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THE EMPLOYMENT EFFECTS OF STATE HIRING CREDITS DURING AND AFTER THE GREAT RECESSION

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The Employment Effects of State Hiring Credits During and After the Great Recession
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ABSTRACT

State and federal policymakers grappling with the aftermath of the Great Recession have sought ways to spur job creation, in many cases adopting hiring credits to encourage employers to create new jobs. However, there is virtually no evidence on the effects of these kinds of counter-recessionary hiring credits – the only evidence coming from much earlier studies of the New Jobs Tax Credit from the 1970s. This paper provides evidence on the effect on job growth of hiring credits adopted during the Great Recession. For many of the types of hiring credits we examine we do not find positive effects on job growth. However, some specific types of hiring credits – including those targeting the unemployed and those that allow states to recapture credits when job creation goals are not met – appear to have succeeded in boosting job growth. At the same time, some credits appear to generate hiring without increasing employment or to generate much more hiring than net employment growth, consistent with these credits leading to churning of employees that raises the costs of producing jobs via hiring credits.

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I. Introduction

The Great Recession led to levels of job loss and unemployment that are the worst on record since the Great Depression (Elsby et al., 2010; Martínez-García and Koech, 2010). For most states unemployment rates climbed to higher levels than in any post-War recession, and in general the high levels of unemployment reached during the Great Recession have been more persistent than in past recessions (Pittelko, 2011). Naturally, state and federal policymakers grappling with the aftermath of the Great Recession have sought ways to spur job creation, in many cases adopting hiring credits to encourage employers to create new jobs. Many states enacted credits, and the Hiring Incentives to Restore Employment (HIRE) Act established a modest credit for most of 2010 at the federal level. The goal of this paper is to provide evidence on the effects on job growth of state hiring credits adopted during and after the Great Recession.

As summarized in Neumark (2013), there is a research literature arguing that hiring credits are ineffective (Bartik, 2001; Dickert-Conlin and Holtz-Eakin, 2000; Katz, 1998). However, most of the evidence pointing to ineffective hiring credits comes from programs that target the disadvantaged, in contrast to programs that are non-categorical or more broadly targeted, and which explicitly try to incentivize job creation, especially during recessions. There is much less evidence on more-broadly-targeted or non-categorical hiring credits that explicitly try to boost hiring in the aggregate – with essentially the only evidence coming from the New Jobs Tax Credit (NJTC) of the late 1970s. This evidence is more positive, and suggests that a hiring credit that is non-categorical and creates explicit incentives for job creation can help create jobs. However, the evidence on the NJTC is very limited – both because it is dated, and because of the usual difficulties of identifying the effect of policy at the national level, stemming from the problem of constructing a counterfactual for what would have happened absent the NJTC.

As this paper documents – for the first time, to the best of our knowledge – there is an extensive set of state hiring credits. Many of these were in existence prior to the Great Recession, and more were enacted during and after the Great Recession. Yet there is virtually no empirical work on these state

credits.[1] It is the combination of the conjectures about the beneficial effects of hiring credits in the context of a severe recession, coupled with the availability of information on multiple state-level hiring credits, which provide the motivation for the question this paper addresses: whether state hiring credits adopted during and after the Great Recession boosted job growth.

In addition, based on the existing limited evidence on hiring credits, as well as theoretical reasoning, Neumark (2013) offers some suggestions for structuring hiring credits to make them more effective tools for countering the adverse labor market impacts of recessions. Among these suggestions are targeting the unemployed, specifying the credit as temporary, and incentivizing increases in employment rather than hours. However, these suggestions are speculative, based on at best a patchwork of evidence, most of it quite dated. A second motivation for this paper, then, is to estimate the differential effects of state hiring credits that vary along these (and other) dimensions, to try to reach specific conclusions about how hiring credits should be constructed to be more effective. Because we wanted to answer this question, we devoted a great deal of effort to assembling a database of the various state hiring credits that have been enacted, and our empirical analysis is geared towards estimating the effects of the many different types of credits that exist, although this is a challenging task given the many types of credits used, and our focus on the more limited number adopted during or after the Great Recession.

Finally, there is a long-standing concern that hiring credits can be very inefficient, rewarding hiring that does not create net job growth, as firms churn employees to exploit hiring credits – perhaps resulting in positive net job growth, but not necessarily. By looking at the effects of hiring credits on hiring as well as net job growth, we can assess the importance of these inefficiencies, and see whether

[1] There are only a few exceptions. Bartik and Erickcek (2010) evaluate the MEGA Tax Credit Program in Michigan, which is quite different from other hiring credits. In addition, there are some evaluations of small-scale more-targeted hiring credit (or "voucher") experiments (see Burtless, 1985, and the discussion in Hollenbeck and Willke, 1991). Finally, a recent, preliminary paper (Chirinko and Wilson, 2010) estimates the effects of state hiring credits, finding some modest evidence of positive effects. They focus on some subtler issues of the timing of effects based on the effective versus the signing date of the credit, stemming from theoretical considerations. The proposed research differs in numerous ways, including its focus on the effects of hiring credits enacted during and after the Great Recession, and using a much more comprehensive database on state hiring credit programs. Chirinko and Wilson report a maximum of 20 states with hiring credits in their sample period of 1990-August, 2009, far fewer than we have; and they do not appear to allow for multiple types of hiring credits for a state at a point in time – a feature that is central to our analysis.

particular types of credits are more or less effective at creating net job growth along with hiring.[2]

II. Specific Hypotheses

The empirical analysis asks whether job creation hiring credits enacted during the Great Recession increased job growth. We look at numerous types of hiring credits, as described in Section IV.

The theory of hiring credits is straightforward. Hiring credits subsidize wages when employers hire from particular groups of workers, and therefore should boost labor demand and hence employment by reducing the effective wage paid by employers. Practical complications, however, can substantially reduce the effects of hiring credits. First, it is hard to design a hiring credit that rewards net new job creation, rather than rewarding hiring that would have occurred anyway, generating "windfalls" for firms. Thus, hiring credits can potentially be costly without creating a lot of jobs. Second, to sharpen incentives for net job creation, policymakers impose administrative requirements on firms, and the costs of compliance can deter use of the credit. And third, when hiring credits are targeted at specific groups of workers like the disadvantaged, these workers can be "stigmatized," with their eligibility for the credit signaling low productivity to employers. Most of the research on hiring credits studies those targeting the disadvantaged, and attributes their ineffectiveness to stigmatization (Katz, 1998).

However, evidence on hiring credits that focus on net job creation and perhaps re-employing the unemployed is more relevant in thinking about policy responses to the Great Recession and future recessions. Katz (1998) concludes that evidence from studies of the NJTC – the prime historical example of a hiring credit targeting net job creation – shows that a "temporary, noncategorical, incremental subsidy has some potential for stimulating employment growth" (p. 31). And more recently, researchers have taken a stronger position on the NJTC's effectiveness (Bartik and Bishop, 2009; Bishop, 2008).

One of the principal reasons an anti-recessionary hiring credit may be more effective is that, coming on the heels of a steep recession, stigma effects are likely to be significantly weakened or eliminated for a credit that is either non-categorical or that targets the unemployed. Employers likely understand that many people become unemployed in a recession because of external adverse shocks to

[2] Another potential inefficiency, which we do not address, is windfalls in the form of credits paid to firms that would have created new jobs absent the credit.

their employers, rather than because of individual low productivity, malfeasance, etc. And when employment has largely been falling, it should be easier to reward hiring that would not have occurred absent the credit, reducing windfalls (although the Job Openings and Labor Turnover Survey shows that there was still plenty of hiring going on at the depths of the Great Recession, although monthly hiring declined from a peak of just over 5.5 million before the recession to a low of around 3.7 million).[3] For example, during and after a steep recession, basing eligibility simply on whether a firm's employment is growing might pose acceptable windfall costs. A simple rule for establishing eligibility also imposes smaller costs on firms, making the credit more effective, and a credit targeting the unemployed is administratively simple, as it is easy to verify unemployed status.

An important part of the analysis is its focus on the design of effective state hiring credits. For example, poorly-designed credits can be ineffective or have perverse effects, such as incentivizing churning of workers rather than longer-term employment (Katz, 1998); and credits that target full-time employment rather than full-time-equivalent employment can lead employers to substitute full-time for part-time workers, a negative influence on employment. And credits targeting full-time-equivalent (FTE) employment can just lead to hours increases. The variation among state hiring credits regarding different ways to incentivize net new hiring, targeting, and other dimensions (documented below) can provide information on how to enhance the job-creating potential of these credits.

III. Empirical Approach

The empirical strategy is to compare actual job growth in states as the Great Recession unfolded, comparing the experiences of states that did and did not implement particular types of hiring credits, controlling for other factors so as to isolate the effects of state hiring credits. Perhaps the most important control variable we use can be viewed as a counterfactual business cycle measure, intended to capture what the impact of the recession in each state would have been absent a state's hiring credit(s).

We construct this counterfactual business cycle measure by applying national time-series changes in disaggregated industry employment to the state, based on the state's industry composition in a baseline period of stable aggregate economic growth. To provide a simple example, if a state, at baseline, had

[3] See http://www.bls.gov/jlt/data.htm (viewed December 21, 2012).

50% of employment in the auto industry and 50% in the restaurant industry, then the counterfactual for employment change over a given period would be an equally-weighted average of the employment change nationally in these two industries.

More generally, let subscripts *j* index states, *k* industries, and *b* the baseline period. Denote by SE_{jkb} total employment in state *j*, industry *k*, and period *b*, denote by AE_{kt} aggregate (national) employment in each period *t* in industry *k*, and denote by AE_{kb} aggregate employment in industry *k* in the baseline period *b*. Then state employment based solely on aggregate developments is predicted in each period subsequent to *b* by applying the national changes to the baseline composition, as in

$$(1) \qquad PSE_{jt} = \sum_k SE_{jkb} \times \left(\frac{AE_{kt} - AE_{kb}}{AE_{kb}}\right).$$

This equation predicts state employment in each period by applying the national growth rate of employment in each industry between the baseline period and that period to the baseline employment level in the corresponding industry in the state, and then aggregating, weighting by the baseline industry distribution of employment in the state. In this paper, we focus mainly on the 2007-2011 period. Because we use lags in some of the specifications described below, the baseline for computing industry composition is 2006. We use monthly data, so we compute the average over all 12 months of 2006.

We estimate regression models relating changes in job growth to the counterfactual cycle, other controls, and state hiring credits. To be more specific, denote the level of state employment as E_{jt}, and denote by HC_{jt} a dummy variable for a hiring credit in state *j* and period *t*. Let T_t denote period dummy variables (for each unique month in the sample), S_s denote state dummy variables, and M_r denote a vector of calendar month dummy variables. The baseline regression we estimate to measure the effects of hiring credits on employment is:

$$(2) \qquad \Delta \ln (E_{jt}) = \alpha + \sum_{k=0}^{12} \beta_k \Delta HC_{j,t-k} + \sum_{k=0}^{12} \gamma_k \Delta \ln (PSE_{j,t-k}) + \sum_{l=2}^{T} \tau_l T_l$$
$$+ \sum_{s=1}^{S} \sum_{r=1}^{C} \{\mu_{sr} S_s \times M_r\} + \sum_{s=1}^{S} \{\pi_s \Delta \ln(PSE_{jt}) \times S_s\} + X_{jt}\theta + \varepsilon_{jt}.$$

This specification estimates the effects of changes in hiring credits on the change in employment, allowing effects with lags up to 12 months after credits are adopted. The specification includes the counterfactual business cycle measure, also with lags up to 12 months. In addition, there are time dummy

variables for each month in the sample, to control for aggregate factors not captured in the controls. Because we estimate the model in first differences, we do not include state dummy variables in levels. However, interactions between the state dummy variables (*S*) and calendar month dummy variables (*M*) allow for different monthly patterns of employment changes by state. And the interactions between the counterfactual cyclical measure (*PSE*) and the state dummy variables allow the effects of this cyclical variable to differ by state; such differences could arise, for example, because the same magnitude of the shock to two different states could reflect employment changes in different industries. That could happen because of state differences in the types of employment within the industries used to construct *PSE*. For example, two states might have equal employment in the auto industry, but one manufactures luxury cars for which demand may be more cyclically sensitive, whereas another manufactures compact cars for which demand is less cyclically sensitive. Or states may differ in their exposure to domestic versus international markets, even if their industry composition is similar. The variables in *X* are some controls discussed later.

The key parameters in equation (2) are the β_k's, which capture the contemporaneous and lagged effects of changes in hiring credits on employment. If hiring credits boost employment, we would expect the values of the β_k's to be positive, at least for some period. And of course the β_k's will be positive only if net job growth is created, and not if credits are simply windfalls for firms that would have hired anyway. In contrast, we could find the β_k's equal to zero even if many employers claim hiring credits, when they are claiming credits for hiring that would have occurred absent the credit, or otherwise manipulating their workforces in ways that make them eligible for credits without creating jobs.

We also might expect the effects of hiring credits to occur with a lag, perhaps because it takes time for employers to learn about them. For example, Perloff and Wachter (1979) present evidence suggesting that firms' knowledge about the NJTC influenced whether it affected job growth, and conclude that lack of information about the NJTC diminished its effectiveness. In addition, data on California's New Jobs Credit suggests that the number of jobs for which the credit was claimed was very low (200-300 jobs per month) in the first couple of months after it took effect but then rose to a higher but

still quite low level (about 1,500 jobs per month).[4] We compute sums of the β_k's over various periods (current only, and then adding four, 8, and 12 lags), and report these in the tables.

While this is our basic specification, we are interested in the effects of different types of hiring credits. As described in detail in the next section, we classify hiring credits along a number of dimensions, and then instead of having a single dummy variable for the presence of a hiring credit, we have multiple dummy variables for the presence of a hiring credit of a particular type. We also estimate specifications with some alterations in the control variables; these specifications are described along with the empirical results in Section V.

Our focus is on hiring credits adopted during or after the Great Recession. We only obtain identifying information from states where there are changes in hiring credits over the sample period. As we document in the next section, states have adopted a large number of hiring credits over recent decades. However, the number adopted in the period we study – 2007-2011 – is of course much smaller, limiting our identifying information. Moreover, there is even less adoption of or variation in hiring credits with specific features. The more limited focus of this paper on the Great Recession and its aftermath is motivated by wanting to know what credits adopted during that period accomplished.[5]

The discussion to this point has been in terms of state hiring credits. As noted earlier, the federal HIRE Act, establishing a modest credit, was enacted in 2010. In contrast to research on the NJTC, which faced the usual problems of inferring the effects of a policy that is set nationally, in the present framework the effects of the HIRE Act can be identified more reliably. In particular, those states with hiring credits that most closely paralleled the HIRE Act prior to the latter's enactment can be delineated. The effect of the HIRE Act can then be identified from its differential impact on states that did and did not have similar hiring credits of their own before the HIRE Act became effective. We also estimate models accounting for other federal efforts to boost job growth in this period, namely the American Recovery and Reinvestment Act (ARRA).

[4] See https://www.ftb.ca.gov/businesses/New_Jobs_Credit.shtml (viewed December 21, 2012). We estimated jobs for which the credit was claimed by dividing total credits paid by the maximum $3,000 credit per worker.
[5] There is a related question of whether hiring credits that were already on the books when the Great Recession hit served to moderate the effects of the recession. However, since these credits would not have lowered hiring costs during the Great Recession there is no theoretical reason to expect such an effect.

Finally, robust inference requires clustering the data at the level of the state to allow for arbitrary patterns of serial correlation within states, and heteroscedasticity across states. With 50 states, the asymptotic approximations should provide reliable inference (Cameron et al., 2008).

IV. Hiring Credits and Other Data

Information on State Hiring Credits

The key input into the empirical analysis is a detailed database on state hiring tax credits that we have constructed. The hiring credits database provides information on job creation programs in all 50 states for the period 1969-2012. We identified 147 hiring credits. In June, 2012, 128 of these programs were current while 19 had expired or been replaced.[6] As these numbers indicate, many states have multiple credits. Figure 1 is a histogram showing the highest number of hiring credits that states had at any point in our sample period. There are 45 states that had at least one hiring credit at some point during the whole period. The five states that did not have any program are Alaska, New Hampshire, South Dakota, Washington, and Wyoming. There are also five states that had at most one program: Hawaii, Maine, Minnesota, Montana, and Oregon. The remaining 40 states had two or more hiring credits over the period, and of these, most had two to four credits. Virginia is the state with the largest number of programs (a maximum of ten during the sample period, but nine currently).

