many hours to the Ten Commandments. They wanted my classmates and me to avoid sins. Their success in that regard is in doubt. But at least the Sisters could be confident that we did not sin out of ignorance or uncertainty. How they would have instructed us on one million commandments, I do not know. The delinquents in my school found it hard to absorb a mere ten.

There is a serious point here: The sheer volume and complexity of statutes, regulations, regulatory guidance, and tax code provisions – and their instability over time – are barriers to knowledge and comprehension of the law, sound planning, and avoidance of legal jeopardy. Just staying on the right side of the law has become a much more challenging and burdensome undertaking, especially for businesses. Thus, the enormous expansion of the regulatory state breeds complexity and uncertainty in economic affairs.

Moreover, as the regulatory state expanded, regulators acquired great power to interpret statutes, transform broad and vague legislative mandates into specific regulations (i.e., laws), and exercise discretion in crafting and enforcing regulations. As the system grew more complex, interpretation and enforcement became more uncertain and the scope for capricious regulator conduct grew. In this vein, Epstein (2011a, page 150) argues that an expansive regulatory state undermines the rule of law:

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<sup>31</sup> I am hardly the first observer to reach a similar assessment. On the growing scale, complexity and intrusiveness of government regulations, see Epstein (2011a,b), Crews (2016), Cochrane (2015) and Murray (2015), among many others. Proposals to address the complexity of the U.S. tax code go back decades; see, for example, Hall and Rabushka (2007), first edition published in 1985. Concerns about rising policy uncertainty are prominent in my earlier work with Baker and Bloom and in Taylor (2012), among others.

This expansion of the government's purview undoes virtually all of the procedural and structural features of the classical system: unbiased decisionmaking, judicial review of administrative actions on matters of fact and law, and retroactivity.... [A]s the scope of government activities increases, the far-flung nature of these activities leads to a great desire to take shortcuts in regulation, such that the older protections are treated as obstructions against the march of progress, and not as protections of individual rights.

In a similar vein, Cochrane (2015) argues that dramatic expansion of the regulatory state poses a danger to our political freedoms. He sees an "emerging threat of large discretionary regulation, used as a tool of political control.... Just who gets that visit from the EPA can have a powerful silencing effect." In sum, a large and complex regulatory state also breeds uncertainty in economic affairs by raising risks that regulators will exercise their discretion in a capricious manner, or use it as a tool of political control.

### **B. Disproportionate Burdens on Younger and Smaller Businesses**

The burdens of regulation and regulatory complexity tend to fall more heavily on younger and smaller businesses for three reasons. First, there are fixed costs of regulatory compliance. Whether a firm has one employee or one thousand, for example, U.S. law requires regular paperwork or electronic submissions in conjunction with payroll taxes and tax withholdings on behalf of workers. The fixed cost elements of regulatory compliance favor larger over smaller businesses. Second, there are one-time costs of learning the relevant regulations, developing compliance systems and establishing relationships with regulators. Young businesses have had less time to develop the knowledge and internal processes required for compliance. Partly for this reason, our current regulatory and tax systems favor incumbents while disadvantaging entrepreneurship and young businesses. Third, compared to smaller, newer and would-be competitors, larger and incumbent firms have greater capacity and incentive to lobby for

legislative exemptions, administrative waivers, and favorable regulatory treatment. For this reason as well, regulatory complexity tends to favor large incumbents and disadvantage new, younger and smaller firms.

Figure 8 shows the employment share of young businesses, defined as firms that hired their first paid employee within the past 60 months. The young-firm employment share fell by more than half in recent decades, from about 18 percent in 1987 and 1988 to just over 9 percent in 2013. This drop in the young-firm share is pervasive across broad industry groups and U.S. states.<sup>32</sup> Although other factors are also in play, this evidence fits the view that the growing scale of the U.S. regulatory system has discouraged the development of new businesses.<sup>33</sup>

These arguments also imply that regulatory and tax complexity discourage existing firms, even large ones, from expanding into new markets and products. For this reason, greater tax and regulatory complexity tend to soften competitive pressures and repress creative destruction more broadly. Indeed, ownership has become more concentrated in most U.S. industry sectors since at least the late 1990s.<sup>34</sup> The scale and complexity of the regulatory system and the tax code are among the drivers of greater concentration and softer competition in product markets.

### **C. Negative Economic Effects of Policy Uncertainty**

There are also sound reasons for concern about the harmful effects of policy-related uncertainty. Because it's typically costly to reverse an investment or hiring decision, greater uncertainty naturally prompts businesses to pull back from capital expenditures and job creation.<sup>35</sup> Uncertainty also raises financing costs, further discouraging investment and job

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<sup>32</sup> See Davis et al. (2006) and Decker et al. (2014).

<sup>33</sup> See Davis and Haltiwanger (2014, 2015), Liang et al. (2014) and Karahan et al. (2015).

<sup>34</sup> See, for example, "Too Much of a Good Thing," *The Economist*, 26 March 2016; and "Daily Chart: Corporate Concentration," *The Economist*, 24 March 2016.

<sup>35</sup> See Bernanke (1983).



creation.<sup>36</sup> Weak investments in new technologies, capital goods, product development, and worker training undermine longer-run growth.

Motivated by this reasoning, my work with Baker and Bloom investigates the effects of policy uncertainty. Using firm-level data, we find that policy uncertainty raises stock price volatility in policy-sensitive and regulation-intensive sectors like defense, healthcare, financial services and infrastructure construction. We also find that increases in policy uncertainty brings reduced investment and employment growth rates for firms in these sectors. At the macroeconomic level, we find that upward policy uncertainty shocks foreshadow declines in aggregate investment, output and employment in the United States and other large economies. In short, our results indicate that policy uncertainty hampers economic progress. As we discuss in our 2016 paper, many other studies also find negative economic effects of policy uncertainty.

#### **D. Regulatory Uncertainty Also Undermines Regulatory Goals**

Viscusi (1983) provides a useful theoretical framework for analyzing the effects of regulatory uncertainty on investments in production capacity and quality. Firms choose a unit output level and a quality level. For given quality, costs rise with unit output. For given output, costs rise with quality. Here, higher quality includes things like lower pollutants per unit of output and lower health risks per unit of output and consumption.

Let  $x$  denote the regulatory penalty per unit of pollutant, health risk or other negative by-product of producing or consuming the good. When investments are fully reversible, the effects of regulation are straightforward: A greater regulatory penalty  $x$  causes the firm to choose lower output and higher quality. Regulatory uncertainty generates no anticipation and uncertainty effects in this special case. Instead, output and quality respond to the regulatory penalty in place at the time.

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<sup>36</sup> See, for example, Pastor and Veronesi (2013) and Gilchrist et al. (2014).

In the realistic case when investments are not freely reversible, uncertainty about future regulatory policy depresses the firm's investments in both production capacity and quality.<sup>37</sup> Negative effects on capacity reflect the possibility of a high regulatory penalty  $x$  in the future. Negative effects on investments in quality reflect the possibility of a low regulatory penalty in the future. For example, uncertainty about the future regulatory penalty on power plant emissions discourages current investments that would reduce emissions.<sup>38</sup> In this way, regulatory uncertainty undermines regulatory goals.

### **E. The Overall Costs of Regulation**

Crews (2016) estimates compliance and economic costs of federal regulations at about \$2 trillion in 2015. That's roughly 11 percent of GDP and nearly \$15,000 per household. Of course, it's hard to quantify the overall costs (and benefits) of government regulations. Perhaps the costs are smaller than suggested by Crews. Perhaps they are larger, especially if regulations dampen growth in a manner that cumulates over time, as argued by Dawson and Seater (2013) and Coffey et al. (2016). It seems fair to conclude that regulatory burdens are large, but just how large is very hard to say.

Of course, regulations have benefits too. Certain types of regulation can, if designed and executed well, raise measured output. For example, congestion pricing on roads, tunnels and

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<sup>37</sup> See Blyth et al. (2007) for an application of these ideas to investments in power plants and carbon capture and storage technologies. Teisberg (1993) shows that regulatory uncertainty also distorts the character of investments and the choice of production technology. In particular, regulatory uncertainty leads firms to favor smaller-scale investments and technologies with shorter development lead times.

