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Business Investment and Employment Tax Incentives to Stimulate the Economy

Thomas L. Hungerford
Congressional Research Service

Jane G. Gravelle
Congressional Research Service

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Business Investment and Employment Tax Incentives to Stimulate the Economy

Abstract
[Excerpt] According to the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER), the U.S. economy has been in recession since December 2007. 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 third quarter real gross domestic product (GDP) growth is 2.8%; 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 expects the economy to continue growing at a modest pace, but predicts 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 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, 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. Lastly, product demand appears to be the primary determinant of hiring.

Keywords
investment, employment, incentives, stimulus, Congress, public policy, subsidies

Comments

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Congressional Research Service

Business Investment and Employment Tax Incentives to Stimulate the Economy

Thomas L. Hungerford
Section Research Manager

Jane G. Gravelle
Senior Specialist in Economic Policy

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Prepared for Members and Committees of Congress

Summary

According to the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER), the U.S. economy has been in recession since December 2007. 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 third quarter real gross domestic product (GDP) growth is 2.8%; 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 expects the economy to continue growing at a modest pace, but predicts 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 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, 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. Lastly, product demand appears to be the primary determinant of hiring.

Contents

The State of the Economy 1
Investment 3
Employment 4
Investment Subsidies 7
Empirical Evidence on the Effectiveness of Investment Incentives 8
Direct Effects of Investment Incentives on Employment 10
Employment Subsidies 10
Empirical Evidence on the Effectiveness of Employment Subsidies 11
Current Proposals 14
Concluding Remarks 14

Figures

Figure 1. Industrial Production Index: 1990-91, 2001, and Current Recessions 2
Figure 2. Industrial Production Index: 1973-75, 1981-82, and Current Recessions 3
Figure 3. Real Investment Growth in Five Recessions 4
Figure 4. Employment Levels During the 1990-91, 2001, and Current Recessions 5
Figure 5. Employment Levels During the 1973-75, 1981-82, and Current Recessions 6
Figure 6. Long-term Unemployed as a Percentage of All Unemployed 7

Contacts

Author Contact Information 15

According to the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER), the U.S. economy has been in recession since December 2007.[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 carryback of 2008 net operating losses for small businesses.

The preliminary estimate of third quarter real gross domestic product (GDP) growth is 2.8%; 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 expects the economy to continue growing at a modest pace, but predicts 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. At least two recent op-ed contributors have proposed tax credits to encourage businesses to hire.[3] Roberts proposed a temporary reduction in the payroll tax in recent testimony.[4] Representative Joe Sestak introduced the Jobs Opportunity and Business Stability Act of 2009 (H.R. 4056) on November 6, 2009, which would provide a tax credit to small businesses for increasing employment. The Obama Administration has proposed tax incentives for small businesses to encourage investment and hiring.

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 four past recessions and the current recession. 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

[1] NBER defines a recession as a "significant decline in economic activity spread across the economy, lasting more than a few months" (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; and Robert Pozen, "Give Credit to Create Jobs-But Only Where It's Due," *Financial Times*, November 4, 2009, p. 11.