Table 1 provides information on when hiring credits were adopted, and their durations. Most hiring credits were created after 1989, and more than one-third were created in 2000 or later. While the table shows that many programs last for fewer than 10 years, this is driven partly by many credits being adopted in later years. Overall, state hiring credits have lasted for an average of 12.5 years. Figure 2 presents a more detailed view at the number of programs created each year.

We now turn to a discussion of the construction of the entire hiring credit database, although the empirical analysis focuses on the period 2007-2011. Later, we discuss changes in hiring credits in the analysis period.

[6] Two programs become ineffective after June 2012, and three additional programs become ineffective after December 2012.

States offer a complex package of incentives ranging from tax incentives based on different criteria (e.g., job creation), to financial assistance, technical support, training, incentives for creation of infrastructure, etc. Hiring credits are only a part of this set of incentives, and thus the first step in constructing the database is to define the criteria for inclusion of a program in the hiring credit database. The main criterion is that the program intends to create (or retain) jobs. This posed a challenge because unemployment is a politically-charged issue, especially during and after recessions, and thus the potential job creation from any new program tends to be emphasized. While it can be argued that all programs have some impact on jobs, we used the following criteria for the inclusion of a program in the state hiring credit database:

- The program's law or regulations require firms to create or retain jobs or to increase payroll. Programs aimed at attracting new companies to the state (e.g., headquarters programs) are also included since by definition they create new jobs and, in most cases, they include an explicit job creation requirement.
- The program is broad in the sense that it covers a large portion of the firms or employees.[7]
- The program is targeted directly at the employer that is creating jobs. For instance, we do not include programs that foster infrastructure improvement by local governments on behalf of a business that is creating jobs.
- The program is not geographically targeted. In particular, we do not include enterprise zone programs or local hiring programs, such as those provided by local governments.[8]
- The program's costs are not borne by local governments. In particular, we do not include property tax abatements and tax-increment financing districts.

In addition, we do not include programs based on training, apprenticeships, or internships, on research and development, or those related to the film industry. Also, we do not include either agricultural or financial programs (e.g., programs that provide loans or whose benefits are reductions in

[7] For instance, we do not include the Arizona's *Credit for Employing National Guard Members* or the Massachusetts's *Jobs Incentive Payments for Certain Biotechnology Companies*.
[8] One exception is that Kansas's *Enterprise Zone Job Creation Tax Credit* is included in the database, because the incentives apply statewide.

the interest rate on previous loans). In contrast, we do include programs that have broad targeting by industry (e.g., manufacturing), by company type (e.g., small businesses), or groups of workers (e.g., the unemployed).

Sources

To decide whether to include a program we compared the information contained in each of the sources listed below with the relevant laws in Loislaw,[9] Westlaw,[10] and LexisNexis.[11] For older hiring credits, we referred to National Association of State Development Agencies (1983, 1986, 1991, 2003). These publications provide a list and brief descriptions of the state incentive programs that existed in each particular year. Fahey et al. (1997) and Rogers (1998) provide an overview of state hiring credits as of 1997, but also include geographically-targeted programs.

For the hiring credits currently in place we reviewed Business Facilities (n.d.), which provides an updated overview of state economic incentive programs, and compared this information with State Capital Group (2010), which also presents a large list of state incentive programs updated for August, 2010. We also used information from the Sierra Group's portal,[12] which focuses on employment programs for people with disabilities, and the website of Biggins Lacy Shapiro & Company, LLC (BLS & CO., n.d.), which covers a somewhat more narrow range of state incentive programs.

Finally, Mattera et al. (2011) provide an evaluation of state job creation credits. Their objective, however, is to verify whether the programs offered at the state level require job creation and if they provide "good jobs" in the sense of having some wage requirement and health or other benefits. Their sample, then, is broader than ours and has 238 programs including geographically-targeted programs, training programs, R&D programs, film-related programs, and apprenticeship or internship programs. Consistent with our more limited criteria, Mattera et al. (2011) find that many of the programs in their database do not require job creation.[13]

[9] See http://www.loislaw.com/.
[10] See http://www.westlaw.com/signon/default.wl?sp=uci-2000&rs=imp1.0&vr=1.0&cbhf=none.
[11] See http://www.lexisnexis.com/lawschool/login.aspx.
[12] Available at http://www.employmentincentives.com/state_incentives/state_incentives_intro.htm (viewed June 12, 2012).
[13] Based on this project, Good Jobs First developed a database with over 400 programs (updated to October, 2012)

The information on hiring programs obtained from these sources was then confirmed and completed through a search on the websites of the Department of Economic Development, Department of Commerce, Department of Revenue, or the relevant state institution. Because almost every state's legislation concentrates business incentive programs in specific sections of the law, we also reviewed these sections to check for additional programs. The purpose of this exercise was above all to try to identify hiring credits that might have expired at some point in the past, and that our historical sources did not cover. In a few instances we were able to find additional relevant programs that were not mentioned in other sources.

Coding of credits

State hiring credits differ along several dimensions. In Table 2 we provide a detailed description of each variable and the relevant categories, as well as a precise explanation of our coding. Table 3 summarizes the distribution of hiring credits along these dimensions and Appendix Table A1 presents a list of all programs with their particular features.

We also capture the timing of the enactment and expiration of hiring credits. All the sources mentioned above provide information about the existence of a hiring credit at a given point in time, but none of them provides information about the credit's history. Hence, we relied on the legal information contained in Loislaw and Westlaw (for the relevant laws and their history), and LexisNexis (for the relevant acts). The history of each program can be recovered by looking at the acts that created and then modified the program. We used this procedure to establish the date at which the program became effective as well as whether it was current or had ended as of June, 2012. Because the provisions of each program change over time, for each program we confirmed the initial effective date as the first date when the particular program included a job-creation component or when the program fit our criteria for inclusion.[14,15] Regarding the final date, it is important to note that in the case of programs that provide

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to track companies that receive subsidies from states, available at http://www.goodjobsfirst.org/subsidy-tracker (viewed Nov. 5, 2012).

[14] For instance, North Carolina's *William S. Lee quality jobs and business expansion act (Credit for creating jobs)* started in 1987 under the name of *Credit for creating jobs in severely distressed counties*, and it was geographically targeted. In August 1996 the program was reformed to apply statewide, and thus we use August, 1996, as the starting date.

benefits for more than one year or that have carry-forward provisions, the final date applies only to new hiring; benefits for previous hiring are allowed for some additional time according to the provisions of the program. However, since these benefits do not apply to new hiring, they should not have an effect on new employment. Thus, we record as the final date the date that applies to new hiring.

The number of relevant acts for some longer-lasting programs can run to several dozen. Because of the difficulty this implies for following these precisely over time, we assume that every program exists from the effective date until June 2012 or the date when it ended. In particular, we do not allow for the possibility that there may be intervening periods for which the program was not effective. Also, the specifications of each hiring credit in the database reflect the most recent amendments (e.g., job creation requirements). While it is important to keep in mind that sometimes programs' provisions do change over time, and this is especially relevant for programs that have existed for longer periods, this should not be a significant issue for the analysis in this paper, since it only covers the period 2007-2011.

Finally, for some programs, the specific regulations are not specified in the law: i.e., the law provides the general framework of the program or creates the relevant agency to administer the program, but the states develop specific regulations only later. Since it is not possible to determine when exactly these regulations were put in place, we used the effective date of the law as the starting date.

Returning to Table 2's description of features of hiring credits, hiring credit programs differ in whether they are temporary or permanent. While this distinction is clear at the theoretical level – and we would predict a stronger effect of a temporary credit that shifts hiring to the period when the credit applies – this difference is not so clear in practice. In general, the period for which a program is in place does not follow a simple pattern. In principle, programs are enacted as either temporary or permanent. However, there are some exceptions in which programs are enacted with an undetermined period of applicability.[16]

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[15] Neither Lexis-Nexis nor Westlaw provide access to the laws' acts before 1990. Hence, the effective dates for programs that start before this date, while correct according to the history provided in Lexis-Nexis and/or Westlaw, are not corroborated by looking at the actual acts, as was done for all other laws. For pre-1990 programs we looked at the amendments and determined the changes that were made so as to identify if the job creation requirements or other relevant features were introduced at the original date or later. This procedure was feasible in most cases, but not for a few, in which case we assigned the start date of the original credit.

[16] In Oklahoma, for instance, the *Quality jobs program* was enacted in 1993. It may be ended on the basis of a triennial report by the Department of Commerce, but is still in effect.

More generally, temporary programs are often extended – in some cases several times – and a permanent program can be repealed at any point in time.[17] Finally, states sometimes wish to change some particular feature of the available programs. This is often achieved through a change in the provisions of the program. However, in some instances, this leads to a full replacement of the existing program.[18] With these important qualifications in mind, we classify a program as temporary or permanent based exclusively on its initial enactment. More precisely, we code a program as temporary if the original act provides a date for it to end, and permanent otherwise, and we consider this a feature of the program throughout its existence. In a handful of cases (like the Oklahoma credit discussed above) we could not determine a classification as temporary or permanent.

Hiring credits also differ in the type of benefit provided. Most programs provide a tax credit, but there are a few that provide direct grants to the firms.

There are different requirements for firms to be eligible for hiring credits. We distinguish between programs that require increments in jobs, payroll, investment, or other factors (e.g., a new facility). These are not mutually exclusive, so a single credit can fall into more than one of these categories. As can be seen in Table 3, most programs (143) require the creation of new jobs, of which 64 have new jobs as the sole requirement. Investment is also a very common requirement (61 credits). Almost every program includes jobs or jobs and investment as part of the requirements, and 83% of all programs (121) require jobs only or jobs and investment.[19] In part because of our focus on hiring credits targeting job creation, hiring credits included in the database are quite homogeneous in terms of their eligibility requirements. No program includes investment or other factors as the only requirements; i.e., they are always accompanied by a requirement of either new jobs or additional payroll. Furthermore, of the seven programs that include additional payroll as a requirement, only three have it as the sole one.

[17] For example, in Connecticut the *Tax credit for taxpayers occupying new facilities and creating new jobs* was enacted to end in December, 1994. It was later extended, and then repealed effective January, 1998. Also in Connecticut, the *Job creation credit*, while enacted as permanent, was later made to expire effective January 1, 2012.

[18] For instance, Vermont's *Economic advancement tax incentive program*, which was enacted in 1998 as a permanent program, was repealed effective January, 2007. The *Vermont employee growth incentive* was then introduced.

[19] This includes 64 programs that require jobs only and 57 programs that require jobs and investment only. The other four programs that require investment also have some additional requirements other than jobs.

This homogeneity in eligibility requirements limits the identifying variation available. We therefore focus, instead, on the outcome that the programs use as the basis to determine benefits (number of new jobs, percentage of new payroll, percentage of new investment, or some other factor).[20] There is of course some overlap between the eligibility requirements and the basis on which the benefits are provided, but they do differ significantly. Most importantly, as shown in Table 3, while only seven programs include payroll as an eligibility requirement, a total of 66 programs have new payroll as one of the outcomes on which benefits are based, and 20 have it as the only one.

We also classify hiring credits depending on their value per FTE job and full year of hiring. Because the benefits of some programs are connected to an unobservable variable (e.g., sales taxes), we were not able to assign a value per job to 23 programs. Among the remaining credits, 24 provide a benefit equivalent to $1,000 or less per year, 78 a benefit higher than $1,000, and 22 are discretionary, which means that the benefit provided is determined by the state agency responsible of the administration of the program.

Hiring credits have varying limitations in terms of tax savings. Credits may limit the benefit to be equal to the tax liability, or they may allow it to be higher than the tax liability. In the latter case, firms may either carry forward to future years the fraction of the benefits above the current year's tax liability, or they may receive the full amount of the benefit in the current year (credit is refundable). Almost one-third of programs do not specify this limit and almost half provide a carry-forward provision.

Since we are interested in the effect of hiring credits on job growth, another important dimension is the type of new jobs required. Employment required can be full-time, FTE, or part-time. In a few cases, the program does not specify the type of employment required. Full-time is the most common requirement.

State hiring credits also differ in targeting based either on employee's characteristics (unemployed, disabled, and welfare recipients) or employer's characteristics (industry, size of the firm). Around half of all hiring credits have some type of targeting.

[20] As examples, Connecticut's *Tax Credit for Taxpayers Occupying New Facilities and Creating New Jobs* is based on the square footage of the new facilities. And South Carolina's *Corporate Headquarters Tax Credit* provides benefits based on the property costs associated with the headquarters.

Finally, hiring credits present some additional characteristics that may affect their impact on job creation. First, many programs try to ensure that credits are paid for new job creation (for instance, by "recapturing" or "clawing back" some of the tax credit if net job creation is lower than required for payment of the credit).[21] Second, several hiring credits determine either eligibility for the credit or the amount of the credit based on the wage level of the new jobs. In some cases there is a minimum wage level to which they apply, thus attempting to promote the creation of higher-wage or higher-skill jobs. Third, some programs vary their credit values and specific provisions (such as the wage level required of new jobs) according to the county (or type of county) where the new jobs are created.

Appendix Table A1 summarizes all of the hiring credits that we capture and how we code them. For almost all features of hiring credits, we simply assign to each credit a value of one or zero to denote the presence or absence of that particular feature.

Limitations

For the econometric analysis, the main limitation of the hiring credits database is that each program is treated equally, i.e., we do not distinguish between "small" and "large" programs, understood as programs that can have a small or large effect on employment. The reason is that this distinction is not clear between states or even within states. For instance the *Virginia economic development incentive grant (VEDIG)* requires a minimum of 200 new jobs and a capital investment of $6,500 per job and provides a discretionary grant, while the state's *Small business jobs grant fund* requires only five new jobs and provides a grant of between $500 and $2,000 per job. Clearly, these two programs are quite different and aim at very different types of firms. Yet, it is not clear which one has a larger impact on employment, since the latter can potentially reach many more firms. Thus, despite their differences, in the database the two programs are treated equally.

[21] For example, the *Iowa new jobs and income act* states that if the Department of Revenue "determines that business has failed in any year to meet any one of the requirements of the new jobs and income Act … the business or group of businesses is subject to repayment of all or a portion of the amount of incentives received." Similarly, the *Arkansas economic development act* calls for repayment of all benefits received by a business, plus penalty and interest, if it does not create the required 100 new jobs within 24 months. Both programs allow for extensions for businesses to meet job creation goals.

This example serves to illustrate a common pattern: programs vary significantly within and across states. Much of this variation is of course captured in the coding discussed above, but the issue of size remains. One option would be to weight each program by its outlays over time. However, an exploratory analysis revealed that only some states provide this information, and even then often not in a systematic way, but rather making information available only for some programs or, in some cases, only for some years. Given these limitations, we define a program in terms of the characteristics discussed above, and do not try to quantify the size or scope of the credits.

Identifying information for the period we study

As noted in Section III, our empirical analysis incorporates many features of state hiring credits. While it is impractical to study all dimensions of state hiring credits simultaneously, different analyses can be done for different dimensions. Examples include: credits targeting the unemployed, the disabled, welfare recipients, or none of these; credits that explicitly target net job creation versus those that do not; and credits that allow for recapture or claw-backs versus those that do not. Thus, for example, for a two-way classification of hiring credits, two dummy variables HC^1_{jt} and HC^2_{jt} can be defined, and substituted for the single HC_{jt} in equation (2) above.[22] This allows the estimation of the effects on job growth of each type of credit within a broad classification.

As we also discussed in Section III, the identifying information for the effects of state hiring credits on job growth comes from changes in state hiring credits during our sample period. For most of our analyses we focus simply on whether a state has a particular type of credit. Thus, we need to know how many states experienced a change in whether there was a particular type of credit. This information is reported in Table 4, for the classifications of hiring credits we consider.[23] As the table shows, for most features there is some variation in the number of states having a particular type of credit, although in many cases there is not a lot of variation. There are some exceptions. For credits targeting welfare recipients, and those for which we could not determine if a credit was temporary or permanent, there is no

[22] A given state at a point in time can have one, neither, or both types of credits.