<sup>38</sup> Dorsey (2017) finds evidence that this effect operates in practice. He considers pollution abatement behavior at coal-fired power plants in response to a multi-year legal challenge to the Clean Air Interstate Rule. The legal challenge created variation across plants in the probability of becoming subject to stricter sulfur dioxide emission requirements. Plants facing a smaller probability of tight emission requirements undertook smaller investments in capital-intensive pollution controls, relied more heavily on alternative emission reduction strategies (e.g., switching to coal with a lower sulfur content), and reduced emissions by less.

bridges can yield a more efficient use of transport infrastructure, less time lost in traffic jams, lower pollution emissions per vehicle-mile, greater productivity in freight hauling and higher output. Many other regulations yield benefits that are not (fully) captured in Gross Domestic Product or other standard output measures. For example, clean air regulations can improve the quality of life even when they reduce GDP. Thus, evidence of high regulatory burdens is not, in and of itself, an argument against regulation. It is, however, a strong argument for close attention to regulatory design. If we can achieve similar benefits with simpler, less burdensome regulatory designs, the potential gains are large.

Tax code complexity is costly as well, most obviously in the form of compliance burdens. Complexity also increases the distortionary effects of taxation on labor supply, consumption and investment decisions. A basic principle of least-harm taxation calls for a broad tax base with uniform tax rates. Tax expenditures do the opposite, shrinking the tax base and requiring higher, more distortionary tax rates for any given level of revenues.<sup>39</sup> Tax system complexity also encourages the diversion of time and effort to socially unproductive activities – gaming the tax system, lobbying for tax rules that advance special interests, and the like.

#### **IV. What to Do?**

So how might we advance the three principles for a vibrant economy that I borrowed from George Shultz? I now sketch a few ideas, again borrowing heavily from others.

Design for Simplicity: Policy design profoundly affects the complexity of the regulatory system, for good or ill. As an example, consider how the government might curtail carbon dioxide emissions. One approach is to issue pages upon pages of detailed regulations that specify how to design and operate power plants, corporate average fuel economy (CAFE) standards for

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<sup>39</sup> Because tax expenditures accrue disproportionately to persons with higher incomes, they work against tax system progressivity as well. See Congressional Budget Office (2013).

automobiles, which fuel mix to burn in various types of vehicles, energy efficiency standards for home appliances, what type of light bulbs to use, and so on. The logic of this approach requires a rash of intrusive command-and-control regulations.

Another approach is to tax carbon emissions or fossil fuel consumption, the main source of carbon emissions. This approach lets people choose how to conduct their activities, but imposes a price on activities that emit carbon. It yields a smaller, simpler regulatory apparatus (to establish a system for taxing carbon). By preserving free choice, it also improves the odds that some individual or business will develop new and better ways to economize on carbon emissions – ways not envisioned by the regulators.<sup>40</sup> When that happens, the carbon tax gives others an incentive to adopt the new means to lower carbon emissions. As an added benefit, the revenues produced by a carbon tax can be used to lower other taxes.

As another example, consider the regulation of commercial banks. A traditional approach combines low capital requirements with extensive, detailed regulation of banking activities and asset holdings to prevent banks from taking on excessive risk. Why might commercial banks take on too much risk? For one reason, most bank deposit liabilities are insured by the government. Because depositors trust the government insurance program, they have little or no incentive to monitor the quality and riskiness of a bank's assets and liabilities. As a result, a commercial bank can attract deposits, and fund its asset holdings, regardless of the bank's riskiness. A second reason involves the potential for a liquidity or solvency crisis at one bank to spill over in a negative manner onto other banks and the larger financial system. When weighing the private benefits and costs of taking on more risk, the owners of a given bank do not (fully)

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<sup>40</sup> See Mankiw (2013) for more on why carbon taxes are a better way to control carbon emissions than command-and-control regulations. See Carbon Washington at <http://carbonwa.org> for an explicit proposal modeled after a successful carbon tax regime in British Columbia. See James A. Baker, III et al. (2017) for another proposal on how to structure a carbon tax regime.

consider the potential for negative effects on other banks and the larger financial system. In other words, the bank's private incentives to trade off risk and reward may be poorly aligned with the social tradeoffs. Both reasons provide motivation for regulations that aim to prevent banks from taking on too much risk.

An alternative approach combines high tangible capital requirements with otherwise light regulation. High capital ensures that bank shareholders bear more of the costs when downside risks materialize. In this way, high capital requirements reduce a bank's incentive to take on risks that might be reckless from a societal perspective. Moreover, when a bank has more tangible capital, it can absorb greater losses before reaching a point of insolvency. The bank's greater capacity to absorb losses, in turn, reduces the scope for negative spillover effects on other financial institutions. In short, high tangible capital requirements reduce the incentives for excessive risk taking, and they limit the damage to the rest of the financial system when downsides risks materialize. On both counts, there is less need for complex and detailed regulations in a regime with high capital requirements.

Foster Predictable Regulatory Responses: Policy design can also foster or undermine predictable responses by regulators to adverse developments. To see this point, consider the phenomenon of "runs" by holders of short-term claims against financial institutions. Runs by bank depositors wreaked havoc in the early 1930s, presenting policymakers with difficult decisions about how to contain the resulting financial panic and the negative spillovers to the rest of the economy. In response, the United States introduced government-backed deposit insurance programs that largely eliminated runs by bank depositors, short-circuiting run-driven financial panics. For decades, most bank failures became orderly, almost routine, affairs.

Runs re-emerged in different forms and to devastating effect during the financial crisis of 2007-2009. When Lehman Brothers failed on 15 September 2008, the proximate trigger was its inability to continue rolling over the very short-term borrowings that funded much of its business.<sup>41</sup> Effectively, its short-term creditors “ran” and left Lehman unable to meet its funding requirements, compelling the company to file for Chapter 11 bankruptcy protection and initiating a long and messy liquidation. The Lehman failure precipitated runs on other financial institutions, and the negative effects reverberated throughout the U.S. and global economies.

The Fed, the Securities and Exchange Commission and other regulators came under heavy criticism for letting Lehman fail and for their oversight of the company. The outright failure caught market participants by surprise, amplifying the ensuing uncertainty and sense of panic. But my goal here is not to judge how well the regulators did their jobs in this instance. Instead, I want to stress a different point: The United States lacks an effective legal process for resolving a distressed financial institution in the midst of a run by its short-term creditors. Partly for this reason, the regulators had no good options for responding to the Lehman situation. This weakness in our failure resolution process creates especially severe problems for regulators and private sector actors during a financial crisis, as in 2008 and 2009.

Fortunately, there are some promising proposals that aim to fix this problem. One proposal would add a new Chapter 14 to the U.S bankruptcy code, a chapter explicitly designed for run-prone financial institutions.<sup>42</sup> Here’s the basic idea:<sup>43</sup>

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<sup>41</sup> Wiggins, Piontek and Metrick (2014) provide a useful discussion of the Lehman Brothers failure.

<sup>42</sup> See Scott and Taylor (2012) and Scott, Jackson and Taylor (2015). Major elements of the bankruptcy proposal in these sources became part of The Financial Institution Bankruptcy Act that passed the House of Representatives in 2016. See “Bankruptcy Legislation for Big Banks Gains Steam” by Ryan Tracy in the *Wall Street Journal*, 7 July 2016.

<sup>43</sup> Quoting from “Making Failure Feasible and Ending Too Big to Fail” at John Taylor’s

Chapter 14 could be implemented over a weekend, and it would leave operating subsidiaries outside of bankruptcy entirely. It would do this by moving the original financial firm's operations to a new bridge company that is not in bankruptcy. This bridge company would be recapitalized by leaving behind long-term unsecured debt (capital structure debt).

The aim is to let a failing financial firm go through bankruptcy in a predictable, rules-based manner without spillovers while people continue to use its financial services, just as people flew on American Airlines planes, bought Kmart sundries and tried on Hartmax suits when those firms were in bankruptcy.

This proposal has teeth only to the extent that run-prone financial institutions hold a good deal of long-term debt. Thus, an effective version of this bankruptcy reform goes hand in hand with regulations that require certain financial institutions to hold sufficient long-term debt. If this proposal becomes law and works as advertised, large and systemically important financial institutions can undergo a failure and reorganization process without causing deadly harm to the larger financial system and the broader economy. The job facing regulators will also become immensely easier, and their responses to negative shocks will become more predictable.

Reassert Congressional Oversight: Some recent reform proposals would require explicit Congressional approval before a "significant" new regulation or regulatory interpretation takes effect. The goal is to reassert Congressional oversight of the regulatory agencies so as to guard against the imposition of large new regulatory burdens without the consent of elected legislators. Key details of such proposals include how to define "significant," how to assess whether a given regulation or interpretation meets the significance standard, and how to structure the Congressional approval process.

Reasserting Congressional oversight has obvious appeal, and it surely has a useful place in a broader regulatory reform package.<sup>44</sup> But the idea also has important limitations, even if implemented in a sensible manner. First, this type of reform applies to new regulations and interpretations only; it does not address the enormous stock of regulations accumulated over decades. Second, the scale, scope and complexity of the regulatory state has expanded to such an extent that I do not think re-invigorated Congressional oversight is an adequate response.<sup>45</sup> That brings me to the next idea.

