



TD Economics

Special Report

February 19, 2009

A PRIMER ON FISCAL STIMULUS

With the U.S. recession now in its second year and interest rates near zero percent, the Congress' passing of the *American Recovery and Reinvestment Act of 2009* (ARRA), a bill providing for \$787 billion in government spending and tax cuts, is touted as the U.S. economy's best hope at recovery. At over 5.5% of nominal GDP, the Act is substantial. While the bill has been revised and changed since its initiation in the House, the signing of the bill into law by President Obama, allows us to make a more conclusive estimate of its impact on our forecast for U.S. economic growth. The stimulus provided in the bill is expected to lift the level of U.S. real GDP by 2.3% by the end of 2010. This note considers further the issues and ideas surrounding fiscal stimulus both in terms of its benefits, as well as its potential costs.

Diagnosis: recession. Cure: fiscal stimulus?

The basic case for fiscal stimulus is that the economy has fallen into a vicious cycle where falling spending is leading firms to cut production, leading to falling employment, a further decline in spending and an additional fall in employment. Usually monetary policy would be the first line of defense against an economic downturn and indeed it was the first response to this crisis way back in September of 2007. Since then the Federal Reserve has cut interest rates a total of 10 times by over 500 basis points (starting from a rate of 5.25% the target for the Fed Funds rate is now 0%-0.25%). Monetary policy works by putting downward pressure on borrowing costs for consumers and businesses, thus facilitating spending and investment. Unfortunately, even while longer-term government bond-yields have fallen, massive credit losses and severe risk-aversion in financial markets have led both to widening spreads on nearly all sources of credit and a decreased ability and

HIGHLIGHTS

- **A well-designed fiscal stimulus policy has the potential to break the vicious recessionary cycle taking place in the U.S. and prepare the way for economic recovery.**
- **Government spending impacts U.S. economic growth through two channels – directly as a component of GDP and indirectly as the newly employed spend their additional income in other sectors.**
- **Spending is most effective when it is aimed at areas where economic slack is greatest. However, because higher government borrowing must be financed with additional bond issuance, it exerts upward pressure on the cost of both current and future investment.**
- **Given the likelihood that individuals will save a fairly significant portion of a tax cut, this is a less effective form of short-term stimulus.**
- **The *American Recovery and Reinvestment Act*, recently signed into law by President Obama, will likely raise the level of U.S. GDP by 2.3% by the fourth quarter of 2010 relative to a non-stimulus baseline.**

willingness to lend among financial institutions.

In order to counter the freezing up in lending markets, the Federal Reserve has had to move to less traditional policy actions. To stem liquidity problems the Fed instituted a range of auction facilities and increased the collateral they would accept from financial institutions. Late last year, the Fed set up a conduit to purchase commercial paper and gave signal that they would increase purchases of

