



**Testimony before House
Committee on Education and Labor
Hearing on
“Building an Economic Recovery Package:
Creating and Preserving Jobs in America”**

Robert Pollin

October 24, 2008

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**POLITICAL ECONOMY
RESEARCH INSTITUTE**

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University of Massachusetts-Amherst**

BRIEF SUMMARY OF TESTIMONY

This testimony describes an economic stimulus program focused on three areas: educational services, public infrastructure, and green investments. As I show, a program that combines these areas will have the capacity to generate nearly 3 million new jobs in the short run in response to an increased outlay of government spending of \$150 billion. Over the longer term, at least another 400,000 jobs should be created because public infrastructure and green investments will create an enhanced climate for private business investment. That level of government spending will be used to finance direct government programs but also incentives for private businesses both through tax credits and loan guarantee programs. Of course, the demands on the government budget are already heavy, at present. But I show that, in the current economic emergency, allowing the fiscal deficit to expand—even up to \$1 trillion dollars—is manageable, and is not inconsistent with historical experiences, most especially the fiscal management by the Reagan Administration amid the severe recession of 1982-83.

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Dear Chairman Miller, Ranking Member McKeon, and Members of the Committee:

I am pleased to have the opportunity to testify today before the Committee on Education and Labor on the issue of “Building an Economic Recovery Package: Creating and Preserving Jobs in America.” My testimony today will build in part upon some of the main themes of the study *Green Recovery: A Program to Create Good Jobs and Start Building a Low-Carbon Economy*, that I authored along with three colleagues at the Political Economy Research Institute of the University of Massachusetts-Amherst, Professor James Heintz, Heidi Garrett-Peltier, and Helen Scharber (these are the people to whom I will be referring when I make references to “we” in this testimony). That study was commissioned by the Center for American Progress, and released last month. I will also offer observations on related issues that are not covered in “Green Recovery,” in particular, the opportunities for job creation and productivity growth through investments in public infrastructure and education.

I am a Professor in the Department of Economics and Co-Director of the Political Economy Research Institute (PERI) at the University of Massachusetts, Amherst. PERI is an independent unit of the University of Massachusetts, Amherst with close ties to the Department of Economics. Our purpose is to promote human and ecological well-being through our original research.

The Need for an Economic Stimulus/Jobs Program Now

The United States economy, as well as the global economy, are currently suffering through the most severe financial crisis since the 1930s Depression. As such, normal channels of supplying credit to finance both private and public investments are being impeded.

In addition, the budgets of state and local governments throughout the country are being strained by a falloff in tax revenues. Unlike the federal government, state and local governments are not able to finance their current expenditures through borrowing. This means that, in the face of declining tax revenues, they are forced to cut vital expenditures on education, health, public safety and public infrastructure.

Over the past year, these forces have inevitably exerted a heavy drag on the U.S. labor market. As of September 2008, there were officially 9.5 million people unemployed in the U.S. producing an unemployment rate of 6.1 percent. This compares with an unemployment rate of 4.7 percent one year ago. The situation is worse still when taking into account a labor market where people are working fewer hours than they wish, taking pay cuts, or becoming discouraged from looking for work. It is also likely that the overall employment situation will worsen in the coming months, unless the federal government takes strong action to counteract the momentum toward rising unemployment and recession.

Amid the current financial and economic crisis, there has been a perhaps inevitable tendency to put aside the fact that we are, concurrently, facing an equally severe long-term crisis of global warming. Over the past weeks, I have heard commentators remark that, in the face of the financial crisis and recession, policy measures to combat global warming will need to be postponed. Against this, climate scientists have made clear that we do not have the luxury to delay action on global warming. Rather, we in the U.S. need to take serious steps now to reduce our consumption of fossil fuels, as this is the single greatest source of carbon emissions in the atmosphere, which is, in turn, the most important cause of global warming.

In fact, there is no reason at all to delay taking action now to fight global warming. As my co-authors and I show in *Green Recovery*, a green investment agenda—focused primarily on measures to dramatically improve energy efficiency but on advancing renewable energy commercialization as well—can itself serve as a powerful engine of job creation in the short run.

Thus, a green investment agenda should be combined right now with additional forms of public investment spending to generate a large-scale program of job creation in the United States. Over the longer term, these investments will also lay the foundation for enhancing overall productivity, which will, in turn, further encourage private investment and job creation as we move out of the current crisis conditions.

