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TESTIMONY

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"The American Recovery and Reinvestment Act of 2009: An Update"
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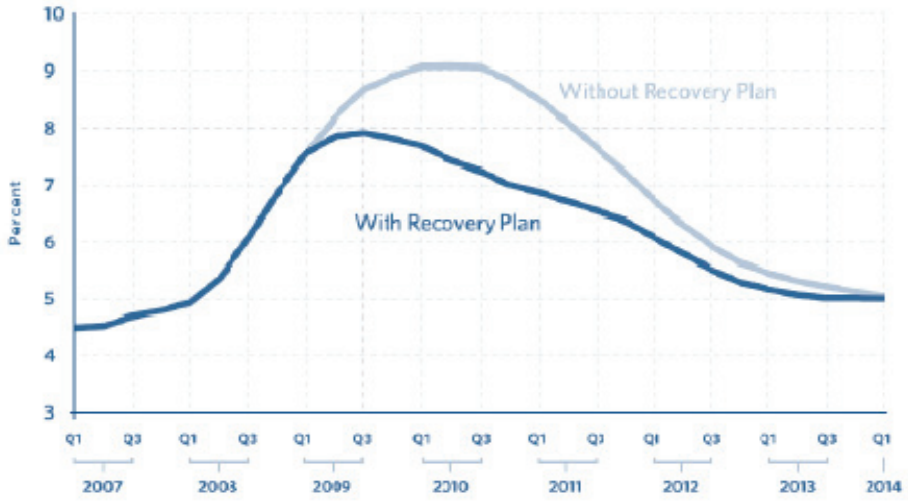
Good afternoon Chairman Spratt, Ranking Member Ryan, and members of the committee. My name is Veronique de Rugy, I am a senior research fellow at the Mercatus Center at George Mason University where I study tax and fiscal policy, the federal budget process, and the implications of government spending for economic growth.

Since the Great Recession began in December 2007, employment has shrunk by 7.5 million jobs[1], long-term unemployment is higher now than in any previous recession[2], and real GDP has plummeted to 2006 levels[3]. The understandable temptation to take action in time of recession however should not lead lawmakers to take counterproductive actions. On February 13th 2009, President Obama signed into law the American Recovery and Reinvestment Act (ARRA) at a cost of $787 billion with the promise that it would "create or save" 3.5 million jobs over the next two years, mostly in the private sector. [4] What's more, based on a study by Christina Romer, the Chairman of the Council of Economic Advisors, and Jared Bernstein, the administration claimed that without the Recovery Act unemployment rate would reach 8.8 percent while with the act it would immediately start declining (see figure 1).[5]

Figure 1: Unemployment Rate With and Without the Recovery Plan



Since the president signed the stimulus package into law, the U.S. economy has shed another 2.5 million jobs and the unemployment rate has climbed to 9.5 percent from 7 percent, higher than the White House predicted it would have reached even *without* the stimulus.

While the stimulus may have appeared to have been a wise investment when it was made, it was really no wiser than a junk-rated mortgage-backed security: though the stimulus claimed a good rate of return, in reality it appears to have lost money by destroying growth. At best, it shifted jobs from privately funded to publicly funded ones.

The first step in real job creation is government to acknowledge its limitations. Private businesses are the true drivers of job creation; they flourish when they have a reasonable expectation that the government will be noninvasive, non-burdensome, and fiscally responsible. By creating such an environment, the federal government would do more to aid job creation than any stimulus package could.

Promises, Promises

The stimulus bill draws on the views of economist John Maynard Keynes. In Keynesian thought, a fall in economic demand causes a fall in spending. Since one person's spending is someone else's income, a fall in demand makes a nation poorer. When that poorer nation prudently cuts back on spending, it sets off yet another wave of falling income. So a big shock to consumer spending or business confidence sets off waves of job losses and layoffs.

Can anything stop this cycle? Keynesians say yes: government spending can take the place of private spending during a crisis. If the government increases its own spending, it will create new employment. These new workers should consume more, and businesses should then buy more machines and equipment to meet the government's and the revitalized public's demands.

This increase in gross domestic product is what economists call *the multiplier effect*. It means that one dollar of government spending will end up creating *more* than a dollar of new national income.