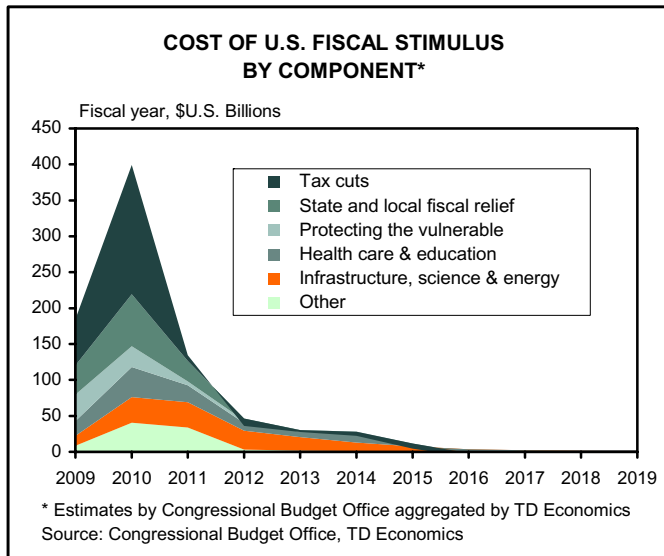
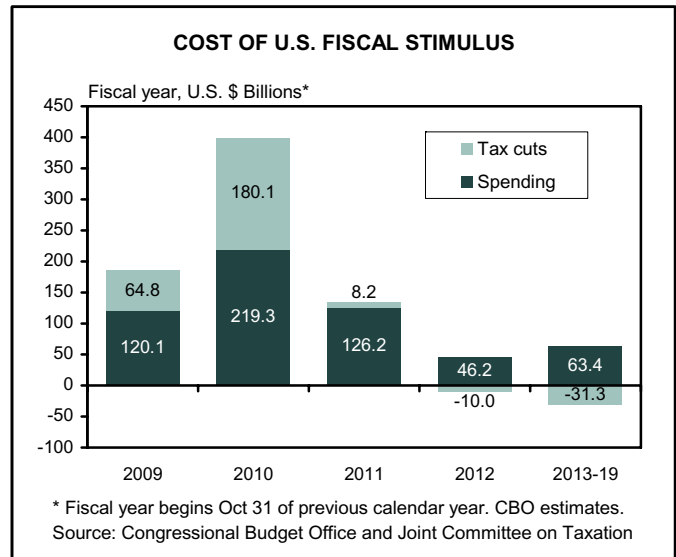
American Recovery & Reinvestment Act

The *American Recovery and Reinvestment Act of 2009* (ARRA) signed into law by President Barack Obama on Tuesday February 17, 2009 is a bill providing for \$787 billion in spending and tax-cuts over a 2009-2019 horizon.

Spending provisions, which include increased benefits to the unemployed, make up 73% of the total cost of the bill. Tax cuts, which make up the remaining 27%, are front-loaded. According to the Congressional Budget Office tax-provisions should account for 42% of the bill's cost in fiscal 2009 and 2010.

Highlights of the bill include:

- \$288 billion in tax-relief, the largest chunk of which is a payroll tax-cut of \$400 per individual or \$800 per couple. Also notable is an \$8,000 credit for homebuyers who purchase a home in 2009. Repayment of the home-buyer credit is only required if the home is sold within three years. Targeted tax credits for car purchases, college enrollment and energy efficiency are also included.



- \$81 billion for “protecting the vulnerable,” including extending unemployment benefits through to the end of the year and increasing their amount by \$25 a week. Also included are one-time payments of \$250 to recipients of Social Security, Veterans pension or other government assistance programs.
- \$144 billion in state and local fiscal relief. This funding is intended to offset the impact of the recession on state revenues, therefore preventing funding cuts to health and education and/or pro-cyclical tax increases.
- \$111 billion in “infrastructure and science.” Roughly half will be spent on transportation projects, including highway and bridge repair and mass transit and rail projects.
- \$43 billion in energy development and subsidies for renewable energy programs.
- \$59 billion in healthcare spending, including \$25 billion in health insurance assistance, covering the 65% of the cost of extending health insurance after leaving a job.

mortgage backed securities and longer-term bonds, in order to push down yields. These efforts helped to mitigate some of the problems in financial markets but as losses continued to pile up and a liquidity crisis became a solvency crisis, the ability of monetary policy to stimulate the economy diminished considerably.