Job Creation Potential through Alternative Investment Strategies

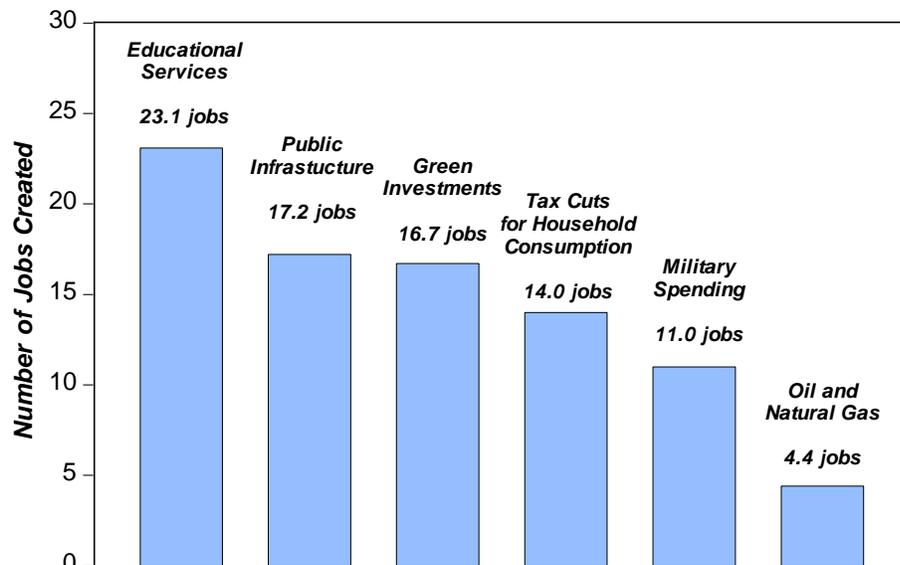
Spending more money on *anything* within the U.S. economy—either by the private or public sector—will increase employment, as people will be newly hired into various activities to meet the expanded level of overall demand in the economy. To design an effective employment stimulus program, we need to consider, among various

sectors of the U.S. economy, *how many* jobs are likely to be created for a given amount of spending.

In Figure 1 below, I present estimates of job creation within the U.S. economy that would be generated through increasing spending by \$1 million in alternative sectors of the U.S. economy. I report figures for six different sectors: educational services; public infrastructure; green investments; tax cuts for household consumption; military spending; and the oil and natural gas industry.

The category “public infrastructure” consists, in equal parts, of investments in transportation, water management, and institutional structures, including educational buildings. The category “green investments” consists of three areas of energy efficiency—building retrofits (40% of total); public transportation (20%); “smart grid” electrical transmission systems (10%)—and three sources of renewable energy, wind power (10%), solar power (10%), and non-food biomass fuels (10%). The figures all come from the most recent 2005 input-output tables of the U.S. Commerce Department.

Figure 1.
Job Creation in the U.S. through \$ 1 Million in Spending



Source: Input-Output Tables of U.S. Commerce Department
Note: Employment estimates include direct, indirect, and induced jobs

As Figure 1 shows, there are sharp disparities in our estimate of the relative job creating potential of these six alternative investment areas. We estimate that educational services will generate the largest number of jobs per \$1 million of spending, at 23.1 jobs.

Both public infrastructure and green investments will generate about 17 jobs per \$1 million in new spending.

Tax cuts for household consumption was the central element of the economic stimulus program implemented by the federal government last April. As Figure 1 shows, we estimate that that the job creating potential of such a measure is 14 jobs per \$1 million in spending, dramatically weaker than spending on educational services, and significantly less effective than either public infrastructure or green investments.

Spending on either the military or within the oil industry will have a still weaker impact on job creation within the United States. Indeed, spending more within the oil industry would generate less than one-quarter the number of jobs as investments in public infrastructure and the green economy, and less than one-fifth the impact as spending on educational services.

Why the Greater Job-Creation Impact from Some Sectors Relative to Others?

There are three ways jobs get created through spending within any of the sectors we have listed—educational services, public infrastructure, green investments, household consumption, the military, or the oil industry—or any other sector of the U.S. economy. These are:

1. **Direct effects**—The jobs created by increased spending on, for example, retrofitting public school buildings or drilling off the U.S. shoreline for oil (e.g. a carpenter who replaces school windows);
2. **Indirect effects**—The jobs associated with business firms that supply intermediate goods for constructing, maintaining, and retrofitting school buildings; or that supply equipment for oil drilling (e.g. a mill worker who builds the window framing); and
3. **Induced effects**—The expansion of employment that results when people who have been newly hired to retrofit a school building or drill for oil spend the money they have earned on other products in the economy (e.g. a waitress serving dinner to the mill worker and her family).

How could one spending target create more jobs than another for a given amount of spending? If we compare, for example, retrofitting a school building versus exploring for new sources of oil, there are only three possibilities:

1. **Differences in labor intensity.** The average “labor intensity” for retrofitting a school building—i.e. the number of jobs created per dollar of spending, as opposed to the amount spent on machinery, buildings, energy, land, and other inputs—is higher than the labor intensity of oil exploration and drilling activities.

