

Reviving Jobs and Innovation:

The Role of Countercyclical Regulatory Policy

Part I

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Since the Great Depression, the tools of choice for fighting economic downturns have been countercyclical monetary policy and countercyclical fiscal policy. That is, when the economy slowed, economists would recommend cutting interest rates, reducing taxes, and boosting government spending to pump up demand. And for 75 years, those policy measures were enough.

But in the aftermath of the financial crisis, we seem to have almost exhausted the limits of monetary and fiscal policy to create jobs. The Federal Reserve has pushed interest rates down to near zero, although it appears ready to try another round of quantitative easing. Meanwhile, the federal budget deficit hit \$1.3 trillion in fiscal year 2010. In the aftermath of the midterm election victories of candidates who ran against federal spending, it seems politically unlikely that there will be another round of fiscal stimulus.

Under the circumstances, it may be time to try something new: **Countercyclical regulatory policy**. That means following a very simple rule: **Don't add new regulations on innovative and growing sectors during economic downturns.**

The goal: To encourage innovation and job creation by **temporarily** abstaining from additional regulation on innovative sectors, and perhaps even **temporarily** abating some existing regulations on innovative sectors (what I call **innovation ecosystems**).

The key word here, of course, is 'temporarily.' Like countercyclical monetary and fiscal policy, countercyclical regulatory policy is designed to provide a short-run stimulus to the economy by making decisions that can be reversed when the economy improves—the equivalent of a temporary investment tax credit. In other words, countercyclical regulatory policy is not the same as deregulation. It presupposes that regulators stay alert and take care of abuses.

About the author

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By contrast, the U.S. has fallen into a pattern of **procyclical regulatory policy**—that is, adding lots of rules and regulations during periods of economic weakness. For example, Sarbanes-Oxley, passed in 2002, was intended to address high-profile abuses at Enron, Worldcom, the dot-coms, and the tech sector in general. Truthfully, many of the accounting reforms in Sarbanes-Oxley may have been necessary. However, the timing was economically questionable, since the reforms added to corporate costs at a time when domestic employment, especially at the tech companies, was still falling.

This time around, in the middle of the worst recession in 75 years, the Obama administration used its political capital to pass healthcare and financial reform. These pieces of legislation, in my opinion, were essential and long overdue. It's clear in retrospect that the subprime mess could have been avoided by tighter controls on the financial sector. And reforming healthcare to bring more people into the system is a necessary step towards solving our long-term healthcare finance problems. We should not rewrite or retreat from either healthcare or financial reform.

However, the Obama administration then followed up with major regulatory initiatives in communications and education, two innovative and growing sectors.¹ Once again, the regulations themselves have pros and cons—but the timing of targeting growing and innovative industries in the middle of a downturn is problematic.

This procyclical regulatory policy seems self-defeating. Even if individual regulations make sense during good times, taken together they may have a profoundly negative impact during a weak economic period. The analogy is throwing small rocks in a stream. No single rock will have much of an effect, but throw enough rocks in and you can dam the stream. What's more, the same pile of rocks that might have no effect on the stream in ordinary times might cause big problems during a drought.

That's where we are right now. At a time of economic weakness, we run the risk of loading

down the economy with so much weight from rules and regulations to dampen innovation, which after all is the long-term driving force of the economy and jobs.

Countercyclical regulatory policy is an essential part of showing that we are serious about jobs and growth. We cannot say that we want innovation and then proceed to impose onerous new regulations on precisely those industries that are innovative and generating jobs.

In this paper (Part I) I'm going to briefly summarize the regulation debate, outline the link between innovation ecosystems and jobs, and discuss how countercyclical regulation policy might affect innovation and jobs. In the next paper (Part II), I will discuss how countercyclical regulatory policy might work in practice, and examine some of the economic and political problems.

Brief Backdrop

The backdrop for this piece is the current economic situation—or more precisely, the decade that led up to the current situation. Looking back, the U.S. economy was struggling during the 2000–2007 business cycle, even before the 2007–2010 bust.

Jobs: With the exception of health and education, private sector job growth has been weak for a decade.² Between December 2000 and December 2007—two consecutive peaks of private employment—the health/education sector generated 3.2 million net new jobs. The rest of the private sector?³ Less than 700,000.