The Theory of Multipliers

It is difficult to get solid evidence on the economy's response to changes in government spending. Direct reporting measures—such as those employed by Recovery.gov, the U.S. government's website for tracking stimulus spending—capture the direct and observable effects of government spending on economic activity. These measures can be helpful, but they fail to account for the indirect, less-easily observable effects of government spending. To capture the big-picture effect of government spending, economists turn to the *spending multiplier.*

As explained above, the *multiplier effect* or *spending multiplier* refers to the idea that an initial amount of government spending leads to a change in the activity of the larger economy. In other words, an initial change in the total demand for goods and services (what economists term aggregate demand) causes a change in total output for the economy that is a multiple of the initial change. For example, if the government spends one dollar and, as a result of this spending, the economy (as expressed by the Gross Domestic Product, or GDP) grows by $2, the spending multiplier is 2. If the economy grows by $1.50, the spending multiplier is 1.5. However, if the economy only grows by 50 cents (a loss from the original $1 spent), the spending multiplier is 0.5.

The Spending Multiplier Debates

The theory sounds pat, but economists have been debating aspects of government spending multipliers for years. One crucial debate centers on how to measure a multiplier's value. Some economists find spending multipliers that are smaller than 1.[6] Other economists, however, assert that spending multipliers are much larger.[7] Still others argue that multipliers can't even be credibly measured.[8]

Another debate surrounds the implications of spending multipliers. For Keynesians, consumption is the ultimate goal of government spending, and even with a multiplier smaller than 1, spending can still increase GDP. Thus Keynesians argue that, during a recession, when people tend to save their money rather than investing it in the private market,[9] a small increase in GDP is better than nothing.

Simple Keynesian macroeconomics assumes that in times of high unemployment, the government is better than the private market at guiding idle resources to create economic output. Government spending puts unemployed labor and capital to work at zero social cost.[10] When the government puts this previously unemployed labor and capital to work, the mobilized labor and capital produce added goods and services that private sector was unable to create.

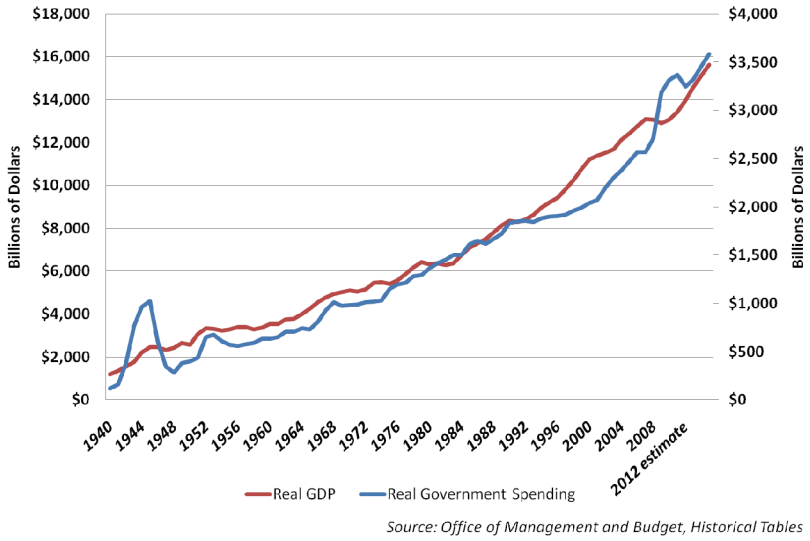
A New Classical understanding of the multiplier starts with the idea that government spending has some social cost (i.e. a rise in government spending requires a fall in other parts of GDP, such as consumption and investment). As such, the value of the public projects (bridge construction or roads) needs to justify that social cost. This view doesn't assume that an increase in consumption at any cost is a good thing: if the multiplier's value is less than 1, then government spending has crowded out the private investment and spending that would have otherwise happened.

Even government spending where the multiplier is higher than 1 could still be a poor use of taxpayer dollars. For instance, though $1 in government spending could lead to a GDP boost of $1.50 in the short run, it could also make it harder to solve the longer-term debt problem.