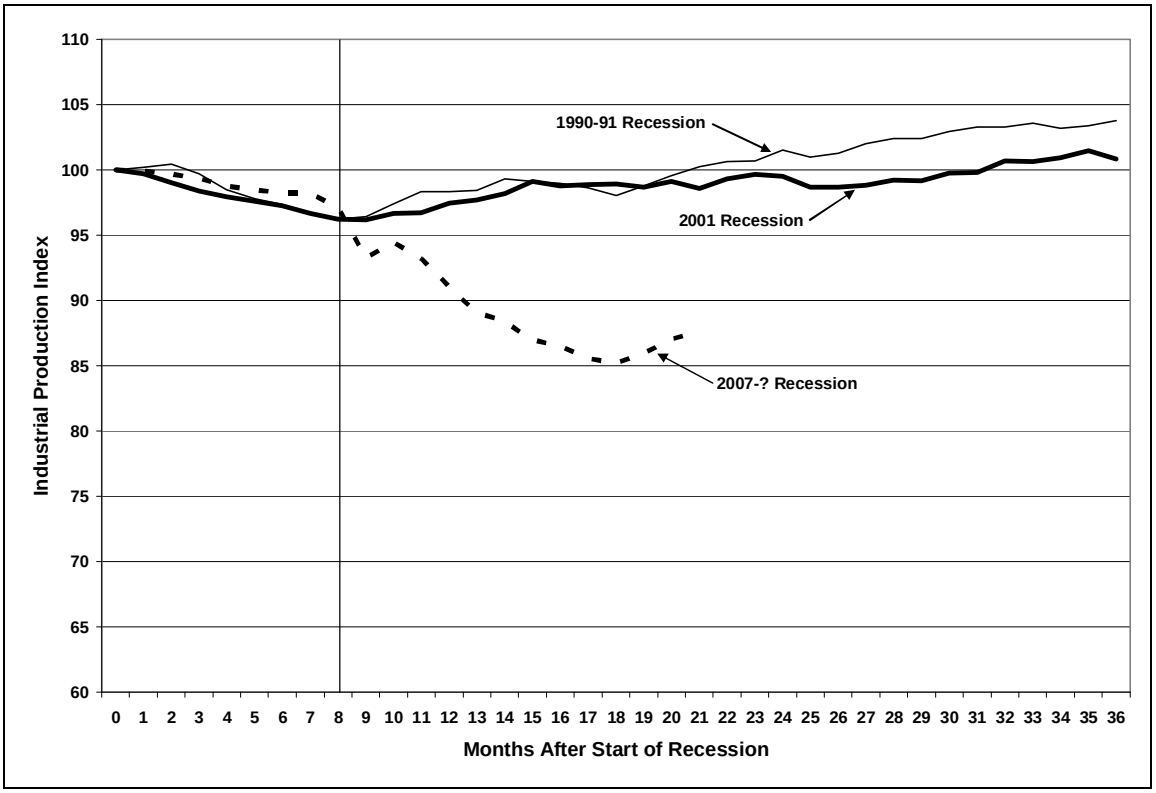
[4] Russell Roberts, Testimony on the Job Market and the Great Recession before the Joint Economic Committee, December 10, 2009, http://mercatus.org/publication/job-market-and-great-recession.

[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.

production index for the previous two recessions (the 1990-91 recession and 2001 recession) with the current recession (the dashed line). The previous 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 current 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: 1990-91, 2001, and Current Recessions



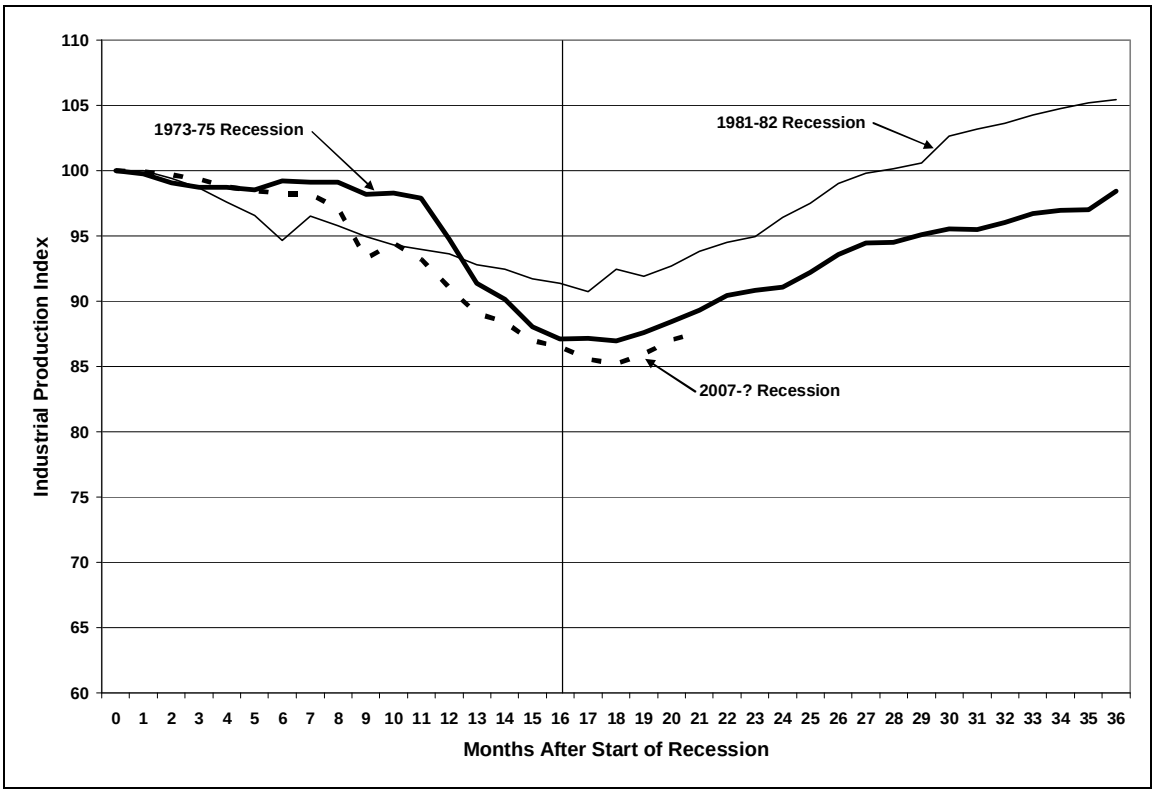
Source: CRS analysis of Federal Reserve Board data.