The events of September 2008 shifted the spotlight from

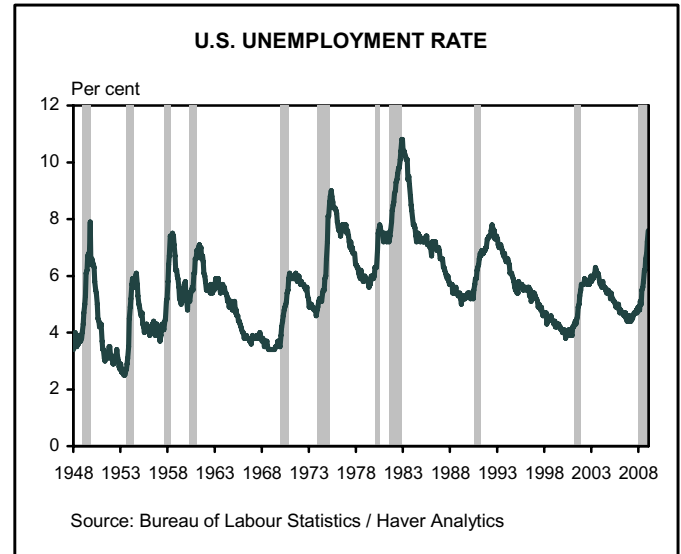
the actions of the Federal Reserve to the U.S. Treasury Department. While technically falling under the realm of fiscal policy, the Treasury Department’s actions to restore the health of the financial system are separate from their efforts in stimulating demand in the economy. The U.S. Treasury’s Troubled Asset Relief Program (TARP) and the new Financial Stability Plan supplement the Federal

Reserve's actions with the same essential goal of facilitating lending to consumers and businesses. Nonetheless, the problems in financial markets are in one sense the same issues afflicting the overall U.S. economy – increased uncertainty and extreme loss of confidence and this is where the case for fiscal stimulus is the strongest.

Contextualizing fiscal stimulus

The U.S. economy has fallen into a state of excess supply – resources sit underutilized and the vicious cycle of falling confidence is undermining demand. The loss of confidence is an important contributor to the severity of economic downturns. Expectations that the economy will get worse quickly become self-fulfilling prophecies. Households that expect their financial situation to deteriorate cut back on their spending, leaving firms with excess inventories and causing them to cut production. A well designed fiscal stimulus program has the potential break this cycle and instill confidence in households and businesses whose spending is essential to bringing about an economic recovery. But, if fiscal stimulus is the solution to the problem, what form should it take?

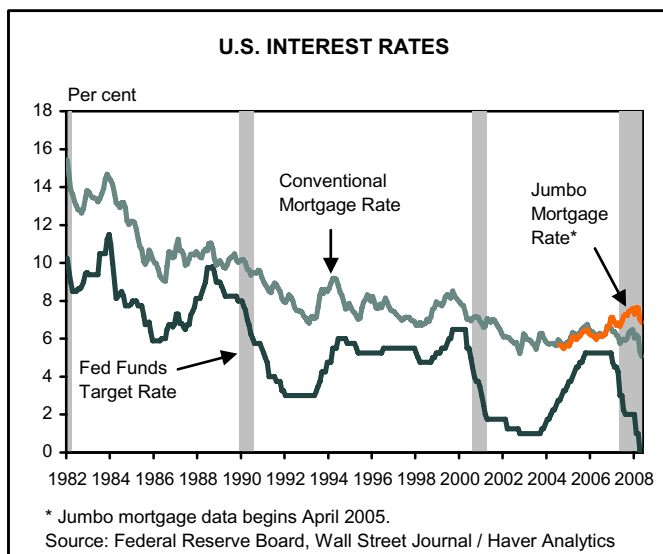
Government can stimulate the economy either by cutting taxes or spending directly. The case for government spending over tax cuts is that since government spending is a component of GDP, the level of GDP is raised the moment the expenditures are made. Furthermore, since those employed by government funded projects can then also go out and spend, government spending has the potential to have a multiplicative effect on economic growth (i.e. a \$1.00 increase in government spending could raise

