CONGRESSIONAL BUDGET OFFICE
U.S. Congress
Washington, DC 20515

Douglas W. Elmendorf, Director

February 4, 2009

Honorable Charles E. Grassley
Ranking Member
Committee on Finance
United States Senate
Washington, DC 20510

Dear Senator:

At your request, the Congressional Budget Office (CBO) has conducted an analysis of the macroeconomic impact of the Inouye-Baucus amendment in the nature of a substitute to H.R. 1. CBO estimates that this Senate legislation would raise output and lower unemployment for several years, with effects broadly similar to those of H.R. 1 as introduced. In the longer run, the legislation would result in a slight decrease in gross domestic product (GDP) compared with CBO's baseline economic forecast.

Effects on Output and Employment

The macroeconomic impacts of any economic stimulus program are very uncertain. Economic theories differ in their predictions about the effectiveness of stimulus. Furthermore, large fiscal stimulus is rarely attempted, so it is difficult to distinguish among alternative estimates of how large the macroeconomic effects would be. For those reasons, some economists remain skeptical that there would be any significant effects, while others expect very large ones.

CBO has developed a range of estimates of the effects of the Senate legislation on GDP and employment that encompasses a majority of economists' views. According to these estimates, implementing the Senate legislation would increase GDP relative to the agency's baseline forecast by between 1.2 percent and 3.6 percent by the fourth quarter of 2010. It would also increase employment at that point in time by 1.3 million to 3.9 million jobs, as shown in Table 1. In that quarter, the unemployment rate would be 0.7 percentage points to 2.1 percentage points lower than the baseline forecast of 8.7 percent. The effects of the legislation would diminish rapidly after 2010. By the end of 2011, the Senate legislation would increase GDP by 0.4 percent to 1.2 percent, would raise employment by 0.6 million to 1.9 million jobs, and would lower the unemployment rate by 0.3 percentage points to 1.0 percentage point.

Those estimated effects differ modestly from CBO's estimates for H.R. 1 as introduced.[1] In particular, the effects on output and employment are slightly higher in 2009 and 2010, but slightly lower in 2011. The differences stem from three main sources. First, the Senate legislation's provisions regarding the alternative minimum tax (AMT), which do not appear in the House bill, would add stimulus to the economy, especially in 2010. Second, the Senate legislation would allow faster spending from the State Fiscal Stabilization Fund, increasing such spending by about $20 billion over the 2009-2010 period compared with that under the House bill (and decreasing spending correspondingly in the following years). And last, the estimated decrease in withholding (and thus the reduction in revenues) associated with the Making Work Pay Credit would be greater in 2009 under the Senate legislation than under H.R. 1.

Effects of Various Types of Legislative Provisions on Output

Although the Senate legislation has numerous detailed provisions, the macroeconomic effects can be illustrated by considering the provisions in seven categories. Table 2 shows the range of estimated effects on the economy—the multiplier effects—of a one-time increase of a dollar of additional spending or a dollar reduction in taxes. For all of the categories that would be affected by the Senate legislation, the resulting budgetary changes are estimated to raise output in the short run, albeit by different amounts.

The numbers in Table 2 indicate the cumulative impact on GDP over several quarters. For example, a one-time increase in federal purchases of goods and services of $1.00 in the second quarter of this year would raise GDP by $1.00 to $2.50 in total over several quarters, with most of that effect in the first two quarters and little effect beyond a year.

As shown in the first two categories in the table, direct purchases of goods and services by governments, including investment in infrastructure, tend to have relatively large effects on GDP. Because infrastructure spending takes time to occur, increased funding for that purpose would not boost outlays or GDP much this year, but it would probably provide significant stimulus from 2010 through 2012.

Grants to state and local governments (such as increased assistance for education) might not increase state spending for the programs designated in the grants but, instead, might free up funds that the states would otherwise spend on those programs. States could use those extra funds in a variety of ways: direct purchases of goods and services (or smaller cuts in such purchases), tax cuts (or smaller tax increases), transfer payments, or reduced borrowing. The impact of grants therefore would depend on how states used them.

[1] Those estimates appear in Statement of Douglas W. Elmendorf, Director, Congressional Budget Office, before the House Committee on the Budget, *The State of the Economy and Issues in Developing an Effective Policy Response* (January 27, 2009), Table 4, p. 26.

Transfers to persons (for example, unemployment insurance and nutrition assistance) would also have a significant impact on GDP. Transfers have a relatively strong effect on consumption because they tend to go to people, such as the poor or unemployed, who are likely to spend much of any additional income. For that reason and because transfers can be increased quickly, they are estimated to have a significant impact on GDP by early 2010. Transfers also include refundable tax credits, which have an impact similar to that of a temporary tax cut.

