

Comment On

“Global Effects of Fiscal Stimulus During the Crisis”

by Charles Freedman, Michael Kumhof, Douglas Laxton, Dick Muir, Susanna Mursula

John B. Taylor
Stanford University
May 2010

The paper by Freedman, Kumhof, Laxton, Muir, and Mursula makes effective use of simulations of a very large macroeconomic model to estimate the impact of discretionary fiscal policies, including the types of fiscal stimulus packages implemented by many countries during the recent financial crisis. The paper is, of course, timely, and is an important contribution to the public policy debate about whether, and by how much, discretionary fiscal stimulus packages might have been a factor in the economic recovery from the financial crisis. The paper is also a contribution to the academic debate over the size of government spending multipliers in which estimates based on traditional Keynesian econometric models—which figured prominently in the practical policy analysis—have been challenged by those using new Keynesian models. The model used in this paper is of the new Keynesian type with forward looking expectations, price rigidities, and optimizing behavior. When properly compared, the results are very similar to other new Keynesian models which frequently give much smaller multipliers than traditional models as I show in this comment. Importantly the paper also provides results about the negative longer run effects of these policies on economic growth.

The simulated model is dynamic and global consisting of 5 regions and 2500 equations. The complexity of the model puts a premium on explaining the economic reasons for the results and making the model available for other researchers and policy makers to use and simulate. In this regard it is important to note that the paper is very clearly written and with due space given to explaining the simulation results intuitively. Moreover, the authors are endeavoring to make

the model available for others to simulate in a user-friendly manner through a special web page maintained by one of the authors, Douglas Laxton of the International Monetary Fund, and by including the model in a standardized model comparison data base maintained at the University of Frankfurt by Volker Wieland (2009) and his colleagues

The Maintained Hypothesis and a Fundamental Identification Problem

It is important to emphasize that the simulation exercise in the paper is based on a very specific maintained hypothesis. This hypothesis is that some exogenous shocks hit the economy and economic policy then responded to the shocks helping the economy recover. As the authors state:

During the last two years, the global economy has experienced large negative shocks to growth that resulted from sharp declines in house and stock prices and from a tightening of financial conditions.... Governments and central banks responded...introducing a number of measures to deal with liquidity and solvency problems in financial institutions...Governments...went beyond monetary policy measures by introducing large stimulative fiscal packages.”

The authors then simulate these fiscal policy changes in the model to determine their effects. But there are other possible maintained hypotheses. For example, one alternative hypothesis is that the policy actions were themselves the shocks and a resilient private sector helped the economy rebound from the policy shocks. Indeed, in my assessment of the crisis this alternative hypothesis is quite likely, as explained in Taylor (2008). If their maintained hypothesis was this alternative, then the authors would have taken a different approach, perhaps by looking for monetary policy shocks that might have caused the housing boom and the resulting bust and financial crisis. In

my research I find that a shock to monetary policy—a deviation from a policy rule—was the reason for the housing boom and bust. I measured the size of the shock by looking at the deviation from the policy rule and I then simulated a model with and without the policy shock to estimate the impact of that shock. The maintained hypothesis in this paper could be completely wrong. It is never really tested. In my view more attention and consideration should be given to alternative hypotheses when conducting such simulation studies.

Reasons for the Revival of Fiscal Policy

The paper provides a brief review of the literature on discretionary fiscal policy, contrasting current views with the near consensus of a decade ago that such policy actions were frequently ineffective and that fiscal policy should focus on the automatic stabilizers and on long run efficiency and economic growth. The authors mention two factors that led to the revival of discretionary fiscal policy in recent years: first the interest rate reached the lower bound of zero for some central banks, and second the downturn was very severe.

While there is no question about the zero bound and the severity of the recession, I do not think either explains the revival of interest in activist fiscal policy. In the United States, the first discretionary stimulus occurred in February 2008 when the federal funds rate was equal to 3 percent, well above the zero lower bound. Moreover, at that time the economy was still in a minor downturn, not the Great Recession that the downturn would become. In other words, the discretionary fiscal policy revival preceded the causal factors mentioned by the authors. I would add that the experience with the stimulus package of 2008 was well known going into the decision to enact a second larger stimulus, and, in my view, it was not a good experience. As explained in Taylor (2009), aggregate data on personal consumption expenditures and disposable

personal income show that the tax rebates, which were the major part of that package, did not stimulate consumption.