[23] We earlier mentioned the distinction between hiring credits paid as tax credits versus grants. In our empirical analysis there was no evidence of different effects of the two types of credits, so beginning with Table 4 we drop this classification of credits.

variation, so the effects of these types of hiring credits cannot be identified. For credits paying benefits based on part-time jobs, the only variation comes in 2006; since our sample period starts in 2007, we can only estimate lagged effects of this type of credit. Finally, as discussed later, we also look at differences in value of credits for the subset of credits targeting the unemployed (covered in the last panel of the table). In this case we only have variation for the high- and low-value credits, and not for the discretionary or not determinable ones.

The small number of credits that turn on during our sample period is also limiting because it would be useful to look at the effects of more features of hiring credits simultaneously. For example, we might want to look at credits that base benefits on investment *and* target manufacturing firms. But this is not possible with the amount of variation we have, so we can instead only focus on estimating the effects of "one-way" classifications of hiring credits. This is an inherent limitation of the data; a compelling research design requires identifying the effects of hiring credits from the states that change their credits, but there are not that many in the period of interest.

Finally, there is an issue of how to measure hiring credits. Much of the variation in hiring credits comes from states where a program already existed, sometimes of the same type. For example, in the aggregate, of the 38 programs created from January 2006 until December 2011, 36 were added in states that already had at least one program. The remaining two were created in California and Wisconsin in 2009. This raises the question of whether additional programs of the same type provide additional incentives to firms and thus might contribute to employment creation. We have chosen to code simply the existence of a credit of a particular type, rather than the number of credits. Our sense is that the count of credits often reflects the proliferation of a number of small programs in a state that add up to similar coverage provided by single programs in other states.[24] For that reason we view specifications based on the presence or absence of a particular type of hiring credit as more informative about the effects of enacting hiring credits.

Data on Labor Market Outcomes and Other Controls

[24] For example, in Virginia there are separate credits targeting large and other businesses (the two *Virginia investment partnership* programs) or targeting small and other businesses (the two *Jobs investment programs*).

Data on total and industry employment come from the Quarterly Census of Employment and Wages (QCEW).[25] The QCEW provides monthly employment at the state level and by NAICS industry level. To construct the counterfactual cyclical measure (*PSE*) we used industry employment at the QCEW sector level, which corresponds to the NAICS 2-digit classification.[26] One issue is that in the disaggregated state-by-industry QCEW data the information is sometimes suppressed, for some months, for confidentiality reasons. In these cases, we scale up the non-missing entries proportionally to match total employment for the month. Second, to avoid noise in our baseline industry composition, we compute the baseline industry employment by averaging over all 12 months in 2006, and then divide by the average of total employment across months. Finally, we have to assign a baseline industry composition to one particular month to construct our counterfactual business cycle measure for each subsequent month, but the annual averages do not match any specific month because we have used an average of industry composition over the year. We therefore rescale industry employment so that multiplication by this average share matches June 2006 employment, and then construct the cyclical measure relative to that month.

In our baseline specification we also include as controls Farber and Valletta's (2011) measure of the number of weeks of extended Unemployment Insurance benefits, both those added automatically from the Extended Benefits program and those from the Emergency Unemployment Compensation program. Both Farber and Valletta (2011) and Rothstein (2011) show that these recent expansions in the length of unemployment insurance led to increased unemployment durations, particularly for the long-term unemployed. These extended benefits could therefore have slowed job growth. The control variable we use is the number of weeks beyond the normal 26 weeks of Unemployment Insurance that are available in that state and month. Since we use a first difference model, this control is included in first difference form. We also include 12 lags of this first difference. In addition to these controls, we include first differences (through lags of 12 months) of the higher of the federal or state minimum wage.

[25] These data can be downloaded at http://www.bls.gov/cew/data.htm.
[26] The Bureau of Labor Statistics introduced the new version NAICS 2012, which applies to QCEW starting in 2011. However, because this changes industry classification only at lower levels of disaggregation, it does not affect our classification.

V. Results

Baseline Results

Results for our baseline model estimating the effects of hiring credits on job growth are reported in Table 5. Each panel in this table reports estimates from a different specification. Thus, the first panel reports estimates of the effect of the presence of a hiring credit of any kind, the second distinguishes between credits based on new job growth, new payroll growth, new investment, or other criteria, etc. All specifications include a contemporaneous dummy variables (or dummy variables) for the hiring credit, plus 12 monthly lags. The table report the contemporaneous coefficients, and then the cumulative effect including lags through four, eight, and 12 months.

As reported in the first panel, there is no evidence of an effect of hiring credits when no distinctions are made among the features of hiring credits. One thing to keep in mind is that only two states provide identification of the effect of "any" credits (Table 4); this occurs because almost all states had at least one kind of credit by the end of 2006. We often, however, get more states where a credit with a particular feature is enacted in the 2007-2011 period.

The second panel finds no evidence of significant positive effects of hiring credits whose benefits are based on new jobs, new payroll, or new investment. We might have expected hiring credits that provide benefits based on job growth to be the most successful at boosting employment, whereas a hiring credit based on payroll growth would not necessarily be expected to boost employment, because in the first case benefits are obtained exclusively through the creation of new jobs, while in the second case benefits may be obtained through the creation of a limited number of high-wage jobs or increasing pay for the same jobs. Interestingly, the only evidence of significant positive effects is for short-term effects (through four and eight months, reported in the table) of credits based on other criteria. But recall that these credits are *also* based on job or payroll growth. One possible interpretation of the positive effects of credits based on other criteria as well is that the expenditures required to meet these other criteria imply that these credits are not being claimed by firms that are simply churning employees or that would have hired anyway. To interpret the magnitudes, the estimated coefficient of 0.0032 on the cumulative

(through the eight-month lag) effect of hiring credits based on investment implies that employment is increased by 0.3 percentage points by the enactment of such a credit.

The next panel distinguishes between credits based on job growth measured in terms of full-time employment, FTE, and part-time employment (as well as not specified). Broken down this way, there is a significant negative effect of credits based on increases in FTE employment. We might have expected, if anything, a negative effect of credits based on full-time employment, which could encourage firms to combine part-time jobs into full-time jobs. A negative effect on FTE employment is a bit harder to explain, unless for some reason firms respond to the credit by increasing hours simultaneously with reducing the number of workers (in relative terms).

The following panel distinguishes credits based on their tax treatment. We might expect refundable credits to be the most valuable, closely followed by credits that can be carried forward, since these give money to firms even if they do not have taxable income in the current year – a circumstance we might expect to be more frequent during or after a recession. In terms of the relative magnitudes of the estimated coefficients, the evidence is generally consistent with this. However, there is at best quite weak evidence of a positive effect of refundable credits (a t-statistic of 1.61 for the cumulative effect through lags of eight months), and the point estimates for credits equal to the tax owed are always negative.

The first panel in the second column of the table distinguishes between credits based on whether they imposed some kind of minimum wage requirement. A priori, we might expect a larger effect for credits that do not have a wage requirement, if the wage requirement is binding. On the other hand, it is possible that higher-wage firms that meet the wage requirement anyway are more responsive. Regardless, none of the estimated effects for this specification are statistically different from zero.

The following panel categorizes hiring credits based on whether there is a mechanism to recapture the credit if job creation goals are not met. We would expect a recapture mechanism to lead to more effective credits, either by enforcing job creation goals or encouraging only firms that could actually meet them to apply for credits. The evidence is consistent with this prediction, as there are fairly large and positive, significant effects of hiring credits with recapture provisions, but not of those without such

provisions. It would be of interest, of course, to learn about how these recapture provisions are actually implemented, as confirmatory evidence that these provisions have teeth. The examples discussed earlier, however, indicate that states can recover benefits paid when job creation goals are not met, and even if this recovery does not often occur, the threat of recovery may enhance the effects of hiring credits with recapture provisions.

Below this specification we distinguish among credits that target specific industries, manufacturing in particular, or that do not target by industry. In no case do we find significant positive effects. Interestingly, the effects of credits targeting manufacturing are negative and significant. A possible interpretation of this result is that this kind of targeted hiring credit is more the result of political pressure than of targeting to where the potential job creation effects are highest. However, as Table 4 shows, this evidence on credits targeting manufacturing comes from only one state.

The next panel looks at the type of worker targeted. As noted in the Introduction, many hiring credits – and those generally deemed ineffective – have targeted the disadvantaged or disabled. What might be of more interest as a counter-recessionary policy, however, is a hiring credit targeting the unemployed. There are no new credits targeting welfare recipients in the sample period (see Table 4), so we cannot identify the effect of such credits. However, there are new credits targeting the unemployed and the disabled (and without targeting). The estimates show that hiring credits targeting the unemployed have significant and positive effects on employment, boosting employment by about 0.6 percentage points after four months, with the effect growing to 0.9 percentage points with the full 12 lags included. In contrast, there is no effect of the other types of hiring credits.

Finally, the last panel considers temporary versus permanent credits. Theory would predict that temporary credits would have the greatest short-run effect, since they should shift hiring into the period covered by the credit. However, recall from the discussion in Section III that in practice it is very hard to classify credits as temporary or permanent. Perhaps as a result, we do not find any evidence that either type of hiring credit has an effect.

Thus, the evidence from Table 5 suggests that a few specific types of hiring credits enacted during the Great Recession succeeded in boosting employment, but many did not. The effective credits include those based on factors in addition to job creation only, refundable hiring credits (weakly), credits that allow for recapture of payments if the required goals were not met, and credits targeting the unemployed.[27]

Counts of Hiring Credits

Table 6 reports estimates of the same specifications as in Table 5, with the difference that the hiring credit variables are counts of the number of credits with a particular feature, rather than dummy variables for the presence of a credit with a particular feature. As there are often multiple credits with a particular feature, there is more variation in these credit count variables. However, as noted earlier, the variation in the number of credits may not be meaningful if the addition of credits of a type that already exists in a state simply indicates a proliferation of small programs that does little to change incentives to hire. Some but not all of the results persist. We no longer find any evidence of positive effects of on employment growth based on other factors, nor is there evidence of positive effects of credits allowing recapture. But we still find positive effects of of refundable credits (to some extent), and of credits targeting the unemployed.

Extending the Sample Period

The analysis to this point has focused on the period of the Great Recession, because the main empirical question this paper addresses concerns the effects of hiring credits adopted during that period. However, as Table 4 showed, not many credits of the different types we consider were adopted during or just after the Great Recession. It therefore seems worthwhile to ask what we can learn about the effect of hiring credits by extending the sample period to include earlier years. To that end, Table 7 reports results incorporating earlier years. We first extend the sample back to 1995, which is when the data on UI benefits extensions begin, and then back to 1990, which also captures the recession of the early 1990s. In the latter case we do not have the UI benefits extension data, but we verified that excluding the control

[27] We also estimated specifications like in Table 5, but with two modifications. First, we added the 12 lags of the interactions between the counterfactual business cycle measure and state dummies, and second, we dropped these altogether. The qualitative conclusions are very similar. Results are available from the authors upon request.

based on these data for the 2007-2011 or the 1995-2011 periods does not impact the results. We estimated the same models shown in Table 5, but we report results only for the key coefficients for what we view as the most interesting findings from the earlier table: for refundable credits, those allowing recapture, and those targeting the unemployed.

The first two columns repeat these key estimates from Table 5, and the next two columns report the corresponding estimates for 1995-2011. We only report the contemporary effect and the cumulative effect through 12 lags. The next column shows the number of additional states where such credits were introduced over the longer sample period relative to the 2007-2011 period. Overall, 17 additional states introduced any hiring credit, as well as credits allowing for recapture. In contrast – unfortunately – we get almost no additional information on credits targeting the unemployed, as only one additional state introduced such a credit in the longer sample period. The last three columns report the same kind of information for the 1990-2011 period; in this case the additional credits are also relative to the 2007-2011 period. One limitation to keep in mind is that, as mentioned earlier, our classification of features of hiring credits over longer periods may have more errors, which would likely bias estimated effects towards zero.

The evidence of a positive longer-term effect of refundable hiring credits is now a bit stronger, in that for the longer periods the cumulative effect is positive and either marginally significant, or, for the longest sample period, significant at the 10-percent level. The evidence of positive effects of credits allowing recapture is fairly robust, although the point estimates are smaller for the longer periods. On the other hand, there is no longer any evidence of positive effects of hiring credits targeting the unemployed. Recall though that we only get one additional such credit extending the sample back to 1995, and one more extending it to 1990 (relative to four states adopting such credits in the 2007-2011 period); one of these was adopted in 1992, and one in 1997. Thus, it appears reasonable still to conclude that hiring credits targeting the unemployed enacted during or after severe recessions are effective in increasing job growth, although the evidence still comes from relatively few states. Finally, we earlier noted the result in Table 5 that hiring credits targeting manufacturing appear to lower job growth, but also that this evidence came from one state. When we extend the sample period all the way back to 1990, we pick up

one additional manufacturing hiring credit, and there is no longer evidence that such hiring credits affect job growth positively or negatively (not reported in table).

Endogenous Determination of Hiring Credits?

It is possible that credits are adopted in response to past changes in employment in ways that could bias the estimated effects of credits in the previous tables. For example, there could be an "Ashenfelter dip" phenomenon in which credits are adopted in response to negative shocks, from which states then recover, imparting a positive bias to our estimated effects of hiring credits. Alternatively, credit adoption could be associated with underlying employment trends, with negative trends implying downward bias, and positive trends upward bias. However, because the models are estimated in first differences, they already implicitly include state-specific linear trends.

To try to assess whether endogenous determination of hiring credits based on past changes in job growth drives our results, we estimated regression models for the hiring credits dummy and count variables used in Tables 5 and 6, and the different sample periods used in Table 7. We include the same control variables, as well as long lags of the first differences of log employment (up to 36 months). We did this for the credits corresponding to what we regard as the most interesting findings thus far – the positive effect of hiring credits that allow recapture of credits, and the positive effect of credits targeting the unemployed (and we also show results for credits overall). As reported in Table 8, we find no evidence of statistically significant relationships between past employment change and credit adoption. The effects of lagged employment growth were generally negative, almost always statistically insignificant), and small. To interpret the units, note that the independent variables are changes in log employment. Thus, the effect of a one-percent increase in employment is $1/100^{th}$ of the reported coefficients in the table. For example, the −0.18 estimate in the fourth column of the first row implies that a one-percent decrease in employment is associated with a 0.0018 increase in the probability that a credit is adopted in a state, and the −8.88 estimate below it implies that the same decrease in employment is associated with a 0.09 increase in the number of credits in a state.

Thus, the estimates in the table imply weak associations between past employment changes and credit adoption, making it unlikely that there are biases from endogenous adoption of credits. Moreover, there is a pattern of much weaker associations in the shorter-term (say, through six or 12 months) than in the longer-term, making it even less likely that the changes in employment after credits are adopted are in fact driven by earlier employment changes that drove credit adoption.

Incorporating ARRA Spending and the HIRE Act

Our primary focus is on the effects of state hiring credits adopted during the Great Recession. Other federal efforts to counteract the Great Recession may have had independent effects for which we need to control to accurately estimate the effects of state hiring credits. We first estimate models adding measures of spending by state and month under the ARRA, which was signed into law in February, 2009. The Recovery.gov website provides historical data on spending under ARRA using two different measures: obligations and outlays. Obligated funds are those that occur when a contract is assigned to a particular recipient; outlays occur only after the terms of the contract are satisfied. We use spending based on obligations because it precedes new employment creation.[28] To be precise, our control is the log of additional monthly ARRA obligated spending from all federal agencies excluding the Department of Labor (DOL). We do not include DOL because these funds are mainly used for payment of extended and expanded unemployment insurance (UI) benefits, which we already include as a control. We use agency-reported data, following Wilson (2012), who notes that agency-reported data cover all ARRA spending, while recipient-reported data cover only a little over half of it. From May 2009 until December 2011 (when our sample period ends) the total amount of obligations was $421.3 billion, while the total amount of outlays was $365.2 billion.