Figure 2 compares the current recession with the 1973-75 and 1981-82 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 current recession appears to approximately track the trend over the other two recessions. In the current recession, the index declined between December 2007 and May 2009, before turning up. The data on real GDP growth and industrial production suggest that economic activity (that is, output) may have begun increasing in May or June 2009. The tax incentives to enhance economic activity being discussed, however, do not target output. Rather they target investment and employment.

[7] The end of the 1990-91 and 2001 recessions is denoted by the vertical line in the figure.

[8] The end of the 1973-75 and 1981-82 recessions is denoted by the vertical line in the figure.

Figure 2. Industrial Production Index: 1973-75, 1981-82, and Current Recessions

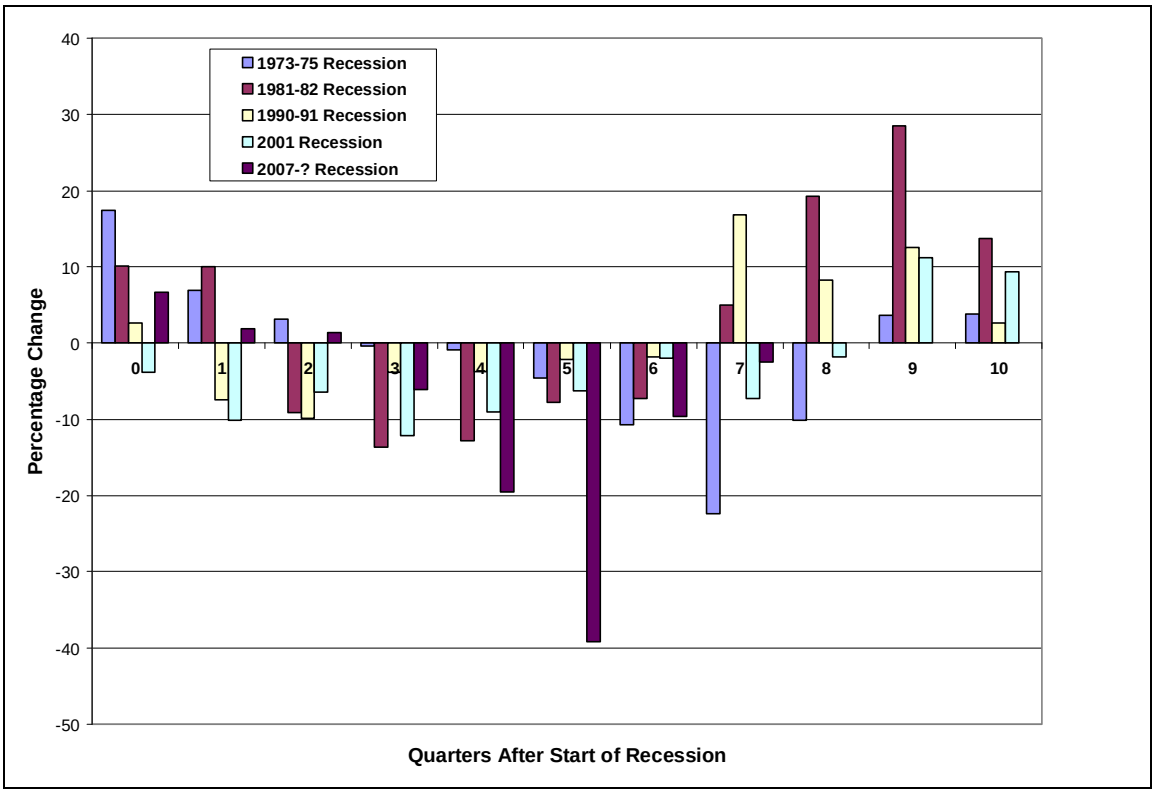


Source: CRS analysis of Federal Reserve Board data.

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 current recession, the decline in real investment spending was particularly severe in the fourth and fifth quarters compared to 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 2008, about 75% 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 25% increased the capital stock. The consumption of fixed assets as a percentage of gross nonresidential investment stood at 60% in 1970; it increased by 15 percentage points between 1970 and 2008 (reaching 83% in 2003). Overall, net nonresidential investment as a percentage of GDP has been trending downward—falling from 4.1% in 1970 to 3.0% in 2008.

