

The 2009 Stimulus Package: Two Years Later

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Testimony Before the
Committee on Oversight and Government Reform
Subcommittee on Regulatory Affairs, Stimulus Oversight and Government Spending
U.S. House of Representatives

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Chairman Jordon, Ranking Member Kucinich, and other members of the Committee, thank you for the opportunity to testify on the impact of the American Recovery and Reinvestment Act (ARRA) of 2009, enacted two years ago this week.

My empirical research during the past two years shows that ARRA did not have a significant impact in stimulating the economy.¹ I do not think this finding should come as a surprise. Earlier research on the discretionary countercyclical Economic Stimulus Act of 2008—enacted three years ago this week—indicates that it too did little to stimulate the economy.² Research on the discretionary countercyclical actions in the late 1960s and 1970s—the most recent period of such large interventions prior to this past decade—also shows disappointing results, including high unemployment, high inflation, high interest rates, and frequent recessions; the poor results of the 1970s policies led top macroeconomists to write influential papers, such as “After Keynesian Macroeconomics,” which questioned the whole approach and to decry “that countercyclical discretionary fiscal policy is neither desirable nor politically feasible.”³

My purpose here today is not to explain this recent revival of a failed approach to policy, but rather to summarize the facts which once again raise doubts about its effectiveness. I take a macroeconomic perspective, looking at the impact of ARRA on the major components of GDP, such as government purchases and consumption expenditures. Changes in GDP are of course directly related to employment growth, with faster growth of GDP creating more jobs. I make use of a new data set developed by the Bureau of Economic Analysis (BEA) at the Department of Commerce which traces the impact of ARRA on the economy through the National Income and Product Accounts, the major source of data for macroeconomic analysis. I present and analyze the data through a series of simple graphs, but the findings can be verified and supported through statistical analysis.

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¹ Much of this research has been conducted jointly; see for example Cogan, Cwik, Taylor and Wieland (2010), Cogan and Taylor (2010), Taylor (2010), and Taylor (2011)

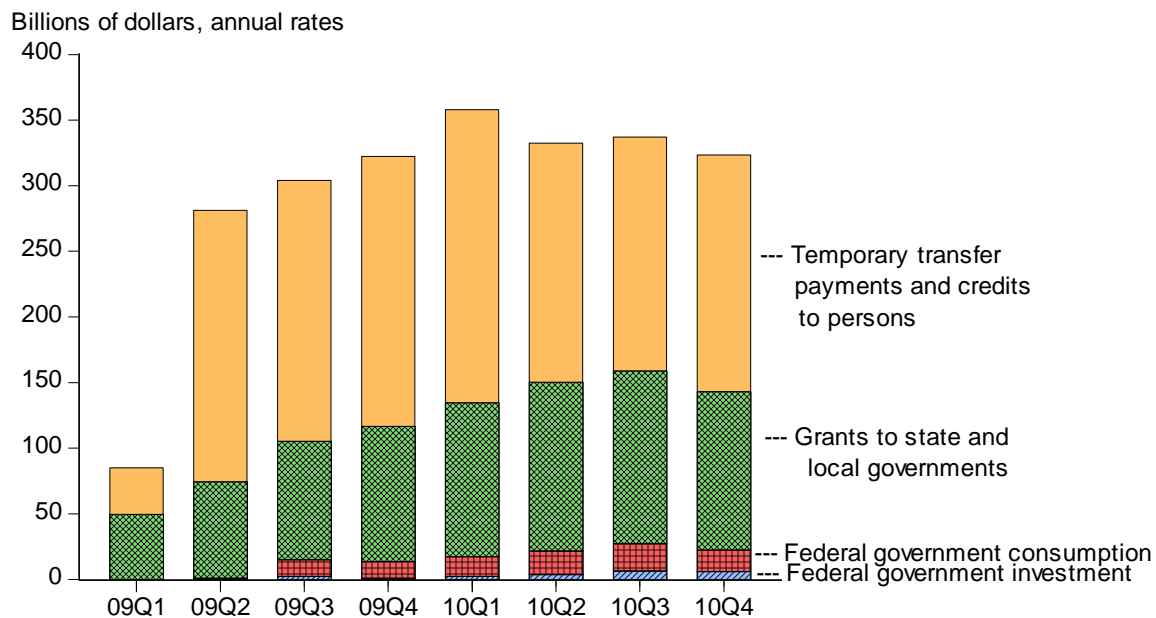
² Taylor (2009)