We augment our specifications by adding the log of current ARRA spending and 12 lags.[29] The results are presented in Table 9. We report the same specifications as in Table 5. For the first

[28] Wilson's (2012) analysis of fiscal spending job multipliers uses funding announcements, which precede obligations by several months. We prefer obligations as these represent secured funds that are more closely related to new employment creation both with respect to the time at which they occur and their magnitude. In addition, we also include lags of obligated spending. In Wilson's analysis, the qualitative results are not affected by using the different measures of spending.

[29] Given that spending is zero before ARRA took effect, we replace zeros with ones before taking logs.

specification – for any credit – we also show results for the ARRA spending variables. In the very short term the estimated effects are negative but insignificant, although as the cumulative effect is computed through more lags it becomes positive, and significant at longer lags (we show only the effect through 12 months).[30] Of more direct interest are the estimated effects of hiring credits. A comparison with Table 5 reveals essentially no differences.

Our next extension is to include the federal HIRE Act as part of the set of hiring credits whose effects we estimate.[31] As indicated in Table 4, the HIRE Act effectively switches on hiring credits with a number of features (e.g., benefits based on payroll, targeting the unemployed) in many states – all the states that did not have these types of credits prior to the HIRE Act. The estimates, reported in Table 10, for the most part do not change. The one substantive change is for the targeting of the unemployed, which the HIRE Act did, as the positive and significant effects of this type of credit reported in Tables 5 and 6 now become small and insignificant. One possible explanation for this is that the HIRE Act was a low-value credit, with a maximum of $1,000 per worker hired.

To explore this further, in Table 11 we report estimates for the effects of hiring credits targeting the unemployed, distinguishing between those with a value of up to $1,000, and more than $1,000. If we find a positive effect of the higher-value credits, this would suggest that the smaller effect of hiring credits targeting the unemployed once we include the HIRE Act could be attributable to its low value. Yet, as reported in the left-hand panel of Table 11, for state hiring credits targeting the unemployed, the estimated effect of low-value credits is actually larger, although the estimates for both low- and high-value credits are generally statistically significant, at least for some period. Note, however, that the effect of the low-value credit in this case is identified from only one state (last panel of Table 4). In the right-hand panel,

[30] This evidence is consistent with Wilson's (2012) finding that long first-difference estimates of the effects of ARRA spending on job growth were positive, although he estimates a much different specification – including some IV estimates – and finds large positive effects that exceed substantially other estimates of job creation by ARRA (see Neumark, 2013).

[31] Another federal credit for which recent changes have received some attention is the Work Opportunities Tax Credit (WOTC). The WOTC targets veterans, short- and long-term TANF recipients, SNAP (food stamp) recipients, and others. It replaced the Targeted Jobs Tax Credit in 1996. A 2011 Act (the VOW to Hire Heroes Act) extended benefits for veteran target groups, and established new categories for veterans who have been unemployed and veterans with service-connected disabilities (http://www.doleta.gov/business/incentives/opptax/eta_default.cfm, viewed March 10, 2013). The Act was adopted in late 2011, and did not take effect until 2012, which is outside our sample period. Scott (2013) reports that in 2012 veterans were fewer than 4 percent of total WOTC certifications.

we add in the HIRE Act, again distinguishing by value. The estimates for the high-value credits are similar to those in the right-hand panel, while the estimates of the low-value credits are insignificant and small. At the end of the day, then, there is some evidence that the HIRE Act does not appear to have been effective because it was a low-value credit. Given the difficulty of measuring the value of credits, though, we cannot rule out the possibility that some other features diminished the effectiveness of the HIRE Act; one possibility is that it extended hiring credits to states where they were likely to be less effective, which could be why those states had not adopted them earlier.

Employment vs. Hiring

As noted earlier, one potential problem with hiring credits is that they can lead firms to churn workers, earning more credits for hiring (and firing) workers that preserve a given level of employment (or a given growth rate). We have already established some evidence of positive employment effects, so there is no reason to believe that the hiring credits we study generate *only* churning, with no change in employment. However, whether or not hiring credits generate a lot of churning is still an important policy question because it can drive up the costs of using hiring credits, per job created. And we have seen that for many types of credits, there is no evidence of positive employment effects. By using data from the Quarterly Workforce Indicators (QWI), we can learn something about churning, because these data allow measurement of employment, as well as hiring.

The QWI data also have information on separations, but the Job Openings and Labor Turnover Survey (JOLTS) data show that quits are generally more than 50 percent of separations, although of course less so during and after the Great Recession, when layoffs and discharges rose.[32] Given that we cannot separate out involuntary separations that firms could use, along with hiring, to churn workers, we present evidence only on hiring (and employment in the QWI, for comparability).

The QWI data are derived from the Longitudinal Employer-Household Dynamics (LEHD) Program at the U.S. Census Bureau. The employer and workplace reports are the same as the data reported to the BLS as part of the QCEW, although the two sources are not exactly equal. Moreover, by using the linked employer information in the LEHD, accessions of workers to new employers, and

[32] See http://research.stlouisfed.org/fred2/categories/32241 (viewed February 11, 2013).

separations from those employers, can be observed. Beginning of period employment is conceptually and empirically similar to QCEW month one employment. Formally, a person is defined as employed at the beginning of a quarter when he has positive earnings with the same employer in both the previous and current quarters. Hires are recorded when an individual has positive earnings with a particular employer in the current quarter and not in the previous one.[33]

The model is the same as the one used for the monthly data, but now the time unit is a quarter, and this entails some modifications. We use as dependent variables the first difference of the log of employment (number of jobs) at the beginning of the quarter, and of the number of workers who started a new job in the quarter. The specification includes the first difference and four lags of the variable capturing the existence of a job credit (or of a credit with a particular feature); this way the lags cover the same period as our earlier specifications using monthly QCEW data. This variable is constructed from the monthly dummies and is equal to 1/3, 2/3, and one if the credit (or a credit with a particular feature) is present in a state for one, two, or three months in a given quarter. The specification also includes the first difference of the log of the state-specific shock variable and four lags. This variable is constructed as the average of the monthly shock variables in each quarter. The specification also includes: interactions of the first difference of the shock variable with state dummy variables; first differences and four lags of the minimum wage prevailing in the state at the beginning of the quarter; first difference and four lags of the control for extended UI benefits; dummy variables for each quarter in the sample; and interactions between calendar quarter dummy variables and state dummy variables.

The results for employment and hires are reported, respectively, in Tables 12 and 13. Some of the employment results are quite comparable to Table 5, which is not surprising, since these represent the same underlying data. Most important, perhaps, there is quite strong evidence of positive effects of credits that allow for recapture, and credits that target the unemployed. There is also still evidence of negative effects of hiring credits targeting manufacturing. Note that the estimates are generally larger than in Table 5, because the data are quarterly.

[33] There is also a "new hiring" variable defined when an individual has positive earnings in the current quarter, with no earnings from the same employer during the previous four quarters, but here we use the "all hiring" measure.

Table 13 turns to hires. To some extent these results reflect the employment results. In particular, credits allowing recapture and credits targeting the unemployed have large and significant positive effects. In both cases, the positive estimates are about ten times as large as the effects on employment overall, suggesting that there may be considerably churning generated by these credits. Also, note that this is true for credits with recapture provisions as well, so although the evidence indicates that these types of credits are effective at boosting job growth, they still appear appear to allow firms to claim credits for some hiring that does not create new jobs on net.

There is also some evidence of positive effects of particular types of hiring credits on hiring for which there was no evidence of positive effects on employment growth. This is the case for refundable credits, only in the short term, as well as credits targeting manufacturing, although recall that this evidence is based on only one state. And there is also some evidence of positive effects of credits targeting the disabled (again, only in the short term). We also find evidence that credits based on full-time employment boost hiring (and part-time, in the shorter-run). We have tended not to find a positive effect on employment growth of credits based on full-time employment, except in Table 6 which uses a count of credits. These latter results are consistent with credits leading to churning that spurs hiring but does not generate employment growth.[34]

VI. Conclusions

State and federal policymakers grappling with the aftermath of the Great Recession have sought ways to spur job creation, in many cases adopting hiring credits to encourage employers to create new jobs. This paper provides new evidence on the effects of state hiring credits on job growth, focusing in particular on the influence or credits adopted during and after the Great Recession.

We find that many types of hiring credits did not spur job growth, although specific types of hiring credits succeeded in boosting employment. The features associated with effective credits are refundability (with only weak evidence), allowing for recapture of payments if the required goals were not met, and targeting the unemployed. This evidence comes from state hiring credits. When we also

[34] Unfortunately, the limited number of hiring credits precludes asking some interesting questions suggested by the evidence, such as whether recapture provisions reduce the extent to which other types of credits generate hiring but not net job creation.

look at the federal HIRE Act, which provides additional identifying information on credits targeting the unemployed, the evidence on the effectiveness of this type of credit dissipates, which may be because the HIRE Act offered a meager credit although it is hard to establish this the available information on hiring credits.

There are some limitations to what can be learned about the effects of credits enacted in this period. Because the window is relatively short, the number of credits enacted is not large, so that the identifying information often comes from a small number of states. In addition, there are many types of credits, and we are therefore interested in trying to estimating which kinds of features of credits make them more effective. Given these limitations, and given the dearth of other evidence on the effects of hiring credit programs, the findings must be interpreted cautiously.

Nonetheless, the results do provide some evidence that particular types of hiring credits may have boosted job growth during the Great Recession and its aftermath. Moreover, some of the results are consistent with what we might expect. A refundable hiring credit ought to have the greatest impact on firms because it is valuable even if the firm does not have taxable income in the current period. Recapture provisions should make hiring credits more effective. And credits targeting the unemployed, especially during a period such as the Great Recession when unemployment should not be a stigmatizing characteristic, should be more effective. At the same time, some expectations are not borne out in the data. Perhaps most significantly, we do not find a stronger positive effect (or indeed any positive effect) of temporary hiring credits, although as we have explained it is very difficult to determine whether a hiring credit was perceived as temporary by employers. All in all, though, the results provide some evidence that judiciously chosen hiring credits adopted during the Great Recession did help increase job growth.

There is also some evidence justifying the concern that hiring credits generate a lot more gross hiring than net employment growth. As discussed in Neumark (2013), estimates from the existing literature suggest that for every 10 hires for which hiring credits are paid, 1 net job is created. Nonetheless, inefficiencies this high can still be consistent with costs per job created in the United States

in the $30,000 or $40,000 range, for example, if the credits pay $3,000 to $4,000 per hire – costs that are likely substantially below the costs of creating jobs through the fiscal stimulus in the form of the ARRA.

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Figure 1: Total Number of States with Hiring Credits at Any Time, 1969-June, 2012

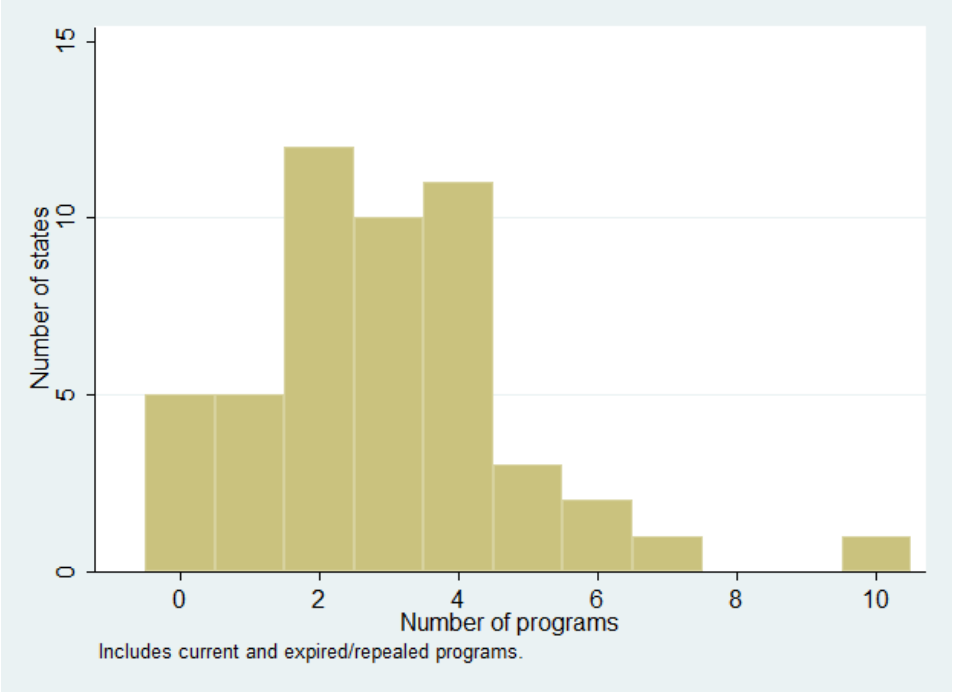

Figure 2: Number of New Hiring Credits Each Year

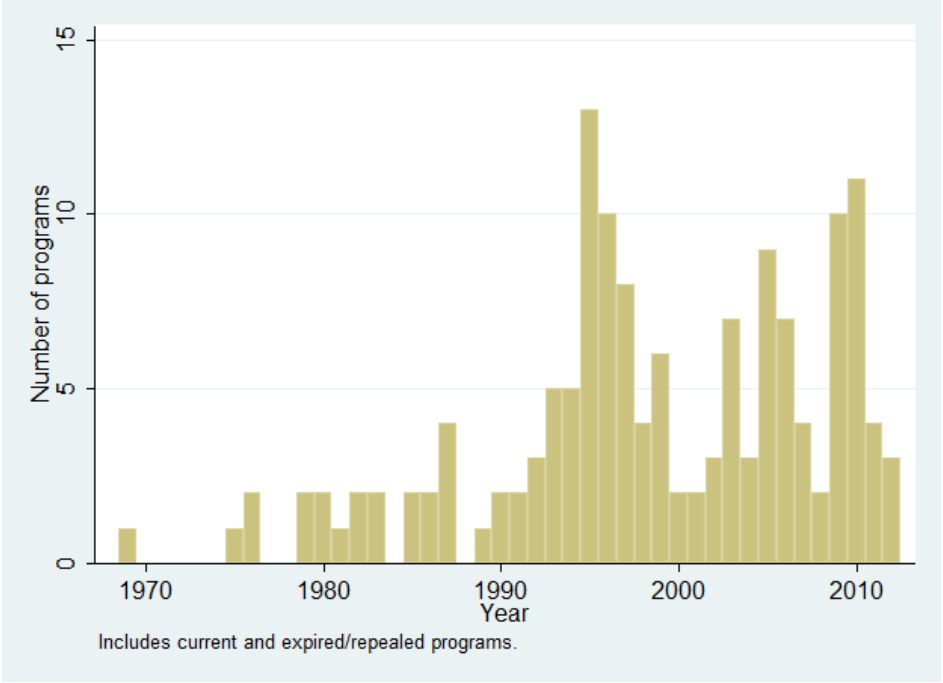

Table 1: Summary of State Hiring Credits, 1969-June, 2012

A. States	
States analyzed	50
1 or more hiring credits	45
No hiring credit	5
B. Basic information	
Total number of hiring credit programs	147
Creation date	
1969-1979	6
1980-1989	16
1990-1999	58
2000-before Great Recession	37
During Great Recession	9
After Great Recession	21
During sample period (2007-2011)	31
Current as of June 2012	121
Duration of hiring credit programs	
0-10 years	73
11-20 years	53
21-30 years	13
31+ years	8