Innovation: With the exception of the communications sector, successful innovation has been weak for a decade.³ In particular, the biosciences sector (including pharma and biotech) has struggled to turn cutting-edge science into successful products.

Wages: The real wage for young college grads has been falling for a decade. Between 2000 and 2009, real earnings for young college grads fell by 15 percent (workers aged 25–34, with a only bachelor's degree). Roughly half the decline came before the recession started.⁴

The one piece of apparent good economic news was that labor productivity rose at a rapid 2.6 percent annual rate over the past decade, compared to 2.1 percent in 1990s and 1.6 percent in the 1980s. However, there's growing evidence that offshoring distorted the data, making productivity growth looking better than it really was.⁵ All in all, the 2000–2007 business cycle will go down as one of the worst on record.

The Great Debate: Regulation vs. Markets

Depending on whom you listen to, the economic disaster we find ourselves in was either the result of insufficient regulation of run-amok free markets, or the inevitable consequence of a vibrant private sector being squelched by the heavy hand of government regulation.

Unfortunately, there's plenty of blame for both sides. The case for 'markets run amok' is simple: The financial system clearly engaged in a massive spasm of bad behavior in the 2000s, which

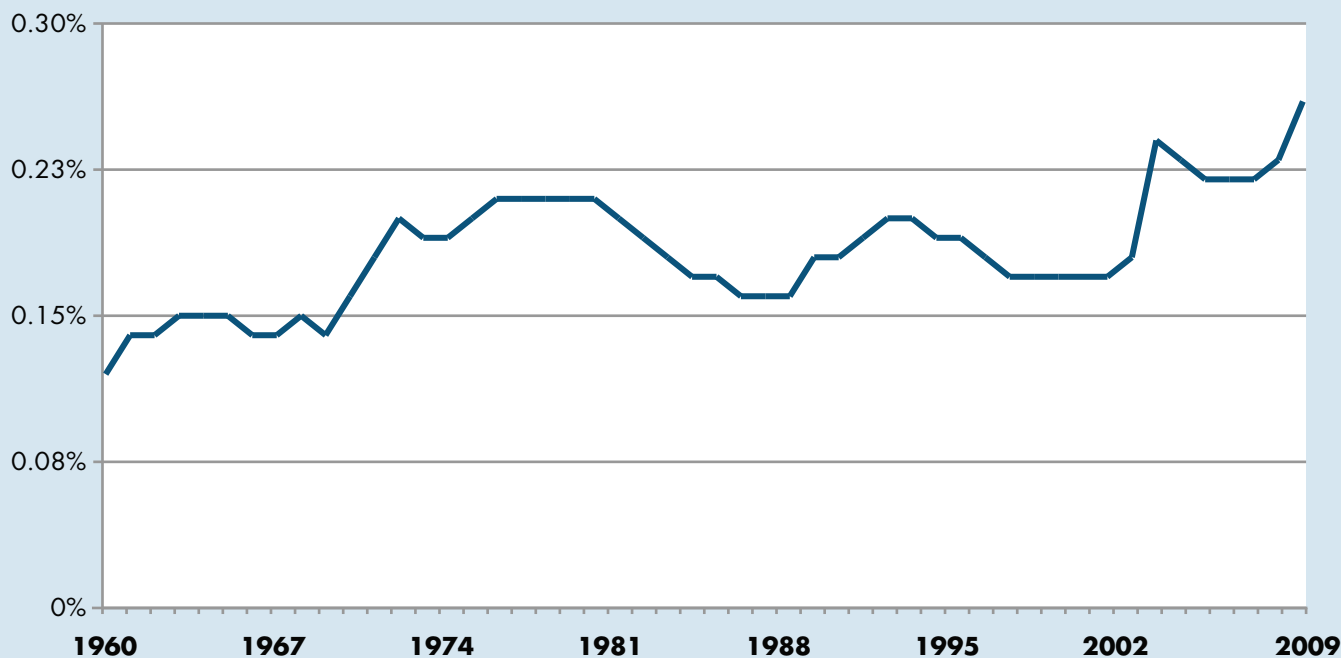
could have been prevented by tighter regulation of financial institutions. In retrospect, by 2004 and 2005 regulators should have stepped in and avoided the worst excesses of the subprime mess.⁶

But despite the weakness in financial regulation, it's a mistake to view the post-2000 years as an era of untrammled free-market capitalism. In fact, the evidence suggests that 2000–2007, under the Bush Administration, was actually a period of rising government influence over the economy.