³ Examples of papers on temporary tax cuts and countercyclical grants to states are Blinder (1981) and Gramlich (1979), respectively; the paper about after Keynesian macroeconomics is by Lucas and Sargent (1978) and the quote is from Eichenbaum (1997)

The Major Macroeconomic Components of ARRA

The bar chart below summarizes the impact of ARRA on federal government sector transactions during the two years or eight quarters since enactment.⁴ Three components of ARRA are highlighted:

- (1) Federal government purchases of goods and services (both government consumption and government investment),
- (2) Federal grants to states and local governments, and
- (3) Temporary transfers and credits which increase the disposable personal income of individuals and families.



Two-Year Effect of ARRA on Major Federal Budget Categories
(Source: Bureau of Economic Analysis)

For the purposes of assessing the impact of ARRA on the economy it is very important to distinguish between these three categories and consider each in turn.⁵

⁴ The data are from the BEA table “The Effect of the ARRA on Selected Federal Government Sector Transactions” posted on the BEA webpage.

⁵ A small part of ARRA—not shown in the bar chart—was classified as going to the business sector in the form of subsidies and tax benefits, for example for renewable energy or first time home buyers credits, which I do not consider in this testimony. It should also be emphasized that ARRA is one of many other fiscal interventions during the past two years, including the cash-for-clunkers program and an unusually large increase in appropriated funds not officially counted as part of ARRA. See Anderson (2011) for details.

The first category, government purchases of goods and services, is part of GDP and thereby contributes directly to changes in GDP. The amount by which an increase in government purchases in a stimulus package raises GDP is called the government purchases *multiplier* which has been a subject of much disagreement among economists in the two years since ARRA was enacted. Those who argue that the ARRA has been effective typically assume a large multiplier. Those who argue that the effects are small usually use models with a small multiplier.⁶

The second and third components of ARRA are not direct purchases of goods and services but rather transfers (grants) to state and local governments and transfers (one-time payments and tax credits) to persons. Such transfers are not part of GDP, but if and when the transferred funds are used by governments or persons to purchase goods and services—cars, trucks, food, health care, etc—those purchases are part of GDP. So the task of determining how much ARRA affects GDP requires looking at how much of those transfers are used for state and local government purchases and how much are used for personal consumption expenditures by households.

I now consider each category, starting with federal government purchases.

Federal Government Purchases

Perhaps the most striking finding in the data shown in the bar chart is that only a tiny slice of ARRA has gone to purchases of goods and services by the federal government. Of the total \$862 billion in the ARRA stimulus package, the amount allocated to federal government consumption summed to only \$24.2 billion in the two years 2009 and 2010. The amount allocated to infrastructure investment at the federal level was \$5.6 billion in 2009-10, or only 0.6 percent of the total ARRA.

Measured as a percentage of GDP the amounts are even smaller. At the maximum level, reached in the third quarter of 2010, federal government purchases were only 0.2 percent of GDP and federal infrastructure was only 0.04 percent of GDP.