Restrain the Regulators: Here's a common-sense recommendation – before introducing a new regulation (or when reviewing an existing one), a regulatory agency should clearly describe the problem it seeks to address, assess its significance, explain why regulation is a good response, provide a sound cost-benefit analysis for any proposed regulatory action, and explain why the proposed action is better than alternatives – including the alternative of no regulatory action. As it turns out, every president since Jimmy Carter has issued or reaffirmed executive orders broadly in line with this recommendation (Ellig, 2015). And government agencies often carry out regulatory impact analyses that purport to implement some or all elements of this recommendation.

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<sup>44</sup> For a discussion of existing Congressional options for asserting oversight of regulatory agencies, see “The Trump Administration’s Regulatory Reform Options,” by Griffin Davis *RegBlog*, 20 January 2017 at <http://www.regblog.org/2017/01/20/davis-trump-administration-regulatory-reform-options/>. Crandall (2017) advocates a Regulatory Review Office to advise Congress on the costs and benefits of proposed and existing regulations. The aim is to supply Congress with information and analysis that facilitate effective oversight of federal regulations.

<sup>45</sup> Vigorous use of the Congressional Review Act (CRA) in early 2017 to roll back regulations introduced late in President Obama’s second term might suggest a different perspective. However, it took an unusual confluence of political events to activate the vigorous use of the CRA: an outgoing Democratic administration that often relied on regulation to pursue its policy goals *and* an incoming Republican administration that prioritizes regulatory rollback *plus* Republican control of the House and Senate.



Unfortunately, regulatory impact analyses often fail to deliver as promised.<sup>46</sup> Sometimes the reasons are technical, as when key costs and benefits are highly uncertain or hard to quantify.<sup>47</sup> But there's a serious, two-part institutional problem as well: First, it's too easy for regulators to circumvent legal requirements to conduct an impartial, rigorous analysis of benefits and costs. The regulatory agency orchestrates the impact analysis and judges its adequacy. There is no effective external authority that monitors the regulator to ensure high-quality, even-handed impact analyses, and that restrains the regulator when it issues new or amended regulations based on unsound or inadequate analyses.

Second, when government agencies promulgate ineffective, costly or downright perverse regulations, recourse is difficult. In principle, Congress oversees the regulatory agencies, and courts ensure they operate within the boundaries of the law. In practice, Congress is often too busy, distracted or divided to provide effective oversight, administrative courts are creatures of the regulatory agencies,<sup>48</sup> and the judicial process in the general courts is slow and costly. Resistance to bad regulations can entail enormous costs and risks for businesses and individuals. Pushing back against abusive, unsound or just-plain silly regulations often requires financial and other resources beyond the capacities of most businesses and individuals. Even parties with deep pockets often decline to challenge unsound regulations for fear of poisoning their relationships with the regulators. Thus, bad regulations proliferate and persist.

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<sup>46</sup> Ellig (2015) cites several studies that assess the quality and usefulness of regulatory impact analyses. White (2017, Section III) cites studies that critically evaluate agency efforts to assess the costs and benefits of the regulations they promulgate.

<sup>47</sup> See, for example, Fraas and Lutter (2011).

<sup>48</sup> See "Due Process vs. Administrative Law" by Kent Barnett, *Wall Street Journal*, 15 November 2015; and "Fairness of SEC Judges Is in Spotlight" by Jean Eaglesham, *Wall Street Journal*, 22 November 2015.

One way to restrain regulators would be to establish independent regulator oversight commissions (IROCs), with powers as follows. At its own initiative or at the request of affected parties, an IROC could review the adequacy and quality of impact analyses offered by the regulator in support of a regulation. If the IROC determined that the impact analysis was inadequate or incomplete, or that it did not support the case for the regulation under review, the regulation would be suspended. The regulatory agency would be free to develop and submit a new or modified impact analysis to support the regulation in question. IROCs would have no power to make or modify regulations and, unlike courts, they would not rule on the scope of an agency's regulatory powers. Their authority would be limited to suspending regulations that are not adequately supported by high-quality, even-handed regulatory impact analyses.

This proposal raises many questions that would require attention before creating one or more IROCs: What should be the scope of an IROC's responsibilities? Is it better to assign several regulatory agencies to a single IROC, or to assign one IROC per agency? What should be the number and term of IROC members? How should they be selected and compensated? What type of staff and budget would be appropriate for an IROC? Should there be special provisions (short of legislation) that allow the President or Congress to overturn IROC decisions? How can we mitigate the risk that IROCs become captured by the regulated parties – or the regulator? These questions warrant careful consideration. Prudence also suggests starting small by creating a single IROC for an agency greatly in need of restraint.

There are other worthy proposals to restrain the regulators. For example, Bull and Ellig (2017) propose amendments to the Administrative Procedure Act that aim to strengthen judicial review of regulatory impact analyses. Murray (2015) advocates an inspired combination of civil

disobedience and cooperatively underwritten lawsuits to push back against pointless, stupid and tyrannical regulations.

End Politically-Manufactured Injections of Uncertainty: The U.S. economy has suffered through several recent bouts of policy uncertainty that were clearly, often deliberately, created by policy makers. Prominent examples include the federal debt-ceiling crisis in the summer of 2011, the last-minute resolution of uncertainty over federal tax rates in late 2010 and late 2012, partial shutdowns of the federal government in 1995-96 and 2013 and gross execution failures in the public sector, e.g., the botched rollout of government health insurance exchanges in 2013-14. The economic benefits of these uncertainty injections are hard to discern. Don't shoot yourself in the foot is apt advice.

Recognize the Limits of Regulation: Finally, we (citizens and policymakers) must recognize limits: Government action is not the right solution to every societal problem. And action at the federal level is not the right place to address every societal problem that calls for a government response. A government that does too much will do nothing well.

#### **IV. Concluding Remarks**

In recent years, many of my fellow economists speak of headwinds that curtail the possibilities for growth. Yes, we face headwinds. But many of the headwinds are of our own making. We can unmake them, too. Or, better yet, turn them into tailwinds.

Some degree of regulatory complexity and policy uncertainty will be with us always. But their extent, and the weight of their burdens, depends greatly on policy design and our approach to regulation, taxation and policy making. There is no fundamental economic law that forces us to endure the growth-inhibiting effects of an overly complex, expansive and burdensome regulatory system. There is no fundamental economic law that compels us to live with a

byzantine tax code. There is certainly no fundamental law that requires politically manufactured injections of uncertainty into the economic environment facing households and businesses. A course correction is overdue.