The Data of Defense

So what is the historical value of the multiplier in the United States? A new study by Harvard professor Dr. Robert Barro and Charles Redlick answer this question in details by using defense spending as a proxy for overall government spending.[11]

Figure 2: Real Government Spending and Real GDP

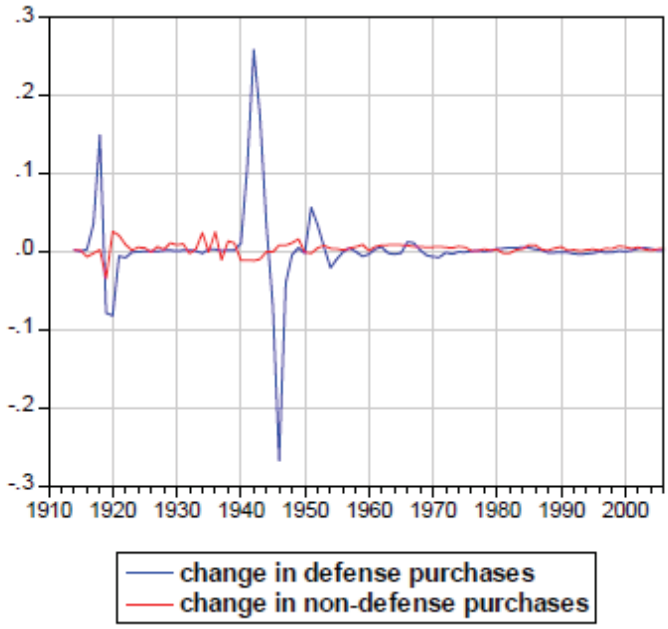


First, the economists explain that in order to understand the effects of government spending on the economy, one must know how much of the economic change is due to government spending and how much is due to other factors. Unfortunately, it is impossible to figure this out with general government spending, since the level of government spending often expands and contracts along with the economy.[12] When the economy grows, income and tax receipts increase. This, in turn, leads to increased government spending (see figure 2).

However, they argue that there is a useful, much more isolated proxy for overall government spending: defense spending. Using defense spending as a proxy has several advantages.[13] First,

government does not set defense spending levels based on the state of the economy. Non-economic factors drive defense spending. Second, changes in defense spending are very large and include sharply positive and negative values (see figure 3). Finally, the historical data on defense spending covers periods of high unemployment. Thus this data set should reveal whether government spending creates increased economic growth in a slack economy.

Figure 3: Changes in Defense and Non-Defense Government Purchases, 1914–2006 (expressed as ratios to the previous year's GDP)



Moreover, studying the effects of defense spending on the economy gives the best-case scenario of the spending-multiplier effect of government spending on the economy because defense spending leads to economic growth in ways that general government spending does not. For example, in times of war, the government mandates the increased production of particular goods, and the scarcity of domestic labor due to military enlistment and resources also forces economic resources to go to innovative and productive uses that did not exist before the war.[14]

Barro and Redlick's research estimates that the multiplier for changes in defense spending that people think will be temporary—spending for the Iraq war, for example—is between 0.4 and 0.5 at the time of the spending and between 0.6 and 0.7 over two years. If the change in defense spending becomes permanent, then these multipliers increase by 0.1 to 0.2.[15] Over time, this is a maximum multiplier of 0.9. Thus even in the government's best-case spending scenario, *all* of the estimated multipliers are significantly less than one. This means greater government spending crowds out other components of GDP, particularly investment.

In addition, they calculate the impact on the economy if the government funds the spending with taxes. They find that the tax multiplier—the effect on GDP of an increase in taxes—is –1.1. This

means that if the government raises taxes by $1, the economy will shrink by $1.1. When this tax multiplier is combined with the effects of the spending multiplier, the overall effect is negative. Barro and Redlick write that, "Since the tax multiplier is larger in magnitude than the spending multipliers, our estimates imply that GDP declines in response to higher defense spending and correspondingly higher tax revenue."[16] Thus, they conclude that greater government spending financed by tax increases hurts the economy.

More Data

Other economist have also calculated defense spending multipliers of less than or equal to 1.[17] Economists Bob Hall and Susan Woodward recently examined spending increases from World War II and the Korean War and found that the government spending multiplier is about 1.[18] Economist Valerie Ramey's work on how U.S. military spending influences GDP gives a multiplier estimate of 1.2 in the short term, but in the long term, she finds that consumer and business spending fall after a rise in government purchases, offsetting the initial effect of the government spending.[19]

In a recent blog post over at Neighborhood Effects, my colleague Matt Mitchell reports on a number of peer-reviewed studies have also examined the relationship between government size, somehow measured, and economic growth.