2. **Domestic content.** The amount of spending within the U.S. economy, as opposed to spending on imports in school construction as opposed to the oil industry; and

3. **Lower average compensation for each job created.** If there is a given amount of money to spend on employment, obviously more jobs are created if the average level of compensation is lower. It means that the given amount of money gets spread around more broadly. We will always need to consider the merits of creating more jobs this way. That is, we need to consider to what extent are we creating more jobs by producing a high proportion of bad jobs?

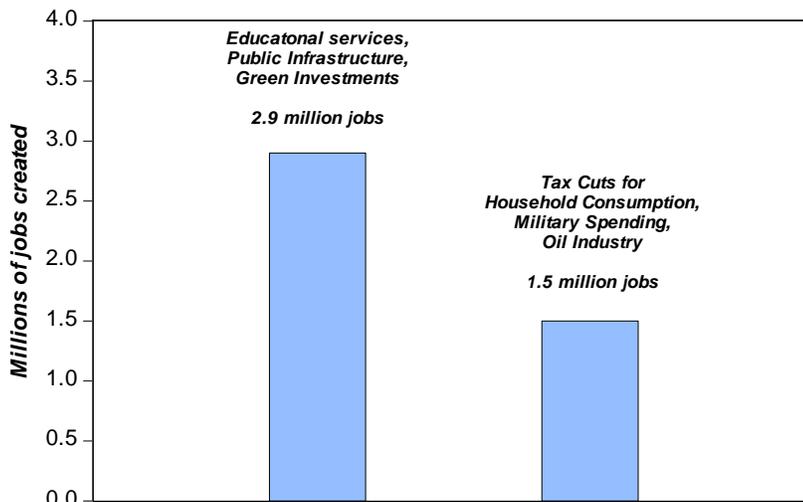
In terms of the sectors of the U.S. economy I have reviewed in Figure 1, the dominant source of the difference in job-creating potential is differences in labor intensity. That is, jobs in educational services, public infrastructure, and green investments rely much more heavily on employing labor and less on purchasing machinery, buildings, and energy than spending on the military or the oil industry. In the case of household consumption, the major difference in terms of job creation is the lower level of domestic content associated with a given dollar of spending. Considering total spending in the U.S. economy, of which consumer spending represents about 70 percent, approximately 17 percent goes to purchase imports. By contrast, 96 – 98 cents of every dollar spent on educational services, domestic infrastructure, or the energy efficiency components of green investments are retained within the U.S. economy.

Employment Impact of Alternative \$150 Billion Stimulus Programs

For purposes of discussion, I present evidence now on the relative employment impacts of a stimulus program at the level of \$150 billion. This is approximately the size of the April 2008 stimulus initiative. It is also roughly the size of the Iraq war budget for 2008.

Specifically, in Figure 2 below, I present estimates of the impact on employment of two alternative stimulus packages. The first package includes, in equal parts, spending on educational services, public infrastructure (including educational structures), and green investments. The second consists in equal parts of tax cuts to increase household consumption, military spending increases, and investment incentives to expand the oil industry. As the figure shows, when we combine these alternative approaches to injecting a \$150 billion stimulus into the economy, the package of educational services, public infrastructure, and green investments will generate nearly twice the extent of job expansion as the package that includes tax cuts for household consumption, military spending, and support for the oil industry.

Figure 2.
Total Job Creation through Alternative \$150 Billion Stimulus Programs



Source: Figures derived from data in Figure 1.
Note: Estimates assume linear extrapolation of employment effects through different levels of expenditure.

Can the Education/Public Infrastructure/Green Investment Program Work Quickly Enough?

While all of these investment areas are crucial to the long-term project of building a more productive clean-energy U.S. economy, it doesn't follow that they all can contribute effectively to a short-term green stimulus program. Operating as a short-term stimulus program, it will be necessary for these investment areas to begin expanding rapidly within a year.

Some of the strategies are clearly capable of being mobilized quickly. This is clearly true in the area of educational services. At present, as has been the case in every economic downturn, state and local government revenues are falling as a result of the recession. Because state and local governments for the most part are not able to finance their current operations through borrowing, the services they provide—which are focused primarily on health care, public safety as well as education—become jeopardized. This, in turn, strengthens the forces pushing the economy downward toward recession. Thus, one straightforward way to counter the recession quickly would be precisely to provide revenue sharing for state and local governments so that, for example, they will not have

to cut their educational programs. This kind of initiative would have an immediate stabilizing effect on state and local budgets and would, therefore, act as an effective short-term jobs program.

In the area of public infrastructure and green investments, one obvious area capable of generating rapid results is a building retrofit program. This will rely entirely on known technologies, can be implemented on buildings of all sizes, and can provide short-term returns on the money being invested. Moreover, the construction industry is already in a severe slump, with large numbers of construction workers eager for new job opportunities.