Start with money. In 2000, federal, state, and local spending totaled 30.4 percent of gross domestic product (GDP). By 2007—pre-bust—government spending had risen to 33 percent of GDP. As of the 3rd quarter of 2010, government spending had soared to 38 percent of GDP.

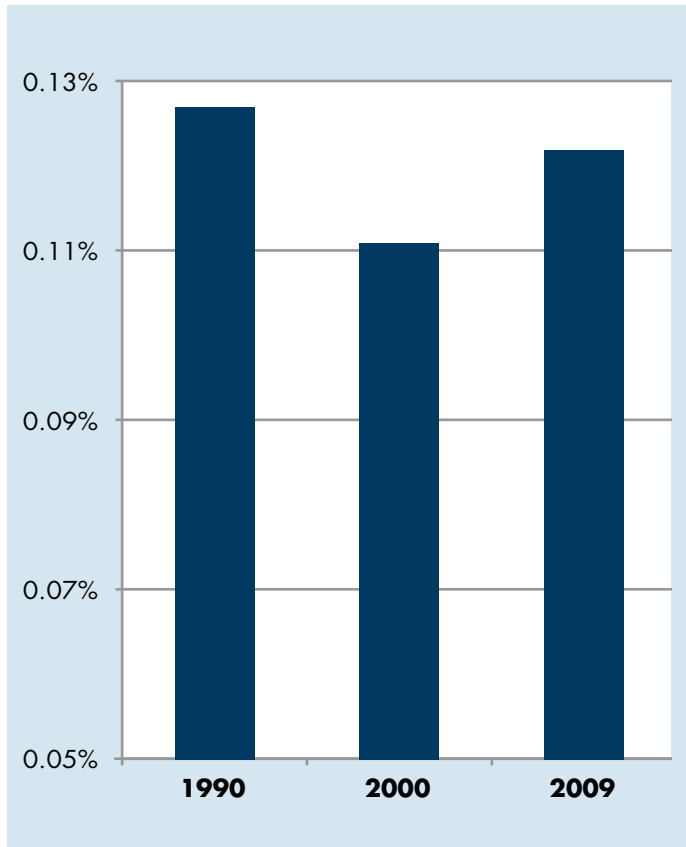
Perhaps more importantly, the regulatory apparatus of the federal government expanded faster than the private economy in the 2000-

FIGURE 1. REGULATORY BURDEN HITS ALL-TIME HIGH: EMPLOYMENT IN FEDERAL REGULATORY AGENCIES AS A SHARE OF PRIVATE SECTOR EMPLOYMENT*



Data: BEA, Dudley and Warren
*full-time equivalents

FIGURE 2: REGULATORY BURDEN (NON-HOMELAND SECURITY) EMPLOYMENT IN FEDERAL REGULATORY AGENCIES AS A SHARE OF PRIVATE-SECTOR EMPLOYMENT*



Data: BEA, Dudley and Warren
*full-time equivalents except Homeland Security

2007 period. The number of employees at federal regulatory agencies rose by 36 percent between 2000 and 2007. By contrast, private-sector employment only rose by 4 percent over the same period.⁷ Including the bust years of 2008 and 2009 makes the contrast even starker. From 2000 to 2009, federal regulatory employment rose by a stunning 49 percent, while private sector employment fell by 3 percent.

Figure 1 shows how the ratio of federal regulatory employment to private-sector employment skyrocketed over this period, hitting the highest level on record. To a large extent, the expansion of federal regulation was driven by 9/11, which led to the creation of the Department of Homeland Security, which was far bigger than the agencies it

absorbed and replaced. In particular, the creation of the Transportation Security Administration added more than 50,000 workers to the regulatory payroll, as counted by Dudley and Warren.