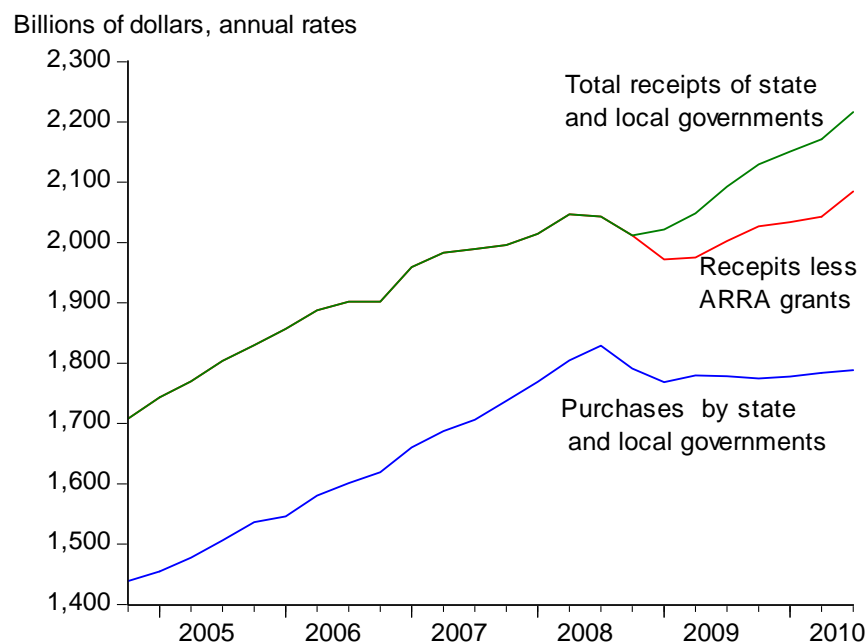
Clearly these amounts are too small to be a factor in the economic recovery. The debate over the size of the government purchases multiplier does not matter here because the multiplier has virtually nothing to multiply at the federal level. On this account ARRA has not been effective in stimulating economic growth and job creation.

⁶ For example, Romer and Bernstein (2009) assume a government purchases multiplier much higher than Cogan, Cwik, Taylor and Wieland (2010) and thus estimate an impact of ARRA which is six times greater. The models stressed by Cogan, Cwik, Taylor and Wieland (2010) are of a new Keynesian variety developed, for example, by Frank Smets, Director of Research at the European Central Bank, and his colleague Raf Wouters. Another newer model comes from an International Monetary Fund study which reports estimates of government spending impacts which are much smaller than those reported by Romer and Bernstein. A multiplier that is less than one means that government spending immediately crowds out other components of GDP (investment, consumption, net exports).

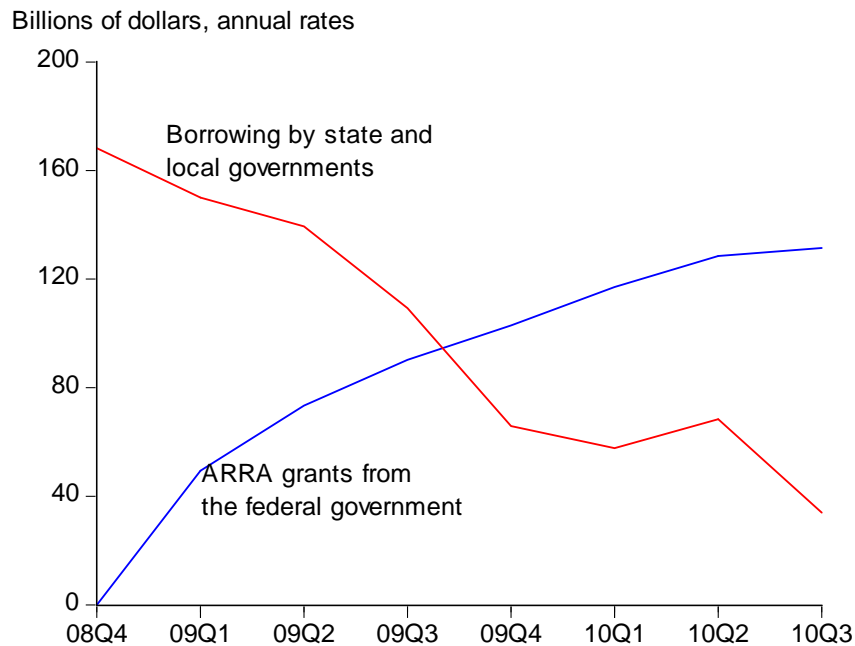
State and Local Government Purchases

State and local governments received substantial grants under ARRA as shown in the bar chart. The assumed purpose of sending these grants to the states was to encourage them to start infrastructure projects and make other government purchases which would add directly to GDP and create jobs.