A dollar's worth of a temporary tax cut would have a smaller effect on GDP than a dollar's worth of direct purchases or transfers, because a significant share of the tax cut would probably be saved. The amount saved, and therefore the size of the effect on GDP, would depend on who received the tax cut and how temporary it would be. Most households probably save most of a temporary tax cut, to keep their purchases relatively smooth over time. However, the predominantly lower-income households that spend all of their income and would like to borrow funds to spend more if they could (that is, households that are "liquidity constrained") probably spend a large share of temporary boosts to income. In addition, the longer a tax cut is expected to last, the greater the impact on total after-tax income, and the larger the likely effect on consumption.

CBO's analysis divides the temporary tax cuts in the Senate legislation into those that would go primarily to higher-income households and last for only one year (mostly the provisions affecting the AMT) and those that would go primarily to lower- and middle-income households and last for two years (predominantly the Making Work Pay Credit), with the former having a considerably lower range of multipliers than the latter. Taken together, the temporary nonbusiness tax cuts in the Senate legislation would reduce revenues much more in 2010 than in 2009 because much of the reduction in taxes would be realized by households when they filed their returns in 2010.

The provision for greater tax-loss carrybacks would result in a large up-front cost to the government, but the effect of that provision on business spending would probably be small because it primarily would affect firms' after-tax income rather than their marginal incentives for new investment. Therefore, the effect of the provision on revenues would be significantly greater than its effect on the economy.

The Relationship Between Output and Employment

CBO derived its estimates of the effect of the Senate legislation on employment from the estimated effect on GDP. Historical evidence suggests that GDP growth that is 1 percentage point faster over a year (relative to a baseline forecast) will cause the unemployment rate to decline by a little more than half a percentage point (relative to a corresponding baseline forecast). The fall in the unemployment rate leads more people to enter the labor force and seek jobs and fewer to drop

out. Therefore, employment rises both from a decline in the number of unemployed workers and a decline in the number of people out of the labor force. In addition, some workers otherwise working part time move to full-time status.

The change in employment relative to the change in GDP in CBO's estimates is small compared with that in most industry-based studies of stimulus. By the end of 2010, CBO estimates, about $140,000 of additional GDP would lead to one additional person employed. That relationship is similar to those indicated by other macroeconomic studies of stimulus proposals.[2] However, a number of other sorts of studies imply more employment per dollar of additional GDP. Because the macroeconomic studies use the historical relationship between changes in economic growth and changes in jobs, they incorporate a number of broad economic effects. For example, output per employee tends to fall in a recession because employers try not to fire their best workers even as they cut production in response to decreased demand. Therefore, as fiscal stimulus increases demand, firms can ramp up production without increasing employment proportionally. Historical evidence thus suggests that fiscal stimulus boosts both productivity and hours of work as well as employment. Studies that ignore those effects are likely to overstate the impact of fiscal stimulus on employment.

Long-Run Effects on Output

Most of the budgetary effects of the Senate legislation occur over the next few years. Even if the fiscal stimulus persisted, however, the short-run effects on output that operate by increasing demand for goods and services would eventually fade away. In the long run, the economy produces close to its potential output on average, and that potential level is determined by the stock of productive capital, the supply of labor, and productivity. Short-run stimulative policies can affect long-run output by influencing those three factors, although such effects would generally be smaller than the short-run impact of those policies on demand.

In contrast to its positive near-term macroeconomic effects, the Senate legislation would reduce output slightly in the long run, CBO estimates, as would other similar proposals. The principal channel for this effect is that the legislation would result in an increase in government debt. To the extent that people hold their wealth as government bonds rather than in a form that can be used to finance private investment, the increased debt would tend to reduce the stock of productive capital. In economic parlance, the debt would "crowd out" private investment. (Crowding out is unlikely to occur in the short run under current conditions, because most firms are lowering investment in response to reduced demand, which stimulus can offset in part.) CBO's basic assumption is that, in the long run, each dollar of additional debt crowds out about a third of a dollar's

[2] Two recent macroeconomic studies are Christina Romer and Jared Bernstein, "The Job Impact of the American Recovery and Reinvestment Plan" (January 9, 2009), and Macroeconomic Advisers, "Fiscal Stimulus to the Rescue" (January 19, 2009).

worth of private domestic capital (with the remainder of the rise in debt offset by increases in private saving and inflows of foreign capital). Because of uncertainty about the degree of crowding out, however, CBO has incorporated both more and less crowding out into its range of estimates of the long-run effects of the Senate legislation.

The crowding-out effect would be offset somewhat by other factors. Some of the Senate legislation's provisions, such as funding for improvements to roads and highways, might add to the economy's potential output in much the same way that private capital investment does. Other provisions, such as funding for grants to increase access to college education, could raise long-term productivity by enhancing people's skills. And some provisions would create incentives for increased private investment. According to CBO's estimates, provisions that could add to long-term output account for roughly one-quarter of the legislation's budgetary cost.