Now, one could argue about whether airport security should truly count as ‘regulation’. I tend to think that it does, much in the same way that any set of mandatory rules for product safety would count as regulation.⁸ However, even if we remove Homeland Security from the calculations, Figure 2 shows us that the ratio of federal regulatory employment to private employment, without Homeland Security, was higher in 2009 than in 2000.

Another way to look at regulation is through the federal budget. As Figure 3 shows, from fiscal year 2000 to fiscal year 2008, federal regulatory spending grew by over 50 percent in real terms (this number includes Homeland Security). By comparison, real federal spending on key long-term investments—R&D, physical capital, and education and training—grew at a much slower rate.

FIGURE 3: THE GROWTH OF FEDERAL REGULATORY SPENDING

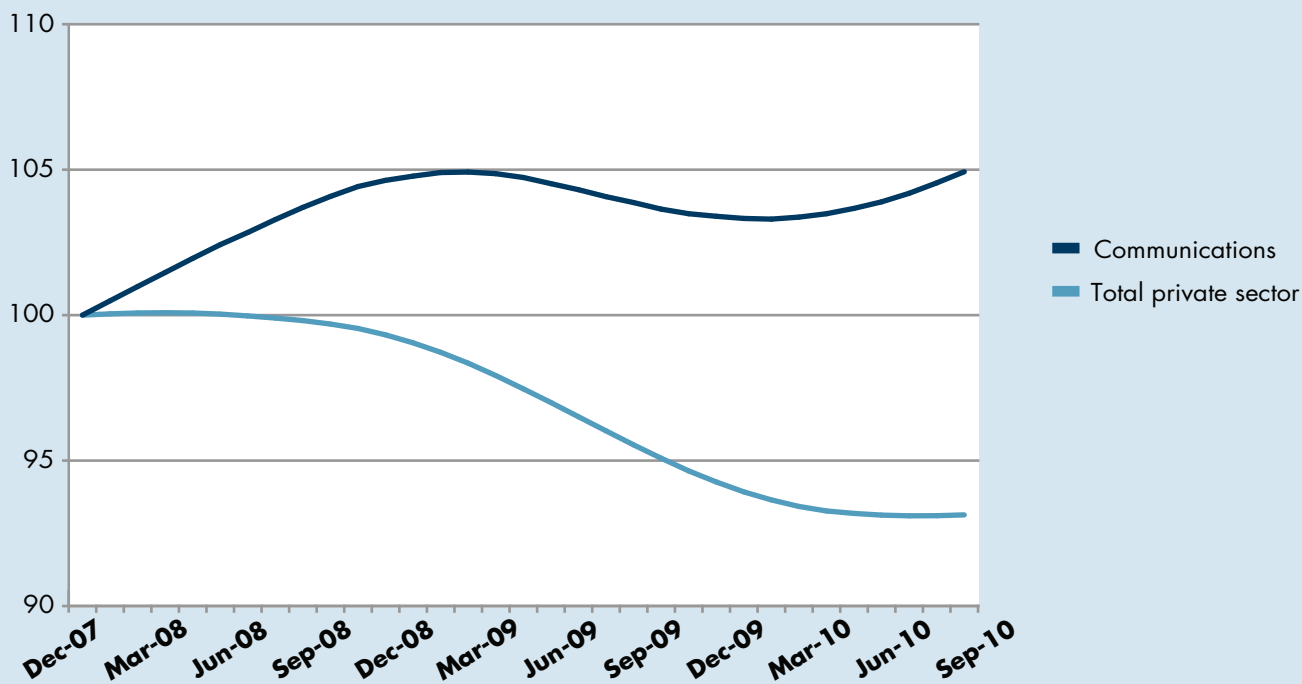
Federal Spending Categories	Increase in real outlay FY 2000-FY 2008
Regulatory agencies	50.8%
National defense	50.6%
Mandatory spending and net interest	29.6%
Nondefense discretionary spending (including regulatory agencies)	25.1%
nondefense physical capital	15.9%
nondefense R&D	37.3%
education and training	32.3%

Data: OMB; Dudley & Warren

Innovation Ecosystems and jobs

Now let’s turn to innovation. For an economy like the U.S., innovation is the major source of good jobs over the long run. It’s not possible for the U.S. to compete on price with low-wage countries—not without dropping our wage enormously. And we

FIGURE 4: EMPLOYMENT: COMMUNICATIONS INNOVATION ECOSYSTEM VS TOTAL PRIVATE (DEC 2007 = 100)



Data: BLS; 12-month moving average; Communications innovation ecosystem includes wireless, electronic shopping, internet publishing and broadcasting and web search portals, custom computer programming

don't have enough population growth or new household formation for consumer spending to drive growth.