> "Here is a sample: Barro (1991 and 1989); Folster and Henrekson (2001); Romero-Ávila and Strauch (2008); Afonso and Furceri (2008); Chobanov and Mladenova (2009); Roy (2009); and Bergh and Karlsson (2010). Each of these studies finds a strong, statistically significant, negative relationship between the size of government and economic growth.
>
> What about the short run? Here again the evidence seems weak at best. Consider new research by Harvard's Robert Barro and Charles Redlick. They find that for every dollar the government spends on the military (read: takes out of the private economy), the economy gains just 40 to 70 cents. Spending a dollar to obtain 40 to 70 cents does not a good deal make. Or consider another study by Harvard's Laruen Cohen, Joshua Coval and Christopher Malloy. They rely on the fact that the federal government tends to spend more money in districts whose congressional members are chairs of powerful committees than in districts whose members are just rank-and-file. They find that firms actually cut capital expenditures by 15 percent following the ascendency of a congressman to the chairmanship. Moreover, firms seem to scale back employment and experience declines in sales."[20]

Job Creating or Just Job Shifting?

It's obvious that the government can hire people. But how many of these jobs will be taken by people already working in the private sector? This is a statistic that desperately needs to be calculated. After all, if most stimulus jobs are taken by people just switching over from privately funded jobs to publicly funded ones, that hurts any short-run Keynesian stimulus effect. In fact, in the last year, some people *have* switched from private to public sector jobs. According to the *Boston Globe*, these people were willing to take a cut in pay because they valued the security and fringe benefits of a government job.[21] Every worker who switches to a government job for the good benefits hurts the Keynesian story.

In a 2007 paper, economists Quadrini and Trigari posed another important question: if a government routinely hires more workers during a recession, will the unemployed intentionally stay unemployed longer, in hopes of getting a good government job?[22] Since government jobs and stimulus-funded Davis-Bacon prevailing wage jobs tend to have high wages and good benefits, there might be a strong incentive for unemployed workers to search a bit longer before settling for a private-sector job. In a simulation, Quadrini and Trigari found that when government spending stimulates the economy during a recession, it makes the typical recession worse. Many of the unemployed stay unemployed a few weeks longer, in the hopes of finding a high-paying, secure, stimulus-funded job. Common sense for an unemployed worker—searching for the best job possible—means a longer recession for all of us. So the Quadrini/Trigari multiplier isn't just zero: It's *negative*, even in the short run.

If stimulus jobs paid market wages rather than high Davis-Bacon wages, this would be less of a problem, but a problem it is.[23] And it's a problem that only points in one direction: a smaller multiplier. Perhaps it won't push the short-run multiplier down to zero (or less than zero) but a multiplier between zero and one starts to sound much more plausible. And if that's the case, then fiscal "stimulus" grows the government at the cost of shrinking the private sector.

Why Does it Matter?

Getting the multiplier wrong has big consequences when understanding the effects of fiscal stimulus on the economy. The government uses multipliers to estimate the widely cited projections of unemployment, job creation, and economic output. In the time leading up to the passage of the ARRA, Council of Economic Advisors (CEA) economists Christina Romer and Jared Bernstein used spending multipliers greater than 1 to promote the economic effects of the fiscal stimulus package.[24] In the months following the implementation of this package, the Congressional Budget Office (CBO) used estimates of a spending multiplier between 1.0 and 2.5,[25] relying on macroeconomic models that ignore the possibility that the growth of the economy may be affecting the level of government spending and not the reverse.[26] By extrapolating from these multipliers, CBO and CEA have made important projections about the effects of fiscal stimulus on the economy. These projections, however, have been largely wrong.

For example, in their January 2009 report,[27] Romer and Bernstein used multipliers of between 1.0 and 1.55 to determine the effect of the proposed stimulus spending (then $775 billion) would have on GDP and job creation. They assumed that each 1 percent increase in real GDP would create an additional 1 million jobs. Based on that assumption and their estimated spending multiplier, they estimated that the fiscal stimulus would create 3.5 million jobs by the end of 2010. While we cannot be certain how many jobs would have been lost or created without a stimulus package, we do know that since February 2009, 2.55 million jobs have been lost.[28]

The Worst-Possible Stimulus

Leaving the multiplier debate aside, there are other important reasons why the stimulus bill will have deleterious consequences for the economy. The Recovery Act took the form of increased government spending through federal and state bureaucracies, going to areas such as education, infrastructure, and energy spending.