Interpreting the Results in Practice

There is a danger that the results in this paper will be interpreted as evaluating whether or not the various stimulus packages enacted in different countries worked as the governments predicted they would. The authors are correct to warn against this interpretation saying that the simulations “do not represent an ex-post evaluation of the actual impacts of the policy packages, but rather an ex-ante simulation of what the model predicts for their effectiveness.” In other words, the simulations are forecasts which say what the model predicts would happen with the stimulus, much as was done by simulating such models before the packages were implemented.

But the warning is way back on page 25 of the paper and it needs more emphasis in my view. It is not unusual for government agencies—even the Congressional Budget Office and the Council of Economic Advisers—or the news media to treat such simulation results as ex-post policy evaluation. Indeed, given the warning in the paper one wonders why there is not more of an effort in the paper, or at the IMF, to do “ex-post policy valuation” as in the case of the tax rebates of 2008. One explanation is that we are still too close to the policies to evaluate them.

The Size of the Multipliers and the New Keynesian versus Old Keynesian Debate

One of the most valuable contributions of the paper is the comparison it enables with the results of other model simulations of the impact of fiscal policy. The authors do not emphasize this and focus mainly on simulating the impact of actual stimulus packages or on a two-period *temporary* change in government spending and other policies. But for comparison with other

models in the literature, the simulations of a *permanent* change in government spending are more useful because many previous model comparison exercises examined the impact of a permanent shock. In fact, it is the most common “canonical” shock with which to compare models and allows for easy comparability with earlier model simulation exercises such as the Brookings comparison of global models in the 1990s reported in Bryant, Hooper, Mann (1993).

The simulation of a permanent increase in government purchases reported by the authors (in lower panel of Figure 7 of their paper) is thus particularly useful for comparing with other research, which I do in Figure 1.

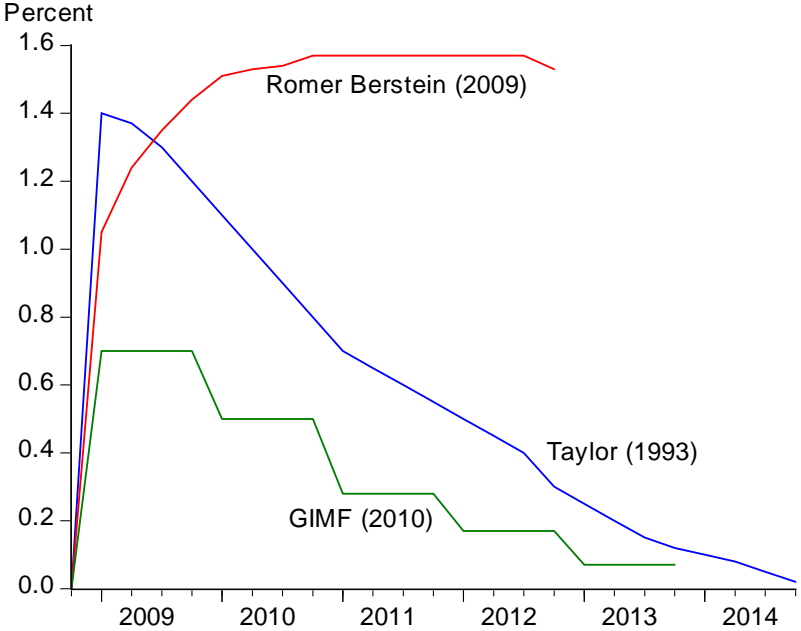


Figure 1 Comparison of the percentage change in GDP due to a permanent increase in government purchases as estimated by the IMF’s GIMF model and the Taylor (1993) multi-country model as well as results reported by Romer and Bernstein (2009).

Note that Figure 1 is based on a comparison chart first presented in Cogan et al. (2010) except that I have added the GIMP model simulation. For each model listed in Figure 1, I show the percentage change in real GDP (relative to baseline) caused by a permanent increase in government purchases of one percent of GDP. Thus the graph shows the government purchases multiplier for each model. The line labeled “Romer-Bernstein” shows the results reported by Romer and Bernstien (2009) in a study by the Council of Economic Advisers in January 2009, which was part of the economic analysis underlying the stimulus package. Romer and Bernstein’s results are an average of two models: a non-rational expectations model used at the Federal Reserve Board and an un-named private sector model, which is likely to be a traditional Keynesian model. The line labeled Taylor (1993) is the simulation from another multi-country model which I built in the 1980s. Like GIMF it is a forward looking model with sticky prices—a new Keynesian model—but it includes the G7 countries rather than 5 regions of the world. The third line labeled GIMF shows the simulation reported in Figure 7 of the paper. Observe that since GIMF is an annual model, I set the quarterly level to be the same value for each quarter of the year.