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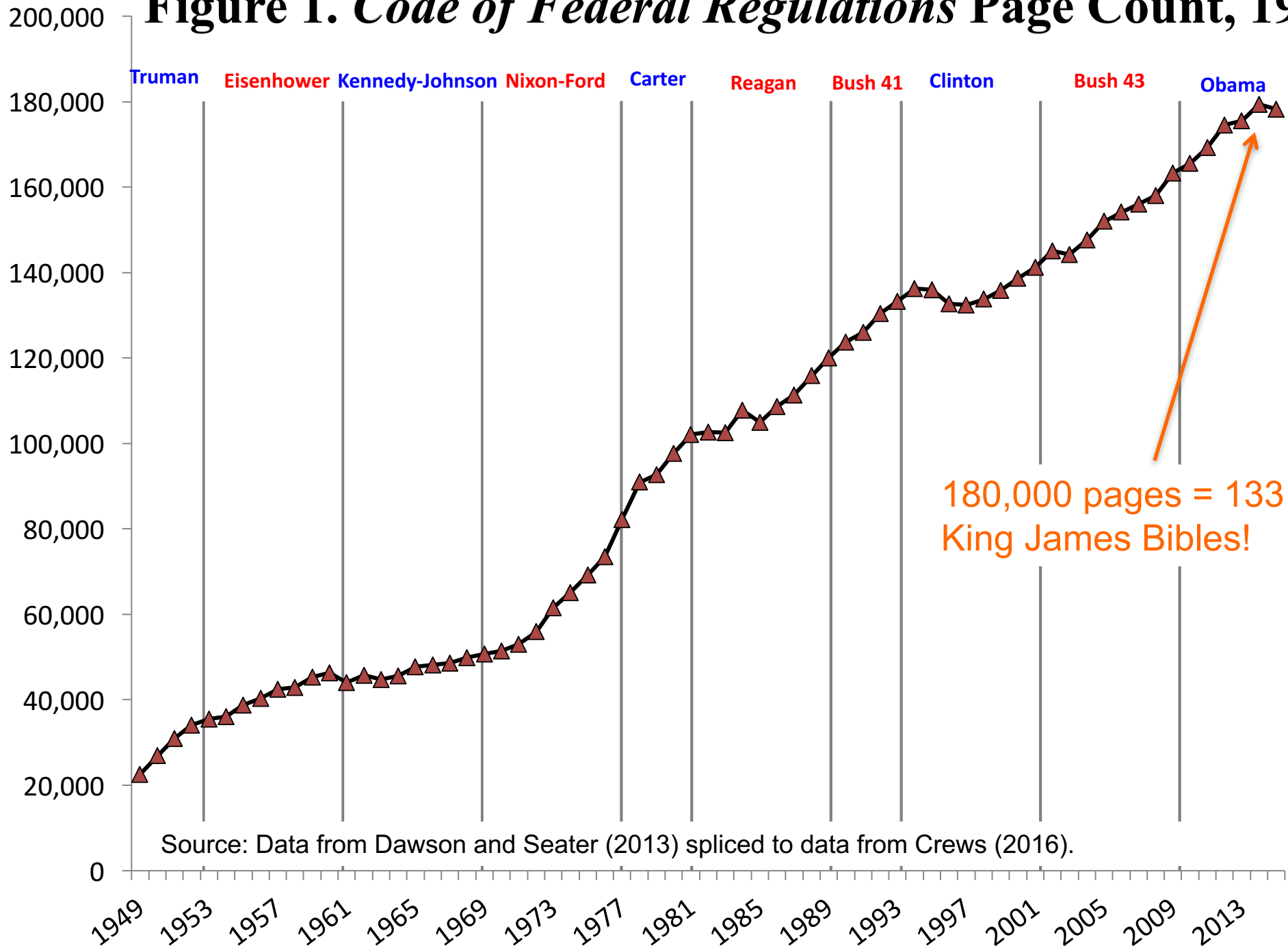
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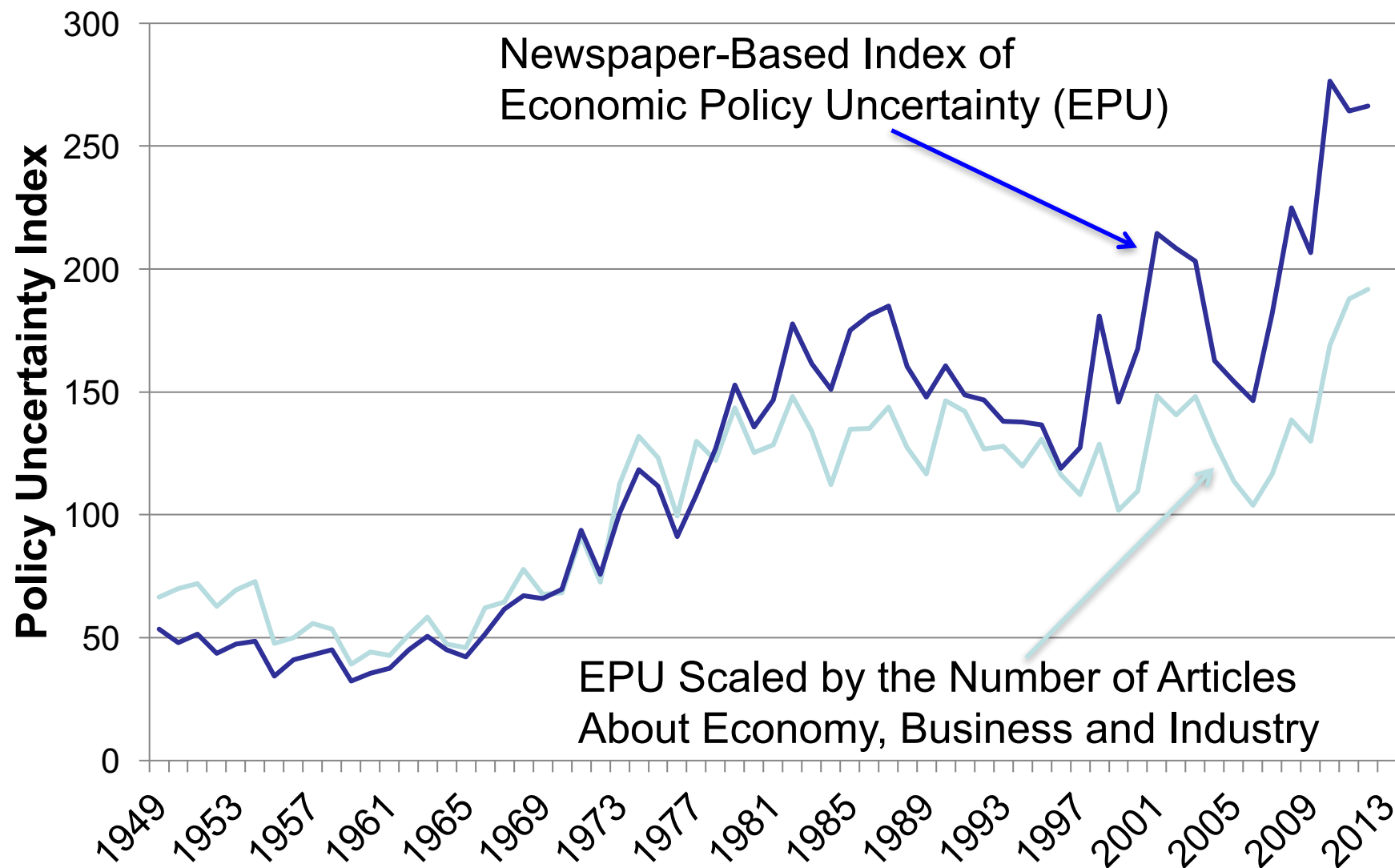
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# Figure 1. Code of Federal Regulations Page Count, 1949 to 2015



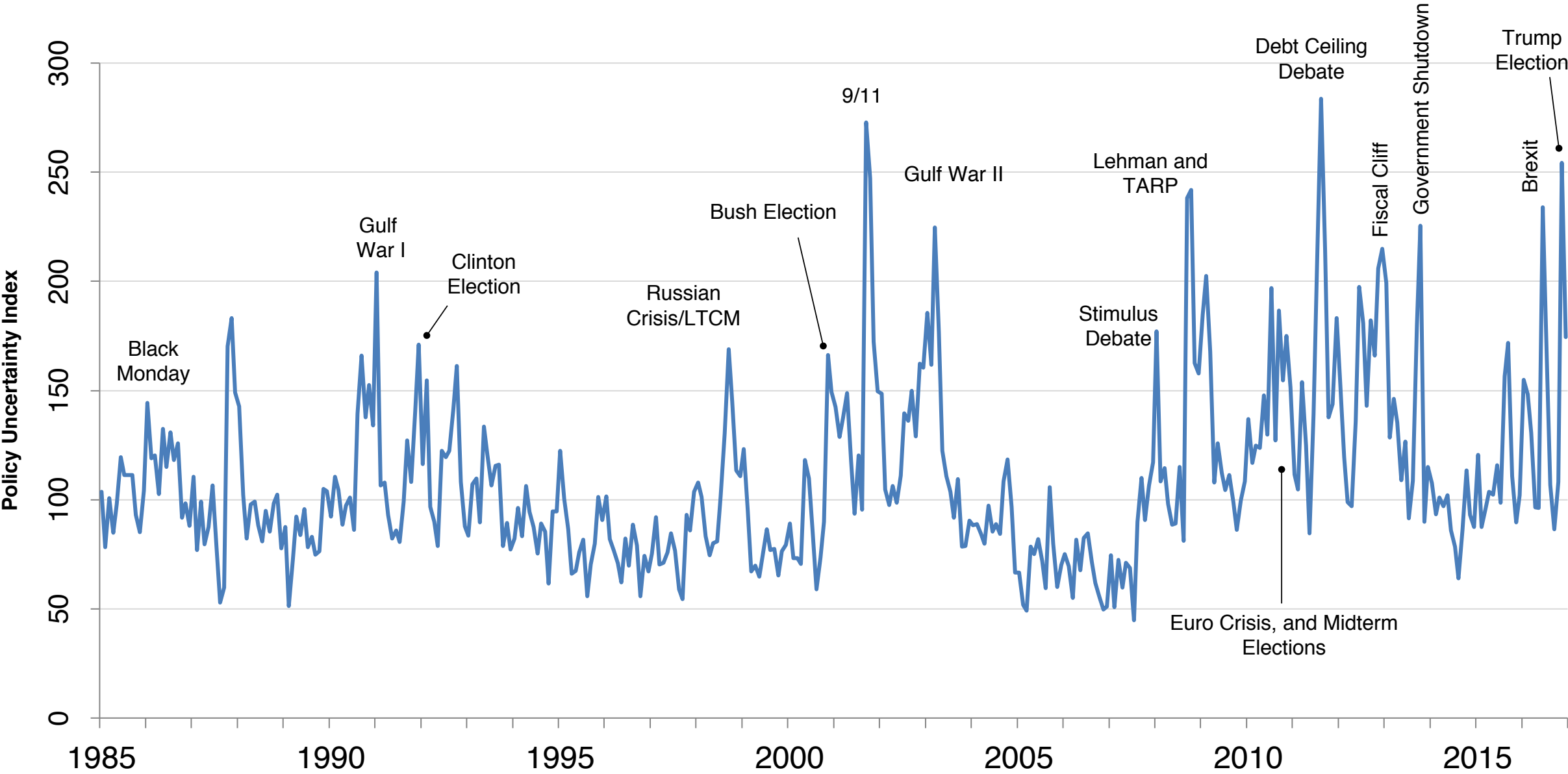
Source: Data from Dawson and Seater (2013) spliced to data from Crews (2016).