But when you look at what state and local governments did with the funds, you find that they did not increase purchases of goods and services or increase infrastructure projects. This is clearly demonstrated in the following chart showing state and local government receipts, with and without ARRA grants, and purchases of goods and services. Observe how total receipts of state and local governments increased sharply due to ARRA, much more than without ARRA. But state and local government purchases have hardly increased at all and they are still below the levels of late 2008 before ARRA grants began.



What did the states do with the ARRA funds? The data show that they mainly used the funds to reduce their borrowing, as shown clearly in the next graph. In addition, some of the funds went to increase government spending other than on purchases of goods and services, including transfer payments to individuals, mainly Medicaid. Such transfers are not considered “purchases” by the BEA and they only increase GDP to the extent that they lead to a net increase in purchases by governments or persons. As with the case of federal government purchases, the debated over the size of the government purchases multiplier does not matter in this case because state and local government purchases did not increase as a result of ARRA.



Personal Consumption Expenditures

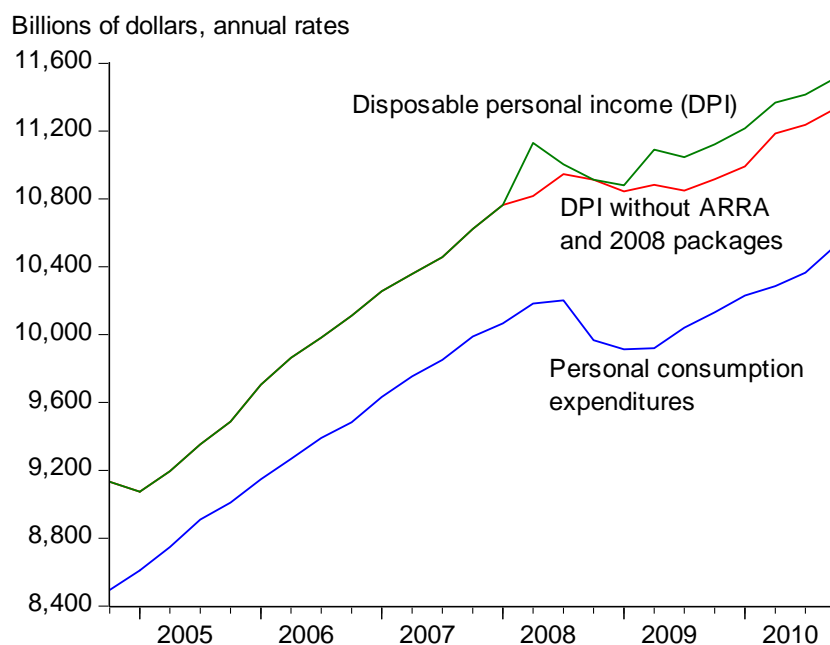
Finally, consider the third component of ARRA: temporary payments to persons such as the one-time \$250 checks sent in 2009, the refundable tax credits, or the temporary changes in withholding. The macroeconomic purpose of this component of ARRA was to jump-start personal consumption expenditures—a major part of GDP—and thereby jump-start GDP and the economy.

Here it is useful to consider the Stimulus Act of 2008 along with ARRA because both acts are similar in this dimension and occurred nearly back-to-back. In the Economic Stimulus Act of 2008 checks were sent to people on a one-time basis and aggregate disposable personal income jumped dramatically though temporarily. In ARRA the amounts were initially smaller and more drawn out than the 2008 stimulus; though temporary, the increase in disposable personal income lasted through 2010.

Both cases are illustrated in the next chart which shows aggregate disposable personal income—with and without the stimulus payments—along with personal consumption expenditures from 2005 through 2010. Observe the increase in disposable income at the time of the 2008 stimulus and the 2009 stimulus.⁷ However, aggregate personal consumption

⁷ The increase is much more pronounced and visible graphically using monthly data as shown in Taylor (2009), but after a few months into ARRA, the BEA stopped tabulating monthly data and focused on the quarterly data summarized in the bar chart presented here. For better comparison with 2009 and 2010, therefore, quarterly data rather than monthly data in 2008 are presented in the chart.

expenditures did not increase by much at the time of these sharp increases in stimulus payments. In general, the overall pattern of personal consumption expenditures seems to move closely with disposable personal income without the addition of the stimulus funds, though the decline in consumption is greater than the decline in either measure of disposable personal income.