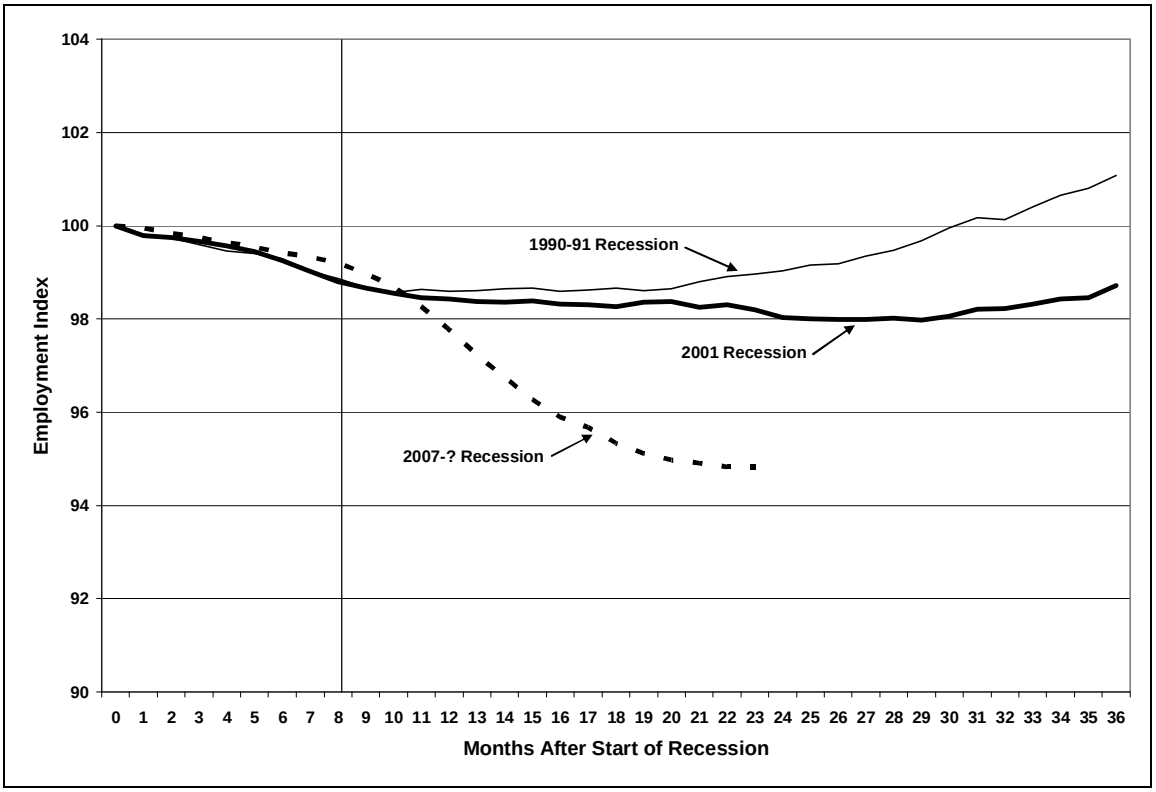
Employment

Employment has fallen in every month since the recession began in December 2007. **Figure 4** and **Figure 5** show employment for the first month of the recession and the subsequent 36 months for the current 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 current recession is compared with the previous two recessions—the 1990-91 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 1990-91 