To achieve the most rapid and effective short-term stimulus through a program of building retrofits, the U.S. government, working in conjunction with state and local governments, can mandate a program of retrofitting public buildings that could commence as soon as new legislation authorized it. Indeed, programs to retrofit public buildings are already operating throughout the country. These could serve as the active starting point for a more ambitious national program of public building retrofits.

Of course, it is equally important to retrofit the country’s stock of privately-owned buildings, including residences and commercial structures. In *Green Recovery*, my coauthors and I propose a program of strong financial incentives—including both loan guarantees and tax credits—to advance such an initiative. But even operating under such incentives, privately-owned structures will be retrofitted only when private investors and homeowners choose to make these investments. This means that the speed at which new investments in retrofits will occur in the private sector will be slower than with the public sector.

Similar to the situation with retrofits, mass transit is an area where some investments can be implemented immediately while others will entail relatively long incubation periods. Activities that can be pursued in very short order include purchasing new buses, increasing bus service, or even simply lowering public transportation fares, to encourage new ridership. Other areas, such as building light-rail or subway systems, will entail long lead times before a large amount of new hiring and spending occurs. With smart grid investments, projects that are already in planning stages could grow quickly through government support. But most initiatives will entail more than a one-year time lag before significant levels of new spending and hiring can occur.¹

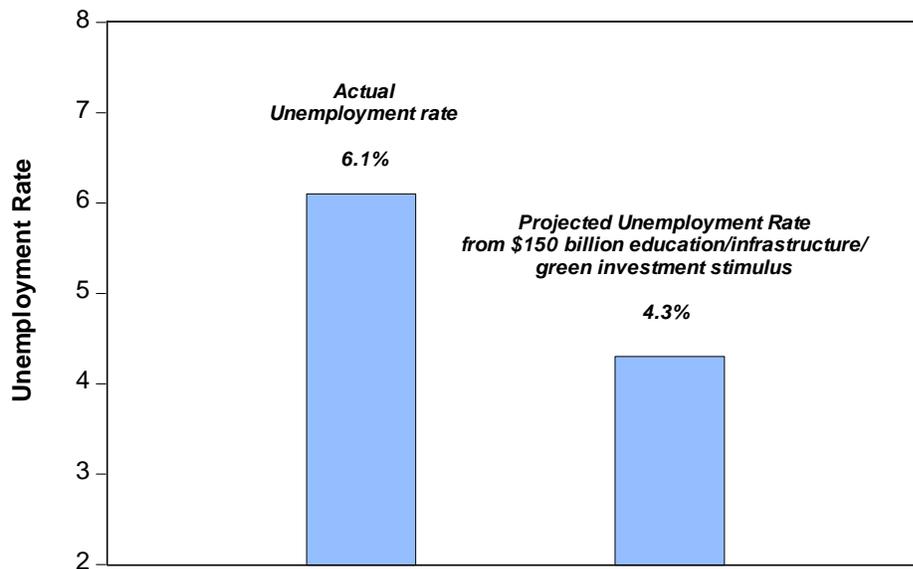
Overall Labor Market Effects

As of September 2008, there were 9.5 million people officially unemployed within the U.S. labor force of 154.3 million, producing an official unemployment rate of

¹ A companion piece to *Green Recovery* that presents details on specific green investment programs that can be implemented rapidly and effectively implemented is “Center for American Progress Action Fund Recommendations on Green Infrastructure and Economic Recovery,” September 21, 2008.

6.1 percent, according to the most recent data from the U.S. Bureau of Labor Statistics. For purposes of illustration, let’s assume that the \$150 billion stimulus program is enacted amid roughly September 2008 labor market conditions. As we have seen, this program could produce a net increase of about 2.9 million jobs, which would reduce the September 2008 number of unemployed to 6.6 million people, a decline of 31 percent. As we see in Figure 3, this would cut the unemployment rate to 4.3 percent, moving the job market forcefully away from its current slump.

**Figure 3.
Impact of Adding 2.9 Million Jobs
in September 2008 Labor Market**



In reality, we cannot assume that everything about the U.S. labor market would stay unchanged relative to September 2008. First of all, we cannot know how the current crisis will proceed over the next two years absent any additional stimulus or financial bailout measure. We also cannot know how the \$150 billion in government spending would affect other forces in the economy. The fall in unemployment, for example, could produce some shortages of labor and materials in a few sectors, particularly construction, but evidence suggests the risks of inflationary labor shortages from job creation are minimal.

The primary challenge today is to create more good jobs, not deal with inflationary pressures from an overheated economy. This becomes clear from examining the employment patterns within construction just over the past year. In September 2007, there were 9.5 million people employed in the construction and extraction industries. That figure has fallen to 8.7 million as of September 2008—a decline of 800,000 jobs.

