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## *policy brief*

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## Fiscal Action Versus Monetary Stimulus? *A Faulty Comparison*

By Volker Wieland<sup>1</sup>

Recent calls for fiscal stimulus in the United States have been based in part on papers that claim that targeted fiscal stimulus can boost economic activity more rapidly than monetary policy with less impact on inflation. In this brief, I evaluate that claim in the context of several well-known economic models.

In one recently released paper, *The Case for Fiscal Stimulus to Forestall Economic Slowdown* (January 18, 2008), the Council of Economic Advisers in the Executive Office of the President writes:

*Effectively timed and temporary fiscal policy measures could help reduce the risk of a broader economic downturn ... fiscal action could boost near-term economic growth,*

*... research indicates that monetary policy affects the economy over time rather than immediately, with the greatest impact in the year following rate cuts, not in the year in which the cuts are made.*

In another recent paper, *If, When, and How: A Primer on Fiscal Stimulus* (January 10, 2008), Douglas Elmendorf and Jason Furman of the Brookings Institution write:

*A key potential advantage of fiscal stimulus relative to monetary stimulus is that it can boost economic activity more quickly,*

*... true fiscal stimulus implemented promptly can provide*

*continued on inside...*

### About The Author

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International Development (SCID). Prior to joining academia he was an economist at the Federal Reserve Board in Washington. He has also been a consultant to the European Central Bank for many years. Wieland's research focuses on macroeconomic models and policy design. His previous research has been published in the *American Economic Review*, the *Journal of Monetary Economics*, the *European Economic Review* and other scientific journals. From 2002 to 2006 he also served as managing editor of the *Journal of Economic Dynamics and Control*.

<sup>1</sup> Helpful comments by John B. Taylor, John C. Williams, John Cogan, Michael Boskin, Nicholas Hope, Gregory Rosston and Gernot Müller are greatly appreciated. All errors are my own. Tobias Cwik and Maik Wolters provided excellent research assistance. This note makes use of macroeconomic models built by academics and central bank researchers that are included in a database of quantitative macroeconomic models currently under development at the Center for Financial Studies at Goethe University of Frankfurt and SIEPR at Stanford University.

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*a larger near-term impetus to economic activity than monetary policy can.*

These papers refer to quantitative economic research in claiming that fiscal policy can boost economic growth in the near term, while monetary easing influences economic activity with a substantial delay and may lead to higher inflation down the road.

Elmendorf and Furman (2008), for example, report on research with the Federal Reserve's quantitative model of the U.S. economy. Their analysis indicates that lowering the federal funds rate by 1.5 percentage points – the cumulative effect of the FOMC decisions on December 11, 2007, January 21 and January 30, 2008 – would add nothing to GDP in the same quarter, only 0.15 percent in the next quarter and 0.6 by the fourth quarter. By contrast, they estimate a temporary tax rebate of 1 percent of GDP to raise GDP in the same quarter by about 0.3 percent, and if targeted to households with little liquidity that spend all their income even three to four times as much.

These and other recent contributions (see also CBO 2008) seem to depart from an earlier consensus among macroeconomists. For example, Eichenbaum (1997) writes, "There is now widespread agreement that countercyclical discretionary fiscal policy is neither desirable nor politically feasible." Feldstein (2002) concurs, "there is now widespread agreement in the economics profession that deliberate countercyclical discretionary policy has not contributed to economic stability and may have actually been

**Table 1: GDP Increase due to 1.5 Percentage Point Reduction of Federal Funds Rate**

Model	Percent Increase in GDP			
	1st Qtr. 2008	2nd Qtr. 2008	3rd Qtr. 2008	4th Qtr. 2008
Federal Reserve Model	0.02	0.20	0.35	0.39
Taylor's Model	0.24	0.30	0.30	0.26
Small Fed Model	0.17	0.33	0.38	0.33
Small ECB Model	0.24	0.30	0.29	0.24

Sources: Levin, Wieland and Williams (2003) and own calculations. Federal Reserve Model: the large-scale macroeconomic model used for quantitative policy analysis at the Fed. Taylor's Model: an estimated macroeconomic model of the G7 economies that embodies forward-looking behavior by households and firms developed by Taylor (1993). Small Fed Model: a small model of the U.S. economy developed at the Federal Reserve by Orphanides and Wieland (1998) similar to the U.S. block of Taylor's model but with a greater degree of inflation persistence. Small ECB Model: an example of the most recent generation of New-Keynesian macroeconomic models with microeconomic foundations developed at the ECB for policy analysis in the euro area by Smets and Wouters (2003).

destabilizing in the past". Taylor (2000) concludes "... it seems best to let fiscal policy have its main countercyclical impact through the automatic stabilizers [and] discretionary fiscal policy to be saved explicitly for longer-term issues."