The results in Figure 1 are quite striking. Most importantly the GIMF model has the smallest multiplier of all three models. The initial impact is 0.7 and then phases out over time. Observe that the shape of the phase-out is closer to the Taylor multi-country model, and is much different from the Romer-Bernstein model which shows no sign of a phase out. These results illustrate the importance of model comparison exercises. They remind us of the uncertainty of the model results and the importance of robustness exercises of the kind long advocated by McCallum (1988). They also suggest that the Romer-Bernstein multiplier results are significantly overstated compared with the new Keynesian models, which reinforces an argument

made by Cogan et al (2010) using the Smets and Wouters new Keynesian model of the United States.

The authors also note that the multipliers from a temporary increase in government spending are smaller in the GIMF model than those in the Smets and Wouters (2007) model as reported by Cogan et al. (2010), and they conjecture (see their footnote 26) that the reason is that Cogan et al. (2010) only report the simulations of a permanent change in government purchases. But there must be another reason because Cogan et al. look at the actual U.S. stimulus package of 2009, which is temporary not permanent.

I suspect that the difference between the GIMF model results and the Cogan et al. (2010) results is due to how the zero interest bound on monetary policy interacts with fiscal policy. In observing a similar differences in multipliers with a much simpler new Keynesian model, Woodford (2010) has argued that “The crucial difference is...[whether the increase in government purchases lasts]...as long as the zero lower bound is a binding constraint.... Cogan *et al.* instead consider increases in government purchases that are initiated at a time when interest rates are zero, but that extend longer than the period over which the interest rate is projected to remain at zero.” Further simulations with the GIMF model could shed light on this possible explanation.

Conclusion

In sum, the Freedman, Kumhof, Laxton, Muir, Mursula paper is impressive in its practical use of an extremely large model with forward looking agents, rigidities, and optimizing behavior to analyze a crucial public policy issue. Further research along these lines will continue to help us understand the impact of fiscal policy in a global economy. When used in practical

policy analysis—perhaps as part of the IMF’s role in monitoring fiscal policy actions in different countries—it is important to emphasize that (1) there are alternative maintained hypotheses, (2) the results should not be interpreted as ex-post evaluation of actual policies, and (3) other models give different answers suggesting the need for robust checks. Making the model available for use by others, as the authors are doing, will help greatly in the furthering of all three goals. Finally, the simulations of the long run growth effects, which I have not discussed in this comment, are valuable as policy makers begin to exit from the stimulus programs and focus on deficit and debt reduction.

References

- Bryant, Ralph C., Peter Hooper, and Catherine L. Mann (1993). *Evaluating Policy Regimes: New Research in Empirical Macroeconomics*. Washington, D.C.: Brookings Institution.
- Cogan, John, Tobias Cwik, John B. Taylor and Volcker Wieland (2010), “New Keynesian versus Old Keynesian Government Spending Multipliers,” *Journal of Economic Dynamics and Control*, Vol. 34, No. 3, pp. 281-295.
- McCallum, Bennett T. (1988), “Robustness Properties of a Rule for Monetary Policy,” *Carnegie-Rochester Conference Series on Public Policy*, Autumn, 29, 173--203.
- Romer, Christina and Jared Bernstein (2009), “The Job Impact of the American Recovery and Reinvestment Plan,” January 8, 2009.
- Smets, Frank and R. Wouters (2007), “Shocks and Frictions in U.S. Business Cycles: A Bayesian DSGE Approach,” *American Economic Review* 97, 506–606.
- Taylor, John B. (1993), *Macroeconomic Policy in a World Economy: From Econometric Design to Practical Operation*, WW Norton, New York.
- Taylor, John B. (2008) "The Financial Crisis and the Policy Responses: An Empirical Analysis of What Went Wrong," *A Festschrift in Honour of David Dodge's Contributions to Canadian Public Policy*, Bank of Canada, November, pp. 1-18.
- Taylor, John B. (2009) “The Lack of an Empirical Rationale for a Revival of Discretionary Fiscal Policy,” *American Economic Review: Papers and Proceedings*, 99 (2), May, pp. 550-555.
- Wieland, Volker, Tobias Cwik, Gernot J. Müller, Sebastian Schmidt and Maik Wolters (2009), “A New Comparative Approach to Macroeconomic Modeling and Policy Analysis,” August, University of Frankfurt.

Woodford, Michael (2010), "Simple Analytics of the Government Expenditure Multiplier," Columbia University, January 27.