These figures imply that there are roughly 800,000 construction workers ready to accept new job opportunities in the construction industry. This job slack in the construction industry alone amounts to about 28 percent of the total 2.9 million jobs that could be generated by our overall proposed education/public infrastructure/green investment program. Of course, beyond construction, we are still left, as of September 2008, with 8.7 million additional unemployed workers in other sectors of the economy. This number will continue rising further still in the absence of a large scale jobs program. There is thus little chance that we will face serious labor shortages by creating 2.9 million more jobs through a stimulus.

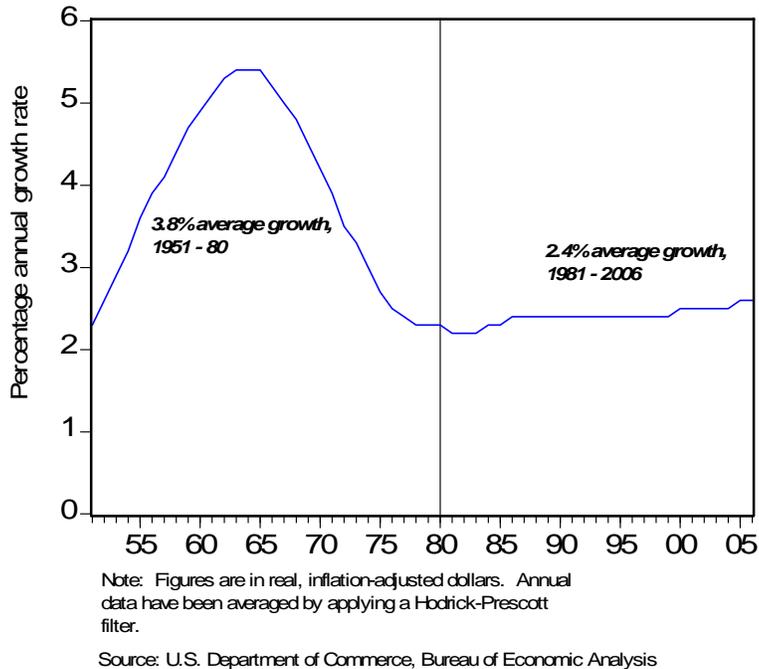
Longer-Term Benefits of Public Investment “Crowding In” Private Investment

In considering the viability of spending on public infrastructure projects—including road, bridges, and water management systems in addition to “green” public investments, such as mass transit and smart grid electrical transmission systems—one of the major issues that is often raised is whether such expenditures absorb the limited amount of total investment funds in the economy, and thereby “crowd out” private sector investment activities. Obviously, infrastructure public investments are likely to be counterproductive to the extent that they crowd out productive private investments. This would certainly be the case if, as is always possible, public investment projects are mismanaged or the funds are squandered. But even with projects that are well-designed and executed, they could end up yielding little or no net economic benefits if they crowd out productive private sector activity. Such considerations deserve serious attention.

In fact, the weight of evidence examining the impact of public investment on the U.S. economy does not point to a crowding out effect. It rather finds that, on balance, higher levels of public investment will promote private sector productivity and higher rates of return for business. As such, the evidence suggests that many kinds of public investments in the U.S. generally *crowd in* as opposed to crowd out private investment. In addition, the crowding-in benefits of public investments are also associated with positive gains in terms of employment, though in this case, with a time lag of a couple of years.

Despite these benefits of public infrastructure, spending in this area has fallen off. Figure 5.1 plots the long-term growth trajectory for public economic infrastructure investments in the United States. As we see, there is a strong upward growth trend from the mid-1950s through the mid- 1960s, with the annual growth rate ranging between 3.5 – 5.5 percent in that decade. The annual growth rate then fell steadily until the early 1980s to about 2 percent per year, and has ranged between 2 – 2.5 percent since.

Figure 5.1
Average Real Growth of U.S. Public Economic Infrastructure, 1951-2006



How has this decline in the growth of public investment affected economic growth and job creation within the U.S. economy? Research conducted in the 1980s and early 1990s, led by Alicia Munnell and David Aschauer, suggested that public investment in the United States economy contributes to better performance of the private economy in terms of higher productivity and more jobs. That is, public investment actually raises the return on private investment. Under these conditions, public investment will tend to crowd in rather than crowd out private investment. For example, Munnell found that public investment, both at the federal and state levels, has a positive impact on labor productivity.

My co-authors and I have re-estimated the relationships which Aschauer and Munnell researched, addressing some problems with the statistical details of the modeling exercise, as well as brought the figures up to date. In the main, our findings confirm to the earlier results of Munnell and Aschauer.

