



Business Investment and Employment Tax Incentives to Stimulate the Economy

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Summary

According to the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER), the U.S. economy was in recession from December 2007 to June 2009. Congress passed and the President signed an economic stimulus package, the American Recovery and Reinvestment Act of 2009 (P.L. 111-5), in February 2009. The \$787 billion package included \$286 billion in tax cuts to help stimulate the economy. Among the tax reductions, many were tax incentives directed to business. The preliminary estimate of fourth quarter real gross domestic product (GDP) growth is 5.9%; the unemployment rate, a lagging indicator, averaged 9.6% in the third quarter and 10.0% in the fourth quarter of 2009. Federal Reserve Chairman Ben Bernanke expected the economy to continue growing at a modest pace, but predicted that bank lending will remain constrained and the job market will remain weak into at least 2010. To further assist unemployed workers, help business, and stimulate housing markets, Congress passed the Worker, Homeownership, and Business Assistance Act of 2009 (P.L. 111-92). The Obama Administration has advocated further business tax incentives to spur investment and employment, especially for small business. The House and Senate passed the Hiring Incentives to Restore Employment (HIRE) Act, which includes an employment tax credit. The President signed the act into law on March 18, 2010. In December 2010, P.L. 111-312 extended and expanded the business tax provisions, among other provisions, including a temporary reduction in the employee's portion of the payroll tax. Many of the business tax provisions were extended by the American Taxpayer Relief Act of 2012 (P.L. 112-240); the reduction in the employee's portion of the payroll tax expired at the end of 2012.

While a payroll tax on the individual side expands demand in the same way as other income tax cuts, the employer tax forgiveness is similar to an employer-side wage subsidy, which acts through a different mechanism.

The two most common measures to provide business tax incentives for new investment are investment tax credits and accelerated deductions for depreciation. The evidence, however, suggests that a business tax subsidy may not necessarily be the best choice for fiscal stimulus, largely because of the uncertainty of its success in stimulating aggregate demand. If such subsidies are used, however, the most effective short-run policy is probably a temporary investment subsidy. Permanent investment subsidies may distort the allocation of investment in the long run.

Employment and wage subsidies are designed to increase employment directly by reducing a firm's wage bill. The tax system is a frequently used means for providing employment subsidies. Most of the business tax incentives for hiring currently under discussion are modeled partially on the New Jobs Tax Credit (NJTC) from 1977 and 1978. Evidence provided in various studies suggests that incremental tax credits have the potential of increasing employment, but in practice may not be as effective in increasing employment as desired. There are several reasons why this may be the case. First, jobs tax credits are often complex and many employers, especially small businesses, may not want to incur the necessary record-keeping costs. Second, because eligibility for the tax credit is determined when the firm files the annual tax return, firms do not know if they are eligible for the credit at the time hiring decisions are made. Third, many firms may not even be aware of the availability of the tax credit until it is time to file a tax return. Lastly, product demand appears to be the primary determinant of hiring, and this issue would affect the effectiveness of a payroll tax holiday on the employer side.

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According to the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER), the U.S. economy was in recession from December 2007 to June 2009.¹ Congress passed and the President signed an economic stimulus package, the American Recovery and Reinvestment Act of 2009 (P.L. 111-5), in February 2009. The \$787 billion package included \$286 billion in tax cuts to help stimulate the economy. Among the tax reductions, many were tax incentives directed to business. The estimated revenue losses of the business tax incentives are \$40 billion for FY2009, \$36 billion for FY2010, and \$6 billion for FY2009-FY2019 (because of estimated revenue gains in the out years). The business tax incentives included a temporary expansion of the work opportunity tax credit, a temporary increase of small business expensing, a temporary extension of bonus depreciation, and a five-year carry back of 2008 net operating losses for small businesses. Many were subsequently extended by the American Taxpayer Relief Act of 2012 (P.L. 112-240).

The preliminary estimate of fourth quarter real gross domestic product (GDP) growth is 5.9%; the unemployment rate, a lagging indicator, averaged 9.6% in the third quarter and 10.0% in the fourth quarter of 2009. Federal Reserve Chairman Ben Bernanke expected the economy to continue growing at a modest pace, but predicted that bank lending will remain constrained and the job market remain weak into at least 2010.² To further assist unemployed workers, help business, and stimulate housing markets, Congress passed the Worker, Homeownership, and Business Assistance Act of 2009 (signed by the President on November 6, 2009, P.L. 111-92).

Many observers have advocated further business tax incentives to spur investment and employment. Recent op-ed contributors have proposed tax credits to encourage businesses to hire.³ The Obama Administration has proposed tax incentives for small businesses to encourage investment and hiring. The House and Senate passed the Hiring Incentives to Restore Employment (HIRE) Act, which includes an employment tax credit. The President signed the act into law on March 18, 2010.⁴ In December 2010, P.L. 111-312 extended and expanded the business tax provisions.

Some proposals would expand the reduction in payroll taxes for individuals and to extend it to employers. While a payroll tax on the individual side expands demand in the same way as other income tax cuts, the employer tax forgiveness is similar to an employer-side wage subsidy, which acts through a different mechanism. The reduction in payroll taxes for individuals expired at the end of 2012.

¹ NBER defines a recession as a “significant decline in economic activity spread across the economy, lasting more than a few months,” see <http://www.nber.org/cycles/cyclemain.html>.

² Ben S. Bernanke, “On the Outlook for the Economy and Policy,” speech at the Economic Club of New York, November 16, 2009, available at <http://www.federalreserve.gov/newsevents/speech/bernanke20091116a.htm>.

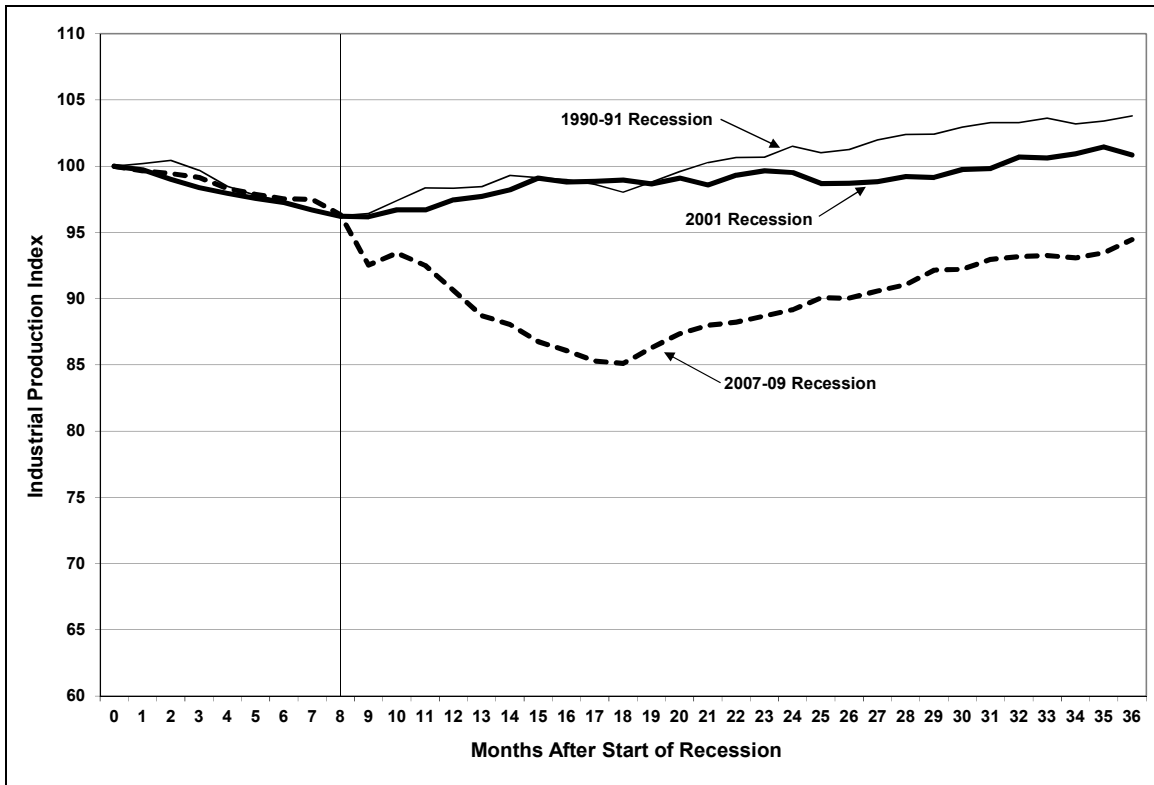
³ See, for example, Mark Zandi, “Help Small Businesses Hire Again,” *New York Times*, November 3, 2009, p. A35; Robert Pozen, “Give Credit to Create Jobs-But Only Where It’s Due,” *Financial Times*, November 4, 2009, p. 11; and Charles E. Schumer and Orrin G. Hatch, “A Payroll Tax Break for Jobs,” *New York Times*, January 26, 2010, p. A23.