Instead, the new jobs are going to have to come from the creation and production of new products and services. These can either be sold in the U.S. or abroad, but the key is that they have to be attractive enough to generate new demand, which in turn creates a new wave of jobs.

But an economy like the U.S. needs more than a single innovation, or even a collection of innovations. Rather, sustainable job growth is associated with a vibrant *innovation ecosystem*.

There's no consensus definition of "innovation ecosystem."⁹ But for our purposes, an innovation ecosystem is a group of interrelated industries that

are all creating new products and services, growing, adding workers, and feeding each other's demand and supply.

In the 1990s, the leading innovation ecosystem in the United States was based around software and computer services firms such as Microsoft and Oracle; IT hardware firms such as Intel and Cisco; Internet firms such as AOL, Yahoo, and Amazon; and telecom companies such as AT&T, Worldcom, and MCI that provided the backbone for the Internet. Innovation, investments, and job growth in each industry provided demand for other members of the ecosystem, which in turn did more hiring.

Altogether, the IT innovation ecosystem generated 1.7 million net new jobs from 1990 to 2000. This was the key driving force for the New Economy boom.

What about today? What are the major innovation ecosystems that might be capable of driving job growth in the U.S.?

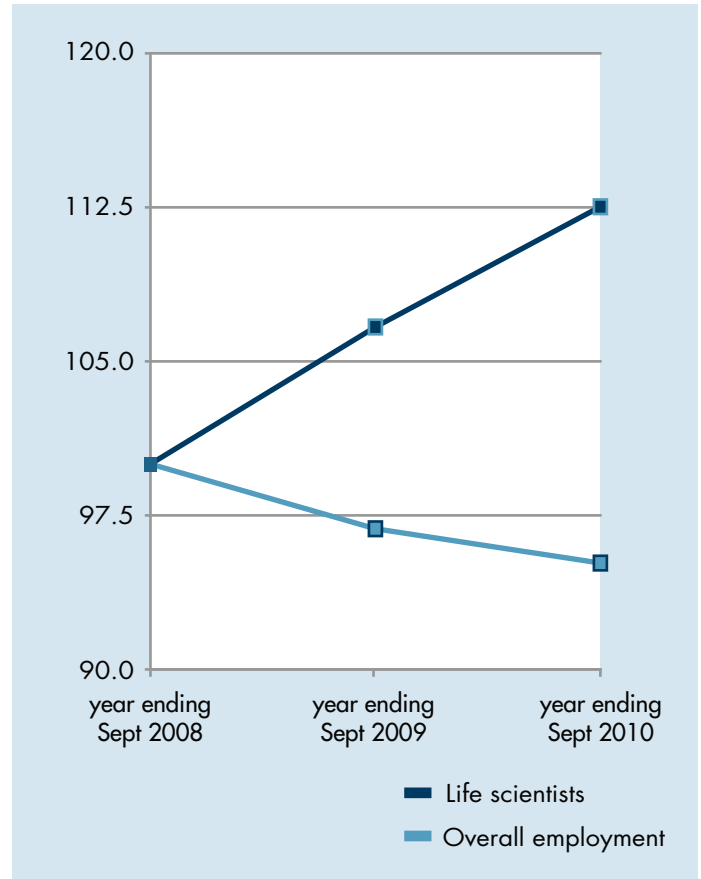
1. The **communications innovation ecosystem** includes wireless providers such as AT&T and Verizon; Internet firms like Google, Facebook; applications developers and custom computer programmers; online retailers like Amazon. Since 2007 this sector has generated roughly 50,000 net new jobs, making it one of the few private-sector job creators outside of health and education.

Moreover, expanding household use of wireless, broadband, and cable has added roughly \$14 billion to real GDP since the recession started, making the communications innovation ecosystem one of the key contributors to economic growth during this period of weakness. Wireless, by itself, has added \$10 billion to real GDP over this stretch. Meanwhile, most of the largest sectors of the economy have been shrinking in real terms, including personal consumption expenditures, business investment, residential investment, and state and local government.