Table 2: Definition and Coding of State Hiring Credits

Variable	Categories	Description
Temporary/permanent: *The program is originally enacted as temporary, permanent, or undetermined/not determinable. The classification is assumed to be a feature of each program throughout its duration.*	Temporary	*The original act provides a specific date when the program ends.*
	Permanent	*The original act does not provide any date for the program to end.*
	Undetermined/not determinable	*The original act specifies an undetermined end date, or it is not possible to determine whether the program is temporary or permanent.*
Type of benefit provided: *Form in which the program provides economic benefits.*	Tax credit	*Economic benefit is provided as a credit against the firm's tax liability (income, corporate, or sales tax).*
	Grant	*Economic benefit is provided as a direct payment to the firm.*
Eligibility requirements:[a] *The basic classification of programs. Refers to the requirements on firms to obtain the credit.*	Jobs	*Requires creation of new jobs.*
	Payroll	*Requires payroll increments.*
	Investment	*Requires new investment.*
	Other	*Requires other factors (e.g., costs of new facility, building area of an expansion).*
Basis for providing benefits:[a] *Basis for calculating the value of credits to the firm.*	New jobs	*Benefit is based on the number of net new employees.*
	New payroll	*Benefit is based on new payroll (wages paid to new employees, withholdings of new employees).*
	New investment	*Benefit is based on new investment in machinery, property, facilities, equipment or any growth-related assets.*
	Other criteria	*Benefit is based on other criteria (property tax, sales tax, excise tax).*
Value per job created: *The average value of the economic benefit that a firm received from the program, normalized to one full-time job maintained for one year. When programs assign different values for different provisions (e.g., jobs created in different types of counties, jobs with higher wages), each value is assigned the same weight.*	≤ $1,000	*Estimated value is less than or equal to $1,000.*
	> $1,000	*Estimated value is greater than $1,000.*
	Discretionary	*Value is determined by the agency that administers the program.*
	Cannot be determined	*Value is not possible to estimate because it depends on some unknown variable (e.g., firm's paid ad-valorem tax).*
Tax treatment: *Form in which the program limits the economic benefits provided for each taxable year.*	Equal to tax owed	*The maximum benefit that can be paid to a firm is the firm's tax liability.*
	Carry-forward	*If the value of the benefit exceeds the firm's tax liability (or a specific percentage of it) for the taxable year, this excess may be carried forward to succeeding years and be used as a credit against the firm's future tax liability.*

Variable	Categories	Description
	Refundable	*The whole benefit is paid even if it is higher than the value of the firm's tax liability.*
	Not specified	
Type of new jobs required: *The type of job the firm needs to create to obtain the benefits of the program. The type of job is defined by the minimum number of hours of work performed per week.*	Full-time	*New employee works for 30 or more hours per week.*
	Full-time equivalent	*One or more new employees work a number of hours per week that add up to one full-time employee's hours requirement.*
	Part-time	*New employee works at least 10 hours per week.*
	Not specified	
Industry targeting:	Targeted	*Program applies to a cluster of industries.*
	Manufacturing	*Program applies to manufacturing facilities.*
	Not targeted	*Program applies to all industries.*
Targeting by type of business:	Small business	*Program applies to firms with 50 employees or fewer.*[b]
	Large business	*Program applies to firms with a large number of employees, or high job creation, payroll, and/or investment broadly defined.*
	Headquarters	*Program applies to those facilities where the principal offices of an eligible business are located.*
	Not targeted	*Program applies to all types of businesses.*
Targeting by type of worker: [a]	Disabled	*Program applies to disabled workers, i.e., individuals who are considered to have a physical or mental disability which results in a substantial handicap to employment. This disability may be determined or certified by specific institutions such as the Division of Rehabilitation Services.*
	Unemployed	*Program applies to the unemployed, i.e., individuals who attest not to be working and who have received unemployment compensation benefits and/or have been classified as unemployed by a competent office of employment.*
	Welfare recipients	*Program applies to recipients of welfare aid, e.g., Temporary Assistance for Needy Families.*
	Not targeted	*Program applies to all workers.*
Recapture provisions: *Program has specific provisions (e.g., penalties) if the requirements to obtain the credit were not met and/or maintained.*	Yes	
	No/not specified	

Variable	Categories	Description
Wage requirements: *Firms must pay a wage at or above a specified level to the new and/or retained employees. The wage may be defined as a specific level, or a percentage of the minimum wage or some average wage (e.g., county, state).*	Yes	
	No	
Geographic provisions: *Program provides different benefits based on location within the state (e.g., specific types of counties)*	Yes	
	No	

[a] The classification for this variable is not mutually exclusive.
[b] In Virginia, a small business is defined as a company with fewer than 250 employees.

Table 3: Characteristics of State Hiring Credits, 1969-June, 2012

Type of Credit	Count	Type of Credit	Count
General classification		**Type of new jobs required**	
Temporary/permanent		Full-time jobs	90
Temporary	44	Full-time equivalent jobs	24
Permanent	97	Part-time jobs	11
Undetermined/cannot be determined	6	Unspecified	22
Form of program		**Targeting**	
Tax credit	123	Non-targeted	75
Grant	24	Targeted	72
Eligibility requirements[a]		Industry targeting	33
Jobs	143	Manufacturing	4
Jobs only	64	Targeting by type of business	20
Payroll	7	Large business	6
Investment	61	Small business	8
Other	19	Headquarters	6
Benefits of program		Targeting by type of worker[a]	24
Basis for providing benefits[a]		Unemployed	7
New jobs	110	Disadvantaged	10
New jobs only	48	Welfare recipients	7
New payroll	66	**Recapture provisions**	54
New payroll only	20	**Wage requirements**	83
New investment	29	**Geographic provisions**	48
Other criteria	28		
Value per job created ($, estimated)			
≤1,000	24		
>1,000	78		
Discretionary	22		
Cannot be determined	23		
Tax treatment			
Tax credit is equal to tax owed	21		
Carry-forward is allowed	68		
Refundable (the whole value of the credit is paid even if it is higher than the value of the tax owed)	17		
Not specified	43		

[a] The classification for this variable is not mutually exclusive..

Table 4: Net Changes in States with Specific Types of Credits, 2007-2011

							Changes due to HIRE Act	
	2006	2007	2008	2009	2010	2011	2010	2011
Any credit	0	0	0	2	0	0	5	5
Jobs	1	1	0	2	0	0	7	7
Payroll	2	1	0	3	1	2	18	18
Investment	0	1	0	0	1	0	0	0
Other	1	0	0	0	1	0	0	0
Full time	0	0	0	3	1	0	0	0
Full time equiv.	0	2	1	1	2	1	0	0
Part time	2	0	0	0	0	0	0	0
Not specified	1	0	0	1	0	0	37	37
Equal to tax owed	1	0	1	1	0	1	24	23
Carry-forward	1	0	0	3	0	0	0	0
Refundable	0	1	0	0	2	2	0	0
Not specified	1	0	1	3	2	2	0	0
Wage requirement	1	1	0	3	1	0	0	0
No wage requirement	3	0	1	2	0	3	21	21
Recapture	0	1	0	1	2	1	0	0
No recapture	2	0	0	3	1	1	16	16
Industry	0	1	0	1	0	1	0	0
Manufacturing	0	0	0	0	1	0	0	0
No targeting	0	0	0	2	1	0	9	9
Unemployed	0	0	0	0	3	1	46	44
Welfare recipient	0	0	0	0	0	0	0	0
Disabled	2	0	0	0	1	0	0	0
No targeting	0	0	0	2	0	0	0	0
Temporary	3	0	2	0	6	3	30	27
Permanent	1	0	0	2	0	2	0	0
Undeterminable	0	0	0	0	0	0	0	0
≤ $1000	2	0	0	0	1	3	33	32
> $1000	0	2	0	4	4	1	0	0
Discretionary	0	1	0	0	0	0	0	0
Not determinable	1	0	1	0	1	1	0	0
Restricted to credits targeting unemployed:								
≤ $1000	0	0	0	0	1	0	47	46
> $1000	0	0	0	0	2	1	0	0
Discretionary	0	0	0	0	0	0	0	0
Not determinable	0	0	0	0	0	0	0	0

There are more entries in the last two columns of the last panel, for low-value credits targeting the unemployed, because this row counts credits that both target the unemployed and are low value. There are fewer entries four rows above, for low-value credits generally, because when the HIRE Act took effect, if there was already a low-value credit that did not target the unemployed, then the state is not coded as adding a low-value credit.

Table 5: Estimated Effects of State Hiring Credits on Employment, Credit Dummy Variables Specifications, First Differences, 2007-2011

Credit variable(s)	Contemp.	+4 lags	+8 lags	+12 lags
Credit	0.0007	-0.0009	-0.0057	-0.0050
	(0.0013)	(0.0024)	(0.0058)	(0.0052)
New jobs	-0.0022	-0.0047	-0.0084	-0.0090
	(0.0029)	(0.0038)	(0.0054)	(0.0069)
New payroll	-0.0010	-0.0010	-0.0013	-0.0043
	(0.0010)	(0.0017)	(0.0037)	(0.0030)
New investment	0.0054	0.0032	0.0024	0.0040
	(0.0043)	(0.0043)	(0.0035)	(0.0064)
Other criteria	0.0006	0.0025	0.0032	0.0030
	(0.0008)	(0.0011)	(0.0015)	(0.0026)
Full time	0.0010	0.0017	0.0007	0.0023
	(0.0008)	(0.0025)	(0.0050)	(0.0068)
Full time equiv.	-0.0046	-0.0057	-0.0052	-0.0110
	(0.0017)	(0.0020)	(0.0045)	(0.0063)
Part time	…	…	-0.0006	0.0014
			(0.0008)	(0.0040)
Not specified	0.0014	-0.0007	-0.0048	-0.0073
	(0.0005)	(0.0008)	(0.0014)	(0.0016)
Equal to tax owed	-0.0045	-0.0043	-0.0062	-0.0145
	(0.0019)	(0.0053)	(0.0066)	(0.0118)
Carry-forward	0.0020	0.0014	-0.0029	-0.0031
	(0.0007)	(0.0054)	(0.0059)	(0.0076)
Refundable	0.0012	0.0011	0.0050	0.0035
	(0.0027)	(0.0030)	(0.0031)	(0.0045)
Not specified	0.0027	0.0005	-0.0009	0.0002
	(0.0016)	(0.0031)	(0.0042)	(0.0043)

Credit variable(s)	Contemp.	+4 lags	+8 lags	+12 lags
Wage requirement	-0.0017	0.0013	0.0019	0.0001
	(0.0015)	(0.0033)	(0.0047)	(0.0049)
No wage requirement	-0.0012	-0.0025	-0.0042	-0.0066
	(0.0026)	(0.0036)	(0.0049)	(0.0079)
Recapture	0.0036	0.0067	0.0095	0.0123
	(0.0025)	(0.0027)	(0.0018)	(0.0029)
No recapture	0.0021	-0.0013	-0.0043	-0.0041
	(0.0011)	(0.0024)	(0.0026)	(0.0025)
Industry	-0.0001	-0.0001	-0.0016	-0.0049
	(0.0008)	(0.0030)	(0.0050)	(0.0051)
Manufacturing	-0.0001	-0.0057	-0.0052	-0.0069
	(0.0009)	(0.0012)	(0.0020)	(0.0023)
No targeting	0.0008	0.0009	-0.0039	-0.0040
	(0.0008)	(0.0023)	(0.0043)	(0.0037)
Unemployed	0.0040	0.0060	0.0066	0.0091
	(0.0021)	(0.0014)	(0.0031)	(0.0054)
Disabled	-0.0109	-0.0023	-0.0014	-0.0026
	(0.0007)	(0.0010)	(0.0030)	(0.0025)
No targeting	0.0006	-0.0010	-0.0058	-0.0054
	(0.0013)	(0.0025)	(0.0059)	(0.0053)
Temporary	-0.0017	-0.0032	-0.0033	-0.0045
	(0.0019)	(0.0021)	(0.0030)	(0.0049)
Permanent	0.0006	0.0002	-0.0011	0.0000
	(0.0008)	(0.0021)	(0.0043)	(0.0044)

The dependent variable is the first difference of the log of QCEW employment. The specification includes the first difference of the job credit dummy or dummies, and 12 lags of this first difference. In addition to the contemporaneous effect, the cumulative effects through 4, 8, and 12 lags are reported. Each panel reports a different specification. The first just includes a single dummy variable for whether there is a credit, the second includes dummy variables for whether there is a credit with each of the four possible bases for benefits, etc. In some cases the effect of a particular type of credit shown in Table 2 could not be identified because of a lack of variation in the sample period; in some cases only some of the lagged effects could be identified. The specification also includes: the contemporaneous value and 12 lags of the first difference of the state-specific shock variable (in logs); interactions of the first difference of the shock variable interacted with state dummy variables; the contemporaneous value and 12 lags of the first difference of the log of the minimum wage prevailing in the state; the contemporaneous value and 12 lags of the first difference of the control for extended UI benefits; dummy variables for each month in the sample; and interactions between calendar month dummy variables and state dummy variables. The data are monthly. There are 2,950 observations. Standard errors, reported in parentheses, are clustered at the state level.

Table 6: Estimated Effects of State Hiring Credits on Employment, Credit Count Specifications, First Differences, 2007-2011

Credit variable(s)	Contemp.	+4 lags	+8 lags	+12 lags
Credit	0.0000	0.0006	0.0007	0.0002
	(0.0009)	(0.0013)	(0.0017)	(0.0023)
New jobs	0.0000	0.0009	0.0025	0.0028
	(0.0012)	(0.0014)	(0.0018)	(0.0022)
New payroll	-0.0017	-0.0030	-0.0047	-0.0073
	(0.0012)	(0.0017)	(0.0022)	(0.0035)
New investment	0.0039	0.0029	-0.0010	0.0011
	(0.0038)	(0.0052)	(0.0056)	(0.0084)
Other criteria	0.0005	0.0043	0.0043	0.0042
	(0.0014)	(0.0027)	(0.0029)	(0.0041)
Full-time	0.0011	0.0024	0.0025	0.0032
	(0.0007)	(0.0012)	(0.0015)	(0.0017)
Full-time equiv.	-0.0047	-0.0058	-0.0053	-0.0112
	(0.0019)	(0.0020)	(0.0044)	(0.0062)
Part time	…	…	0.0003	0.0016
			(0.0021)	(0.0037)
Not specified	0.0025	-0.0003	-0.0054	-0.0072
	(0.0009)	(0.0009)	(0.0014)	(0.0016)
Equal to tax owed	-0.0043	-0.0020	-0.0021	-0.0069
	(0.0016)	(0.0025)	(0.0036)	(0.0062)
Carry-forward	0.0011	0.0028	0.0030	0.0046
	(0.0006)	(0.0014)	(0.0020)	(0.0024)
Refundable	0.0018	0.0023	0.0062	0.0048
	(0.0027)	(0.0027)	(0.0021)	(0.0037)
Not specified	0.0010	0.0003	-0.0003	-0.0001
	(0.0011)	(0.0020)	(0.0026)	(0.0027)

Credit variable(s)	Contemp.	+4 lags	+8 lags	+12 lags
Wage requirement	0.0001	0.0001	-0.0001	-0.0002
	(0.0005)	(0.0016)	(0.0020)	(0.0023)
No wage requirement	-0.0003	0.0014	0.0016	0.0006
	(0.0020)	(0.0021)	(0.0028)	(0.0040)
Recapture	-0.0006	-0.0018	-0.0013	-0.0022
	(0.0022)	(0.0036)	(0.0051)	(0.0073)
No recapture	0.0002	0.0014	0.0012	0.0009
	(0.0010)	(0.0011)	(0.0016)	(0.0019)
Industry	-0.0011	0.0010	0.0011	-0.0003
	(0.0016)	(0.0029)	(0.0038)	(0.0068)
Manufacturing	0.0001	-0.0054	-0.0050	-0.0067
	(0.0009)	(0.0012)	(0.0019)	(0.0022)
No targeting	0.0003	0.0007	0.0007	0.0005
	(0.0010)	(0.0013)	(0.0018)	(0.0020)
Unemployed	0.0040	0.0059	0.0065	0.0089
	(0.0021)	(0.0014)	(0.0031)	(0.0053)
Disabled	-0.0112	-0.0027	-0.0018	-0.0028
	(0.0009)	(0.0018)	(0.0035)	(0.0029)
No targeting	0.0001	0.0003	0.0001	-0.0007
	(0.0008)	(0.0015)	(0.0020)	(0.0026)
Temporary	-0.0002	-0.0006	0.0001	-0.0011
	(0.0014)	(0.0019)	(0.0027)	(0.0038)
Permanent	0.0002	0.0018	0.0013	0.0017
	(0.0009)	(0.0014)	(0.0018)	(0.0022)

Notes from Table 5 apply. The only difference is that counts of each type of credit, rather than dummy variables for the presence of each type of credit, are used as the hiring credit variables.