⁴ Congress passed the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 in December 2010 (signed by the President on December 17, 2010; P.L. 111-312). In addition to extending the Bush tax cuts for two years and providing temporary alternative minimum tax relief, the act provided for a one-year payroll tax reduction to stimulate the economy. The payroll tax reduction, however, is designed to increase aggregate demand rather than to encourage firms to hire new employees.

The State of the Economy

The need for tax incentives to boost economic activity depends on the state of the economy. One measure that has tracked economic activity fairly well in the past is the Federal Reserve Board’s industrial production index, which is used by NBER in its determination of the economy’s turning points.⁵ **Figure 1** and **Figure 2** show the monthly industrial production index for the five past recessions. The index is followed from the beginning of each recession (month 0 in the figures) and for the next 36 months.⁶ **Figure 1** compares the trend in the industrial production index for the previous two recessions (the 1990-1991 recession and 2001 recession) with the recently ended recession (the 2007-2009 recession—the dashed line). The first two recessions lasted for eight months according to NBER; the industrial production index in both cases started to track upward eight months after the recession started. ⁷ In the 2007-2009 recession, however, the industrial production index was still declining eight months after the recession started and continued to trend downward for the next 10 months.

Figure 1. Industrial Production Index: 1990-1991, 2001, and 2007-2009 Recessions



Source: CRS analysis of Federal Reserve Board data.

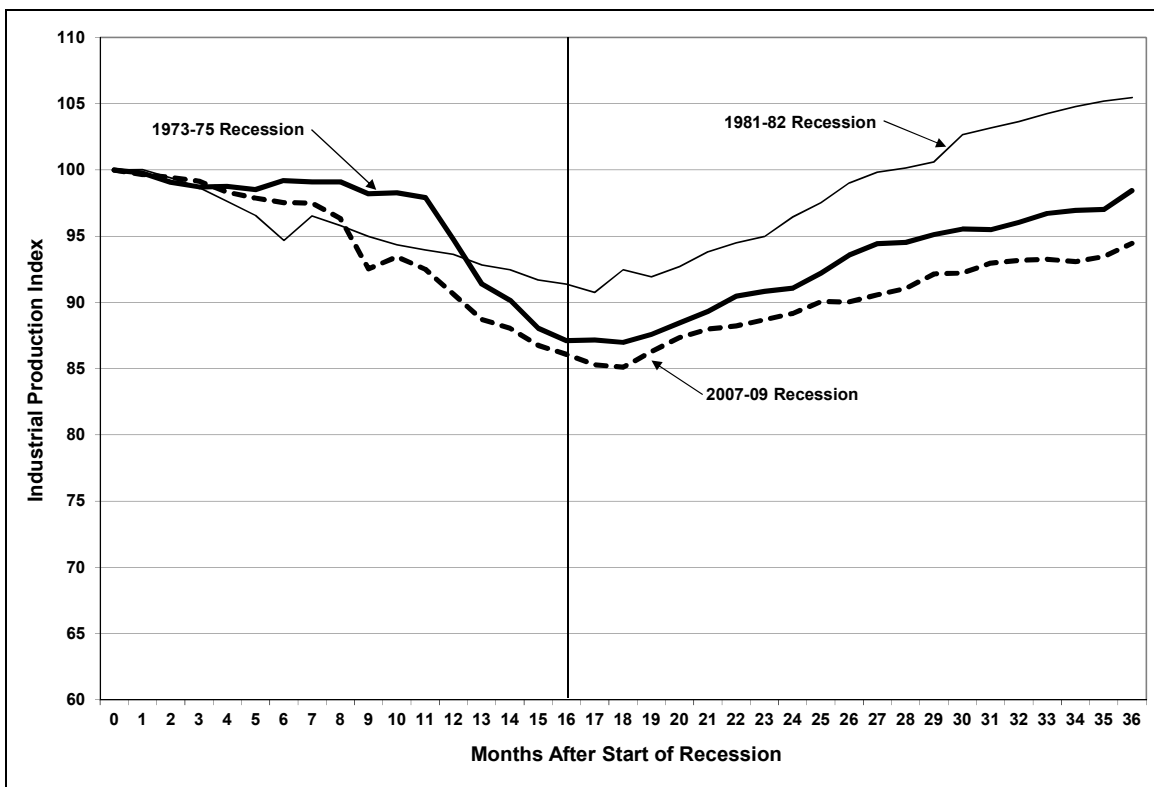
⁵ The production index measures real output in the manufacturing, mining, and electric and gas utilities industries. See <http://www.federalreserve.gov/releases/g17/About.htm>.

⁶ The index is rescaled so that it equals 100 in the month the recession started.

⁷ The end of the 1990-1991 and 2001 recessions is denoted by the vertical line in the figure.

Figure 2 compares the 2007-2009 recession with the 1973-1975 and 1981-1982 recessions. The latter recessions lasted for 16 months according to NBER, and the industrial production index bottomed out at the end of each recession.⁸ The trend in index for the 2007-2009 recession appears to approximately track the trend over the other two recessions. In the current recession, the index declined between December 2007 and June 2009, before turning up. The data on real GDP growth and industrial production suggest that economic activity (that is, output) began increasing in July 2009; NBER determined that the recession lasted for 18 months. The December 2012 industrial production index was still below the December 2007 index. The tax incentives to enhance economic activity being discussed, however, do not target output. Rather, they target investment and employment.

Figure 2. Industrial Production Index: 1973-1975, 1981-1982, and 2007-2009 Recessions



Source: CRS analysis of Federal Reserve Board data.