## Figure 2. An Upward Drift in U.S. Economic Policy Uncertainty



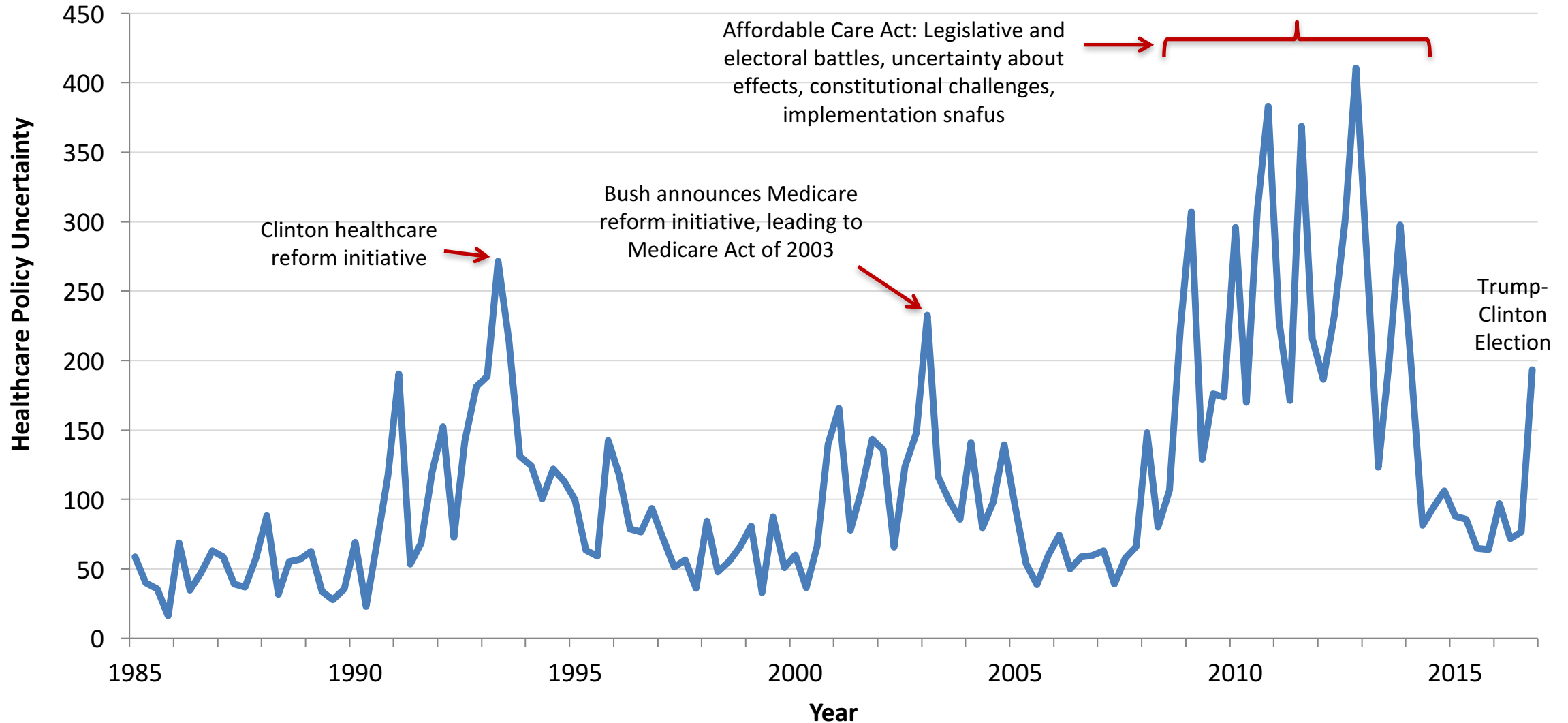
**Source:** Baker et al. (2014), based on a balanced panel of six newspapers. Data are annual averages of monthly values from 1949 to 2012.

# Figure 3. U.S. Economic Policy Uncertainty Index, Jan. 1985 to Dec. 2016



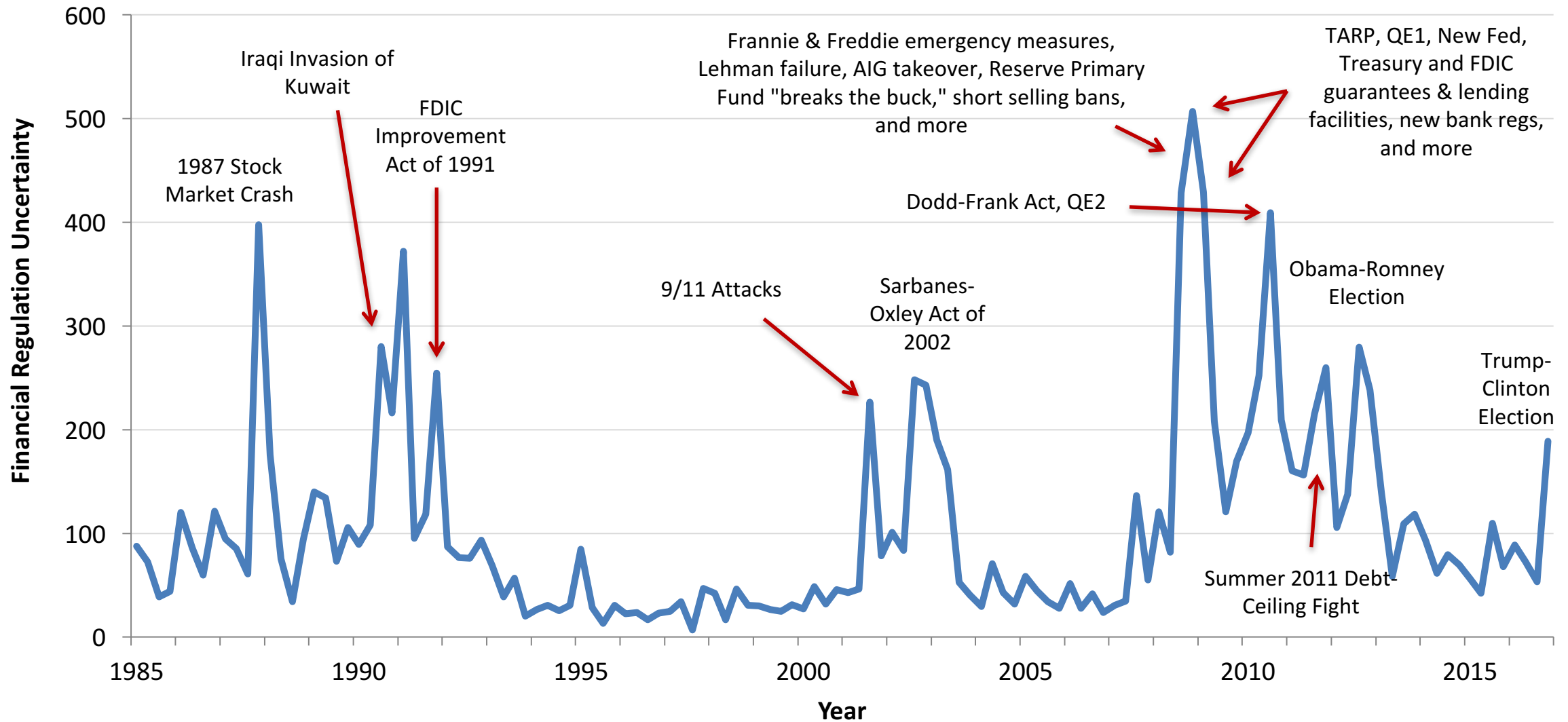
Source: Baker, Bloom and Davis (2016) and [www.policyuncertainty.com](http://www.policyuncertainty.com). Monthly data normalized to 100 prior to 2010. This figure and Figure 2 rely on an overlapping but different sets of newspaper sources.