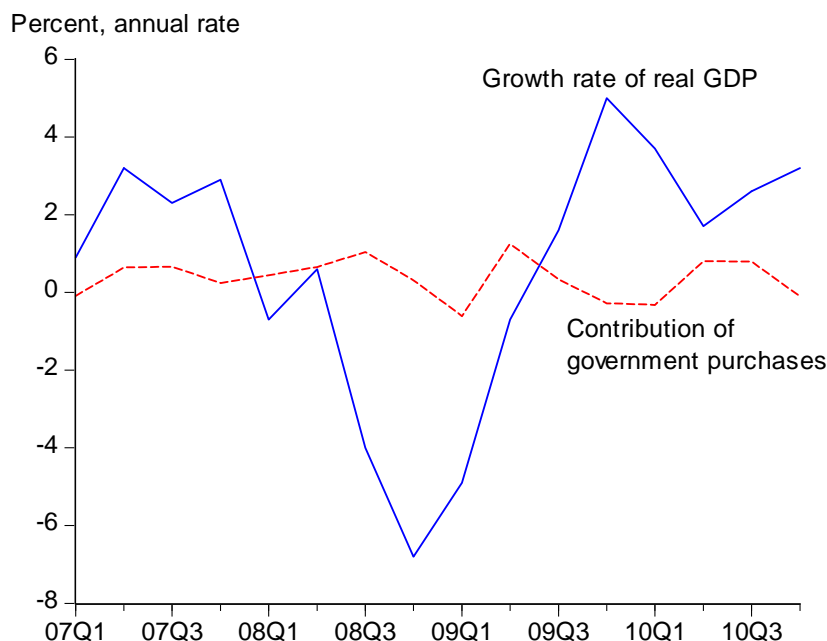
The relationship between the temporary stimulus payments versus the more permanent changes in income without the stimulus can be studied more rigorously than is possible in the above chart using regression techniques. These statistical techniques show that the effect of the temporary stimulus payments on personal consumption expenditures is much smaller than the effect of more permanent income changes and statistically insignificant from zero.⁸ This is what the permanent income theory and the life cycle theory of consumption would predict from such temporary payments. As in the case of the grants to the states the temporary payments were mainly added to personal saving in the form of reduced net borrowing. In effect the increased borrowing by the federal government to finance ARRA was nearly matched by a decrease in net borrowing by the state and local governments and by persons.

⁸ In a regression with correction for serial correlation over the period from 2000.1 to 2010.4 with personal consumption expenditures as the dependent variable, the coefficient on the temporary stimulus payments is 0.19 with a standard error of 0.14, while the coefficient on disposable personal income without the payments is 0.87 with a standard error of 0.05. If one separates out the 2009 stimulus, the coefficient on the temporary payments is still insignificantly different from zero and actually turns negative.