In particular, we found that increases in public investment in the United States do enhance the growth of GDP by a significant amount. The single most important result is our finding that a one-percent increase in the growth of public capital stock would lead to an increase in GDP of 0.29 percent. This is quite a substantial positive effect on GDP. As we saw above, average growth of public investment in the U.S. fell from an average of nearly four percent per year from 1951 – 78 to 2.4 percent subsequently. Assume we

raised public economic infrastructure investments by one percentage point above its current trend of about 2.4 percent, to 3.4 percent. This is to a level still below the 3.8 percent average for 1951 – 70. In today's economy, that would generate over \$40 billion per year in additional GDP. This dividend is an amount equal to roughly 25 percent of the total \$150 billion program I am proposing here.

Public Investment and Employment

How might public investment in general affect employment opportunities in the U.S., aside from the 2.9 million jobs that would be generated in the short-term as a result of the increased spending itself? This is one of the questions that Munnell's earlier research, using state-level data, had examined in depth. We are in the process of following up on her earlier findings. For now, I will offer some preliminary perspectives on her results.

Munnell assembled a detailed data set on the stock of public capital for each state over the period 1970-1986. Based on these data, she presented evidence suggesting that those states with higher levels of public capital assets tended to enjoy faster rates of subsequent employment growth. These results controlled for numerous factors that could be influencing employment growth, including wage rates, education levels, energy costs, and the size of the urban population. As Munnell writes, "One would expect this to be case; a state that goes to the trouble of building roads, sewers, water supply facilities, and power plants, as well as schools and hospitals, would be expected to attract more new firms and more households than a state that did not undertake such activity," (1990b, p. 25).

Her specific finding was that states that invested \$1,000 more in public infrastructure per capita in a given time period would experience a roughly 0.2 percent increase in average employment growth in subsequent years. We can illustrate the implications of this finding within the context of the present-day U.S. economy as follows. Let's assume that in 2009, public investment increased by \$150 billion. Based on Munnell's findings, this would mean an increase in total U.S. employment, after a lag of a year or two, of about 1.5 million jobs per year beyond what would have otherwise occurred. This employment gain would be entirely due to the supply-side benefits of the enhanced public infrastructure. In other words, this effect is distinct from, and additional to, the employment gains due to spending increases—on educational services, public infrastructure and green investments-- associated with the short-term stimulus.

Our own research has not yet brought Munnell's earlier findings fully up to date. But if Munnell's earlier findings showing positive employment effects of public investment do hold up in our ongoing research, this will support the idea that higher rates of public investment will, if anything, encourage employment growth via the productivity gains that are generated.

Let me suggest here some very rough order-of-magnitude employment benefits, derived from the earlier Munnell findings, of a \$150 billion public investment program. Within the context of the overall \$150 billion program, let’s assume that roughly half of the total amount—i.e. \$75 billion—is spent on a range of public infrastructure productivity-enhancing green investments. Let’s further assume that from that base of \$75 billion in spending, the positive employment effects are only one-half as potent as those estimated by Munnell. Based on these assumptions, that would suggest that the net employment gains from the \$75 billion in public infrastructure investments would be in the range of 400,000 jobs. However, these employment gains would not emerge immediately as the money on these investments are being spent, as is the case with the employment gains tied to labor intensity, domestic content and compensation levels. According to Munnell’s findings, these public investment driven employment gains would emerge only after a lag of about two years.

Considering both the short-term gains in labor demand resulting from the increased spending on educational services/public infrastructure/green investments, we can see now that the full employment effect, after a lag of perhaps two years, can be in the range of 3.3 million jobs.

**Table 1.
Summarizing Estimated Overall Employment Expansion from \$150 Billion
Education/Public Infrastructure/Green Investment Program**

<i>Short-term gains from spending on education/public infrastructure /green investments</i>	2.9 million jobs
<i>Long-term gains from public investment “crowding in”</i>	400,000 jobs
<i>Total employment expansion from both directly expanding labor demand and crowding in</i>	3.3 million jobs

How to Pay for the Stimulus Program?

We propose that the \$150 billion stimulus program be financed by an increase in the U.S. Treasury’s fiscal deficit. The \$150 billion in increased spending would then be used to cover three types of government outlays: direct spending for public projects; tax credits to support green investments by private businesses; and loan guarantees for

financial institutions that would also serve to subsidize green investments by the private sector.

In terms of the green investment agenda, over the longer term, policymakers will need to establish major new revenue sources to finance a full transition to a clean-energy economy. In terms of a long-term energy program, the primary new source should be revenues generated through a carbon cap-and-trade program such as that sponsored last year in the U.S. Senate by Senators Boxer, Lieberman, and Warner. A cap-and-trade program, such as Boxer/Warner/Lieberman would set limits on carbon-dioxide emissions and require companies to obtain permits to release carbon into the air. The government would generate revenues by charging businesses to obtain the carbon-emitting permits. Credible estimates as to how much the government could raise through such a program range widely, between \$75 and \$200 billion. In addition, over the longer term, the government could generate in the range of another \$6 billion by eliminating subsidies that are now funneled to the oil, gas, and coal industries.