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 current recession, employment levels declined slightly over the first nine months of the recession and then fell sharply over the next 12 months. By December 2009, employment stood at 95% of the December 2007 employment level.

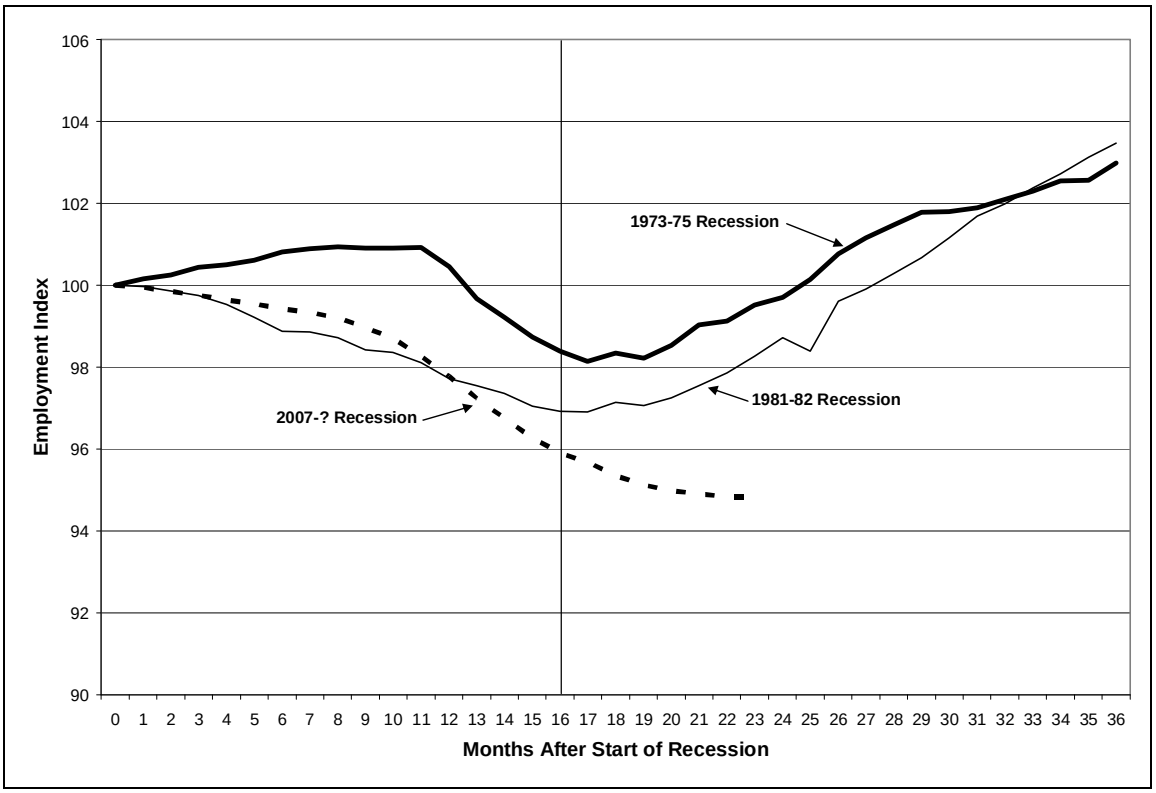
Figure 4. Employment Levels During the 1990-91, 2001, and Current Recessions



Source: CRS analysis of Bureau of Labor Statistics data.