Aggregate Cross Checks

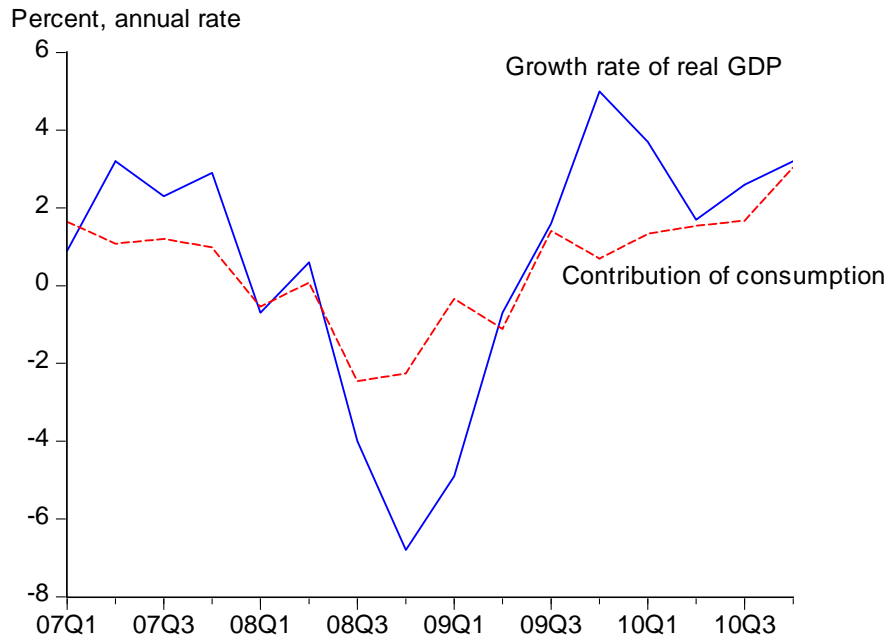
This examination of how the ARRA funds were used indicates that neither government purchases nor personal consumption expenditures increased by much as a result of ARRA, thereby raising doubts about the contribution of ARRA to the economic recovery. It is possible to cross check this finding using data⁹ on the contributions of different components of GDP to the growth of GDP during this period. The next three graphs summarize these cross-checks.

In each graph the growth rate of real GDP is shown, along with the percentage contributions of government purchases, consumption, investment and net exports (the latter two combined together) to that growth rate. Observe first that the percentage contribution of government purchases (federal as well as state and local combined) to the growth of real GDP is negligible. The swing in economic growth during the recession and the recovery seems largely independent of the changes in government purchases.

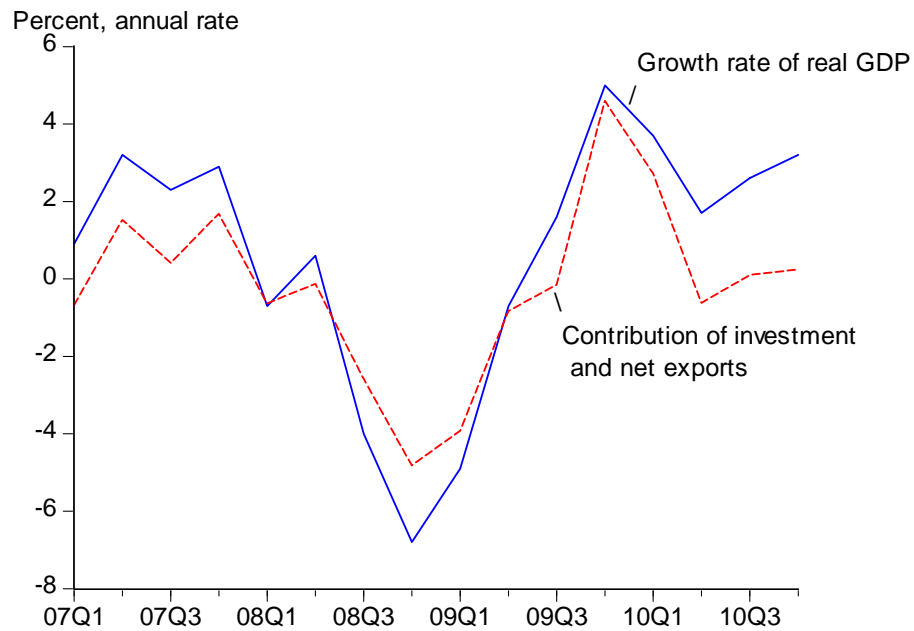


The contribution of consumption—shown in the next chart—is larger, but still consistent with the finding that the change in consumption was due to changes in income without the stimulus payments. Note that the largest contribution from consumption comes in the last quarter of 2010 at the time when the agreement to extend existing tax rates likely became anticipated and eventually a reality with increased expectations that they would become permanent.

⁹ The data are updated and published each month in Table 2 of the BEA release on quarterly GDP.



The next chart shows the large contribution of investment and net exports to changes in economic growth. These two items, which were not the main focus of the 2009 stimulus, contributed far more to the recovery than government infrastructure or other purchases which were to be the focus.