For months now then, the stimulus bill has routed the bulk of the stimulus money through various government bureaucracies. As economist Keith Hennessey explains, this spending will be "*inefficient*—It will be inefficient in two senses. The spending represents the policy preferences of legislators (and all their ugly legislative deals and compromises), rather than the choices of hundreds of millions of Americans who presumably know better how they would like money spent on them. The spending will also be wasteful, and we are starting to see signs of this in the press."[29]

The spending is also occurring very slowly. According to the recovery.org data, 16 months after the adoption of the Recovery Act, agencies, firms, and citizens spent some $190 billion in grants and contracts—that is a mere 60 percent of discretionary spending in the bill (highways, mass transit, energy efficiency, broadband, education, state aid).[30] And only $20 billion in additional spending was reported during the last quarter of the 2010 for which the data is available. Congress has expended most of the $267 billion for set aside for entitlement spending (food stamps, unemployment, and Medicare refundable tax credits), but the bulk of that sum went to Medicaid spending, which flows to the states, not into the private economy. Spending in states defers, not mitigates, the economic impact of the recession. By extending unsustainable spending programs, this spending has simply prolonged the lag time until needed spending adjustments occur, not created jobs.

Thus even if you believe that Keynesian aggregate demand theory is correct in saying increased government spending stimulates the economy—in this case of this "stimulus," the spending is happening so slowly and inefficiently that it does not even meet the conditions for a Keynesian economic stimulus, regardless of whether you believe one would have worked in the first place.

This spending may increase elements reported as part of GDP: increasing cash in people's pockets might produce some increase in consumer spending. Throwing more money at roads might lead to more investment. Bailing out the states will yield more state spending. But, unless

you believe that federal spending magically conjures up purchasing power, the total GDP will remain unchanged, because the federal government has to borrow the stimulus money from either domestic or foreign sources. This borrowing in turn reduces other areas of demand and/or increases the net trade deficit. In the end, the stimulus spending does not increase total demand it just reshuffles it, leaving the economy just as weak—if not weaker because the national debt is higher—as before.

Stimulus Facts

Using the tens of thousands of stimulus recipient reports published on recovery.gov each quarter and economic and political data from the Bureau of Labor Statistics, the Census Bureau, GovTrack.us, and others, I am writing a series of quarterly reports that put this aggregate information into a larger context.

I am about to release the third of that series. Today I would like to highlight some preliminary findings based on this data. (The data and results presented here encompass the first quarter of the calendar year 2010 reports of Recovery Act contracts and grants only. The complete dataset used for this report will be available for download at Mercatus.org when the full report is released at the end of July 2010.)

First, in the third quarter for which Recovery.gov reports are available, federal agencies awarded over 69,717 contracts and grants. Total spending reached over $192.2 billion. That is roughly $22 billion more reported received than in the previous quarter. At that rate, the government should be done awarding stimulus dollars by 2020. In other words, the money is being spent very slowly.

Second, the total number of jobs the stimulus has created or saved is claimed to be 679,814. However, it is hard to know what these jobs represent since the administration recently changed how it counts jobs. According to the new rules, the administration no longer keeps a cumulative tally of jobs created and saved by the stimulus. Instead, it posts only a count of jobs for each quarter. Also, instead of counting only created and saved jobs, it counts any person who works on a project funded with stimulus money—even if that person never lost his or her original job.[31]

These changes highlight the near impossibility of accounting for how many jobs were saved by the (expenditure or allocation of) stimulus funds, but what we do know from these numbers is that of the 679,814 jobs reported created or saved, four times as many of these jobs were in the public rather than the private sector.

- Total jobs “created or saved” in public entities: 550,749
- Total jobs “created or saved” in private entities: 127,306

Third, the average cost of each job created or saved is $282,000. However, the average cost per private sector job created or saved is over $647,000.

Fourth, controlling for the percentage of the district employed in the construction industry, which is often used as a proxy for the vulnerability to recession of a district, the preliminary results find no statistical correlation between all relevant unemployment indicators and the allocation of funds. This preliminary result, which is similar to the ones in the two previous reports, suggests that unemployment, at least thus far, has not been the factor leading the awards. Also, I found no correlation between other economic indicators, such income, and stimulus funding. As the main argument for enacting the $787 billion stimulus bill was that if government spends money where it is the most needed, that expenditure would create jobs and trigger economic growth, one would have expected the government would invest relatively more money in districts that have the highest unemployment rates and less money in districts with lower unemployment rates. Such does not appear to be the case.