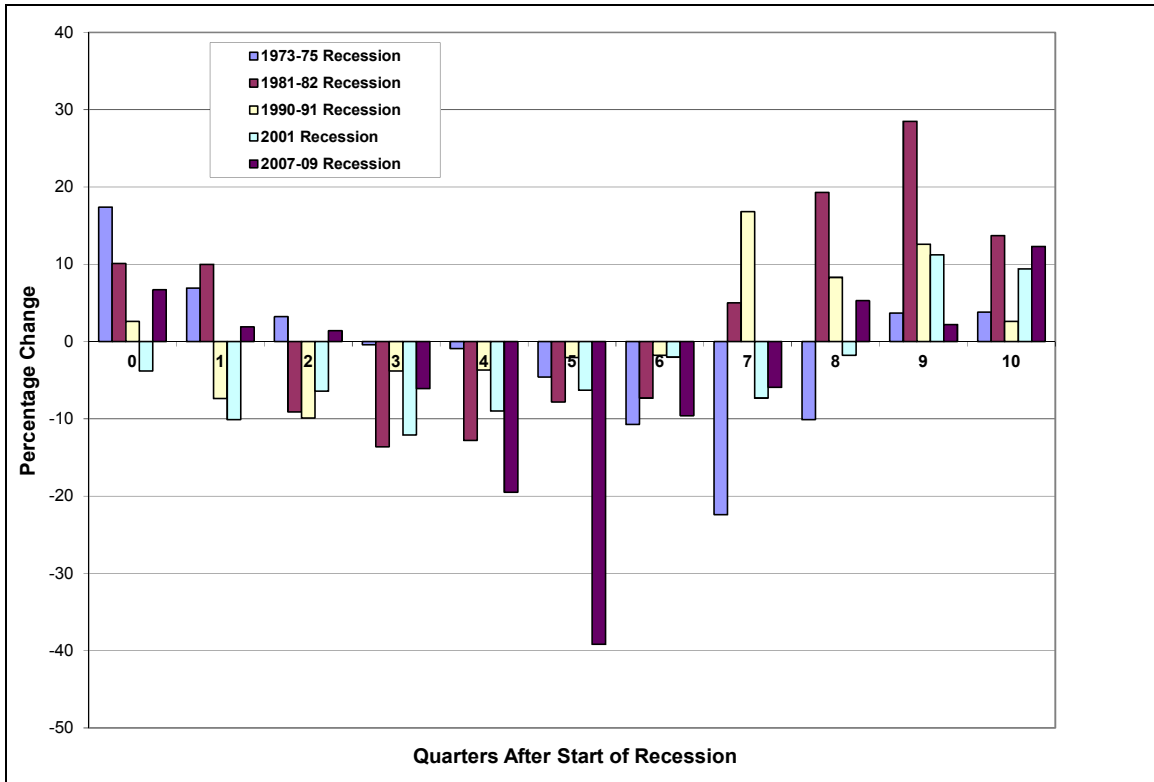
Investment

Investment spending by firms tends to decrease in a recession. **Figure 3** displays the quarterly growth rates for real nonresidential gross investment (i.e., business investment) for the quarter in which the recession started and the subsequent 10 quarters for five recessions. Each recession is different, but generally by the third quarter after the start of the recession real investment growth is negative and remains negative for the next four quarters. During the 2007-2009 recession, the

⁸ The end of the 1973-1975 and 1981-1982 recessions is denoted by the vertical line in the figure.

decline in real investment spending was particularly severe in the fourth and fifth quarters compared with the other four recessions.

Figure 3. Real Investment Growth in Five Recessions



Source: CRS analysis of Bureau of Economic Analysis data.

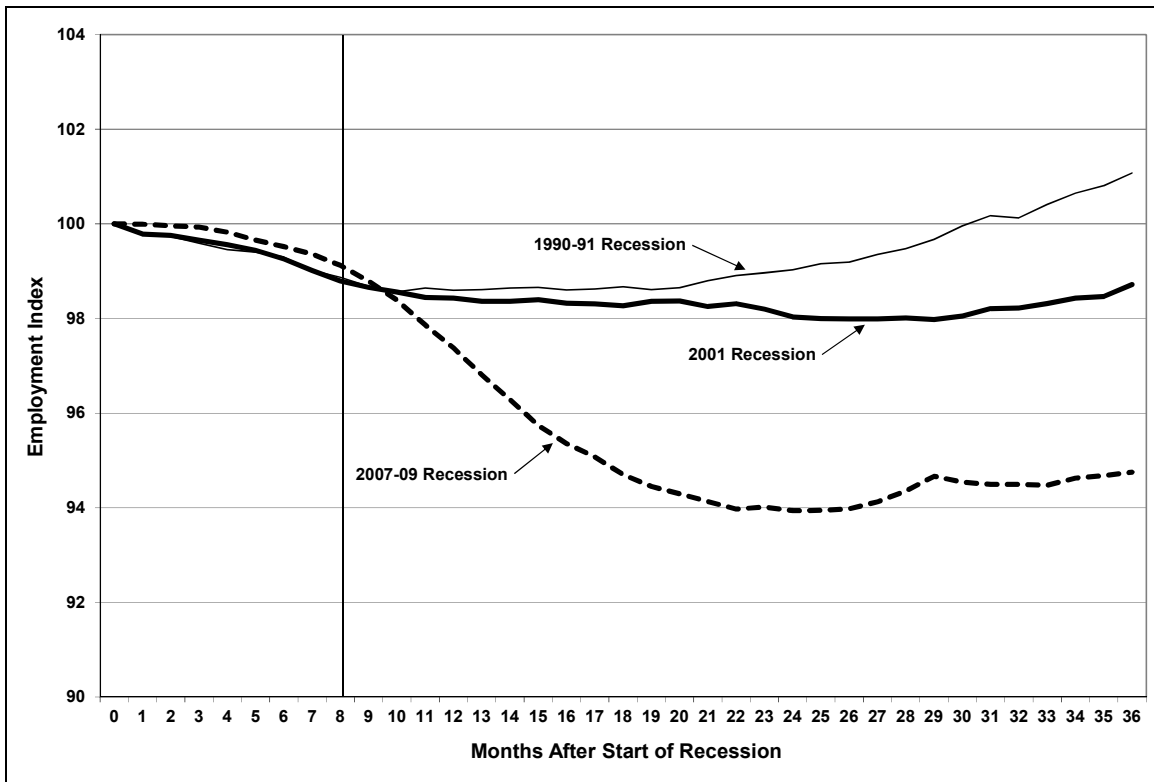
Not all gross investment is used to add to the capital stock; some is used to replace worn-out capital goods (i.e., consumption of fixed capital or depreciation). In 2011, about 85% of gross investment spending replaced the value of worn-out fixed assets (this percentage has varied between 57% and 83% over the past 40 years); the other 15% increased the capital stock. The consumption of fixed assets as a percentage of gross nonresidential investment stood at 60% in 1970; it increased by 25 percentage points between 1970 and 2011. Overall, net nonresidential investment as a percentage of GDP has been trending downward—falling from 4.1% in 1970 to 3.0% in 2008 to 1.1% in 2011.

Employment

Employment fell for 22 months after the start of the 2007-2009 recession in December 2007. **Figure 4** and **Figure 5** show employment for the first month of the recession and the subsequent 36 months for the 2007-2009 recession and four other recessions. Employment is shown as an employment index (i.e., as the percentage of employment in the first month of the recession). Employment typically lags the recovery in output by a few months in part because employers are likely to restore the hours worked by employees still on their payrolls before recalling those laid off or hiring new workers.

The 2007-2009 recession is compared with the previous two recessions—the 1990-1991 and 2001 recessions—in **Figure 4**. Although the previous two recessions were relatively mild and short (lasting for eight months), employment levels were either stagnant (the 1990-1991 recession) or declining (the 2001 recession) for several months after the end of the recession. For example, employment hit bottom 21 months after the 2001 recession ended. In the 2007-2009 recession, employment levels declined slightly over the first 9 months of the recession and then fell sharply over the next 12 months. Employment stood at 94% of the December 2007 employment level 25 months after the start of the recession. Employment started to turn up 8 months after the end of the recession.