# Figure 4. Healthcare Policy Uncertainty Index, 1985 Q1 to 2016 Q4, Quarterly



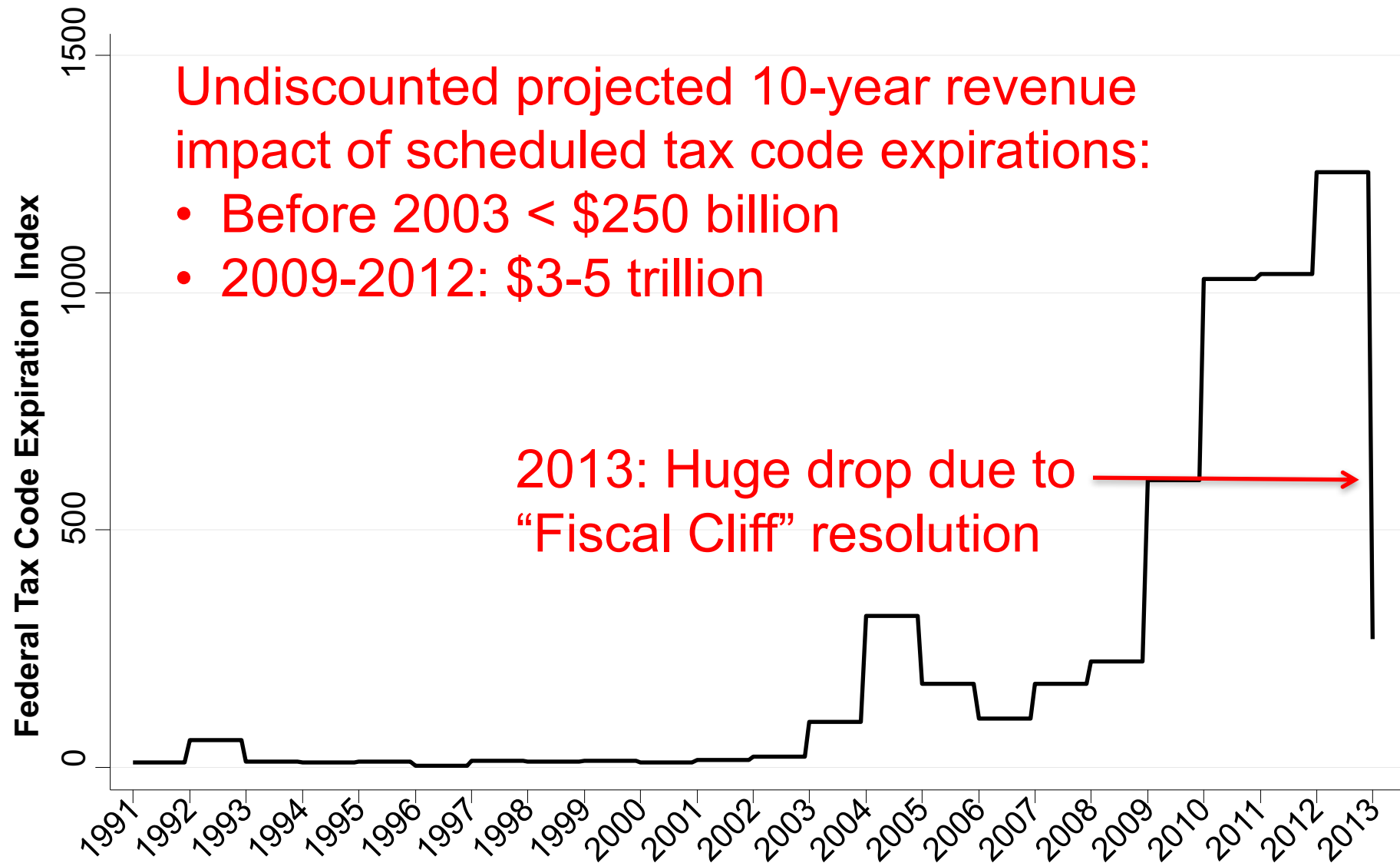
**Notes:** The index reflects the frequency of newspaper articles about economic policy uncertainty *and* healthcare policy matters, as indicated by terms like "healthcare," "hospital," "health insurance," and "Medicare." Data are from Baker, Bloom, and Davis (2016) and are available and updated at [www.PolicyUncertainty.com](http://www.PolicyUncertainty.com). Normalized to a mean of 100 from 1985 to 2009.

# Figure 5. Financial Regulation Uncertainty Index, 1985 Q1 to 2016 Q4, Quarterly



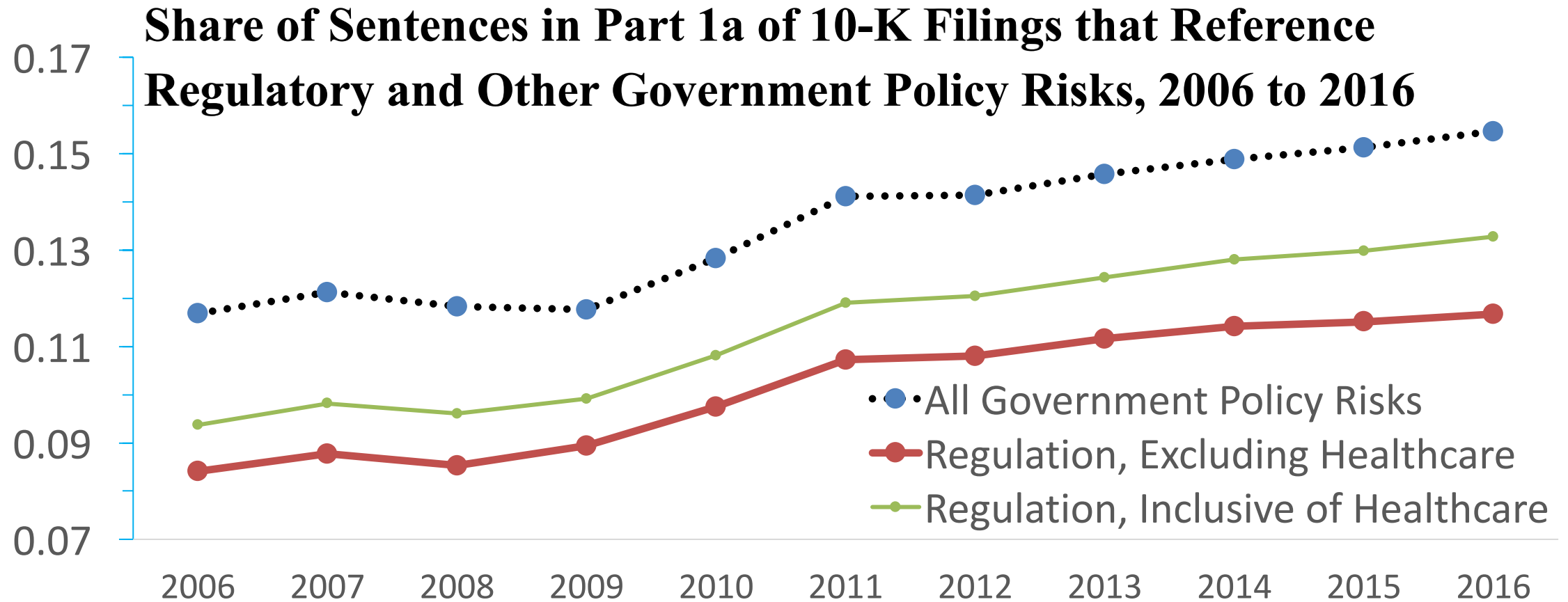
**Notes:** The index reflects the frequency of newspaper articles about economic policy uncertainty *and* financial regulation, as indicated by terms like "bank(ing) supervision," "Glass-Steagall," and "Dodd-Frank." Updated from Baker, Bloom, and Davis (2016). Available with regular updates at [www.PolicyUncertainty.com](http://www.PolicyUncertainty.com). Normalized to a mean of 100 from 1985 to 2009.

# Figure 6. Federal Tax Code Expirations Index, 1991-2013



**Notes:** Based on Congressional Budget Office data on projected revenue effects of federal tax code provisions set to expire in the current calendar year and next ten years. For a given year, the index value is calculated as the discounted sum of projected revenue effects associated with expiring tax code provisions, using a discount factor of  $0.5^T$  applied to future revenue effects for  $T=0,1,\dots,10$  years. Index normalized to a mean of 100 before 2010. This chart is reproduced from earlier drafts of Baker, Bloom and Davis (2016).