The case for discretionary fiscal action is not as clear-cut as suggested by the CEA. The effects of monetary easing implemented by the Federal Reserve today may well materialize sooner than claimed. Implementing fiscal stimulus, instead, may take quite some time because of political negotiation and the administrative burden of providing extra government funds or tax relief to households and firms. Once fiscal stimulus is implemented, it is likely to boost economic activity immediately but may also drive up interest rates and inflation later on.

Truth be told, macroeconomists remain quite uncertain about the quantitative effects of monetary and fiscal policy. This uncertainty derives not only from empirical estimation but also from different views on the proper theoretical framework and econometric methodology. Therefore, recent research has emphasized robustness as a crucial criterion in policy design. Robustness requires evaluating policies from the perspective of competing, empirically tested macroeconomic models.

## **How the Federal Reserve Can Boost Economic Activity in the Near-term**

Households and firms make their spending decisions in a forward-looking manner. For this reason, a change in interest rates today may influence

**Table 2: GDP Increase due to Fiscal Stimulus as Estimated by Elmendorf and Furman (2008)**

Fiscal Stimulus (1 Percent of GDP)	Percent Increase in GDP		
	2nd Qtr. 2008	3rd Qtr. 2008	1st Qtr. 2009
Sustained Increase in Federal Purchases	1.0	1.0	0.7
One-Off Tax Rebate (20% spent)	0.30	0.0	0.0
One-Off Tax Rebate (50% spent)	1.0	1.2	-0.2

Source: The calculations by Elmendorf and Furman (2008) are based on the Federal Reserve's Model.

economic activity within a shorter horizon than indicated above. Furthermore, decision making by forward-looking households and firms takes into account that Federal Reserve policy will respond systematically to changes in future economic conditions.

A simple exercise serves to confirm these conjectures. Table 1 compares the effect of an unexpected reduction in the federal funds rate by 1.5 percentage points in several estimated macroeconomic models.

From the perspective of the Federal Reserve's model, monetary policy easing in the first quarter only feeds through to real output in the second quarter. The effect builds up throughout the year and peaks at the beginning of next year. The other models, however, suggest that Federal Reserve policy can raise output within a quarter. They indicate that the output response peaks already in the second or third quarter. The near-term effectiveness of monetary policy is due to the role assigned to forward-looking decision making by households and firms.

The delay in the Federal Reserve's model is built in by assumption in order to match the evidence from empirical studies that aim to identify policy shocks with minimal structure. However, these studies have been questioned, because the policy shocks they identify bear little resemblance to estimates obtained by using federal funds futures or real-time data.

What about inflation? Of course, the surprise reduction in interest rates not only boosts output but also causes some inflation. The increase in inflation occurs more slowly than the increase in output. According to the models considered inflation peaks within four to six quarters and then returns to the central bank's target rate. The inflationary effect is moderate, between 3 and 12 basis points at the peak. However, the benign behavior of inflation depends crucially on market participants perception of the Federal Reserve's commitment to price stability and the clarity of its long-run target for inflation. If households and firms were to believe that the Federal Reserve's "comfort zone"

on inflation has moved up, then monetary easing will have more lasting consequences for inflation.

A key assumption in this analysis concerns the Federal Reserve's systematic policy response to changing economic conditions in the periods following the initial impulse. The findings in Table 1 are conditioned on an estimated interest rate reaction function. This reaction function includes the previous interest rate, current inflation, the level of current output as well as its growth rate.

The inclusion of the lagged interest rate is important. As a consequence, the initial, one-time reduction in the federal funds rate partially carries over to the following quarters. Forward-looking households and firms will expect a sustained monetary easing and make decisions accordingly.

### The Promise of Discretionary Fiscal Stimulus

While the Federal Reserve can act immediately and preemptively, enacting a fiscal stimulus bill takes time. Even more time is needed to deliver the funds into the pockets of consumers. This implementation lag is well-known and is the primary reason why many economists have recommended that the job of countercyclical policy be left to the Federal Reserve and such automatic fiscal stabilizers as social security and unemployment insurance.

Putting aside any doubts regarding the quick implementation of fiscal stimulus, economists largely agree that increases in government purchases, once implemented, raise aggregate de-

**Table 3: GDP Increase Achieved by Fiscal Stimulus in Other Models**

Fiscal Stimulus (1 Percent of GDP)	Percent Increase in GDP		
	2nd Qtr. 2008	3rd Qtr. 2008	1st Qtr. 2009
<b>Sustained Increase in Federal Purchases</b>			
Taylor's Model	1.1	0.9	0.6
Small ECB Model	0.8	0.7	0.5
<b>One-Off Increase in Federal Purchases</b>			
Taylor's Model	1.0	-0.1	0.0
Small ECB Model	0.9	-0.1	0.0
<b>One-Off Tax Rebate</b>			
Taylor's Model	0.15	0.08	0.03
Small ECB Model	0.0	0.0	0.0

Source: Own calculations.

mand right away. But how much does output increase, for how long and with what consequence for inflation? Again, there are no clear-cut answers. The magnitude of this effect importantly depends on the forward-looking behavior of households and firms and the systematic response of monetary and fiscal policy. Regarding the effect of tax changes, macroeconomists possibly face an even greater degree of uncertainty. Forward-looking consumers are likely to take into account higher interest rates due to increased public debt or future tax increases when the government pays back the additional debt. Whether spending increases or tax relief are considered, a robustness analysis with multiple models helps providing useful answers.

