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Research Review: What Can Be Learned from Local Multiplier Estimates?

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With a large economic downturn underway, the Administrations of George W. Bush and Barack Obama pushed for "stimulative" deficit spending in 2008 and 2009. According to Keynesian theories of economics, a dollar of deficit spending or tax rebates during a recession can increase gross domestic product (GDP) by more than a dollar. The results of those policies, and similar policies at the state level, provide a valuable test of Keynesian economics.

What economists have found is that while a federal windfall is beneficial to the recipient, state-level deficit spending destroys more jobs than it creates. These studies do not answer the broader question of whether the federal government ought to borrow in order to make large grants to the states during recessions. After all, a windfall for one state must come at a cost to other states.

States as Case Studies.

Economists often compare cities, countries, or time periods to draw conclusions about competing theories. Since the Great Recession, several economists have compared the economic performances of the U.S. states to evaluate Keynesian policy.

With limited fiscal flexibility, states responded to the crisis and concomitant drop in revenues with a variety of measures, including tax increases, spending cuts, and debt.

Washington, on the other hand, responded with the American Recovery and Reinvestment Act (ARRA), which called for $800 billion of spending and tax breaks over several years. Under the ARRA, substantial federal funding was channeled to state governments.

The results have been awful. Four and a half years after the crisis began, GDP and employment are far below potential. Millions have left the labor force, and millions more have seen their resumes erode during long unemployment spells. Is the economic recovery absent because of the stimulus spending or in spite of it?

In Theory...

The theory behind Keynesian stimulus is that government spending has a "multiplier" effect.

A multiplier of zero means that when government borrows and spends a dollar more, the private sector spends a dollar less, and GDP does not change at all. A multiplier of one means than when government spends a dollar more, the private sector's spending does not change on net, so GDP rises by the one dollar. A multiplier of three means that when government spends a dollar more, the private sector spends two dollars more, adding three dollars to GDP.

Government spending is not as efficient as private spending at providing consumption and investment, which contribute directly to present and future well-being, respectively. Since the goal of government spending is to provide well-being to people—not

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GDP to statisticians—multipliers should be greater than one to be judged a success. Moreover, since each dollar of deficit spending must be paid back in the future with interest, a multiplier that is only slightly greater than one (say, 1.2) should discourage deficit spending.

An oft-ignored aspect of temporary deficit spending is that whatever benefits are gained when the spending is introduced are then lost when the spending is withdrawn. According to the proponents of deficit spending, a government that introduces $1 trillion in deficit spending gets a one-time $1.5 trillion boost in GDP. But there is no additional benefit for continuing to run deficits at the new, elevated level. And, according to the same theory, if the $1 trillion is ever withdrawn, then GDP should shrink by $1.5 trillion. There is no easy way to put the genie back into the bottle.[1]

In a theoretical paper, Emmanuel Farhi and Ivan Werning show that the fiscal multiplier on a transfer is much higher than the fiscal multiplier on a state's own spending.[2] This makes perfect sense: After all, the net benefit of a $1,000 inheritance is much greater than a $1,000 loan. The evidence from the ARRA bears this out.

The Economists

Daniel Wilson is senior economist in microeconomic research at the Federal Reserve Bank of San Francisco.

Gabriel Chodorow-Reich, *Laura Feiveson*, *Zachary Liscow*, and *William Gui Woolston* completed their paper while doctoral candidates at the University of California-Berkeley, MIT, and Stanford University.

James Feyrer and *Bruce Sacerdote* are professors of economics at Dartmouth College.

Jeffrey Clemens is professor of economics at the University of California-San Diego.

Stephen Miran is an economist at Lily Pond Capital Management.

Timothy Conley is professor of economics at the University of Western Ontario.

Bill Dupor is associate professor of economics at Ohio State University.

Estimated Multipliers

Estimates of Transfer Benefit Multipliers:

- Daniel Wilson[3] measures the state transfer benefits from the ARRA using formulas to allocate spending by the Departments of Transportation, Education, and Health and Human Services. Because these formulas were not based on recession conditions, they are a plausible *instrument* to obtain unbiased estimates. Wilson reports his results as jobs per million dollars of federal spending in each state after one year of stimulus. Translating to fiscal multipliers,[4] he estimates transfer benefit multipliers between 2 and 4, depending on how ARRA funds are measured. The estimates are imprecise but robust to a variety of approaches.

- Gabriel Chodorow-Reich, Laura Feiveson, Zachary Liscow, and William Gui Woolston[5] used a method similar to Wilson's but looking at the Medicaid matching funds portion of the ARRA. They find a fiscal transfer multiplier of 2.1.

1. Keynesians are hopeful that fiscal multipliers are high in recessions and low at other times. The evidence for this is limited, since recessions are relatively rare.
2. Emmanuel Farhi and Ivan Werning, "Fiscal Multipliers: Liquidity Traps and Currency Unions," MIT Working Paper 12-23, August 2012, http://dspace.mit.edu/bitstream/handle/1721.1/72555/Werning12-23.pdf?sequence=1 (accessed May 20, 2013).
3. Daniel Wilson, "Fiscal Spending Jobs Multipliers: Evidence from the 2009 American Recovery and Reinvestment Act," Federal Reserve Bank of San Francisco Working Paper 2010-17, October 2011, http://www.frbsf.org/publications/economics/papers/2010/wp10-17bk.pdf (accessed May 20, 2013).
4. To translate from jobs to fiscal multipliers, I used Okun's Law as employed by Feyrer and Sacerdote and Chodorow-Reich et al. Keep in mind that all fiscal multipliers are imprecisely estimated; in Wilson's case, the estimate underlying a multiplier of 4 is not statistically different than the estimate underlying a multiplier of 2.
5. Gabriel Chodorow-Reich, Laura Feiveson, Zachary Liscow, and William Gui Woolston, "Does State Fiscal Relief During Recessions Increase Employment? Evidence from the American Recovery and Reinvestment Act," *American Economic Journal: Economic Policy*, Vol. 4, No. 3 (August 2012), pp. 118–145, http://pubs.aeaweb.org/doi/pdfplus/10.1257/pol.4.3.118 (accessed August 5, 2013). See page 138, footnote 26.