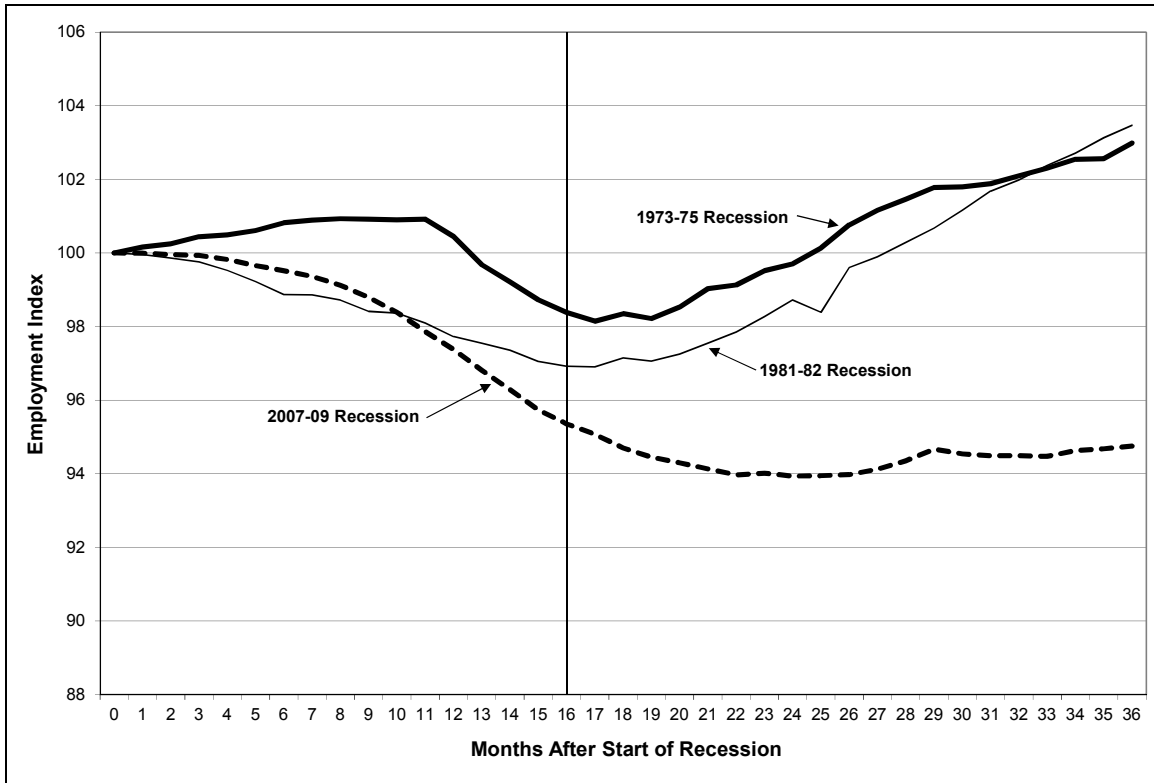
Figure 4. Employment Levels During the 1990-1991, 2001, and 2007-2009 Recessions



Source: CRS analysis of Bureau of Labor Statistics data.

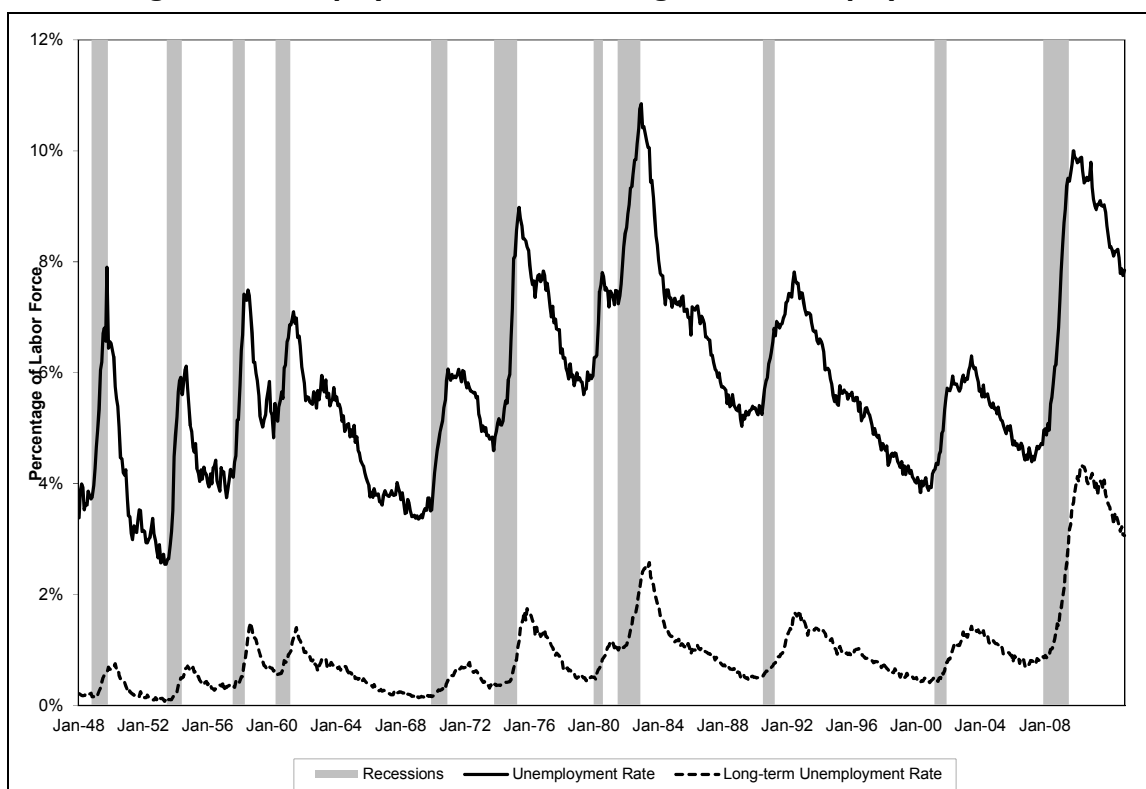
Figure 5 compares the employment levels during the recently ended recession with employment levels during the 1973-1975 and 1981-1982 recessions. These latter two recessions were relatively deep and prolonged—lasting for 16 months. For these two recessions, the employment level began increasing within a month or two after the end of the recession (the end of these recessions is denoted by the vertical line in the figure). In the 2007-2009 recession, employment levels began to rise eight months after the recession ended. The December 2012 employment level, however, is still below the December 2007 level.

Figure 5. Employment Levels During the 1973-1975, 1981-1982, and 2007-2009 Recessions



Source: CRS analysis of Bureau of Labor Statistics data.

Weakness in the labor market is further indicated by the proportion of the labor force who have been unemployed for at least six months (the long-term unemployed). **Figure 6** displays the monthly unemployment and long-term unemployment rates since 1948. The long-term unemployment rate has generally tracked the unemployment rate over the business cycle. Over a business cycle, the long-term unemployment rate is at its lowest point at or near the beginning of a recession and then reaches a peak a few months after the end of the recession (typically within six to eight months). Like the unemployment rate, the long-term unemployment rate is a lagging indicator—the labor market does not begin to recover from a recession until sometime after the official end of the recession. After the 1990-1991 and 2001 recessions, however, the long-term unemployment rate did not reach its peak until 15 and 19 months, respectively, after the recession ended. The long-term unemployment rate is currently higher than at any time over the past 62 years—throughout the recovery, over 3% of the labor force (about 40% of the unemployed) had been out of work for six months or more.

Figure 6. Unemployment Rate and Long-Term Unemployment Rate

Source: CRS analysis of Bureau of Labor Statistics data.

Investment Subsidies

The two most common measures to provide tax incentives for new investment are investment tax credits and accelerated deductions for depreciation. Investment tax credits provide for a credit against tax liability for a portion of the purchase price of assets and are often proposed as a counter-cyclical or economic stimulus measure. Accelerated depreciation speeds up the rate at which the cost of an investment is deducted.