Conclusion

The understandable temptation to take action in time of recession should not lead lawmakers to take counterproductive actions. Economists have shown that stimulus by government spending is not productive, and Barro and Redlick's data show that the CBO's multiplier overestimates the return on government spending almost by a factor of two.

What's more, the stimulus's effect on job creation is unclear. Did it create productive jobs? Is the stimulus money simply funding public jobs for some who had jobs in the private sector but switched over for reasons of security? Is the stimulus simply funding pay raises that would have happened stimulus money or not? Is the stimulus money simply funding jobs that existed and were not at risk?

Unfortunately, we cannot know. In fact, a recent report by the Government Accountability Office highlights that Recovery.gov is not transparent and the data displayed on it doesn't promote the transparency agenda of the Obama administration.[32]

If stimulus funds are a bad investment, is there anything Congress can do to help the economy? A few years ago, Christina and David Romer looked at the impact of tax cuts on the economy and concluded that the tax multiplier is about three: a dollar of tax cuts raises GDP by about three dollars.[33] Their finding suggests that the economy might get more bang for the buck with tax cuts rather than spending hikes.

[1] Statistics from the Bureau of Labor Statistics National Current Employment Statistics survey at http://bls.gov. Job loss calculated by author using non-farm payroll employment change from December 2007 to June 2010.
[2] Randy Ilg, "Long-Term Unemployment Experience of the Jobless," *Issues in Labor Statistics,* Summary 10-05 (2010).
[3] Author's calculation based on data from NIPA Table 1.1.6. *Real Gross Domestic Product, Chained Dollars* from the Bureau of Economic Analysis.
[4] Barack Obama, "Address to Joint Session of Congress" (speech, The United States Capitol, Washington, D.C., February 24, 2009), http://www.whitehouse.gov/the_press_office/remarks-of-president-barack-obama-address-to-joint-session-of-congress/.
[5] Christina Romer and Jared Bernstein, " The Job Impact of the American Recovery and Reinvestment Plan", news release, January 9, 2009.
[6] Robert Barro, "Government Spending Is No Free Lunch," *Wall Street Journal,* January 22, 2009, http://online.wsj.com/article/SB123258618204604599.html.
[7] For estimates of multipliers greater than 1, see Marianne Baxter and Robert G. King, "Fiscal Policy in General Equilibrium," *American Economic Review* 83, no. 3 (1993): 315–334; Christina Romer, Jared Bernstein, ""The Job Impact of the American Recovery and Reinvestment Plan," news release, January 10, 2009, and Andrew Mountford and Harald Uhlig, "What are the Effects of Fiscal Policy Shocks" (working paper no. *14551*, National Bureau of Economic Research, December 2008)..
[8] Murray Rothbard, "Money and Its Purchasing Power," in *Man, Economy and State, With Power and Market*, http://mises.org/rothbard/mes/chap11a.asp.
[9] Michael Woodford, "Simple Analytics of the Government Expenditure Multiplier" (working paper, Columbia University, January 27, 2010), 43, http://www.columbia.edu/~mw2230/G_ASSA.pdf.
[10] Another way to think of this is that there is something wrong with the price system. To learn more about why this is not the case in a world with rational actors, see Robert Barro, "Long-term contracting, sticky prices, and monetary policy," *Journal of Monetary Economics* 3, no. 3 (July 1977): 305–316.
[11] Robert Barro and Charles Redlick, "Macroeconomic Effects from Government Purchases and Taxes" (working paper, Mercatus Center at George Mason University, Arlington, VA, 2010).
[12] Zvi Hercowitz and Michel Strawczynski, "Cyclical Ratcheting in Government Spending: Evidence from the OECD," *The Review of Economics and Statistics* 86, no. 1 (February 2004): 353–361 and Graciela L. Kaminsky, Carmen M. Reinhart, and Carlos A. Végh, "When It Rains, It Pours: Procyclical Capital Flows and Macroeconomic Policies," *NBER Macroeconomics Annual* 19, (2004): 11–53.
[13] The use of defense spending as an exogenous shock to study the effect of government spending has been explored in-depth in Roberto Perrotti, "In Search of the Transmission Mechanism of Fiscal Policy," (working paper 13143, National Bureau of Economic Research). In addition, it has been used as an econometric tool to study the effects of fiscal stimulus on the economy in a number of studies. including Olivier Blanchard and Roberto Perotti, "An Empirical Characterization of the Dynamic Effects of Changes in Government Spending," *Quarterly Journal of Economics* 107, no. 4 (November 2002): 1329–1368 and Miguel Almunia and others, "From Great Depression to Great Credit Crisis: similarities, differences and lessons" *Economic Policy* 25, no. 62 (2010): 219–265, among others.
[14] Robert Barro and Charles Redlick, "Macroeconomic Effects from Government Purchases and Taxes," 32.
[15] Ibid, 44.
[16] Ibid, 29.
[17] See Olivier Blanchard and Roberto Perotti, "An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output," and Robert E. Hall, "By How Much Does GDP Rise If the Government Buys More Output?" *Brookings Papers on Economic Activity,* forthcoming.
[18] Bob Hall and Susan Woodward, "Measuring the Effect of Infrastructure Spending on GDP," in *Financial Crisis and Recession*, http://woodwardhall.wordpress.com/2008/12/11/measuring-the-effect-of-infrastructure-spending-on-gdp/.
[19] Valerie Ramey, "Identifying Government Spending Shocks: It's All in the Timing," unpublished, University of California San Diego, October 2009.
[20] Matt Mitchell, "Why This Isn't The Time to Worry that Government Is Spending Too Little," Neighborhood Effects, June 30 2010. http://neighborhoodeffects.mercatus.org/2010/06/30/why-this-isnt-a-time-to-worry-that-government-is-spending-too-little/
[21] Megan Woolhouse, "Now hiring, your Uncle Sam," *Boston Globe,* May 30, 2009, http://www.boston.com/jobs/news/articles/2009/05/30/unlike_rest_of_us_federal_government_is_hiring____a_lot/.