Table 7: Estimated Effects of State Hiring Credits on Employment, Credit Dummy Variables Specifications, Extended Sample Periods, Key Results

	Table 5 estimates, 2007-2011		1995-2011			1990-2011, no UI controls		
Credit variable(s)	Contemp.	+12 lags	Contemp.	+12 lags	Addl. credits	Contemp.	+12 lags	Addl. credits
Credit	0.0007	-0.0050	-0.0019	0.0016	17	-0.0003	0.0015	26
	(0.0013)	(0.0052)	(0.0017)	(0.0034)		(0.0011)	(0.0022)	
Refundable	0.0012	0.0035	0.0014	0.0038	6	0.0013	0.0038	8
	(0.0027)	(0.0045)	(0.0017)	(0.0025)		(0.0013)	(0.0021)	
Recapture	0.0036	0.0123	0.0005	0.0066	17	0.0011	0.0042	25
	(0.0025)	(0.0029)	(0.0018)	(0.0030)		(0.0012)	(0.0023)	
Unemployed	0.0040	0.0091	0.0027	-0.0003	1	0.0017	-0.0005	2
	(0.0021)	(0.0054)	(0.0023)	(0.0063)		(0.0023)	(0.0052)	

The table reports selected estimates from a subset of the specifications shown Table 5. Notes from Table 5 apply, with two exceptions. First, for both the 1995-2011 and 1990-2011 estimates, the cyclical control is constructed using 1990 as the baseline year, rather than 2006. Second, the data on UI benefit extensions are not available for the earliest years and hence the UI benefit controls are not included in the 1990-2011 estimates. However, re-estimating the models in Table 5 excluding these data had almost no effect on the estimates. The fifth and eighth columns show the number of net additional states with credits (resulting from either introducing or eliminating them) over the longer sample periods relative to the 2007-2011 period. Only the contemporaneous effect and the cumulative effects of hiring credits through 12 lags are reported.

Table 8: Estimated Effects of Lagged Employment on State Hiring Credits

Dependent variable:	Any credit				Credit with recapture provisions				Credit targeting the unemployed			
	+6 lags	+12 lags	+24 lags	+36 lags	+6 lags	+12 lags	+24 lags	+36 lags	+6 lags	+12 lags	+24 lags	+36 lags
2007-2011 (dummy)	0.1689	0.0583	0.0197	-0.1816	0.1605	-0.8620	-1.5586	-3.0965	-0.7990	-0.9702	-0.8674	-1.4925
	(0.2288)	(0.3461)	(0.5435)	(0.2774)	(0.7274)	(1.0085)	(2.0364)	(2.9028)	(1.8622)	(2.0560)	(1.7097)	(1.9036)
2007-2011 (counts)	-2.2283	-5.9223	-6.9944	-8.8806	-0.6582	-2.5848	-4.0948	-5.7503	…[a]	…	…	…
	(3.6304)	(4.1704)	(5.0000)	(6.2492)	(0.9972)	(1.7115)	(2.7175)	(3.3603)				
1995-2011 (dummy)	0.1478	0.3295	0.3867	0.2448	-0.0440	0.2201	-0.3665	-0.7078	-0.1300	-0.0374	-0.2709	-0.6274
	(0.2555)	(0.3707)	(0.4112)	(0.5715)	(0.1867)	(0.4214)	(0.4444)	(0.7952)	(0.1660)	(0.1343)	(0.2415)	(0.5969)
1995-2011 (counts)	-0.4657	-0.4489	-0.4321	-0.8974	-0.2098	0.0562	-0.7988	-1.0628	…	…	…	…
	(0.7544)	(0.9879)	(1.3371)	(1.7687)	(0.3119)	(0.6746)	(0.8569)	(1.1935)				
1990-2011 (dummy)	0.0623	0.3431	1.0683	0.6917	0.0070	0.6116	0.2452	-0.2374	-0.1366	-0.0238	-0.1904	-0.5725
	(0.2916)	(0.4377)	(0.7863)	(0.9258)	(0.2430)	(0.4175)	(0.6118)	(0.7457)	(0.1330)	(0.1011)	(0.1695)	(0.3961)
1990-2011 (counts)	-0.8054	-0.8482	-0.3520	-1.2621	-0.2420	0.1273	-0.2693	-0.6753	…	…	…	…
	(0.7649)	(1.0802)	(1.5605)	(1.8718)	(0.3269)	(0.6144)	(0.8776)	(1.0057)				

The table reports estimates for the enactment of a credit (dummy) or the net change in credits (counts). The model includes 36 monthly lags of the first difference of log employment, and the other controls listed in the notes to Table 5. Each panel reports the cumulative effects through six, 12, 24 and 36 lags of the first difference of the log of employment. The data are monthly. Standard errors, reported in parentheses, are clustered at the state level.

[a] Because no states adopt multiple credits targeting the unemployed in the sample periods considered, the dependent variable is the same for the dummy variable and count specifications, and only the former are reported.

Table 9: Estimated Effects of State Hiring Credits on Employment, Credit Dummy Variables Specifications, First Differences, 2007-2011, Adding ARRA Spending by State and Month

Credit variable(s)	Contemp.	+4 lags	+8 lags	+12 lags
ARRA variable	Contemp.	+6 lags	+12 lags	+24 lags
ARRA	-0.0015	0.0015	0.0020	0.0049
	(0.0011)	(0.0015)	(0.0020)	(0.0027)
Credit	0.0014	0.0021	-0.0012	-0.0022
	(0.0016)	(0.0015)	(0.0038)	(0.0042)
New jobs	-0.0016	-0.0023	-0.0047	-0.0066
	(0.0032)	(0.0040)	(0.0045)	(0.0064)
New payroll	-0.0010	-0.0007	-0.0015	-0.0038
	(0.0011)	(0.0017)	(0.0034)	(0.0026)
New investment	0.0042	0.0006	-0.0002	-0.0003
	(0.0046)	(0.0054)	(0.0044)	(0.0073)
Other criteria	0.0012	0.0019	0.0020	0.0016
	(0.0008)	(0.0011)	(0.0015)	(0.0026)
Full-time	0.0017	0.0028	0.0016	0.0022
	(0.0013)	(0.0018)	(0.0027)	(0.0048)
Full-time equiv.	-0.0041	-0.0055	-0.0058	-0.0117
	(0.0016)	(0.0017)	(0.0039)	(0.0052)
Part time	…	…	-0.0006	0.0016
			(0.0008)	(0.0038)
Not specified	0.0015	-0.0003	-0.0033	-0.0041
	(0.0005)	(0.0010)	(0.0016)	(0.0021)
Equal to tax owed	-0.0039	-0.0036	-0.0056	-0.0136
	(0.0016)	(0.0050)	(0.0062)	(0.0112)
Carry-forward	0.0019	0.0013	-0.0025	-0.0020
	(0.0007)	(0.0053)	(0.0059)	(0.0075)
Refundable	0.0021	0.0015	0.0043	0.0021
	(0.0026)	(0.0031)	(0.0035)	(0.0054)
Not specified	0.0030	0.0012	0.0005	0.0009
	(0.0016)	(0.0031)	(0.0043)	(0.0043)

Credit variable(s)	Contemp.	+4 lags	+8 lags	+12 lags
Wage requirement	-0.0014	0.0012	0.0013	-0.0007
	(0.0014)	(0.0033)	(0.0048)	(0.0050)
No wage requirement	-0.0008	-0.0015	-0.0026	-0.0051
	(0.0023)	(0.0033)	(0.0046)	(0.0078)
Recapture	0.0039	0.0064	0.0081	0.0101
	(0.0023)	(0.0025)	(0.0020)	(0.0027)
No recapture	0.0026	0.0004	-0.0020	-0.0019
	(0.0013)	(0.0024)	(0.0019)	(0.0020)
Industry	-0.0006	-0.0008	-0.0019	-0.0057
	(0.0009)	(0.0029)	(0.0049)	(0.0053)
Manufacturing	-0.0002	-0.0068	-0.0074	-0.0090
	(0.0009)	(0.0010)	(0.0017)	(0.0020)
No targeting	0.0013	0.0031	-0.0011	-0.0020
	(0.0010)	(0.0013)	(0.0025)	(0.0028)
Unemployed	0.0050	0.0065	0.0060	0.0084
	(0.0020)	(0.0015)	(0.0033)	(0.0050)
Disabled	-0.0105	-0.0012	-0.0009	-0.0013
	(0.0007)	(0.0010)	(0.0026)	(0.0022)
No targeting	0.0014	0.0021	-0.0014	-0.0025
	(0.0016)	(0.0016)	(0.0039)	(0.0043)
Temporary	-0.0011	-0.0031	-0.0038	-0.0049
	(0.0019)	(0.0018)	(0.0026)	(0.0042)
Permanent	0.0008	0.0014	0.0013	0.0013
	(0.0009)	(0.0017)	(0.0027)	(0.0035)

Notes from Table 5 apply. We add contemporaneous ARRA obligated spending, and 24 lags, in logs. Spending is entered in logs so zeros are replaced with ones in levels before taking logs. Cumulative effects through six, 12, and 24 lags are reported. We report estimates of the coefficients of ARRA spending only for the first specification; results were similar for the other models.

Table 10: Estimated Effects of State Hiring Credits on Employment, Credit Dummy Variables Specifications, First Differences, 2007-2011, with HIRE Act Included

Credit variable(s)	Contemp.	+4 lags	+8 lags	+12 lags
Credit	0.0013	0.0002	-0.0007	-0.0037
	(0.0012)	(0.0014)	(0.0021)	(0.0024)
New jobs	0.0008	-0.0002	-0.0014	-0.0028
	(0.0011)	(0.0013)	(0.0017)	(0.0024)
New payroll	-0.0004	-0.0005	-0.0001	-0.0007
	(0.0006)	(0.0010)	(0.0012)	(0.0017)
New investment	0.0039	0.0013	-0.0014	0.0004
	(0.0052)	(0.0059)	(0.0049)	(0.0078)
Other criteria	0.0003	0.0023	0.0029	0.0027
	(0.0009)	(0.0012)	(0.0015)	(0.0026)
Full-time	0.0010	0.0016	0.0007	0.0025
	(0.0009)	(0.0026)	(0.0052)	(0.0070)
Full-time equiv.	-0.0047	-0.0059	-0.0055	-0.0112
	(0.0017)	(0.0020)	(0.0045)	(0.0063)
Part time	…	…	-0.0006	0.0013
			(0.0008)	(0.0041)
Not specified	0.0014	-0.0004	-0.0005	-0.0030
	(0.0009)	(0.0011)	(0.0015)	(0.0025)
Equal to tax owed	-0.0047	-0.0043	-0.0061	-0.0145
	(0.0019)	(0.0054)	(0.0066)	(0.0118)
Carry-forward	0.0020	0.0013	-0.0025	-0.0028
	(0.0007)	(0.0055)	(0.0061)	(0.0075)
Refundable	0.0012	0.0010	0.0050	0.0040
	(0.0028)	(0.0032)	(0.0035)	(0.0050)
Not specified	0.0009	0.0004	-0.0004	-0.0006
	(0.0008)	(0.0012)	(0.0016)	(0.0022)

Credit variable(s)	Contemp.	+4 lags	+8 lags	+12 lags
Wage requirement	-0.0017	0.0013	0.0016	-0.0003
	(0.0015)	(0.0033)	(0.0049)	(0.0048)
No wage requirement	0.0000	-0.0017	-0.0016	-0.0037
	(0.0008)	(0.0015)	(0.0018)	(0.0035)
Recapture	0.0036	0.0066	0.0095	0.0122
	(0.0025)	(0.0028)	(0.0019)	(0.0030)
No recapture	0.0005	-0.0005	-0.0004	-0.0010
	(0.0007)	(0.0008)	(0.0012)	(0.0016)
Industry	-0.0001	-0.0003	-0.0018	-0.0053
	(0.0008)	(0.0030)	(0.0050)	(0.0051)
Manufacturing	-0.0002	-0.0061	-0.0055	-0.0070
	(0.0009)	(0.0012)	(0.0020)	(0.0023)
No targeting	0.0000	-0.0013	-0.0022	-0.0050
	(0.0009)	(0.0013)	(0.0016)	(0.0019)
Unemployed	-0.0002	-0.0017	-0.0010	-0.0039
	(0.0012)	(0.0019)	(0.0029)	(0.0038)
Disabled	-0.0110	-0.0025	-0.0016	-0.0028
	(0.0007)	(0.0011)	(0.0030)	(0.0026)
No targeting	0.0007	-0.0009	-0.0057	-0.0051
	(0.0013)	(0.0024)	(0.0059)	(0.0053)
Temporary	0.0004	-0.0017	-0.0023	-0.0040
	(0.0009)	(0.0013)	(0.0016)	(0.0030)
Permanent	0.0004	0.0000	-0.0016	-0.0007
	(0.0008)	(0.0019)	(0.0041)	(0.0041)

Notes from Table 5 apply. The inclusion of the HIRE Act means that in the month in which it takes effect features of that credit are coded as "turning on" in any state that did not already have those features. The features that take effect in each state are listed in the last two columns of Table 4.

Table 11: Estimated Effects of State Hiring Credits on Employment, Credit Dummy Variables Specifications, First Differences, 2007-2011, Classifying Value of Hiring Credits Targeting the Unemployed, With and Without HIRE Act Included

Not including HIRE Act					Including HIRE Act				
Credit variable(s)	Contemp.	+4 lags	+8 lags	+12 lags	Credit variable(s)	Contemp.	+4 lags	+8 lags	+12 lags
Unemployed	0.0024	0.0075	0.0112	0.0200	Unemployed	0.0012	-0.0003	0.0022	0.0023
≤ $1000 value	(0.0009)	(0.0013)	(0.0026)	(0.0032)	≤ $1000 value	(0.0005)	(0.0027)	(0.0024)	(0.0044)
Unemployed	0.0049	0.0055	0.0050	0.0052	Unemployed	0.0049	0.0055	0.0050	0.0051
> $1000 value	(0.0026)	(0.0018)	(0.0041)	(0.0060)	> $1000 value	(0.0026)	(0.0019)	(0.0040)	(0.0061)
Difference	-0.0025	0.0020	0.0062	0.0147	Difference	-0.0036	-0.0057	-0.0028	-0.0028
	(0.0027)	(0.0020)	(0.0046)	(0.0068)		(0.0028)	(0.0035)	(0.0049)	(0.0080)
Disabled	-0.0109	-0.0023	-0.0014	-0.0026	Disabled	-0.0109	-0.0024	-0.0015	-0.0027
	(0.0007)	(0.0011)	(0.0030)	(0.0025)		(0.0007)	(0.0011)	(0.0029)	(0.0026)
No targeting	0.0006	-0.0010	-0.0057	-0.0052	No targeting	0.0006	-0.0010	-0.0057	-0.0051
	(0.0013)	(0.0025)	(0.0060)	(0.0055)		(0.0013)	(0.0025)	(0.0059)	(0.0053)

Notes from Table 5 apply. The specification corresponds to the second-to-last one in that table, augmented with interactions with the value of the credit targeting the unemployed.