The investment tax credit was originally introduced in 1962 as a permanent subsidy, but it came to be used as a counter-cyclical device. It was temporarily suspended in 1966-1967 (and restored prematurely) as an anti-inflationary measure; it was repealed in 1969, also as an anti-inflationary measure. The credit was reinstated in 1971, temporarily increased in 1975, and made permanent in 1976. After that time, the credit tended to be viewed as a permanent feature of the tax system. At the same time, economists were increasingly writing about the distortions across asset types that arose from an investment credit. The Tax Reform Act of 1986 moved toward a system that was more neutral across asset types and repealed the investment tax credit while lowering tax rates.

Accelerated depreciation tends not to be used for counter-cyclical purposes. At least one reason for not using accelerated depreciation for temporary, counter-cyclical purposes is because such a revision would add considerable complexity to the tax law if used in a temporary fashion, since different vintages of investment would be treated differently. An investment credit, by contrast,

occurs the year the investment is made and, when repealed, only requires firms with carry-overs of unused credits to compute credits. An exception to the problem with accounting complexities associated with accelerated depreciation is partial expensing (that is, allowing a fraction of investment to be deducted up front and the remainder to be depreciated). This partial expensing approach also is neutral across all assets it applies to, but the cash flow effects are more concentrated in the present (and revenue is gained in the future). A temporary partial expensing provision, allowing 30% of investments in equipment to be expensed over the next two years, was included in H.R. 3090 in 2002 and expanded to 50% and extended through 2004 in tax legislation enacted in 2003. It expired in 2004. The Economic Stimulus Act of 2008 (P.L. 110-185) included temporary bonus depreciation for 2008, which was extended for 2009 by the American Recovery and Reinvestment Act of 2009 (ARRA; P.L. 111-5). The Obama Administration recently proposed 100% expensing for qualified capital investments through the end of 2011. In December 2010, P.L. 111-312 extended and expanded the business tax provisions by allowing 100% expensing in 2011 and 50% in 2012. Bonus depreciation was extended to the end of 2013 by the American Taxpayer Relief Act of 2012 (P.L. 112-240).

On September 8, 2011, the President proposed a fiscal stimulus that largely related to payroll taxes, but also proposed to increase expensing to 100% in 2012. This expensing provision was also included in H.R. 3630, the House Republican proposal that also extended the payroll tax and made other revisions. This legislation was adopted by the House but not passed. A two-month extension of payroll tax relief was adopted and was extended to the end of 2012 by the Middle Class Tax Relief and Job Creation Act of 2012 (P.L. 112-96).

The extent to which these business tax breaks are a successful counter-cyclical stimulus hinges on the effectiveness of investment subsidies in inducing spending. It is difficult to determine the effect of a business tax cut and the timing of induced investment. A business tax cut is aimed at stimulating investment largely through changes in the cost (or price) of capital. If there is little marginal stimulus or if investment is not responsive to these price effects in the short run, then most of the cut may be saved: either used to pay down debt or paid out in dividends, although some of the latter might eventually be spent after a lag. That is, if a tax cut simply involved a cash payment to a firm, most of it might be saved, particularly in the short run. Business tax cuts (of most types) also have effects on rates of return that increase the incentive to invest, and it is generally for that reason that investment incentives have been considered as counter-cyclical devices. Investment incentives through expensing for small businesses, however, are usually phased-out. As a result, these provisions produce a disincentive to investment over the phase-out range.⁹ Consequently, the overall incentive effect is ambiguous.

Empirical Evidence on the Effectiveness of Investment Incentives

Despite attempts to analyze the effect of the investment tax credit, considerable uncertainty remains. Time series studies of aggregate investment using factors such as the tax credit (or other elements that affect the tax burden on capital or the “price” of capital) as explanatory variables tended to find little or no relationship.¹⁰ A number of criticisms could be made of this type of analysis, among them the possibility that tax subsidies and other interventions to encourage

⁹ See CRS Report RL31852, *Section 179 and Bonus Depreciation Expensing Allowances: Current Law, Legislative Proposals in the 112th Congress, and Economic Effects*, by (name redacted).

¹⁰ A summary of this early literature can be found in several sources. For a non-technical summary, see (name redacted), *The Economic Effects of Taxing Capital Income* (Cambridge, MIT Press, 1994), pp. 118-120.

investment were made during periods of economic slowdown. A recent study using micro data found an elasticity (the percentage change in investment divided by the percentage change in the user cost of capital) for equipment of -0.25.¹¹ A widely cited study by Cummins, Hassett, and Hubbard used panel data and tax reforms as “natural experiments” and found effects that suggest a price elasticity of -0.66 for equipment.¹² Although the second estimate is higher, both are considered inelastic (less than a unitary elasticity) implying that induced spending is less than the cost.

This last estimate is a higher estimate than had previously been found and reflects some important advances in statistical identification of the response. Yet, it is not at all clear that this elasticity would apply to stimulating investment in the aggregate during a downturn when firms have excess capacity. That is, firms may have a larger response on average to changes in the cost of capital during normal times or times of high growth, when they are not in excess capacity. Certainly, the response might be expected to be smaller in low growth periods.

An additional problem is that the timing of the investment stimulus may be too slow to stimulate investment at the right time. If it takes an extensive period of time to actually plan and make an investment, then the stimulus will not occur very quickly compared to a cut in personal taxes that stimulates consumption immediately. Indeed, the stimulus to investment could even occur during the recovery when it is actually undesirable.

Some evidence suggests that the temporary bonus depreciation enacted in 2002 had little or no effect on business investment. A study of the effect of temporary expensing by Cohen and Cummins at the Federal Reserve Board found little evidence to support for a significant effect.¹³ They suggested several potential reasons for a small effect. One possibility is that firms without taxable income could not benefit from the timing advantage. In a Treasury study, Knittel confirmed that firms did not elect bonus depreciation for about 40% of eligible investment, and speculated that the existence of losses and loss carry-overs may have made the investment subsidy ineffective for many firms, although there were clearly some firms that were profitable that did not use the provision.¹⁴ Cohen and Cummins also suggested that the incentive effect was quite small (largely because depreciation already occurs relatively quickly for most equipment), reducing the user cost of capital by only about 3%; that planning periods may be too long to adjust investment across time; and that adjustment costs outweighed the effect of bonus depreciation. Knittel also suggested that firms may have found the provision costly to comply with, particularly because most states did not allow bonus depreciation.

A recent study by House and Shapiro found a more pronounced response to bonus depreciation, given the magnitude of the incentive, but found the overall effect on the economy was small, which in part is due to the limited category of investment affected and the small size of the

¹¹ Robert S. Chirinko, Steven M. Fazzari, and Andrew P. Meyer, “How Responsive is Business Capital Formation to its User Cost? An Exploration with Micro Data?” *Journal of Public Economics* vol. 74 (1999), pp. 53-80.

¹² Jason G. Cummins, Kevin A. Hassett, and R. Glen Hubbard, “A Reconsideration of Behavior Using Tax Reforms as Natural Experiments.” *Brookings Papers on Economic Activity*, 1994, no. 1, pp. 1-72.

¹³ Darryl Cohen and Jason Cummins, *A Retrospective Evaluation of the Effects of Temporary Partial Expensing*, Finance and Economics Discussion Series 2006-19, Federal Reserve Board, Washington, D.C. April 2006. They compared investment increases for shorter lived and longer lived assets (longer lived assets received a larger incentive) and investment closer to expiration to test the effects.

¹⁴ Matthew Knittel, *Corporate Response to Bonus Depreciation: Bonus Depreciation for Tax Years 2002-2004*, U.S. Department of Treasury, Office of Tax Analysis Working Paper 98, May 2007.

incentive.¹⁵ Their differences with the Cohen and Cummins study reflect in part uncertainties about when expectations are formed and when the incentive effects occur.