Elmendorf and Furman (2008) estimate spending increases and tax rebates to have immediate and large posi-

tive effects on U.S. GDP. They assume that the fiscal stimulus is implemented by the second quarter of 2008 and boosts GDP in that same quarter. In terms of magnitude they compare stimuli on the order of 1 percent of GDP just like the packages debated at the moment.

Their estimates are summarized in Table 2. They show that a sustained increase in government purchases on the order of 1 percent of GDP is found to raise GDP for several quarters by 1 percent.

Regarding temporary tax rebates they identify a temporary boost to GDP. The magnitude varies between 0.30 and 1.2 percent of GDP depending on how well they are targeted at households that spent all income immediately.

Are these findings robust? Evidence from two competing models is shown in Table 3. A


sustained increase in government spending by 1 percent of GDP boosts real output in the first quarter by 1.1 percent in Taylor's model and 0.8 percent in the small ECB model. The spending-induced boom slowly dissipates over the following eight quarters.

However, higher government spending may also lead to higher inflation down the road. The maximum impact on inflation occurs by the beginning or the end of the second year, respectively. Fiscal stimulus adds up to a quarter percentage point to inflation according to Taylor's model. In the small ECB model the inflationary effect is less than half the size. Thus, a sustained fiscal expansion would not only cause budgetary complications but also drive up inflation.

Both models predict a sustained increase in response to a one-off spending shock because that is what has typically happened in the past. In more technical terms, both models include a measure of the systematic response of government spending that incorporates a high degree of persistence of discretionary changes in spending. In the models it is easy to turn off this persistence in spending. If the one-off shock in government spending can be prevented from spilling over into subsequent quarters, then output can be raised in the same quarter without significant consequences for output and inflation later on.

The calculations regarding the impact of spending increases on output indicate substantial agreement. Unfortunately, macroeconomists disagree more about the consequences of tax

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changes. This uncertainty is highlighted by comparing the estimated effect of tax rebates that increase household's disposable income. The small ECB model fully incorporates the idea that forward-looking households understand that lower taxes today will either imply higher taxes in the future to pay back the additional government debt or higher interest rates and debt service costs due to the lasting increase in government debt. Consequently, a one-off tax rebate would have no effect on current consumption and output.

Taylor's model allows for the presence of households that consume all income and therefore will spend the tax rebates on consumption goods. Real GDP would then increase by 0.15 percent in the first quarter and return to its original level over the following three quarters. This effect is quite a bit smaller than suggested by Elmendorf and Furman (2008). It emphasizes that the effect of tax relief very much depends on the government's ability to target households that are likely to spend rather than save these funds.

### **Summing Up: Expect Recent FOMC Actions to Boost Growth this Year But Remain Sceptical of Fiscal Engineering**

The cumulative 1.5 percentage point reductions in the Fed's federal funds rate target in December 2007 and January 2008 may already boost U.S. GDP in the first quarter, and stronger effects should be expected for the second, third and fourth quarters of 2008. A necessary condition is that the

policy easing is expected to be sustained in a systematic manner similar to past Federal Reserve policy. All indications are that this condition is met. In fact, further easing throughout the year is likely. Some commentators have cautioned that the recent sub-prime financial crisis may have weakened the effectiveness of Fed interest rate policy. But if that is so, the Fed simply needs to lower interest rates somewhat more than it would have planned otherwise.

Sustained monetary stimulus will lead to higher inflation. However, as long as the Federal Reserve maintains its commitment to price stability and removes the policy accommodation next year, the increase in inflation is likely to remain moderate. It is important that the Federal Reserve watch inflationary developments carefully. If households and firms were to become convinced that the Fed's long-run "comfort zone" on inflation has moved up, then monetary easing will have more lasting consequences for inflation.

Hopefully, fiscal authorities will succeed quickly in overcoming the hurdles to implementing fiscal stimulus. Additional government purchases in the next quarter would boost GDP in that quarter. But if this increase is sustained for a longer time, it will also lead to higher inflation. For good reasons, the policy proposals advanced for the U.S. economy in 2008 focus on putting money into the pockets of households rather than increasing the budget of governmental authorities. However, there is greater uncertainty about the likely effect of tax relief on near-term growth. Without success in targeting funds to those consum-

ers that are not able to save and need to spend all their income on consumption, the effect of tax relief will dissipate quickly. Chairman Bernanke was well-advised in warning Congress that fiscal stimulus, if protracted, badly targeted and too late, "will not help support economic activity in the near term, and could be actively destabilizing if it comes at a time when growth is already improving."

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## Taube Family Foundation

SIEPR Policy Briefs are underwritten by a generous grant from the Taube Family Foundation.

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A publication of the  
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