But measures such as these will not be implemented within the short time framework needed to put a green stimulus program in place. This is why we have to rely on incentives within the private credit markets and deficit spending from the U.S. Treasury to pay for the \$150 in green investments.

Increasing the Fiscal Deficit

As of fiscal year 2007, the federal government’s fiscal deficit was \$162 billion. With the economy slowing in 2008, this figure inevitably rose sharply, to \$389 billion in fiscal 2008. In July 2008, the Office of Management and Budget had estimated that the 2009 fiscal deficit would rise further, to \$482 billion. But in the face of the \$700 billion financial bailout operation and recession, this July estimate is now moot.

We cannot know for certain how much the fiscal deficit will expand in the current circumstances. Among other things, we don’t know how much of the \$700 billion in Treasury funds will actually be needed to conduct the full financial bailout operation. It is possible that most of the purchases of non-performing financial assets now held by private financial institutions, as well measures to increase the liquidity of financial institutions, can be conducted through variations on Federal Reserve open market operations and discount window lending—i.e. variations on the conventional tools of monetary management, even during financial crises—as opposed to relying entirely, or even primarily, on the Treasury. To the extent that the Fed, as opposed to the Treasury, is the main source of funding for the overall bailout, the impact on the fiscal deficit will be diminished.²

² Thus, *The New York Times* for 10/22/08 reported that the Federal Reserve will begin buying “certificates of deposit and certain types of commercial paper” from money market funds, “in hopes of restoring the free flow of credit and easing worries about the investments.” This is the third program of its kind that the Fed has announced this month. The Fed had previously committed to providing direct financing to businesses

That said, it is reasonable to consider that the fiscal deficit could possibly rise up to \$1 trillion in fiscal 2009. Of course, it would be utterly self-defeating for the U.S. to run a reckless fiscal policy, no matter how pressing the need to fight the financial crisis and recession. But in this context, it is important to keep even a \$ 1 trillion deficit figure in perspective.

The 2007 deficit—the level that emerged before the onset of the financial crisis—amounted to about 1.2 percent of GDP for that year. This is at a level significantly below the average fiscal deficit between 1960 – 2006 of 1.9 percent of GDP.

The largest deviation from this long-term average occurred under Ronald Reagan's presidency of 1981 - 88, when the fiscal deficit *averaged* 4.2 percent of GDP—i.e. more than three times larger than the 2007 deficit as a share of the economy. In 1983, the Reagan Administration presided over a deficit that was 6.0 percent of GDP. This was in the aftermath of the 1980-82 recession. In 1982, GDP contracted by 1.9 percent. Behind the force of the massive expansion of deficit spending in 1983, GDP growth rose sharply to 4.5 percent in 1983, and again in 1984, to 7.2 percent. Deficit spending in this period was clearly a major factor pushing the economy out of its slump.

Of course, the deficit began rising in 2008 as a share of GDP due to the economic slowdown. But even in 2008, the fiscal deficit/GDP ratio was 2.7 percent, still substantially below the *average* figure for the entire Reagan presidency, including expansion and well as recession years.

This is the context in which to evaluate the viability of a huge expansion in the federal fiscal deficit, to finance both bailout operations and a jobs stimulus. However, even if we assume that the deficit rises all the way up to \$1 trillion, it is important to recognize that this is a manageable, if troubling, figure, given the magnitude of the current crisis. At the current level of GDP of \$14.4 trillion, a \$1 trillion deficit would represent about 7 percent of GDP, one percentage point higher than the peak 1983 deficit of the Reagan-led economic recovery.

Of course, the global financial system has undergone dramatic changes since the 1980s, so that direct comparisons with the Reagan deficits are not entirely valid. One major change is that U.S. government debt—Treasury bills and bonds—is increasingly owned by foreign governments and private asset holders. Foreign ownership of U.S. government debt—including that by Japanese, Chinese, Korean, and Western European entities—amounts to roughly 50 percent of the total debt outstanding. This means that 50 percent of the interest payments on that debt flow from the coffers of the U.S. Treasury—

i.e. the funds the Treasury receives from U.S. taxpayers—to these foreign owners of Treasuries. Over time, this obviously is a drain on U.S. income and wealth.

At the same time, amid the severe financial crisis, U.S. Treasuries are now, and will remain for some time, the single safest, and most desirable, financial instrument in the global financial system. Both U.S. investors as well as foreigners are clamoring to purchase Treasuries as opposed to buying stocks, bonds issued by private companies, and derivatives. This is pushing down the interest rates on Treasuries, both in absolute terms and relative to other debt instruments. The growing disparity between the low Treasury rates and the high rates on private bonds reflects the very high level of risk—the “risk premium”—that investors are now attaching to any security that doesn’t have the full backing of the U.S. government. This situation is evident from the data shown in Table 2. below.