Why Do Policy Evaluations Differ?

Why do some argue that ARRA has been more effective than the facts presented here indicate? Many evaluations of the impact of ARRA use economic models in which the answers are built-in, and were built-in before the stimulus package was enacted. The same economic models that said, two years ago, that the impact would be large now show that the impact is in fact large. This is why, for example, the Congressional Budget Office finds larger effects while other researchers using different models find smaller effects. The models disagree so the policy evaluations disagree.

The data I examine here place more emphasis on where the funds from ARRA actually went. The approach makes less use of simulations of existing econometric models, although it uses general theories—such as the permanent income theory or similar theories of government behavior—to analyze the data.

These data point to some inconsistencies, however, in how model simulations have been conducted. For example, many model simulations assumed that ARRA would have a much larger effect on government infrastructure and other purchases than was actually the case.¹⁰ I believe the simulations should take account of the very small amount of funds that went to government infrastructure and other purchases. If CBO or other groups are still assuming in their simulations that a large fraction of grants to the states went to government purchases, then those simulations should be adjusted.

Conclusion

In sum, the data presented here indicate that the American Recovery and Reinvestment Act was not effective in stimulating the economy. Despite its large size, ARRA did not result in more than an immaterial increase in government infrastructure and other purchases at the federal level. The large grants to the states did not result in an increase in government infrastructure and other purchases at the state and local level. And finally an analysis of the payments that temporarily increased disposable income shows that they did not significantly affect personal consumption expenditures. In contrast changes in private investment and net exports have been much more of a factor in the recovery. Currently, the increased debt caused by ARRA—both directly through its deficit financing and indirectly through its de-emphasis on controlling spending—is likely a drag on economic growth.

¹⁰ Cogan and Taylor (2010) show that initial estimates by government agencies and economic researchers outside of government of the increase in government purchases from ARRA were much larger than what actually happened.

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Taylor's academic fields of expertise are macroeconomics, monetary economics, and international economics. He is known for his research on the foundations of modern monetary theory and policy, which has been applied by central banks and financial market analysts around the world. He has an active interest in public policy. In the past, he served as senior economist on the President's Council of Economic Advisers from 1976 to 1977, as a member of the President's Council of Economic Advisers from 1989 to 1991. He was also a member of the Congressional Budget Office's Panel of Economic Advisers from 1995 to 2001. Taylor served as a member of the California Governor's Council of Economic Advisors from 1996-98 and 2005-10.

For four years from 2001 to 2005, Taylor served as Under Secretary of Treasury for International Affairs where he was responsible for U.S. policies in international finance, which includes currency markets, trade in financial services, foreign investment, international debt and development, and oversight of the International Monetary Fund and the World Bank. He was also responsible for coordinating financial policy with the G-7 countries, was chair of the OECD working party on international macroeconomics, and was a Member of the Board of the Overseas Private Investment Corporation. His book *Global Financial Warriors: The Untold Story of International Finance in the Post-9/11 World* chronicles his years as head of the international division at Treasury. His recent book *Getting Off Track: How Government Actions and Interventions Caused, Prolonged, and Worsened the Financial Crisis* was one of the first on the financial crisis, and he has since followed up with two books on preventing future crises, co-editing *The Road ahead for the Fed* and *Ending Government Bailouts As We Know Them* in which leading experts examine and debate proposals for financial reform and exit strategies.

In 2010, Taylor received the Bradley Prize for his dedication and intellectual achievements. In 2007, Taylor was awarded the Adam Smith Award from the National Association for Business Economics (NABE) for his work as a groundbreaking researcher, public servant, and teacher during a career of more than 30 years and his outstanding leadership in the field of economics. Taylor was awarded the Alexander Hamilton Award for his overall leadership in international finance at the U.S. Treasury. He was also awarded the Treasury Distinguished Service Award for designing and implementing the currency reforms in Iraq, and the Medal of the Republic of Uruguay for his work in resolving the 2002 financial crisis. In 2005, he was awarded the George P. Shultz Distinguished Public Service Award. Taylor has also won many teaching awards; he was awarded the Hoagland Prize for excellence in undergraduate teaching and the Rhodes Prize for his high teaching ratings in Stanford's introductory economics course. He also received a Guggenheim Fellowship for his research, and he is a fellow of the American Academy of Arts and Sciences and the Econometric Society; he formerly served as vice president of the American Economic Association.