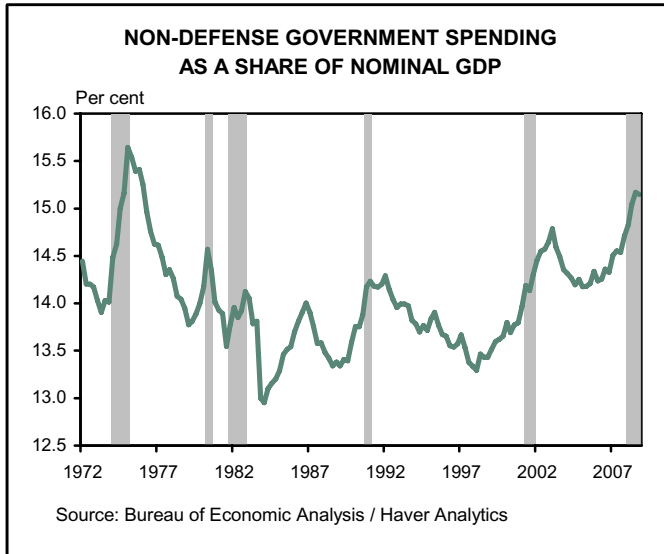


GDP by even more than \$1.00). However, the size of the government spending multiplier is dependent on how much of their additional income the newly employed go out and spend - the more of their extra income that individuals save, the smaller the overall impact on the economy.

Picking up the slack

The ability of government spending to stimulate the economy is also contingent on the added expenditures employing resources that are not currently in use. In downturns when there is considerable economic slack, this spare capacity is more likely to be available. Nonetheless, even in the current situation where the unemployment rate has risen from 4.4% to 7.6%, there exists the potential risk for government to draw not from the pool of unemployed but from the much larger pool of resources at work doing something else. In this context, the source of government spending is also important. For example, while the unemployment rate in the construction sector was over 14% in January, the unemployment rate in education and health services was 3.8%.¹ In terms of stimulus impact, government spending on construction would have a greater chance of using underutilized resources than would spending on health and education. Nonetheless, while large public works programs may theoretically be the best way to employ underutilized resources, in actual fact there are often large time lags in getting infrastructure projects off the ground. According to the Congressional Budget Office's (CBO) cost estimates, less than 40% of the total infrastructure expenditures in the *American Reinvestment and Recovery Act* will be made before the end of 2010. The twin





desires to get projects out the door as quickly as possible and to spend on those with the biggest economic bang per dollar create an additional hurdle to government spending stimulus. A project that has been in the works for a long time is not necessarily the one that will employ the most laid off workers.

Short-term versus long-term considerations

Crowding out of current investment (i.e. competition for already employed resources) is not the only potential cost of higher government spending. Because governments have to finance their spending through increased debt, the cost of this spending is higher debt-service payments going forward. Moreover, with a substantial increase in government debt, the potential for supply to outstrip demand raises the specter of higher government bond yields down the road.² Because government bonds are the floor upon which other types of investments are priced, significant issuance of government debt that raises government yields could make all types of investment more expensive – from mortgages and consumer loans to corporate bonds.

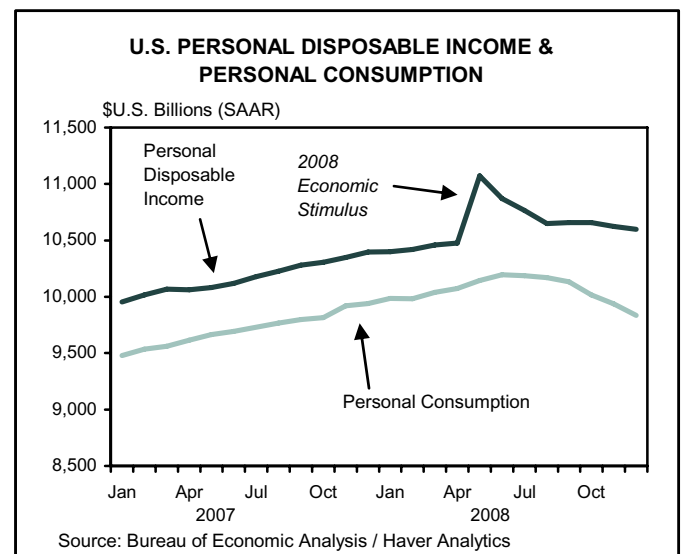
In the current context, increased risk aversion among investors has increased the demand for government debt over all other types of saving and brought down the cost of government borrowing (while raising the relative cost of private investment). As long as investors' willingness to lend to governments remains high, the borrowing costs of governments will remain low. The point of fiscal stimulus however, is to move the economy to a trajectory where private risk taking can once again flourish. The point here is simply that a successful stimulus package may hasten