Table 12: Estimated Effects of State Hiring Credits on Employment, Credit Dummy Variables Specifications, First Differences, 2007-2011, Quarterly Workforce Indicators Data

Credit variable(s)	Contemp.	+2 lags	+4 lags
Credit	0.0027	-0.0026	-0.0049
	(0.0029)	(0.0045)	(0.0051)
New jobs	0.0066	0.0022	0.0019
	(0.0042)	(0.0067)	(0.0082)
New payroll	-0.0077	-0.0095	-0.0125
	(0.0061)	(0.0074)	(0.0090)
New investment	-0.0118	-0.0149	-0.0151
	(0.0046)	(0.0075)	(0.0090)
Other criteria	0.0087	0.0040	0.0083
	(0.0020)	(0.0026)	(0.0045)
Full-time	0.0027	0.0044	0.0054
	(0.0027)	(0.0076)	(0.0120)
Full-time equiv.	-0.0073	-0.0071	-0.0091
	(0.0020)	(0.0067)	(0.0073)
Part time	…	0.0014	-0.0069
		(0.0016)	(0.0044)
Not specified	0.0051	-0.0081	-0.0158
	(0.0021)	(0.0032)	(0.0036)
Equal to tax owed	-0.0037	-0.0041	-0.0060
	(0.0018)	(0.0048)	(0.0089)
Carry-forward	-0.0012	-0.0148	-0.0169
	(0.0108)	(0.0214)	(0.0202)
Refundable	-0.0013	-0.0010	-0.0016
	(0.0031)	(0.0052)	(0.0084)
Not specified	0.0028	-0.0030	-0.0044
	(0.0029)	(0.0044)	(0.0066)

Credit variable(s)	Contemp.	+2 lags	+4 lags
Wage requirement	-0.0007	0.0011	-0.0036
	(0.0034)	(0.0060)	(0.0077)
No wage requirement	0.0001	0.0003	-0.0041
	(0.0038)	(0.0069)	(0.0082)
Recapture	0.0064	0.0161	0.0188
	(0.0037)	(0.0032)	(0.0079)
No recapture	0.0059	0.0001	-0.0013
	(0.0024)	(0.0047)	(0.0064)
Industry	-0.0006	0.0034	-0.0001
	(0.0057)	(0.0075)	(0.0084)
Manufacturing	-0.0019	-0.0131	-0.0168
	(0.0013)	(0.0029)	(0.0036)
No targeting	0.0057	0.0045	0.0048
	(0.0022)	(0.0051)	(0.0069)
Unemployed	0.0058	0.0091	0.0159
	(0.0011)	(0.0059)	(0.0078)
Disabled	-0.0133	-0.0019	-0.0086
	(0.0017)	(0.0034)	(0.0050)
No targeting	0.0026	-0.0032	-0.0058
	(0.0029)	(0.0044)	(0.0051)
Temporary	-0.0009	0.0000	0.0001
	(0.0025)	(0.0041)	(0.0058)
Permanent	0.0052	0.0057	0.0044
	(0.0028)	(0.0057)	(0.0067)

The dependent variables is the first difference of the log of employment using QWI data. The QWI data are quarterly, rather than monthly, so all data had to be collapsed to the quarterly level. The hiring credit dummy variables are defined as 1 if the credit is in place for all three months of a quarter, 2/3 if it is in place for two months, 1/3 if it is in place for one month, and zero otherwise. The notes from Table 5 apply, although with 12 monthly lags replaced with four quarterly lags wherever appropriate. Only the contemporaneous effect and the cumulative effects through two and four quarterly lags are reported.

Table 13: Estimated Effects of State Hiring Credits on Hiring, Credit Dummy Variables Specifications, First Differences, 2007-2011, Quarterly Workforce Indicators Data

Credit variable(s)	Contemp.	+2 lags	+4 lags
Credit	-0.0262	-0.0459	-0.0270
	(0.0249)	(0.0666)	(0.0747)
New jobs	-0.0365	-0.0467	-0.0312
	(0.0268)	(0.0630)	(0.0674)
New payroll	0.0394	0.0328	0.0565
	(0.0399)	(0.0405)	(0.0747)
New investment	0.0080	-0.0179	-0.1327
	(0.0333)	(0.0680)	(0.0767)
Other criteria	-0.0023	0.0355	0.0719
	(0.0233)	(0.0249)	(0.0732)
Full-time	0.0810	0.1128	0.1543
	(0.0655)	(0.0841)	(0.0782)
Full-time equiv.	-0.0152	-0.0148	0.0118
	(0.0204)	(0.0343)	(0.0614)
Part time	…	0.0535	0.0008
		(0.0117)	(0.0641)
Not specified	-0.1370	-0.0998	-0.1609
	(0.0224)	(0.0250)	(0.0325)
Equal to tax owed	-0.0031	0.0455	0.0836
	(0.0174)	(0.0130)	(0.0618)
Carry-forward	-0.0853	-0.0665	-0.0704
	(0.0532)	(0.0615)	(0.0640)
Refundable	0.0265	-0.0010	0.0294
	(0.0110)	(0.0228)	(0.0609)
Not specified	0.0011	0.0118	-0.0003
New jobs	(0.0182)	(0.0444)	(0.0395)

Credit variable(s)	Contemp.	+2 lags	+4 lags
Wage requirement	0.0150	0.0126	0.0096
	(0.0173)	(0.0298)	(0.0296)
No wage requirement	-0.0179	0.0103	0.0033
	(0.0186)	(0.0319)	(0.0542)
Recapture	0.1410	0.1483	0.1494
	(0.0640)	(0.0850)	(0.0613)
No recapture	-0.0102	-0.0234	-0.0282
	(0.0279)	(0.0499)	(0.0767)
Industry	-0.0226	-0.0287	-0.0321
	(0.0210)	(0.0419)	(0.1030)
Manufacturing	0.0007	0.0975	0.0981
	(0.0198)	(0.0341)	(0.0383)
No targeting	0.0227	0.0399	0.0924
	(0.0317)	(0.0630)	(0.0840)
Unemployed	0.0955	0.1121	0.1714
	(0.0416)	(0.0561)	(0.0463)
Disabled	0.0506	0.0401	0.0044
	(0.0206)	(0.0316)	(0.0640)
No targeting	-0.0284	-0.0518	-0.0309
	(0.0244)	(0.0632)	(0.0706)
Temporary	0.0177	0.0276	0.0335
	(0.0252)	(0.0322)	(0.0429)
Permanent	-0.0093	0.0081	0.0338
	(0.0174)	(0.0506)	(0.0576)

The dependent variable is the first difference of the log of hiring. Notes from Table 12 apply.

Appendix Table A1: Details of Job Creation Hiring Credits, 1969-2012

State	Program	Initial date	Final date	Duration of Program (yrs.)	Temporary/ permanent	Type of benefit provided	Eligibility requirements	Basis for providing benefits	Value per job created	Limitations to the program's benefits	Type of job required	Industry Targeting	Targeting by type of business	Targeting by type of worker	Recapture provisions	Wage requirements	Geographic provisions
AL	Income tax capital credit	1995 (Jun)	Current	17	Temporary	Tax credit	Jobs and investment	Jobs and investment	High	Equal to tax owed	Full-time	Targeted	-	-	Yes	Yes	Yes
AL	Reemployment act	2010 (Jan)	Current	2	Temporary	Tax credit	Jobs	Payroll	High	Equal to tax owed	Full-time	-	-	Unemployed	No	Yes	No
AL	Full employment act of 2011	2011 (Jun)	Current	1	Permanent	Tax credit	Jobs	Jobs	Low	Equal to tax owed	Full-time	-	Small business	-	No	Yes	No
AZ	Credit for employment of temporary assistance for needy families recipients (TANF)	1998 (Jan)	Current	14	Permanent	Tax credit	Jobs	Jobs and payroll	Low	Carry-forward	Full-time	-	-	Welfare recipients	No	Yes	No
AZ	Credit for new employment	2011 (Jun)	Current	1	Permanent	Tax credit	Jobs	Jobs	High	Carry-forward	Full-time	-	-	-	No	No	No
AZ	Quality jobs tax credit (Premium credit for new employment)	2011 (Jun)	Expires 2017 (Jun)	1	Temporary	Tax credit	Jobs and investment	Jobs	High	Carry-forward	Full-time	-	-	-	No	Yes	Yes
AR	Arkansas economic development act	1995 (Jan)	Replaced 2003 (Mar)	8	Permanent	Tax credit	Jobs, payroll, and investment	Jobs and payroll	Not determinable	Carry-forward	Full-time	-	-	-	Yes	Yes	Yes
AR	Job-creation tax credit (Advantage Arkansas)	2003 (Mar)	Current	9	Permanent	Tax credit	Payroll	Payroll	Low	Carry-forward	Full-time	-	-	-	Yes	Yes	Yes
AR	Investment income tax credit (ArkPlus)	2003 (Mar)	Current	9	Permanent	Tax credit	Payroll and investment	Jobs, payroll, and investment	High	Carry-forward	Full-time	-	-	-	No	No	Yes
AR	Payroll rebate (Create rebate)	2003 (Mar)	Current	9	Permanent	Tax credit	Jobs and payroll	Jobs and payroll	High	Equal to tax owed	Full-time	-	-	-	No	Yes	Yes
CA	Jobs tax credit (Credit for percentage of wages paid to certain employees)	1986 (Sept)	Expired 1993 (Dec)	7	Temporary	Tax credit	Jobs	Jobs and payroll	Low	Not specified	Not specified	-	-	Welfare recipients	No	No	No
CA	Credit against net tax - Increase in qualified full-time employees (New jobs credit)	2009 (Jan)	Current	3	Undetermined	Tax credit	Jobs	Jobs	High	Not specified	Full-time	-	Small business	-	No	No	No
CO	Strategic fund program	1987 (Jan)	Current	25	Permanent	Grant	Jobs and other requirements	Jobs	High	Not specified	Full-time	-	-	-	No	Yes	Yes
CO	Performance-based incentive for new job creation – New jobs incentives cash fund (Job creation performance incentive fund)	2006 (Jan)	Expired 2010 (Dec)	4	Temporary	Grant	Jobs	Jobs and payroll	High	Not specified	Full-time	-	-	-	No	Yes	Yes
CO	Job growth incentive tax credit	2009 (Jan)	Expires 2014 (Dec)	3	Temporary	Tax credit	Jobs	Jobs	High	Carry-forward	Full-time equivalent	-	-	-	No	Yes	Yes
CT	Tax credit for taxpayers occupying new facilities and creating new jobs	1993 (Jul)	Repealed 1997 (Dec)	4	Temporary	Tax credit	Jobs and other requirements	Jobs and others	Not determinable	Equal to tax owed	Full-time equivalent	-	-	-	Yes	No	No
CT	Hiring incentive credit	1997 (Jul)	Current	14	Permanent	Tax credit	Jobs	Jobs	High	Carry-forward	Full-time	-	-	Welfare recipients	No	No	No

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CT	Employment expansion project credit	2005 (Sept)	Current	6	Permanent	Tax credit	Jobs and other requirements	Jobs	Not determinable	Not specified	Full-time	-	Large business	-	Yes	No	No
CT	Job creation credit	2006 (Jan)	Expired 2011 (Dec)	5	Permanent	Tax credit	Jobs	Jobs	High	Equal to tax owed	Full-time	-	-	-	Yes	No	No
CT	Small business job creation tax credit	2010 (Jan)	Expires 2012 (Dec)	2	Temporary	Tax credit	Jobs	Jobs	High	Equal to tax owed	Full-time	-	Small business	-	No	No	No
CT	Vocational rehabilitation job creation tax credit	2010 (Jan)	Expired 2011 (Dec)	1	Permanent	Tax credit	Jobs	Jobs	High	Equal to tax owed	Full-time equivalent	-	-	Disabled	No	No	No
CT	Job expansion tax credit (JET)	2012 (Jan)	Expires 2013 (Dec)	0	Temporary	Tax credit	Jobs	Jobs	High	Equal to tax owed	Full-time	-	-	Disabled, unemployed	No	No	No
DE	New job creation credit, formerly Blue collar job act (Investment & employment credit against corporation income tax)	1979 (Jun)	Current	33	Temporary	Tax credit	Jobs and investment	Jobs	Low	Carry-forward	Full-time	-	-	-	No	No	Yes
DE	Delaware strategic fund	1994 (Jun)	Current	18	Permanent	Grant	Jobs and investment	Jobs and other	Discretionary	Not specified	Not specified	-	-	-	No	No	Yes
DE	New economy jobs program credit	2007 (Jun)	Expires 2013 (Dec)	5	Temporary	Tax credit	Jobs	Jobs and payroll	High	Refundable	Full-time equivalent	-	-	-	Yes	Yes	Yes
FL	High impact business tax credit	1997 (Jul)	Current	14	Permanent	Grant	Jobs and investment	Jobs and investment	High	Not specified	Full-time equivalent	Targeted	-	-	No	No	No
FL	Capital investment tax credit	1998 (Jul)	Current	13	Permanent	Tax credit	Jobs and investment	Investment	High	Equal to tax owed	Full-time equivalent	Targeted	-	-	No	Yes	No
FL	Jobs for the unemployed tax credit program	2010 (Jul)	Expired 2012 (Jun)	1	Temporary	Tax credit	Jobs	Jobs	Low	Carry-forward	Full-time	Targeted	-	Unemployed	Yes	Yes	No
GA	Job tax credit	1994 (Sept)	Current	17	Not determinable	Tax credit	Jobs	Jobs	High	Carry-forward	Full-time	Targeted	-	-	Yes	Yes	Yes
GA	Headquarter jobs tax credit	2001 (Jan)	Current	11	Not determinable	Tax credit	Jobs and investment	Jobs	High	Carry-forward	Full-time	-	Headquarters	-	Yes	Yes	Yes
GA	MEGA project tax credit	2003 (Jan)	Current	9	Permanent	Tax credit	Jobs and investment	Jobs	High	Carry-forward	Full-time	-	Large business	-	Yes	Yes	Yes
GA	Job tax credit bonus for existing businesses	2006 (Jan)	Expired 2010 (Dec)	4	Temporary	Tax credit	Jobs	Jobs	Low	Not specified	Full-time	Targeted	-	-	No	Yes	Yes
GA	Quality jobs tax credit	2009 (Jan)	Current	3	Permanent	Tax credit	Jobs	Jobs	High	Carry-forward	Full-time	-	-	-	Yes	Yes	No
HI	Credit for employment of vocational rehabilitation referrals	1990 (Jan)	Current	22	Permanent	Tax credit	Jobs	Jobs and payroll	High	Carry-forward	Not specified	-	-	Disabled	No	No	No
ID	New jobs income tax credit ($500) (Special credit available – new employees)	2002 (Jan)	Replaced 2011 (April)	9	Permanent	Tax credit	Jobs	Jobs	Low	Carry-forward	Part-time	Targeted	-	-	No	No	No

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ID	New jobs income tax credit ($1000) (Special credit available – new employees)	2004 (Jan)	Replaced 2011 (April)	7	Permanent	Tax credit	Jobs	Jobs	Low	Carry-forward	Part-time	Targeted	-	-	No	Yes	No
ID	Small employer new jobs tax credit	2005 (Jan)	Expires 2020 (Dec)	7	Temporary	Tax credit	Jobs and investment	Jobs	High	Carry-forward	Full-time	-	Small business	-	Yes	Yes	No
ID	Hire one tax credit (Special credit available – new employees)	2011 (April)	Expires 2013 (Dec)	1	Temporary	Tax credit	Jobs	Jobs and payroll	High	Refundable	Part-time	-	-	-	No	Yes	No
IL	Large business development program (LBDP)	1991 (Jul)	Current	20	Permanent	Grant	Jobs and investment	Jobs and investment	Discretionary	Not specified	Full-time equivalent	Targeted	Large business	-	Yes	No	No
IL	Economic development for a growing economy tax credit program (EDGE)	1999 (Jan)	Expires 2016 (Dec)	13	Permanent	Tax credit	Jobs and investment	Jobs and payroll	Discretionary	Carry-forward	Full-time	-	-	-	No	No	No
IL	Small business job creation tax credit	2010 (Jul)	Expires 2016 (Jun)	1	Temporary	Tax credit	Jobs	Jobs	High	Carry-forward	Full-time	-	Small business	-	No	Yes	No
IN	Economic development for a growing economy tax credit (EDGE)	1994 (Jan)	Current	18	Permanent	Tax credit	Jobs and other requirements	Jobs and payroll	Discretionary	Refundable	Full-time	-	-	-	Yes	Yes	Yes
IN	Headquarters relocation tax credit	2006 (Jan)	Current	6	Permanent	Tax credit	Jobs and investment	Others	Not determinable	Carry-forward	Not specified	-	Headquarters	-	No	No	No
IN	New employers tax credit	2010 (Jan)	Expires 2012 (Dec)	2	Temporary	Tax credit	Jobs	Payroll	High	Carry-forward	Full-time	-	-	-	No	No	No
IA	New jobs tax credit	1985 (Jan)	Current	27	Permanent	Tax credit	Jobs and other requirements	Jobs and payroll	High	Carry-forward	Full-time	-	-	-	No	No	No
IA	New jobs and income act	1994 (May)	Replaced 2005 (Jun)	11	Permanent	Tax credit	Jobs and investment	Jobs	High	Not specified	Full-time	-	-	-	Yes	Yes	No
IA	High quality jobs program (formerly High quality job creation program)	2005 (Jun)	Current	7	Permanent	Tax credit	Jobs and investment	Jobs	High	Carry-forward and refundable	Full-time equivalent	-	-	-	Yes	Yes	No
IA	Wage-benefit tax credit	2005 (Jun)	Repealed 2008 (Jul)	3	Temporary	Tax credit	Jobs	Jobs and payroll	High	Refundable	Full-time	-	-	-	No	Yes	Yes
KS	Business and job development credit (Credit against tax for establishment of qualified business facility)	1976 (Jan)	Current	36	Not determinable	Tax credit	Jobs and investment	Jobs	Low	Equal to tax owed	Part-time	-	-	-	No	No	No
KS	Enterprise zone job creation tax credit (Kansas enterprise zone act)	1993 (Jan)	Current	19	Permanent	Tax credit	Jobs and investment	Jobs	Discretionary	Carry-forward	Part-time	-	-	-	No	No	Yes