Cohen and Cummins also reported the results of several surveys of firms, where from two-thirds to over 90% of respondents indicated bonus depreciation had no effect on the timing of investment spending. Overall, bonus depreciation did not appear to be very effective in providing short-term economic stimulus.

A study by Hulse and Livingstone found mixed results on the effectiveness of bonus depreciation, which they interpret as weakly supportive of an effect.¹⁶

There are reasons to expect that tax incentives for equipment might have limited effects in stimulating investment in the short run, primarily because of planning lags and because of the slowness of changing the technology of production. Essentially, there are two reasons that firms may increase investment. First, they may expect output to increase. This response, called the accelerator, is a result of other forces that increase aggregate demand thus requiring making more of the same type of investment (along with hiring more workers). The second reason is that the cost of investment has fallen. Part of this effect may be an output effect since the overall cost of investment is smaller, output can be sold at a lower price with an expectation that sales will rise in the future. Also part of this effect has to do with encouraging more use of capital relative to labor.

This analysis suggests that a business tax subsidy may not necessarily be the best choice for fiscal stimulus, largely because of the uncertainty of its success in stimulating aggregate demand. If such subsidies are used, however, the most effective short-run policy is probably a temporary investment subsidy. Permanent investment subsidies may distort the allocation of investment in the long run.

Direct Effects of Investment Incentives on Employment

The objective of investment subsidies is to increase spending which, in turn, should lead to increased employment (first in the capital goods manufacturing sector, and then in the economy as a whole through multiplier effects). Investment subsidies could also, however, have a direct effect on employment within the firm receiving the subsidy because they change relative prices.

Capital and skilled labor (i.e., more educated workers) tend to be complements, that is, they are used together in the production process.¹⁷ Consequently, increasing the amount of capital tends to increase the demand for skilled labor. Furthermore, capital and unskilled labor (i.e., less-educated workers) tend to be substitutes. Thus, increasing investment could reduce the demand for less-skilled labor. These labor market effects could show up in one of two ways: changes in wages or employment levels. Unfortunately, there are no studies estimating the direct impact of investment incentives on employment.

¹⁵ Christopher House and Matthew Shapiro, "Temporary Investment Tax Incentives: Theory with Evidence from Bonus Depreciation," *American Economic Review*, vol. 98, no. 3 (June 2008), pp. 737-768.

¹⁶ David S. Hulse and Jane R. Livingstone, *Incentive Effects of Bonus Depreciation*, January 2010, <http://www.ifigr.org/workshop/spring10/Hulse.pdf>.

¹⁷ See Daniel S. Hamermesh, *Labor Demand* (Princeton, NJ: Princeton University Press, 1993), pp. 110-122.

One study examined the effect of investment subsidies on the prices of capital goods and wages of workers in the capital goods producing industry.¹⁸ Goolsbee found that benefit of investment tax incentives generally went to the producers of capital equipment through higher capital prices and somewhat higher wages for workers in the capital goods industry. Overall, it appears that investment incentives could reduce the demand of less-educated workers (a group with a relatively high unemployment rate), and increase the demand for highly educated workers (a group with a relatively low unemployment rate) and workers in capital goods producing industries. It is not clear, however, whether these effects would occur in a slack economy.

Employment Subsidies

Employment and wage subsidies are designed to increase employment directly by reducing a firm's wage bill. A firm's wage bill for labor includes wages and salaries paid to employees, the cost of fringe benefits (e.g., health insurance and pensions), hiring costs, and taxes paid such as the employer's share of the payroll tax.¹⁹ These subsidies can take many forms. For example, earnings or time spent working can be subsidized. Furthermore, the subsidies can be incremental or non-incremental—that is, new hires are subsidized or all workers are subsidized. The subsidies can be targeted to certain groups of workers such as disadvantaged individuals, or can be available for any worker.

The tax system is a frequently used means for providing employment subsidies. Currently, the Work Opportunity Tax Credit (WOTC), a nonrefundable credit, is available to employers who hire individuals from 11 targeted disadvantaged groups.²⁰ Another example of an employment tax credit is the New Jobs Tax Credit (NJTC) from 1977 and 1978. It was an incentive to business to hire employees in excess of a base amount.

Most of the business tax incentives for hiring discussed in the 111th Congress were modeled somewhat on the NJTC. The NJTC was an incremental jobs tax credit in that the employer had to increase the Federal Unemployment Tax Act (FUTA) wage base above at least 102% of the FUTA wage base in the previous year. The credit was 50% of the increase in the FUTA wage base (the wage base consisted of wages paid up to \$4,200 per employee). The employer's income tax deduction for wages, however, was reduced by the amount of the credit. Consequently, the effective maximum credit for each new employee (\$2,100 minus the additional tax due from the reduced deduction) ranged from \$1,806 for taxpayers in the 14% tax bracket to \$630 for taxpayers in the 70% tax bracket. Furthermore, the total credit could not exceed \$100,000, which in effect limited the size of the subsidized employment expansion at any one firm to 47. The credit was nonrefundable but could be carried back for three years and forward for seven years.

¹⁸ Austan Goolsbee, "Investment Tax Incentives, Prices, and the Supply of Capital Goods," *Quarterly Journal of Economics*, vol. 113, no. 1 (February 1998), pp. 121-148.

¹⁹ Labor costs are a deductible business expense for income tax purposes.

²⁰ The American Recovery and Reinvestment Act of 2009 (ARAA; P.L. 111-5) temporarily added two new groups: unemployed veterans and disconnected youth. The other nine groups include welfare recipients, ex-felons, and summer youth among others. This tax credit expires on August 31, 2011. See CRS Report RL30089, *The Work Opportunity Tax Credit (WOTC)*, by (name redacted), for more information.

Empirical Evidence on the Effectiveness of Employment Subsidies

Employment and wage subsidies have been analyzed since at least the 1930s, but few of the analyses include empirical estimates of the effects of the subsidies. In an early theoretical analysis of a nonincremental wage subsidy, Arthur Pigou concluded that a wage subsidy could increase employment but “in practice it is probable that the application of such a system would be bungled.”²¹ Nicholas Kaldor, however, in another theoretical analysis, argued that a temporary incremental wage subsidy to deal with cyclical unemployment could be very effective.²² In a more recent theoretical analysis, Richard Layard and Stephen Nickell also argue that a temporary incremental wage subsidy could be effective in increasing employment when unemployment is high.²³

In the United States, employment subsidies have often been offered through the tax system. Two major tax programs to subsidize employment that have been evaluated are the NJTC and the Targeted Jobs Tax Credit (TJTC); the TJTC was a targeted hiring subsidy that was replaced by the WOTC. The NJTC was explicitly designed to be a counter-cyclical employment measure to boost employment after the 1973-1975 recession.

The NJTC was enacted in May 1977 at a time when the economy had begun to recover from the recession and was already growing. The credit was incremental in that it applied only to employment greater than 102% of the previous year’s employment level. For each new eligible worker hired, a firm received a tax credit of 50% of wages paid up to \$4,200 (the maximum gross credit for each new employee, therefore, was \$2,100). The credit had an aggregate \$110,000 cap so that the majority of benefits went to small firms. Once the cap was reached, the firm received no subsidy for hiring additional workers. Thus very large firms whose employment grew substantially more than 2% may not have had a marginal incentive. In addition, the credit was allowed against income tax liability and firms without adequate tax liability were not able to use all (or in some cases, any) of the credit.