the return to normalcy in financial markets, but the higher level of government spending will also put upward pressure on the cost of future investment - both private and public. For this reason, policy-makers also tend to take into consideration the long-term benefits of government spending. As an example, the *American Recovery and Reinvestment Act* allocates close to \$30 billion to expanding electronic health records and broadband internet across the nation. Unfortunately, while these may be good long-term government investments, their stimulative capability in the short-run is likely rather small.

Tax cuts, clairvoyance and liquidity constraints

The question of whether tax cuts are an effective form of economic stimulus is a key component of the recent policy debate. Incidentally, it is also one that economists have grappled with for literally hundreds of years. In the nineteenth century David Ricardo speculated that if individuals are sufficiently forward looking they will anticipate that tax cuts now mean tax hikes (or spending cuts) down the road. Because government borrowing must be repaid with interest, a totally forward looking individual should be expected to take her/his tax rebate cheque and put it right into savings (possibly buying the same bonds governments are issuing to fund the tax cut) in order to offset higher taxes down the road. If this is the case, the tax cut has limited effect on current demand since the fall in public savings is offset by a rise in private savings.

Another issue in the effectiveness of tax rebates in stimulating spending is the question of how individuals make consumption decisions over their life-times. While it is well



agreed that income is a determinant of consumption, the decision to consume now is likely a function not only of current income, but also of anticipated future income. Professional student lines of credit are a good example of borrowing against future income. The “stylized fact” that individuals prefer to smooth their consumption over their lifetimes, even as income levels change has important implications for the stimulative impact, especially of a temporary tax rebate. Since a tax rebate is considerably smaller in comparison to the life-time income of an individual, the amount spent out of the additional income will also be considerably diminished.

But this is not the end of the story. There are a number of reasons why individuals might go out and spend that rebate check after all. For one, they may prefer instant gratification over future consumption in a way that highly discounts the future. Secondly, individuals may not be able to fully anticipate future income and will thus judge the tax rebate on simpler criteria such as how much it increases their income in a shorter time horizon (such as a year or a month). But perhaps the strongest case that at least some of the tax rebate will be spent is that the assumption that individuals can always borrow against future income simply doesn't hold for a significant portion of individuals. If instead there are individuals who would like to increase current consumption but are unable to borrow against future income, an increase in current income as from a tax rebate would result in higher spending and therefore raise current GDP.

Perhaps the best example of the likely impact of temporary tax cuts on spending is the outcome of 2008's *Economic Stimulus Act*, which gave over \$100 billion in tax rebates to U.S. households. Our estimates suggest that households saved between 70% and 80% of that rebate-check. Of the 20%-30% that they did spend, roughly about 30% of it spent on imported goods, meaning that somewhere between 15%-20% of the total amount spent actually made its way back into the U.S. economy.

Tax cuts and incentives

Besides issues of how forward looking individuals actually are, tax cuts, especially of a more permanent nature have also been touted for their impact on economic incentives. Income taxes raise the cost of work relative to leisure. Arguably, a lower tax rate on incomes has the potential to raise labour output, thus raising economic activity and therefore government revenues from other sources.