[22] Quadrini and Trigari, (2007) "Public Employment and the Business Cycle," http://www-rcf.usc.edu/~quadrini/papers/PublicEmployPap.pdf, later published in *Economic Inquiry.*
[23] Indeed, if government jobs paid market wages, then recessions would be a great time to build roads and hospitals at a much lower cost than usual: Taxpayers could save money, hiring employees who were waiting for the private-sector to improve.
[24] Christina Romer and Jared Bernstein, "The Job Impact of the American Recovery and Reinvestment Plan," 12.
[25] Congressional Budget Office, *Estimated Impact of the American Recovery and Reinvestment Act, January 2010 through March 2010* (Washington, DC: Congressional Budget Office, May 2010), http://www.cbo.gov/ftpdocs/115xx/doc11525/05-25-ARRA.pdf.
[26] Ibid, Appendix. For an example of models operating under similar assumptions, see R. C. Fair, "Estimated Macroeconomic Effects of the U.S. Stimulus Bill," unpublished, Yale University, March 2010.
[27] Christina Romer and Jared Bernstein, *The Job Impact of the American Recovery and Reinvestment Act* (January 9, 2009), http://otrans.3cdn.net/45593e8ecbd339d074_l3m6bt1te.pdf.
[28] Authors' calculations using data from the Bureau of Labor Statistics*, Employment, Hours, and Earnings from the Current Employment Statistics Survey*, total change in nonfarm payroll employment, January 2009 to June 2010.
[29] Keith Hennessey, "Will the Stimulus Come Too Late," June 3, 2009. http://keithhennessey.com/2009/06/03/will-the-stimulus-come-too-late/print/
[30] Congressional Budget Office, Implementation Lags of Fiscal Policy: http://www.cbo.gov/ftpdocs/102xx/doc10255/06-02-IMF.pdf
[31] For example: When Chrysler reported a $53 million contract to build 3,000 government vehicles last fall, it listed zero jobs because it used existing employees to fill the orders. But under the new rules, those workers would have counted. Also, now recipients can count pay raises as stimulus jobs as long as they are counted as fractions of a job
[32] Government Accountability office, "Increasing the Public's Understanding of What Funds are being Spent on and What Outcomes are Expected," May 2010. http://www.gao.gov/highlights/d10581high.pdf full report: http://www.gao.gov/new.items/d10581.pdf
[33] Christina D. Romer and David H. Romer, "The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks," (working paper, University of California–Berkeley, March 2007), http://www.econ.berkeley.edu/~cromer/RomerDraft307.pdf.