The first evaluation of the NJTC used responses from a federal survey of for-profit firms. Jeffrey Perloff and Michael Wachter compared employment growth of firms that knew about the tax credit to firms that did not know about the credit.²⁴ They find that employment at the firms with knowledge of the credit grew about 3% faster than at the other firms. They note, however, that only 34% of the firms knew about the tax credit and these firms were probably not randomly drawn—it is possible that the firms most likely to hire workers were also more likely to seek out tax benefits. They caution that their results may overstate the NJTC’s employment effect.

A second evaluation by John Bishop focused on the employment effects of the NJTC in the construction and distribution industries.²⁵ Bishop’s key explanatory variable is the proportion of

²¹ Arthur C. Pigou, *The Economics of Welfare*, 4th ed. (London: MacMillan and Co., 1932), p. 704.

²² Nicholas Kaldor, “Wage Subsidies as a Remedy for Unemployment,” *Journal of Political Economy*, vol. 44, no. 6 (December 1936), pp. 721-742.

²³ P.R.G. Layard and S.J. Nickell, “The Case for Subsidizing Extra Jobs,” *Economic Journal*, vol. 90, no. 357 (March 1980), pp. 51-73.

²⁴ Jeffrey M. Perloff and Michael L. Wachter, “The New Jobs Tax Credit: An Evaluation of the 1977-78 Wage Subsidy Program,” *American Economic Review, papers and proceedings*, vol. 69, no. 2 (May 1979), pp. 173-179.

²⁵ John Bishop, “Employment in Construction and Distribution Industries: The Impact of the New Jobs Tax Credit,” in *Studies in Labor Markets*, ed. Sherwin Rosen (Chicago: University of Chicago Press, 1981), pp. 209-246.

firms in the industry that knew about the tax credit. He estimates that the NJTC was responsible for 150,000 to 670,000 of the 1,140,000 increase in employment in these industries. The estimated effect, however, varies dramatically from industry to industry and sometimes from one empirical specification to another for the same industry. The results of both Perloff and Wachter, and Bishop suggest that the NJTC may have been somewhat successful in increasing employment, but showing a relationship between knowledge of the NJTC and employment gains does not mean that one caused the other.

Not all evaluations of the NJTC were positive. Robert Tannenwald analyzed data from a survey of private firms in Wisconsin and concludes that the NJTC did not live up to expectations.²⁶ He estimates that the per job cost of the NJTC was greater than public service employment programs. Over half of the firms that did not expand employment in response to the tax credit said that consumer demand for their product determines the level of employment.²⁷ Some firms reported they were reluctant to take advantage of the tax credit because of its complexity.

Emil Sunley argues that there was a gap between the time of the hiring decision and the time eligibility for the credit was determined.²⁸ He notes that because the capital stock is essentially fixed in the short run, an increase in employment will only come about because of an increase in product demand. Furthermore, it automatically favors firms that are already growing, which could increase geographic differentials in job creation.

A report on the NJTC commissioned by Congress from the Department of Labor and the Department of Treasury also was skeptical of the effectiveness of the subsidy.²⁹ In a mail survey, only about one-third of firms knew about the credit (although these firms covered 77% of employees). About 20% both knew about the credit and qualified for it (covering 58% of employees). However, when firms were asked, only 2.4% of firms indicated that they made a conscious effort to hire because of the subsidy. Similar effects were found in a survey of the National Federation of Independent Businesses (NFIB), which covers smaller employers. Their survey results indicated that from 1.4% to 4.1% of employers were affected by the subsidy.

The Labor/Treasury study also raised questions about the studies by Perloff and Wachter, and by Bishop. They noted that the former study used data for 1977 and the credit was not enacted until May 1977. They questioned the latter author's lack of tests for significance of the wage variable. In addition, because the credit came at a time when the economy was already growing, it is possible that the credit may have shifted employment from one sector to another rather than increased aggregate employment.

Evaluation of other employment tax credit programs also yield mixed results.³⁰ The TJTC provided a wage subsidy to firms for hiring eligible workers (e.g., welfare recipients, economically disadvantaged youth, and ex-offenders). One study by Kevin Hollenbeck and

²⁶ Robert Tannenwald, "Are Wage and Training Subsidies Cost-Effective? Some Evidence from the New Jobs Tax Credit," *New England Economic Review*, September/October 1982, pp. 25-34.

²⁷ For example, one firm reported that "orders determine levels of hiring, not tax gimmicks" (Tannenwald, p. 31).

²⁸ Emil M. Sunley, "A Tax Preference in Born: A Legislative History of the New Jobs Tax Credit," in *The Economics of Taxation*, ed. Henry J. Aaron and Michael J. Boskin (Washington: Brookings Institution, 1980), pp. 391-408.

²⁹ Departments of Labor and Treasury, *The Use of Tax Subsidies for Employment*, A Report to Congress, Washington, May 1986.

³⁰ For a summary of other studies examining the TJTC, see CRS Report 95-981, *The Targeted Jobs Tax Credit, 1978-1994*, by (name redacted), which is available on request from the authors.

Richard Willke found that the TJTC improved employment outcomes for nonwhite youth but not for other eligible individuals.³¹ Bishop and Mark Montgomery estimate that the TJTC induced some new employment, but at least 70% of the tax credits were claimed for hiring workers who would have been hired even in the absence of the tax credit.³² Dave O'Neill concludes that programs targeted to narrow socioeconomic groups are unlikely to "achieve the desired effect of significantly increasing the employment level of the target group."³³

Taken together, the results of the various studies suggest that incremental tax credits have the potential of increasing employment, but in practice may not be as effective in increasing employment as desired. There are several reasons why this may be the case. First, jobs tax credits are often complex (so as to subsidize new jobs rather than all jobs) and many employers, especially small businesses, may not want to incur the necessary record-keeping costs. Second, since eligibility for the tax credit is determined when the firm files the annual tax return, firms do not know if they are eligible for the credit at the time hiring decisions are made. Third, many firms may not even be aware of the availability of the tax credit until it is time to file a tax return. In addition, the person making the hiring decision is often unaware of tax provisions and the tax situation of the firm. Lastly, product demand appears to be the primary determinant of hiring.

Proposals in the 111th Congress

The Obama Administration proposed a \$5,000 business tax credit against payroll taxes for every net new employee they hire in 2010; the credit would have a \$500,000 aggregate cap per firm. In addition, small businesses that increase wages or expand hours would get a credit against added payroll taxes. The proposals tried to overcome some of the limitations of the NJTC. For example, the proposal would have allowed firms to claim the credits on a quarterly rather than an annual basis. All firms would have qualified for the tax credit since it would have been allowed against payroll taxes rather than income taxes (over half of all firms were not eligible for the full 1977-1978 NJTC because of insufficient income tax liability). The credit would have also been available for nonprofits and startups would be eligible for half the credit. The Administration estimated that this proposal would cost \$33 billion.

Senators Baucus and Grassley (the chairman and ranking minority Member of the Senate Finance Committee, respectively) proposed the Hiring Incentives to Restore Employment (HIRE) Act on February 11, 2010. Their proposal included two tax incentives for hiring and retaining unemployed workers. This proposal was enacted in the HIRE Act (P.L. 111-147), which was signed by the President on March 18, 2010. It is estimated that the tax incentives would cost \$13 billion over 10 years.

The first tax incentive in the HIRE Act was forgiveness of the employer's share of the 2010 payroll tax (6.2% of the worker's earnings) for qualified workers hired in 2010 after enactment of the proposal. A qualified worker is an individual who was unemployed for at least 60 days and does not replace another worker at the firm unless the replaced worker left voluntarily or for

³¹ Kevin M. Hollenbeck and Richard J. Willke, *The Employment and Earnings Impacts of the Targeted Jobs Tax Credit*, Upjohn Institute, Staff Working Paper 91-07, Kalamazoo, MI, February 1991.