The effect of individual provisions could vary greatly. For example, increased spending for basic research and education might affect output only after a number of years, but once those investments began to boost GDP, they might pay off over more years than would the average investment in physical capital (in economic terms, they have a low rate of depreciation). Therefore, in any one year, their contribution to output might be less than that of the average private investment, even if their overall contribution to productivity over their lifetime was just as high. Moreover, while some carefully chosen government investments might be as productive as private investment, other government projects would probably fall well short of that benchmark, particularly in an environment in which rapid spending is a significant goal. The response of state and local governments that received federal stimulus grants would also affect their long-run impact; those governments might apply some of that money to investments they would have carried out anyway, thus freeing funds for noninvestment purposes and lowering the long-run economic return to those grants. In order to encompass a wide range of potential effects, CBO used two assumptions in developing its estimates: first, that all of the relevant investments together would, on average, add as much to output as would a comparable amount of private investment, and, second, that they would, on average, not add to output at all.

In principle, the legislation's long-run impact on output also would depend on whether it permanently changed incentives to work or save. However, according to CBO's estimates, the legislation would not have any significant permanent effects on those incentives.

Including the effects of both crowding out of private investment (which would reduce output in the long run) and possibly productive government investment (which could increase output), CBO estimates that by 2019 the Senate legislation would reduce GDP by 0.1 percent to 0.3 percent on net. H.R. 1, as passed by the

House, would have similar long-run effects. CBO has not estimated the macroeconomic effects of the stimulus proposals year by year beyond 2011.

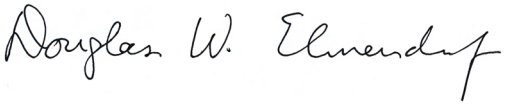
Other Effects of Stimulus Proposals

It is important to note that effects on GDP, the aggregate domestic output of the economy, do not necessarily translate into effects on people's well-being. First, the part of GDP that contributes directly to people's welfare is consumption. However, changes in GDP do not necessarily imply corresponding changes in consumption. For example, if GDP rises because foreigners finance greater investment, much of the additional income generated by the investment will flow overseas as payments to foreigners and will not be available to support higher consumption.

More fundamentally, many things that make people better off do not appear in GDP at all. For example, healthier children or shorter commute times can improve people's welfare without necessarily increasing the nation's measured output in the long run (though spending in those areas would still provide short-run stimulus). Even legislation explicitly intended to affect output may also seek to accomplish other goals and can be evaluated accordingly.

I hope this information is helpful to you. If you have any further questions, I would be glad to answer them. The staff contacts for the analysis are Ben Page and Robert Arnold, who may be reached at (202) 226-2750.

Sincerely,



Douglas W. Elmendorf
Director

Identical letter sent to the Honorable Judd Gregg.

cc: Honorable Max Baucus
Chairman
Senate Committee on Finance

Honorable Charles B. Rangel
Chairman
House Committee on Ways and Means

Honorable Dave Camp
Ranking Member
House Committee on Ways and Means

Table 1.

Estimated Macroeconomic Impacts of the Inouye-Baucus Amendment in the Nature of a Substitute to H.R.1, Fourth Quarters of 2009, 2010, and 2011

	2009	2010	2011
GDP (Percentage from baseline)			
Low estimate of effect of plan	1.4	1.2	0.4
High estimate of effect of plan	4.1	3.6	1.2
GDP Gap[a] (Percent)			
Baseline	-7.4	-6.3	-4.1
Low estimate of effect of plan	-6.1	-5.2	-3.7
High estimate of effect of plan	-3.7	-3.0	-2.9
Unemployment Rate (Percent)			
Baseline	9.0	8.7	7.5
Low estimate of effect of plan	8.5	8.1	7.2
High estimate of effect of plan	7.7	6.7	6.5
Employment[b] (Millions of jobs)			
Baseline	141.6	143.3	146.2
Low estimate of effect of plan	142.5	144.6	146.8
High estimate of effect of plan	144.0	147.2	148.1

Source: Congressional Budget Office.

a. The GDP gap is the percentage difference between gross domestic product and CBO's estimate of potential GDP. Potential GDP is the estimated level of output that corresponds to a high level of resource--labor and capital--use. A negative gap indicates a high unemployment rate and low utilization rates for plant and equipment.

b. Figures for employment are based on surveys of households.

Table 2.

Policy Multipliers: The Cumulative Impact on GDP over Several Quarters of Various Policy Option

	High	Low
Purchases of Goods and Services by the Federal Government	2.5	1.0
Transfers to State and Local Governments for Infrastructure	2.5	1.0
Transfers to State and Local Governments Not for Infrastructure	1.9	0.7
Transfers to Persons	2.2	0.8
Two-Year Tax Cuts for Lower- and Middle-Income People	1.7	0.5
One-Year Tax Cuts for Higher-Income People	0.5	0.1
Tax-Loss Carryback	0.4	0

Source: Congressional Budget Office.

Note: For each option, the figures shown are a range of "multipliers," that is, the cumulative change in gross domestic product over several quarters, measured in dollars, per dollar of additional spending or reduction in taxes.