Table 2.
Interest Rates on U.S. Treasuries and BAA Corporate Bonds,
October 2007 – October 2008

	October 15, 2007	October 15, 2008
4-week Treasury Bills	4.16%	0.05%
3-year Treasury Bonds	4.22%	1.91%
Baa Corporate Bonds	6.57%	8.86%
Spread between BAA Corporate Bonds and 3- year Treasuries	2.24%	6.57%

Source: Board of Governors of Federal Reserve System

This is clearly not a healthy situation. Over the next year, it will be important for the risk premium on private debt to fall relative to Treasuries. Nevertheless, for the present, when it is crucial that the U.S. government undertake a large-scale stimulus to fight the financial crisis and recession, it is a great benefit that the U.S. Treasury is able to borrow at negligible interest rates—e.g. at 0.05 percent for 4-week Treasury Bills and 1.91 percent for 3-year Treasury Bonds. In this way, allowing the fiscal deficit to rise even as high as seven percent of GDP—i.e. to a figure one percentage point higher than the peak deficit under President Reagan—nevertheless does not represent a longer-term burden on U.S. taxpayers greater than what occurred during the Reagan deficit years.

Expanding Loan Guarantees

In addition to \$100 billion in direct federal spending and tax credits, there is also good reason to begin laying the foundation for more private sector involvement, especially in the area of green investments. As of April 2008, the U.S. government is already committed to offering \$10 billion in loan guarantees for energy efficiency and renewable energy.³ I propose that the federal government budget \$4 billion to expand the loan guarantee program. I estimate this money would conservatively net between \$20 – \$50 billion in new private sector green infrastructure investments, but would cost the U.S. Treasury only \$4 billion since the government directly spends money on its loan guarantees only when borrowers default on their loans.⁴ As long as investors in green investment projects are making payments on their loans, U.S. taxpayers face no direct costs from the loan guarantee program.

I arrived at the \$4 billion cost to the federal government of these loan guarantees by considering several factors. The first is the percentage of a loan that would be guaranteed. We proposed that the federal guarantee cover only 75 percent of the total value of a loan. The second factor is the default rate on these loans. We estimate a default rate of 2 percent—which is in fact a high-end estimate, given both historical patterns and even current market conditions—on loans that the government would have to pay out to make lenders whole. And a third factor is the percentage of these guaranteed loans that might have occurred anyway without the benefit of the guarantee. We estimate that the net increase in green investments generated by the loan guarantee program would be less than the total amount of loans that would be guaranteed.

Taking account of these and other, related factors we believe a cautious budget estimate of \$4 billion for loan guarantees is capable of generating at least \$20 billion in new green investment lending, significantly increasing the amount of guaranteed loans for green investments than is currently budgeted by the federal government. In Appendix 2 of *Green Recovery*, my colleagues and I explain in detail how we arrive at this figure, and also describe how, using less cautious but still reasonable assumptions, the total amount of new green lending generated by a loan guarantee program could be much larger.

Over the longer term, these loan guarantees alongside tax credits for private investments would increasingly become a major impetus for private sector financing of a green infrastructure investment program. But over the next two years these loan

³ This is in addition to \$20.5 billion for nuclear power investments and \$8 billion in advanced fossil fuel technologies. The Department of Energy document announcing these guarantee programs provides no discussion on the extent of the guarantees, or a broader assessment of their financial implications. See http://www.doe.gov/media/Loan_Guarantee_Program-Implementation_Plan_April_2008.pdf.

⁴ The \$4 billion underwrites more than \$20 billion in loans, but as explained in Appendix 2 not all of the loans underwritten create net new investment in the economy.

guarantees will not deliver as large a boost to spending and jobs as the direct public investments.

Conclusion

In the midst of the severe financial crisis and deepening recession, it is imperative that the Federal government take action as soon as possible to counteract the downturn. First and foremost, this means increasing employment within the United States as quickly as possible and with the highest degree of efficiency—i.e. getting the most employment bang for the taxpayers' bucks. With these aims in mind, I have presented an economic stimulus program focused on three areas: educational services, public infrastructure, and green investments. As I show, a program that combines these areas will have the capacity to generate nearly 3 million new jobs in the short run in response to an increased outlay of government spending of \$150 billion. Over the longer term, at least another 400,000 jobs should be created because public infrastructure and green investments will create an enhanced climate for private business investment. That level of government spending will be used to finance direct government programs but also incentives for private businesses both through tax credits and loan guarantee programs.

Of course, the demands on the government budget are already heavy, at present. But I show that, in the current economic emergency, allowing the fiscal deficit to expand—even up to \$1 trillion dollars—is manageable, and is not inconsistent with historical experiences, most especially the fiscal management by the Reagan Administration amid the severe recession of 1982-83.