It's worth noting that the shrinkage of employment and output in landlines, which I do not include in the communications innovation ecosystem, is analogous to the deep job cuts in the mainframe and minicomputer industries in the early 1990s. Even as the information economy was revving up, companies such as IBM and Digital Equipment were laying off mammoth numbers of workers.

2. The **biosciences innovation ecosystem** includes pharmaceutical companies, biotech firms, medical equipment firms, academic bioscience researchers, and government funders such as the National Institutes of Health. Because this innovation ecosystem overlaps universities and hospitals, the best indicator is to

JOB GROWTH: LIFE SCIENTISTS VS OVERALL
(YEAR ENDING SEPT 2008 =100)



Data: Current Population Survey. Life scientists include agricultural, biological, medical and environmental scientists

look at the employment of life scientists (such as biological and medical scientists). According to data calculated from the Current Population Survey, the number of employed life scientists rose from 360,000 in the year ending September 2008, to 405,000 in the year ending September 2010.¹⁰ By contrast, total U.S. employment fell during this stretch.

3. The **higher education innovation ecosystem** is really just getting started now, as distance learning and other uses of technology becomes more prevalent. This ecosystem includes educational institutions (public, nonprofit, and for-profit); textbook companies; and increasingly, companies

such as Blackboard (with more than 1000 employees) that supply the platform for innovation in education.

It's hard to get good statistical indicators of the evolution of this area. We know, however, that employment has been rising in virtually all areas of private higher education since the recession started. We can argue about the reasons, but the fact is that this sector is both adding jobs and on the verge of a tremendous burst of innovation.

Let's end this section with a couple more points about innovation ecosystems. First, the financial sector was at the hub of an innovation ecosystem in the 2000s, which included Wall Street firms; mortgage brokers; and local banks. Unfortunately, it was dysfunctional innovation which temporarily added jobs but did not lead to sustainable growth.

Finally, the U.S. underspent for so long on energy R&D that the alternative energy innovation ecosystem is just now getting started. That's why government subsidies are still essential to sustain green energy efforts.

Procyclical and Countercyclical Regulatory Policy During the Bust

President Obama's main regulatory initiatives so far will have a large effect on the job-creating innovation ecosystems. Health care reform's main impact will be to broaden participation in the health care system. Nevertheless, health care reform will also directly affect the biosciences innovation ecosystem, in as yet unknown ways. Financial reform, of course, is intended to control the dysfunctional financial innovation ecosystem.

In addition, the new 'gainful employment' regulations out of the Department of Education, released on October 29, bring an extra level of regulatory scrutiny to community colleges and for-

FIGURE 6: EMPLOYMENT IN PRIVATE SECTOR EDUCATION

	Change in employment (thousands) Dec. 2007- August 2010*
Universities, colleges, and junior colleges	93
Technical, trade, art, computer, business, and other schools	36
Educational support services	18
Total private sector education**	148

Data: BLS

*Based on an average of previous 12 months

**Except elementary and secondary

profit colleges. And the Federal Communications Commission is still considering increasing the intensity of broadband regulation, which would directly affect the communication innovation ecosystem.

In practice, regulation can have two direct impacts on innovation. First, regulation can slow down innovation by making more difficult and expensive to do new things. The classic case, of course, was the 2001 restriction of stem cell research under President George Bush, which by all accounts seriously impeded research in the field.

But there are plenty of other examples. Distance learning can be considered one of the important new innovations in education, utilizing technology to both lower the cost of education and potentially make it available to a lot more people. But the recently released regulations from the Department of Education seems to add rules on credit hours and state authorization that may put an extra burden on institutions expanding their distance learning programs.