- James Feyrer and Bruce Sacerdote[6] look at transfer benefits from the ARRA using a variety of methodologies and compare the results. They conclude that some aspects of the stimulus were much more successful than others. For the stimulus as a whole, their estimates of windfall benefit multipliers vary between 0.47 and 2.0, depending on the method used.

Estimates of State Deficit Spending Multipliers:

- Jeffrey Clemens and Stephen Miran[7] investigate state deficit spending. The instrument they use is the relative stringency of state balanced budget and rainy-day fund laws. States with less stringent rules are more likely to run a fiscal deficit in a recession. They find a small multiplier: around 0.4 in their preferred specification. That means that for each dollar of deficit spending by the state government, residents' consumption and investment fall by 60 cents.

- Timothy Conley and Bill Dupor[8] try to do it all: They use budget constraints as an instrument, like Clemens and Miran, as well as the ARRA transportation money formula, like Wilson. In addition, they use the political party of the governor (Democrats attracted more ARRA funding), the share of state revenues from sales taxes, and the state's share of federal spending relative to federal taxes. Due to the fungibility of money,[9] all of these instruments help Conley and Dupor determine states' degree of financial flexibility during the recession. Their estimates are imprecise, and they cannot rule out the result that the ARRA created no jobs at all—a multiplier of zero. They find that it is more likely that the ARRA destroyed private-sector jobs than created them. However, with their kitchen-sink approach, these results are difficult to put in context.

Multipliers Misunderstood

Some journalists have taken the high transfer benefit multipliers and inappropriately applied them to the ARRA as a whole.[10] Benefits to the states are good, but policymakers need to keep costs to the nation in mind as well. The transfer benefit studies are probably best used to compare the relative benefits of different types of spending. Such estimates should not be used to justify federal spending.

Because the transfer benefit multipliers do not include the costs of the stimulus, the ARRA-based estimates are similar to estimates of "windfall" multipliers from longer time series.[11]

Other journalists have misunderstood the key question facing policymakers.[12] The question is not whether the fiscal multiplier is significantly different than zero but whether the national benefits outweigh the national costs. A multiplier of less than one

6. James Feyrer and Bruce Sacerdote, "Did the Stimulus Stimulate? Real Time Estimates of the Effects of the American Recovery and Reinvestment Act," *National Bureau of Economic Research* Working Paper 16759, February 2011, http://www.nber.org/papers/w16759 (accessed July 18, 2013).
7. Jeffrey Clemens and Stephen Miran, "Fiscal Policy Multipliers on Subnational Government Spending," *American Economic Journal: Economic Policy*, Vol. 4, No. 2 (May 2012), pp. 46–68, http://econweb.ucsd.edu/~j1clemens/pdfs/SubnationalFiscalPolicyAEJ.pdf (accessed May 20, 2013).
8. Timothy Conley and Bill Dupor, "The American Recovery and Reinvestment Act: Public Sector Jobs Saved, Private Sector Jobs Forestalled," Working Paper, May 2011, http://economics.uwo.ca/images/news/TheAmericanRecovery.pdf (accessed May 20, 2013).
9. If the federal government allocates $1 million to a state for transportation projects, the state, if it wishes, can shift $1 million of its own money out of transportation and into health care. Even money that comes with strings attached can be implicitly shifted to the recipient's favored use.
10. For example, *The Economist*, "The President's Record Is Better Than the Woes of America's Economy Suggests," September 1, 2012, http://www.economist.com/node/21561909 (accessed May 20, 2013).
11. Estimates of transfer benefit (or "windfall") multipliers over a long time period fall between 1.5 and 2.1 in three recent papers. See Emi Nakamura and Jon Steinson, "Fiscal Stimulus in a Monetary Union: Evidence from U.S. Regions," Columbia University working paper, 2011; Juan Carlos Suárez Serrato and Phillippe Wingender, "Estimating Local Fiscal Multipliers," University of California-Berkeley working paper, 2010; and Daniel Shoag, "The Impact of Government Spending Shocks: Evidence on the Multiplier from State Pension Plan Returns," Harvard University working paper, 2010.
12. For example, Dylan Matthews, "The Romney Campaign Says Stimulus Doesn't Work. Here Are the Studies They Left Out," *The Washington Post*, Wonkblog, August 8, 2012, http://www.washingtonpost.com/blogs/wonkblog/wp/2012/08/08/the-romney-campaign-says-stimulus-doesnt-work-here-are-the-studies-they-left-out/ (accessed May 20, 2013).

implies that government spending is actively crowding out private activity (most often investment) and making people worse off, even in the short run.

A multiplier greater than one implies that government spending increases private activity and there is thus a short-term benefit of fiscal stimulus to the private sector.

Benefits Have Costs

If the short-term benefit outweighs the medium-term cost of anti-stimulus when the stimulus is withdrawn —and the long-term costs of repayment and debt drag[13]—then fiscal stimulus may be a good policy choice. To date, the scholarly evidence is deeply uncertain about the size of the national multiplier. Policymakers should be leery of gaining an uncertain present benefit at a certain future cost.

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13. See Salim Furth, "High Debt Is a Real Drag," Heritage Foundation *Issue Brief* No. 3859, February 22, 2013, http://www.heritage.org/research/reports/2013/02/how-a-high-national-debt-impacts-the-economy.