Figure 5 compares the employment levels during the current recession with employment levels during the 1973-75 and 1981-82 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 current recession, employment levels were continuing downward 22 months after the recession began.

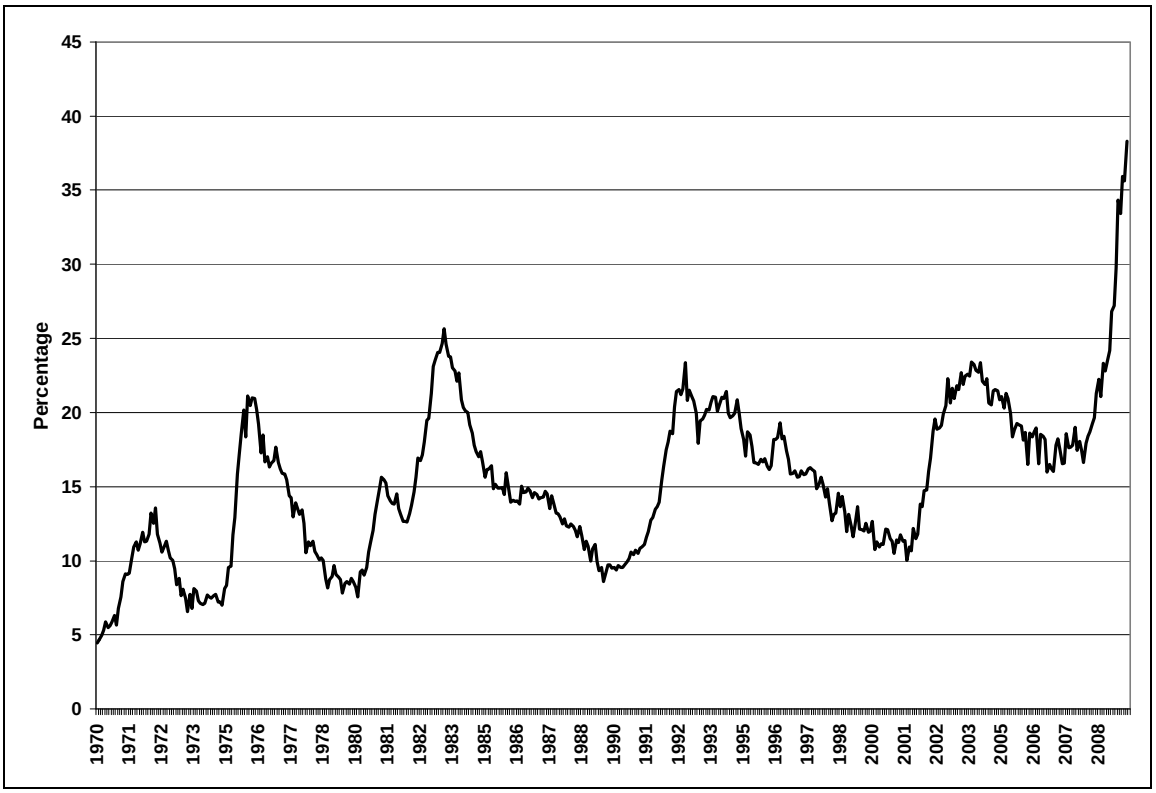
Figure 5. Employment Levels During the 1973-75, 1981-82, and Current Recessions



Source: CRS analysis of Bureau of Labor Statistics data.

Weakness in the labor market is further indicated by the proportion of the unemployed who have been unemployed for at least six months. **Figure 6** displays the long-term unemployed as a percentage of all unemployed since 1970. This percentage tends to be steady in the first few months of a recession and then rapidly increases. Each of the peaks in the figure occurred during a recession. After the 1990-91 and 2001 recessions, the percentage slowly declined after recession ended. The percentage is currently higher than at any time over the past 40 years—in December 2009, 40% of the unemployed have been out of work for six months or more.

Figure 6. Long-term Unemployed as a Percentage of All Unemployed



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 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 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.