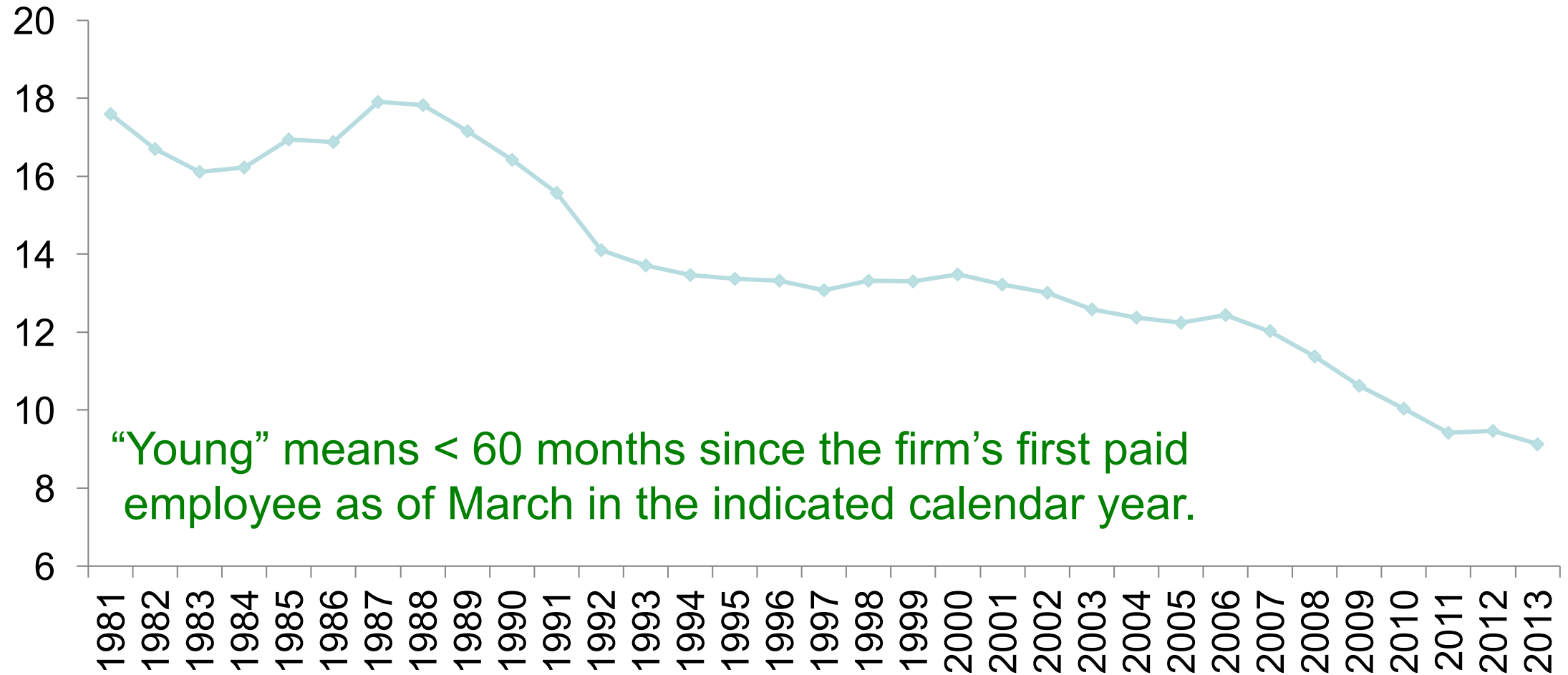
# Figure 7. Regulation and Other Government Policy Matters Account for a Growing Share of Business Risks, According to 10-K Filings



Note: In addition to regulatory matters, “All Government Policy Risks” includes those related to fiscal policy, monetary policy, entitlement and welfare programs, trade policy and more. See the appendix for details. Author’s calculations on 10-K filings downloaded from the Edgar Database.



# Figure 8. Share of Employees in Young Firms, 1981-2013, U.S. Nonfarm Private Sector



Source: Author’s calculations using data from the U.S. Census Bureau’s Business Dynamic Statistics.

## Appendix: Constructing Figure 7

I obtained machine-readable 10-K filings from the EDGAR database, using a Python script with the urllib2 package. I drop filings for which my automated sentence counter returns a value of less than nine for Part 1A. Visual inspections reveal that values less than nine reflect routine headings and section separators in 10-K filings with an empty Part 1A, i.e., with no discussion of Risk Factors. When the same firm filed multiple 10-K files on the same date, I retain the one with a longer Part 1A. When a firm has more than one 10-K filing in the same calendar year, I retime the “early” (“late”) filing to the prior (next) calendar year provided the firm has no filing in the prior (next) calendar year. If a firm still has multiple 10-K filings in the same calendar year, I retain the file with a longer Part 1A.

The following table reports data on the number of firms for which I extracted 10-K filings and isolated a non-empty Part 1A. The last column shows the number of firm-level observations per year used in Figure 7.

Filing Year	<i>Number of 10-Ks Identified</i>		<i>Number with Part 1A Extracted</i>		
	All	Less Same-Date Duplicates	All	All Non-Empty	After Retiming
2006	8852	8821	7173	5328	5328
2007	8574	8524	7160	5332	5316
2008	8746	8641	7281	5593	5578
2009	9839	9785	7537	6271	6255
2010	9165	9095	7395	6003	5994
2011	8840	8750	8141	6648	6625
2012	8393	8333	7903	6383	6370
2013	8105	7998	7633	6106	6091
2014	8084	7955	7584	6036	6024
2015	7980	7837	7480	5858	5854
2016	6482	6355	6018	4776	4776

For each of the filings reflected in the last column, I use automated methods to count the number of sentences in Part 1A that contain one or more policy terms. After obtaining this count for each firm-year observation, I divide by the total number of sentences in the same Part 1A minus 8. Subtracting 8 adjusts for the fact that the automated sentence counter misinterprets some formatting as true sentences, overstating the number of sentences. Using “8” is consistent with my rule for identifying 10-Ks with a non-empty Part 1A, as discussed above. I use the

Porter Stemmer to deal with plurals. For example, “tax” and “taxes” have the same stem “tax” and are both captured by “tax”. I ignore the distinction between upper case and lower case letters, e.g., treating “FICA” and “fica” as equivalent.

After obtaining the fraction of sentences in Part 1A that contain one or more policy terms, I average across firms by year to obtain the data plotted in Figure 7.

I organize the policy terms into broad categories, designated below in bold font. For convenience, I collect related terms into “topics” denoted by {}. A ~~strike-through~~ identifies terms I considered, but which do not appear in any Part 1A filing in my data set. Although some terms appear in multiple topics – e.g., “tax” appears in several topics listed under **Taxes** – each sentence in Part 1A gets a count of 0 if it contains no policy term, and 1 if it contains at least one policy term. A few topics and terms appear in more than one category. For example, the topic defined by {carbon tax, energy tax, ~~btu tax~~} appears in both **Taxes** and **Energy & Environmental Regulations**. However, that does not affect the calculations for Figure 7.

#### Policy Categories, Topics and Terms

**Taxes:** {taxes, tax, taxation, taxed}, {income tax, tax on individuals, personal tax}, {capital gains tax}, {dividend tax}, {mortgage interest deduction, deduction for mortgage interest}, {IRA account, Roth IRA, traditional IRA, 401-k}, {state and local tax deduction, deductibility of state and local tax}, {payroll tax, social security tax, social security contributions, Medicare taxes, FICA, unemployment tax, FUTA}, {sales tax, excise tax, value added tax, vat, goods and services tax, gross receipts tax}, {carbon tax, energy tax, ~~btu tax~~}, {corporate tax, ~~corporate profit tax, tax on corporate profit~~, business tax, profit tax}, {investment tax credit, accelerated depreciation}, {R&D tax credit, research and development tax credit}, {tax credit for low-income housing, low-income housing credit}, {black liquor tax credit, black liquor credit}, {ethanol tax credit, ethanol credit, ethanol tax rebate}, {biofuel tax credit, biofuel producer tax credit, fuel excise tax rebate, fuel tax credit, alcohol fuel credit}, {property tax}, {fiscal cliff}, {Internal Revenue Service}