On the flip side, some economists believe regulation can create new markets that actually spur innovation. This is currently part of the thinking around environmental regulations. Nicholas Ashford, a leading environmental policy expert, writes:

... regulation—properly designed—is not only necessary to achieve sustainable economies; it can actually stimulate innovation leading to improved competitiveness, employment and to an improved environment.¹¹

Regulation can create the demand for ‘green’ technologies, which will then induce innovation. For example, the federally mandated requirement that transportation fuels such as gasoline incorporate a certain percentage of renewable energy is expected to encourage “the development and expansion of our nation’s renewable fuels sector.”¹²

There are two key points here. The cost effect of regulation is likely to have an immediate negative impact on jobs and innovation; meanwhile, the ‘induced innovation’ effect of regulation is likely to be long-term, as successful research and product development takes time. That means implementing new regulations in the middle of a downturn could very well slow recovery from the downturn, even if the long-term effects on innovation are positive.

The second point is that regulations have to go through a cost-benefit analysis—but this cost-benefit analysis rarely includes the impact of the regulation on innovation. Consider, for example, the latest report from the Office of Information and Regulatory Affairs on the benefits and costs of federal regulations.¹³ Interestingly, the potential impact of regulation on innovation gets only a perfunctory mention, with no analysis at all.

Conclusion

In Part II of this paper, I will look at how countercyclical regulatory policy might be implemented in practice. That includes how to encourage innovation ecosystems in a downturn, and how to identify regulations that can be temporarily deferred or loosened without long-term negative consequences. In addition, I’ll address the topics of why countercyclical regulatory policy is not the same as deregulation, and historical parallels between countercyclical regulatory policy, countercyclical fiscal policy, and countercyclical monetary policy. Finally, I’ll consider the role of countercyclical regulatory policy in a global economy.

Endnotes

1. See my recent PPI policy memos, *Gainful Employment: The Real Issue* (October 2010) and *The Coming Communications Boom?: Jobs, Innovation and Countercyclical Regulatory Policy* (July 2010).
2. For an early take on this, see my piece “What’s Really Propping Up the Economy,” *BusinessWeek*, September, 2006 (http://www.businessweek.com/magazine/content/06_39/b4002001.htm).
3. For more on this, see “Innovation, Interrupted,” *BusinessWeek*, June 2009, (http://www.businessweek.com/magazine/content/09_24/b4135000953288.htm).
4. For a scary chart plotting the real wages of young college graduates against college tuition and fees, see “The State of Young College Grads,” (September 16, 2010 post) (<http://innovationandgrowth.wordpress.com/2010/09/16/the-state-of-young-college-grads>).
5. See “Offshoring Bias in U.S. Manufacturing: Implications for Productivity and Value Added,” Federal Reserve International Finance Discussion Papers, Number 1007, September 2010, Susan N. Houseman, Christopher J. Kurz, Paul Lengermann, and Benjamin R. Mandel.
6. I say ‘in retrospect’ because as chief economist at *BusinessWeek* during this stretch, I didn’t see the problems coming either.
7. Federal regulatory employment and spending data comes from “A Decade of Growth in the Regulators’ Budget: An Analysis of the U.S. Budget for Fiscal Years 2010 and 2011,” Susan Dudley and Melinda Warren, May 2010. Both federal regulatory employment and private sector employment are measured as full-time equivalents.
8. Let’s estimate the regulatory drag from the TSA. There are roughly 700 million passenger air trips per year. If increased security adds an extra half-hour per trip, that means 350 million hours per year is absorbed by airline security. Assuming the average wage for an airline passenger is \$40 per hour, the net added cost to the economy is \$14 billion per year. Add in TSA’s \$6 billion budget, and that brings us to \$20 billion altogether.
9. Usually the term ‘innovation ecosystem’ is used as an undefined buzzword, with little or no relationship to the ecological meaning. “An ecosystem is defined as a spatially explicit unit of the Earth that includes all of the organisms, along with all components of the abiotic environment within its boundaries” from *The Ecosystem Approach: Its Use and Abuse*, Gene Likens, 1992.
10. Calculations done by author based on Current Population Survey.
11. “Environmental Regulation, Globalization, and Innovation,” Nicholas Ashford, in *Handbook on Trade and the Environment*, 2009.
12. <http://www.epa.gov/otaq/fuels/renewablefuels/index.htm>.
13. “2010 Report to Congress on the Benefits and Costs of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities,” Office of Information and Regulatory Affairs July 2010 (http://www.whitehouse.gov/sites/default/files/omb/legislative/reports/2010_Benefit_Cost_Report.pdf).

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