[9] See CRS Report RL31852, *Small Business Expensing Allowance: Current Status, Legislative Proposals, and Economic Effects*, by Gary Guenther.

[10] A summary of this early literature can be found in several sources. For a non-technical summary, see Jane G. Gravelle, *The Economic Effects of Taxing Capital Income*, Cambridge, MIT Press, 1994, pp. 118-120.

[11] Robert S. Chirinko, Steven M. Fazzarri, 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.

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, one might expect the response 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.

There is some evidence 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 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 2/3 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.

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

[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.

[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.

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.[16] 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.

One study examined the effect of investment subsidies on the prices of capital goods and wages of workers in the capital goods producing industry.[17] 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

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

[17] 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.

the employer's share of the payroll tax.[18] 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.[19] 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 currently under discussion are 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.

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."[20] Nicholas Kaldor, however, in another theoretical analysis, argued that a temporary incremental wage subsidy to deal with cyclical unemployment could be very effective.[21] 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.[22]

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 New Jobs Tax

[18] Labor costs are a deductable business expense for income tax purposes.

[19] 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 Linda Levine for more information.

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

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

[22] 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.

Credit (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 (that is, applied only to employment greater than 102% of the previous year). It was also aimed at small business due to an aggregate $100,000 cap which, given the average size of the subsidy, had no effect after 48 eligible workers had been hired. Thus very large firms whose employment is growing more than 2% may not have 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.[23] 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.[24] Bishop's key explanatory variable is the proportion of 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.[25] 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.[26] 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.[27] He notes that because the capital stock is essentially

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[23] 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.

[24] 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.

[25] 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.

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

[27] 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.

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.[28] In a mail survey, only about a 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 ranged from 1.4% to 4.1% of employers being affected by the subsidy.

The Labor/Treasury study also raised questions about two of the studies discussed above, by Perloff and Wachter and by Bishop. In the former case, they noted that the study used data for 1977 and the credit was not enacted until May 1977. In the latter, they questioned the author's lack of tests for significance of the wage variable. In addition, since 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.[29] The Targeted Jobs Tax Credit (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 Richard Willke found that the TJTC improved employment outcomes for nonwhite youth but not for other eligible individuals.[30] 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.[31] 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."[32]

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.

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

[29] For a summary of other studies examining the TJTC, see CRS Report 95-981E, *The Targeted Jobs Tax Credit, 1978-1994*, by Linda Levine, which is available on request from the authors.

[30] 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.

[31] 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.

[32] 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.

Additionally, 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.

Current Proposals

The Obama Administration is reportedly considering targeted policies to create jobs including a jobs tax credit for small business. However, nothing concrete has been proposed.[33] One recent proposal for a job creation tax credit is modeled partially on the NJTC but tries to correct some of the flaws that may have limited the effectiveness of the NJTC.[34] This tax credit would be refundable so both unprofitable firms and non-profits can take advantage of the credit. Furthermore, the benefits of the credit would be received on a quarterly basis rather than annually when the firm files an income tax return. Bartik and Bishop estimate that the tax credit could create 2.8 million jobs in 2010 and 2.3 million jobs in 2011. They further estimate that the budgetary cost would be no more than $15 billion per year. Their estimates assume 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 1977-78 credit, but rather predicted the effect on jobs based on a central tendency labor demand elasticity.[35] They also estimate 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.[36]

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

[33] See, for example, Krishna Guha, "Jobs data hit hopes of early rebound," *Financial Times*, January 9, 2010, p. 2.

[34] 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/.

[35] 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.

[36] 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, W is the wage and dW is the change in wage. Thus additional wages, (W)(dL) = (-e)(dW)(L). At a subsidy rate of s, dW = - 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.

of a 2009 deficit that was larger relative to the size of the economy than all but a handful of previous wartime years. The 2009 deficit is 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.

Author Contact Information

Thomas L. Hungerford
Section Research Manager
thungerford@crs.loc.gov, 7-6422

Jane G. Gravelle
Senior Specialist in Economic Policy
jgravelle@crs.loc.gov, 7-7829