IMPACT OF U.S. FISCAL STIMULUS ON REAL GDP GROWTH				
	Ann Avg.		Q4/Q4	
	2009F	2010F	2009F	2010F
Real GDP before stimulus				
Level (\$U.S. Billions)	11,378	11,534	11,366	11,644
% Change	-2.5	1.4	-2.0	2.4
Real GDP after stimulus				
Level (\$U.S. Billions)	11,445	11,778	11,506	11,911
% Change	-1.9	2.9	-0.8	3.5
Impact of Stimulus				
Level (\$U.S. Billions)	67	244	140	267
% Change*	0.6	2.1	1.2	2.3
*Relative to non-stimulus baseline				
Forecast by TD Economics as at February 2009				

But even if economic activity is stimulated by a permanent tax cut the notion that tax cuts pay for themselves completely in terms of greater economic growth has little support in the data. The cost of permanent tax measures is instead permanent lower tax revenues, requiring either additional debt issuance or decreased spending in the future, harkening back to the issues discussed above.

What'll it be then?

Estimates of the stimulative impact of government spending and tax cuts vary from study to study. On the low end of the scale are estimates that government spending has little to no multiplicative effect on GDP growth. Government spending rises by \$1.00, but does not stimulate any extra spending. On the other end of the scale are estimates that \$1.00 of spending leads to more than a doubling in total output (more than \$2.00 in additional economic activity). This requires that spending is well-targeted at under-utilized resources and that the people employed have a fairly high propensity to go out and spend their resulting incomes.

Reflecting the range of opinions, the CBO has placed a very large confidence interval in their analysis of the impact of the stimulus package. According to the CBO, the government spending multiplier likely ranges between 1 and 2.5. Government transfers to persons are slightly less multiplicative at 0.8 to 2.2; while temporary (though well targeted) tax cuts have the lowest multiplier at 0.5 to 1.7 per one dollar of government spending. These assumptions put a fairly wide range on the impact of the *American Recovery and Reinvestment Act*. The CBO estimates that by the end of 2010 real GDP will be somewhere be-

tween 1.1% and 3.3% higher than it would be without the stimulus. Our own forecast for U.S. economic growth reflects a stimulus impact at the mid-point of the CBO's range, raising the level of GDP by 2.3% by the end of 2010 relative to a non-stimulus base-line. This mid-point estimate is informed by the scale of the current downturn and the significant amount of excess capacity available in the U.S. economy balanced against a consideration of the scope of deleveraging among households and businesses.

While the *American Recovery and Reinvestment Act* will likely aid in returning to the U.S. economy to a stable growth path it does not override what we have always felt are two necessary pre-conditions to economic recovery. The first is a bottoming in U.S. home prices and a trough in residential construction. A bottoming in home prices is an important signal to financial institutions as to what their write-offs should be – a pivotal component to restoring confidence to financial markets. Secondly and related to the first, is a return to normalcy in credit markets. A positive flow of credit and lower spreads on medium to longer

term corporate bonds are essential to returning to stable economic growth.

Ironically, the recent actions of the Treasury Department and the administration's housing plan may be interfering with satisfying these conditions at the moment. Anticipation of housing assistance may be keeping prices down in some markets. Similarly, anticipation of government purchases of toxic assets may be inhibiting the creation of a private market to trade in these assets: (if you are a bank, why sell low to a private outfit if you think you might get a better offer from the government? And, if you are a private purchaser, why buy if you fear government entry might crash the market?). On both fronts the government needs to move quickly and with details. Such action would complement the fiscal stimulus and give greater confidence of a meaningful recovery beginning by the end of 2009. In addition to our assumptions on the impact of the fiscal stimulus, we are assuming positive action on both fronts in our forecast of the U.S. economy.

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Endnotes

- ¹ The non-seasonally adjusted (NSA) is 18.2% but as might be expected construction employment is highly seasonal. Adjusting the NSA rate using the Census X-12 method yields an unemployment rate slightly above 14% as of January 2009.
- ² The forward looking nature of investors raises the potential that government spending result in higher bond yields immediately, making it more difficult for increased spending to stimulate the economy even in the present.

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