³² John H. Bishop and Mark Montgomery, "Does the Targeted Jobs Tax Credit Create Jobs at Subsidized Firms?" *Industrial Relations*, vol. 32, no. 3 (fall 1993), pp. 289-306.

³³ Dave M. O'Neill, "Employment Tax Credit Programs: The Effects of Socioeconomic Targeting Provisions," *Journal of Human Resources*, vol. 17, no. 3 (summer 1982), p. 449.

cause. Verifying that these conditions were met was difficult. Furthermore, an employer could not take advantage of both the payroll tax forgiveness and WOTC; consequently, employers may have hired the long-term unemployed rather than individuals from other disadvantaged groups. Firms with no or little income tax liability (including nonprofits) were eligible for the payroll tax forgiveness and the benefits were received on a quarterly rather than annual basis.

The second tax incentive was a business credit for retention of newly hired qualified workers. Employers are allowed a \$1,000 business tax credit for each qualified worker who remains employed for 52 weeks at the firm. Since this is an income tax credit, the employer does not receive the benefits of retaining workers until they file their 2011 income returns in early 2012. Furthermore, firms with little or no tax liability (including nonprofits) cannot take full advantage of this incentive since the credit is nonrefundable.³⁴

Another proposal for a job creation tax credit was also modeled partially on the NJTC and, like the Administration's proposal, tried to correct some of the flaws that may have limited the effectiveness of the NJTC.³⁵ The credit would have been equal to 15% of additional taxable payroll (i.e., payroll subject to Social Security taxes) in 2010 and to 10% of additions to taxable payroll in 2011. This tax credit would have been refundable so both unprofitable firms and nonprofits could take advantage of the credit. Furthermore, the benefits of the credit would have been received on a quarterly basis rather than annually when the firm files an income tax return. Bartik and Bishop estimated that the tax credit could create 2.8 million jobs in 2010 and 2.3 million jobs in 2011. They further estimated that the budgetary cost would be no more than \$15 billion per year. Their estimates assumed a labor demand elasticity of 0.3, which indicates that a 10% reduction in the cost of labor would increase employment by 3%. Their estimates did not rest on a study of the 1977-1978 credit, but rather predicted the effect on jobs based on a central tendency labor demand elasticity.³⁶ They also estimated that if the labor demand elasticity were 0.15, then 1.4 million jobs would be created in 2010 and 1.1 million jobs in 2011. Note that this estimate is a general demand elasticity, and might not necessarily be as high during a recession, when business is slack.³⁷

³⁴ Unused credits can be carried forward to future tax years but cannot be carried back to past years.

³⁵ Timothy J. Bartik and John H. Bishop, *The Job Creation Tax Credit*, Economic Policy Institute Briefing Paper, October 20, 2009, <http://www.epi.org/publications/entry/bp248/>.

³⁶ See Daniel L. Hamermesh, *Labor Demand* (Princeton University Press: Princeton, NJ, 1993), for a survey: Hamermesh suggests a midpoint elasticity of 0.3 on p. 92.

³⁷ Even with the elasticities discussed, only 10% to 30% of the subsidy cost would be reflected in additional wages for a nonincremental subsidy. With an elasticity of e , $dL/L = (-e) dW/W$, where L is labor, dL is the change in labor, dW is the change in wage. Thus for the addition to the wage bill $((W)(dL))$, $(W)(dL) = (-e)(dW)(L)$. At a subsidy rate of s , $dW = -sW$ and the cost of the subsidy is sWL . Thus additional wages, $esWL$ divided by the cost equals e , the elasticity. The Congressional Budget Office (CBO) estimated the impact of a reduction in the employer's share of the payroll tax which is a nonincremental subsidy. CBO estimates that reducing the employer share of payroll taxes would increase output by \$0.40 to \$1.30 per dollar of total budgetary cost. This effect is relatively large compared to other policies and not consistent with the elasticities. CBO did not model the payroll tax holiday as an increase in labor demand as did Bishop and Bartik; nor did they model it in the same way they model investment subsidies (as an increase in the demand for capital goods). Rather, they treated it largely as leading directly to a price reduction, similar to a sales tax holiday. The theoretical and empirical justifications for this approach, however, are not clear. See Congressional Budget Office, *Policies for Increasing Economic Growth and Employment in 2010 and 2011*, January 2010. See also testimony by Statement of Douglas W. Elmendorf, director, Policies for Increasing Economic Growth and Employment in 2012 and 2013, before the Committee on the Budget United States Senate, November 15, 2011, http://www.cbo.gov/ftpdocs/124xx/doc12437/11-15-Outlook_Stimulus_Testimony.pdf.

Proposals in the 112th Congress

President Obama proposed a new set of tax cut and spending programs on September 8, 2011. The proposed package totals \$447 billion, with slightly over half of the package in tax cuts and the remainder in spending increases.³⁸ This package is considerably larger than the 2008 stimulus but smaller than the 2009 stimulus. At the President's request, the American Jobs Act was subsequently introduced in the House (H.R. 12) and Senate (S. 1549).

Although most of the tax cuts (\$175 billion) would provide an extension and increase in the payroll tax reduction for 2011, business investment and employment tax subsidies would also be provided. One provision cuts the employer payroll tax in half for the first \$5 million in wages, a proposal targeting small business. Another provision eliminates the payroll tax for growth in employer payrolls, up to \$50 million. These two provisions together would cost \$65 billion, slightly under 15% of the total. An additional \$5 billion would be spent on extending the 100% expensing (which allows firms to deduct the cost of equipment immediately rather than depreciating it) through 2012 (where 50% expensing is currently allowed). The bill also has a \$4,000 tax credit for hiring the long-term unemployed (\$8 billion) and tax credits from \$5,600 to \$9,600 for hiring unemployed veterans (negligible cost). There is more disagreement about the effectiveness of these types of tax incentives discussed in the following section.

S. 1917 proposed payroll tax changes similar to the President's proposal, including the cut in payroll taxes and a hiring credit. This bill was defeated on the Senate floor on December 1. While a payroll tax on the individual side expands demand in the same way as other income tax cuts, the employer tax forgiveness is an employer-side wage subsidy. This type of subsidy is not incremental and it would not be subject to some of the administrative complications of other credits. At the same time, the "bang for the buck" would likely be smaller, and whether companies would hire people on a temporary basis during a time of slack demand is uncertain.

Subsequent payroll tax proposals (S. 1931 and S. 1944) did not contain an employer side tax benefit, although news reports indicate a proposal by Senators Collins and McCaskill would extend the 2 percentage point employee reduction and allow it on the employer side up to \$10 million. Similarly, the House proposal, H.R. 3630 did not contain employer side provisions for the payroll tax cut. Ultimately the employee side payroll relief was extended for two months and then extended to the end of 2012; it was allowed to expire as scheduled.

Concluding Remarks

The evidence suggests that investment and employment subsidies are not as effective as desired in increasing economic activity, especially employment. Economic theory indicates that a deficit-financed fiscal stimulus designed to increase aggregate demand would have the maximum impact on employment in the short term. Such policies could include increases in federal government spending for goods and services, federal transfers to state and local governments, and tax cuts for low and middle income taxpayers. The short-term benefits of higher deficits, however, could be outweighed by the long-term costs if deficits are not reduced when unemployment falls. Additional fiscal stimulus that increases the deficit arguably should be considered in the context

³⁸ Based on White House Fact Sheet, embargoed until the President's speech on September 8, 2011.

of 2009 and 2010 deficits that were larger relative to the size of the economy than all but a handful of previous wartime years. The 2009 and 2010 deficits are not sustainable in the long run in the sense that deficits of that size would cause the national debt to continually rise relative to output—eventually investors will refuse to continue financing it because they no longer believe that the government would be capable of servicing it.

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