Before joining the Stanford faculty in 1984, Taylor held positions of professor of economics at Princeton University and Columbia University. Taylor received a B.A. in economics *summa cum laude* from Princeton University in 1968 and a Ph.D. in economics from Stanford University in 1973.

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Senior Fellow, SIEPR, 1997-
Senior Fellow, Stanford Center for International Development, 2005-

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United States Treasury

Under Secretary for International Affairs, 2001-2005

Overseas Private Investment Corporation

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Organization for Economic Cooperation and Development

Chair, Working Party III (International Macroeconomics), 2003-2005

President's Council of Economic Advisers

Member, 1989-1991

President's Council of Economic Advisers

Senior Staff Economist, 1976-77

Congressional Budget Office

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California Governor's Council of Economic Advisers

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Professional Activities

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Chair, American Economic Review Editor Search Committee, 2000

Member, Committee on Econ Education, American Economic Association, 1997-2001

Member, Executive Committee, American Economic Association, 1992-95

Member, Budget Committee, American Economic Association, 1993-95

Member, Honors and Awards Committee, American Economic Association, 1989-93

Co-Editor for Macroeconomics and International Economics, *American Economic Review*, 1985-88

Member, Board of Trustees, Foundation for Teaching Economics, 1997-2001

Member, Revisions Committee, Voluntary National Content Standards in Economics, 2008-2011

Member, Review Committee, Voluntary National Content Standards in Economics, 1997

Member, Federal Economic Statistics Advisory Committee, 2000-2001

Member, Committee on Economic Stability and Growth and Subcommittee on Monetary Research, Social Science Research Council, 1986-89

Member, Graduate Record Examinations Committee, ETS, 1984-86

Member, Economics Oversight Committee, National Science Foundation, 1983

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Research Associate, National Bureau of Economic Research, 1981-

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Member, Advisory Review Panel for Economics, National Science Foundation, 1979-81

Associate Editor:

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Journal of Economic Dynamics and Control, 1978-85

Journal of Monetary Economics, 1978-83

Review of Economics and Statistics, 1993-96

Journal of Economic Perspectives, 1997-2000

Journal of Applied Econometrics, 1997-2001

Journal of Macroeconomics, 1998-2001

Awards and Fellowships

Bradley Prize for contributions to research and policy
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Medal of the Oriental Republic of Uruguay, for design and implementation of financial
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Lilian and Thomas B. Rhodes Prize for outstanding contributions to the teaching of
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American Academy of Arts and Sciences, Fellow, 1992-

National Science Foundation, Research Grants: 1992-95, 1986-89, 1983-86, 1981-83,
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Econometric Society, Fellow, 1985-

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Social Science Research Council, Subcommittee on Monetary Research, Fellowship,
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Books

Ending Government Bailouts As We Know Them, with Kenneth Scott and George Shultz (Eds.),
Hoover Institution Press, Stanford, California, 2010

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Committee on Oversight and Government Reform
Witness Disclosure Requirement – “Truth in Testimony”
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Name: John B. Taylor

1. Please list any federal grants or contracts (including subgrants or subcontracts) you have received since October 1, 2008. Include the source and amount of each grant or contract.

N/A

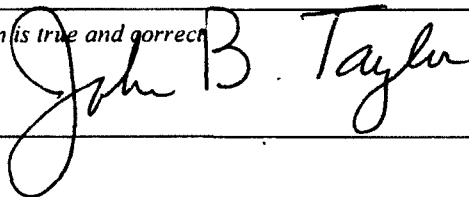
2. Please list any entity you are testifying on behalf of and briefly describe your relationship with these entities.

I am testifying in my individual capacity and not as a representative of my employer,
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I certify that the above information is true and correct.
Signature:



Date:

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