**Government Spending, Deficits and Debt:** {government spending, government outlays, government appropriations, government purchases}, {defense spending, military spending, defense purchases, military purchases, defense appropriations}, {entitlement spending}, {government subsidy}, {fiscal stimulus}, {government deficit}, {federal budget, government budget, ~~fiscal footing~~}, {~~gramm-rudman~~, balanced budget, balance the budget, budget battle, debt ceiling}, {fiscal cliff, government sequester, budget sequestration, government shutdown}, {sovereign debt}, {entitlement program, entitlement spending, government entitlements}, {~~oasdi~~, social security, Supplemental Security Income, ssi, disability insurance}, {Medicaid}, {Medicare}, {supplemental nutrition assistance program, food stamps, wic program}, {unemployment insurance, unemployment benefits, TAA program}, {~~government welfare~~, welfare reform, aid to families with dependent children, afdc, temporary assistance for needy

families, tanf, public assistance}, {earned income tax credit, ~~eite~~}, {head start program, early childhood development program}, {~~government-subsidized housing~~, affordable housing, section 8, housing assistance}

**Government-Sponsored Enterprises:** {Federal Home Loan Mortgage Association, Freddie Mac}, {Fannie Mae, Federal National Mortgage Association}, {Sallie Mae, Student Loan Marketing Association}, {Government National Mortgage Association, Ginnie Mae}, {Federal Home Loan Bank}, {Federal Farm Credit Bank, Federal Agricultural Mortgage Corporation, Farmer Mac}, {Resolution Funding Corporation, REFCORP}

**Monetary Policy:** {monetary policy}, {money supply, open market operations}, {fed funds rate}, {discount window}, {quantitative easing}, {forward guidance}, {interest on reserves}, {taper tantrum}, {Bernanke, Volker, Yellen, Draghi, Kuroda, ~~Greenspan, fed-chairman, fed chair~~}, {lender of last resort}, {central bank}, {federal reserve, the fed}, {European Central Bank, ecb}, {Bank of England}, {bank of japan, ~~boj~~}, {people's bank of china, pboc, pbc, central bank of china}, {~~Bundesbank~~}, {~~Bank of France~~}, {Bank of Italy}

**Exchange Rate Policy:** {exchange rate}, {currency crisis, ~~currency-crash~~}, {currency devaluation, currency depreciation}, {currency revaluation, currency appreciation}, {crawling peg, managed float}, {currency manipulation, currency intervention}

**Regulation:** {regulation, regulatory}

- **Financial Regulation:** {bank supervision}, {thrift supervision}, {financial reform}, {truth in lending}, {firrea}, {Glass-Steagall}, {Sarbanes-Oxley}, {Dodd-frank}, {tarp, Troubled Asset Relief Program}, {Volcker rule}, {Basel}, {capital requirement}, {~~bank stress-test~~, stress test}, {deposit insurance, fdic}, {federal savings and loan insurance corporation, fslic}, {office of thrift supervision, ots}, {comptroller of the currency, occ}, {commodity futures trading commission, cftc}, {Financial Stability Oversight Council}, {house financial services committee}, {securities and exchange commission, sec}, {Bureau of Consumer Financial Protection, Consumer Financial Protection Bureau, CFPB}, {SBA loan program}
- **Competition Policy:** {antitrust policy, competition policy, competition law, ~~merger policy~~}, {federal trade commission, ftc}, {Sherman Act}, {Robinson Patman Act}, {Clayton Act}, {Hart-Scott-Rodino}, {European Commission}
- **Intellectual Property Policy:** {patent policy, patent law}, {trademark policy, trademark law}, {~~copyright policy~~, copyright law}, {Patent and Trademark Office}, {International Trade Commission}
- **Labor Regulations:** {Department of Labor}, {national labor relations board, nlr}, {union rights, card check, ~~collective bargaining law~~, right to work, closed shop}, {wages and hours, overtime requirements}, {minimum wage, living wage}, {workers' compensation}, {Occupational Safety and Health Administration, osha, Mine Safety and Health Administration}, {employment at will, advance notice requirement, at-will employment}, {affirmative action, equal employment opportunity, eeoc}, {~~trade adjustment-assistance~~}, {Davis-Bacon}, {ERISA}, {Pension Benefit Guaranty Corporation, PBGC}

- **Immigration:** {immigration policy, immigration reform, migration reform}, {Immigration and Customs Enforcement, immigration and naturalization service}, {immigrant workers, immigrant labor}, {farm worker jobs program, farm worker program, guest worker program, H-2A program, H-2B program}, {H-1B program, H-1B visa}, {refugee crisis}, {Schengen}
- **Energy And Environmental Regulation:** {energy policy}, {energy tax, carbon tax}, {cap and trade}, {cap and tax}, {drilling restrictions}, {offshore drilling}, {pollution controls, environmental restrictions, clean air act, clean water act}, {environmental protection agency, epa}, {wetlands protection}, {Federal Energy Regulatory Commission, FERC}, {ethanol subsidy, ethanol tax credit, ethanol credit, ethanol tax rebate, ethanol mandate, biofuel tax credit, biofuel producer tax credit}, {corporate average fuel economy, CAFE standard}, {endangered species}, {Keystone pipeline}, {Alaska oil pipeline, Trans-Alaska pipeline}, {greenhouse gas regulation, climate change regulation}, {Nuclear Regulatory Commission}, {Pipeline and Hazardous Materials Safety Administration}
- **Lawsuit And Tort Reform, Supreme Court Decisions:** {tort reform, ~~tort policy~~}, {class action reform}, {punitive damages reform}, {~~healthcare lawsuit~~, medical malpractice reform}, {lawsuit reform}, {Supreme Court}
- **Housing and Land Management:** {Federal Housing Administration}, {Federal Housing Finance Agency}, {Department of Housing and Urban Development, HUD}, {Section 8 Housing}, {Office of Fair Housing and Equal Opportunity, FHEO}, {Bureau of Land Management}, {Department of Interior}, {zoning regulations, zoning laws}, {endangered species}, {US Forest Service, United States Forest Service}
- **Other Regulation:** {Consumer Product Safety Commission}, {Department of Education}, {Small Business Administration}, {Federal Communications Commission, FCC}, {Fish and Wildlife Service}

**Trade Policy:** {trade policy}, {tariff, import duty}, {import barrier, import restriction}, {trade quota}, {dumping}, {export tax, export duty}, {trade treaty, trade agreement, trade act}, {wto, world trade organization, Doha round, Uruguay round, gatt}, {export restriction}, {investment restriction}, {Nafta, North American Free Trade Agreement}, {Trans-Pacific Partnership, TransPacific Partnership}, {Federal Maritime Commission}, {International Trade Commission}, {Jones Act}

**Healthcare Policy:** {healthcare policy}, {health insurance, ~~medical insurance reform~~}, {Medicaid}, {Medicare}, {Affordable care act, Obamacare}, {malpractice tort reform, malpractice reform}, {prescription drug act}, {drug policy}, {food and drug administration, fda}, {VA hospital, VA healthcare, Veterans Affairs hospital, Veterans Affairs healthcare, Veterans Health Administration}, {National Institutes of Health}

**National Security:** {national security}, {war, military conflict, ~~military invasion~~, military action}, {terrorism, terror, 9/11}, {defense spending, defense policy, military spending}, {Department of Defense}, {Department of Homeland Security}, {Defense Advanced Research Projects Agency, DARPA}, {~~police action~~}, {armed forces}, {base closure}, {military procurement}, {~~saber rattling~~}, {~~naval blockade~~}, {~~military embargo~~}, {no-fly zone}, {Syrian

war}, {Iraq war}, {Libyan war}, {Ukraine conflict, Ukraine invasion, Crimean invasion, Crimean annexation}, {South China Sea conflict}

**Transportation, Infrastructure and Public Utilities:** {Department of Transportation}, {Federal Highway Administration}, {federal highway fund}, {National Highway Traffic Safety Administration}, {U.S. Surface Transportation Board}, {Amtrak, National Railroad Passenger Corporation}, {Bonneville Power Administration, Tennessee Valley Authority, Southeastern Power Administration, New York Public Power Authority, Santee Cooper, South Carolina Public Service Authority, Salt River Project, Los Angeles Department of Water and Power}, {Corps of Engineers}, {Federal Aviation Administration, FAA}, {Federal Maritime Commission}, {National Aeronautics and Space Administration, NASA}, {Pipeline and Hazardous Materials Safety Administration}

**Agriculture:** {Department of Agriculture, USDA}, {ethanol subsidy, ethanol tax credit, ethanol credit, ethanol tax rebate, ethanol mandate, biofuel tax credit, biofuel producer tax credit}

**Governance:** {presidential election}, {Congressional election}, {parliamentary election}, {presidential impeachment}, {Brexit}, {Scottish referendum}, {Grexit, Greek exit}, {Eurozone exit, Eurozone breakup}, {military takeover, coup}, {civil war}