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KS	Promoting employment across Kansas program (Peak)	2009 (Jul)	Current	2	Permanent	Tax credit	Jobs	Payroll	High	Not specified	Part-time	-	-	-	No	Yes	Yes
KY	Unemployment income tax credit (Credit allowed for hiring person classified as unemployed)	1982 (Jul)	Current	29	Permanent	Tax credit	Jobs	Jobs	Low	Equal to tax owed	Part-time	-	-	Unemployed	No	No	No
KY	Kentucky industrial revitalization act (KIRA)	1992 (Jul)	Current	19	Permanent	Tax credit	Jobs and other requirements	Investment and other	Discretionary	Not specified	Full-time	Targeted	-	-	No	No	No
KY	Kentucky business investment program (replaces KREDA, KEOZ, KJDA, and KIDA programs)[a]	2009 (Jun)	Current	3	Permanent	Tax credit	Jobs and other requirements	Other	High	Carry-forward	Full-time	Targeted	-	-	Yes	Yes	Yes
KY	Small business investment credit (KSBIC)	2009 (Jun)	Current	3	Permanent	Tax credit	Jobs and investment	Jobs and investment	Discretionary	Carry-forward	Full-time	-	Small business	-	No	Yes	No
LA	Credit for new jobs	1980 (Jan)	Current	32	Permanent	Tax credit	Jobs	Jobs	High	Carry-forward	Part-time	-	-	-	No	No	Yes
LA	Credit for employment of the previously unemployed	1992 (Jan)	Current	20	Permanent	Tax credit	Jobs	Jobs	Low	Carry-forward	Full-time	-	-	Unemployed, welfare recipients	No	No	No
LA	Quality jobs program act	1995 (Jul)	Expires 2017 (Dec)	16	Temporary	Tax credit	Jobs	Jobs and payroll	High	Refundable	Full-time	Targeted	-	-	Yes	Yes	Yes
LA	Capital investment tax credit	1996 (Jul)	Expired 2000 (Jun)	3	Temporary	Tax credit	Jobs and investment	Investment	Discretionary	Refundable	Full-time	-	-	-	No	Yes	No
ME	Jobs & investment tax credit	1979 (Jan)	Current	33	Permanent	Tax credit	Jobs and investment	Payroll	High	Carry-forward	Not specified	-	-	-	Yes	No	No
MD	Job creation tax credit	1996 (Jan)	Expires 2019 (Dec)	16	Temporary	Tax credit	Jobs	Jobs and payroll	Low	Carry-forward	Full-time	-	-	-	Yes	Yes	Yes
MD	Businesses that create new jobs tax credit	1997 (Oct)	Current	14	Temporary	Tax credit	Jobs and other requirements	Other	Not determinable	Carry-forward	Full-time	-	-	-	Yes	Yes	Yes
MD	Disability employment tax credit	1997 (Oct)	Expired 2012 (Jun)	14	Temporary	Tax credit	Jobs	Payroll	High	Carry-forward	Not specified	-	-	Disabled	No	No	No
MD	Job creation and recovery tax credit	2010 (Mar)	Expired 2010 (Dec)	0	Temporary	Tax credit	Jobs	Jobs	High	Refundable	Full-time	-	-	Unemployed	No	No	No
MI	Entrepreneurial credit	2008 (Jan)	Expired 2010 (Dec)	2	Temporary	Tax credit	Jobs and investment	Payroll	Not determinable	Equal to tax owed	Full-time equivalent	Targeted	-	-	Yes	No	No
MA	Full employment program credit	1995 (Nov)	Current	16	Permanent	Tax credit	Jobs	Jobs	High	Carry-forward	Full-time	-	-	Welfare recipients	No	No	No
MA	Economic development incentive program –	2010 (Jan)	Current	2	Permanent	Tax credit	Jobs	Investment	Not determinable	Not specified	Full-time	-	-	-	Yes	No	No

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	Enhanced expansion project																
MI	Michigan economic growth authority (MEGA)	1995 (April)	Current	17	Permanent	Tax credit	Jobs and other requirements	Jobs, payroll, investment, and other	High	Refundable	Full-time	Targeted	-	-	Yes	Yes	Yes
MN	Investment fund	1996 (Jul)	Current	15	Permanent	Grant	Jobs and investment	Jobs, investment, and other	Discretionary	Not specified	Full-time equivalent	-	-	-	Yes	Yes	No
MS	Qualified business tax credit	1983 (Jan)	Current	29	Temporary	Tax credit	Jobs and investment	Jobs	Low	Equal to tax owed	Full-time	-	-	-	No	No	Yes
MS	Jobs tax credit	1989 (Jan)	Current	23	Permanent	Tax credit	Jobs	Jobs and payroll	High	Carry-forward	Full-time	Targeted	-	-	No	No	Yes
MS	Advantage jobs incentive program	2000 (Aug)	Current	11	Permanent	Grant	Jobs	Jobs and payroll	High	Not specified	Full-time	-	-	-	No	Yes	Yes
MS	Jobs tax credit for large business (Permanent business enterprise job tax credit)	2000 (Nov)	Current	11	Permanent	Tax credit	Jobs and investment	Jobs	High	Carry-forward	Full-time	-	Large business	-	No	No	No
MS	Job creation tax credit (450 or more full-time jobs)	2005 (Jan)	Current	7	Permanent	Tax credit	Jobs	Jobs	High	Carry-forward	Full-time	-	-	-	No	No	No
MS	Qualified business or industry job tax credit	2007 (May)	Current	5	Permanent	Tax credit	Jobs and investment	Jobs	High	Carry-forward	Full-time	Targeted	-	-	No	No	No
MO	Business facility tax credit program (Credit for new or expanded business facility)	1980 (Jan)	Current	32	Permanent	Tax credit	Jobs and investment	Jobs	Low	Refundable	Part-time	-	-	-	No	No	Yes
MO	Business use incentives for large scale development	1997 (Jan)	Current	15	Permanent	Tax credit	Jobs and investment	Payroll, investment and others	Discretionary	Refundable	Full-time	Targeted	Large business	-	Yes	Yes	Yes
MO	Quality jobs program	2005 (Jul)	Current	6	Permanent	Tax credit	Jobs	Payroll	High	Refundable	Full-time	-	-	-	No	Yes	No
MO	Manufacturing jobs act	2010 (Oct)	Expires 2016 (Oct)	1	Temporary	Tax credit	Jobs and investment	Payroll	Low	Not specified	Full-time	Manu.	-	-	Yes	Yes	No
MT	New or expanded industry credit	1975 (Jan)	Current	37	Permanent	Tax credit	Jobs	Jobs and payroll	Low	Not specified	Full-time	Manu.	-	-	No	No	No
NE	Employment and investment growth act	1987 (Jan)	Expired 2005 (Dec)	18	Permanent	Tax credit	Jobs and investment	Payroll, investment, and other	High	Carry-forward	Full-time equivalent	-	-	-	Yes	No	No
NE	Quality jobs act	1995 (Feb)	Repealed 2000 (Jan)	4	Temporary	Tax credit	Jobs and investment	Payroll	High	Carry-forward	Full-time equivalent	-	-	-	Yes	Yes	No
NE	Nebraska advantage act	2006 (Jan)	Expires 2015 (May)	6	Temporary	Tax credit	Jobs and investment	Jobs, payroll, investment, and other	High	Carry-forward	Full-time equivalent	-	-	-	Yes	Yes	Yes
NE	Invest Nebraska act	2001 (May)	Expired 2005 (May)	4	Temporary	Tax credit	Jobs and investment	Payroll	High	Carry-forward	Full-time equivalent	-	-	-	Yes	Yes	No
NV	Sales and use tax abatement (Abatement for eligible machinery or equipment used by	1995 (Jul)	Current	16	Permanent	Tax credit	Jobs and investment	Jobs, investment, and other	Not determinable	Equal to tax owed	Full-time	-	-	-	Yes	Yes	Yes

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	certain new or expanded businesses)																
NV	Modified business tax abatement (Partial abatement of tax during initial period of operation of employer)	2005 (Jul)	Current	6	Permanent	Tax credit	Jobs and investment	Jobs, payroll, investment, and other	Not determinable	Equal to tax owed	Full-time	-	-	-	Yes	Yes	Yes
NJ	New jobs investment tax credit	1993 (Jul)	Current	18	Permanent	Tax credit	Jobs and investment	Jobs and other	Not determinable	Equal to tax owed	Full-time equivalent	-	-	-	Yes	Yes	No
NJ	Manufacturing equipment and employment investment tax credit	1995 (Aug)	Expires 2016 (Nov)	16	Temporary	Tax credit	Jobs and investment	Jobs and other	High	Carry-forward	Full-time equivalent	-	-	-	No	No	No
NJ	Business employment incentive program (BEIP)	1996 (May)	Current	16	Permanent	Grant	Jobs	Jobs, investment, and other	High	Equal to tax owed	Full-time	-	-	-	Yes	Yes	No
NJ	Business retention and relocation assistance act grant (BRRAG)	1996 (May)	Current	16	Permanent	Tax credit	Jobs and other requirements	Jobs	High	Equal to tax owed	Full-time	-	-	-	No	No	No
NJ	Income tax credit for employment of certain handicapped persons	2006 (Jan)	Current	6	Permanent	Tax credit	Jobs	Payroll	Low	Carry-forward	Part-time	-	-	Disabled	No	No	No
NJ	InvestNJ business grant program – Employment grant component for eligible businesses	2008 (Dec)	Expired 2010 (Dec)	2	Temporary	Grant	Jobs	Jobs	High	Not specified	Full-time	-	-	-	No	No	No
NM	Investment credit act – Employment requirements	1983 (Jan)	Current	29	Permanent	Tax credit	Jobs and investment	Other	Not determinable	Carry-forward	Full-time equivalent	Manu.	-	-	No	No	No
NM	Welfare to work tax credit	1998 (Jan)	Current	14	Permanent	Tax credit	Jobs and other requirements	Jobs and other	High	Carry-forward	Not specified	-	-	Welfare recipients	No	Yes	No
NM	High-wage jobs tax credits	2004 (Jul)	Expires 2015 (Jun)	7	Temporary	Tax credit	Jobs and other requirements	Payroll	High	Refundable	Not specified	-	-	-	No	Yes	Yes
NY	Investment tax credit – Additional investment tax credit	1976 (Jan)	Expired 1986 (Dec)	10	Temporary	Tax credit	Jobs and investment	Investment	Not determinable	Carry-forward	Not specified	Targeted	-	-	No	No	No
NY	Investment tax credit - Employment incentive credit	1987 (Jan)	Current	25	Permanent	Tax credit	Jobs and investment	Jobs and investment	Not determinable	Carry-forward	Not specified	Targeted	-	-	No	No	No
NY	Jobs now	1996 (Jul)	Current	15	Permanent	Grant	Jobs	Jobs and payroll	Discretionary	Not specified	Full-time	Targeted	-	-	No	No	No
NY	Credit for employment of persons with disabilities	1997 (Jan)	Current	15	Permanent	Tax credit	Jobs	Payroll	High	Carry-forward	Full-time	-	-	Disabled	No	No	No
NY	Excelsior jobs tax credit	2010 (Jul)	Current	1	Permanent	Tax credit	Jobs	Jobs and payroll	High	Refundable	Full-time equivalent	Targeted	-	-	No	No	No
NC	William S. Lee quality jobs and business	1996 (Aug)	Repealed 2006	10	Permanent	Tax credit	Jobs	Jobs	High	Carry-forward	Full-time equivalent	Targeted	-	-	Yes	Yes	Yes

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	expansion act (Credit for creating jobs)		(Dec)														
NC	Job development investment grant	2003 (Jan)	Expires 2015 (Dec)	9	Temporary	Grant	Jobs and other requirements	Jobs and payroll	Discretionary	Not specified	Full-time	-	-	-	Yes	Yes	Yes
NC	One North Carolina fund	2004 (Jun)	Current	8	Permanent	Grant	Jobs and other requirements	Jobs, payroll, and other	Discretionary	Not specified	Full-time	-	-	-	Yes	Yes	No
NC	Credit for creating jobs	2007 (Jan)	Expires 2013 (Jan)	5	Temporary	Tax credit	Jobs	Jobs	High	Carry-forward	Full-time	-	-	-	Yes	Yes	Yes
ND	Corporate tax credit for new industry (wage and salary credit)	1969 (Jan)	Current	43	Permanent	Tax credit	Jobs	Payroll	Low	Not specified	Not specified	Targeted	-	-	No	No	No
ND	Employment of the developmentally disabled or chronically mentally ill credit	1987 (Jan)	Current	25	Permanent	Tax credit	Jobs	Jobs and payroll	Low	Not specified	Not specified	-	-	Disabled	No	No	No
ND	Income tax exemption for new or expanding businesses	1990 (Mar)	Current	22	Permanent	Tax credit	Jobs	Payroll and other	Discretionary	Not specified	Not specified	-	-	-	No	No	No
OH	Job creation tax credit program	1993 (Jan)	Current	19	Permanent	Tax credit	Jobs	Jobs and payroll	Not determinable	Refundable	Full-time	-	-	-	Yes	Yes	No
OH	Job retention tax credit program	2002 (Jan)	Current	10	Temporary	Tax credit	Jobs, payroll and investment	Jobs and payroll	High	Carry-forward	Full-time equivalent	-	-	-	Yes	Yes	No
OK	Investment / new jobs income tax credit	1981 (Jan)	Current	31	Temporary	Tax credit	Jobs and investment	Jobs and investment	Low	Carry-forward	Full-time equivalent	-	-	-	No	Yes	No
OK	Manufacturing facilities--exemption from Ad valorem tax	1992 (Jan)	Current	20	Permanent	Tax credit	Payroll	Payroll	Not determinable	Not specified	Full-time equivalent	Manufacturing	-	-	Yes	Yes	Yes
OK	Quality jobs program	1993 (Jul)	Current	18	Undetermined	Grant	Payroll	Jobs, payroll, and other	High	Not specified	Full-time equivalent	-	-	-	Yes	Yes	No
OK	The 21st century Oklahoma quality jobs program	2009 (Nov)	Current	2	Undetermined	Grant	Jobs	Payroll and other	High	Not specified	Full-time	Targeted	-	-	No	Yes	No
OR	Strategic investment program	1995 (Jul)	Current	16	Permanent	Tax credit	Jobs and investment	Other	Not determinable	Not specified	Not specified	Targeted	-	-	No	No	Yes
PA	Employment incentive payments credit	1982 (Jul)	Expired 2009 (Dec)	27	Temporary	Tax credit	Jobs	Payroll	High	Carry-forward	Not specified	-	-	-	No	No	No
PA	Job creation tax credit	1986 (Jul)	Current	25	Permanent	Tax credit	Jobs and other requirements	Jobs	Low	Not specified	Full-time	-	-	-	Yes	Yes	No
RI	Jobs development act	1994 (Jun)	Current	18	Permanent	Tax credit	Jobs	Jobs and other	Not determinable	Not specified	Full-time equivalent	-	-	-	No	Yes	No
RI	Hiring of unemployed or low income residents (Tax incentives for employers act)	1997 (Jan)	Current	15	Permanent	Tax credit	Jobs	Jobs and payroll	High	Equal to tax owed	Not specified	-	-	Unemployed	No	No	No
SC	Job development credit (Enterprise zone act)	1995 (April)	Current	17	Permanent	Tax credit	Jobs and investment	Jobs and payroll	High	Refundable	Full-time	Targeted	-	-	No	Yes	Yes
SC	Credit for employers	1995	Current	17	Permanent	Tax	Jobs	Jobs and	High	Carry-	Full-time	-	-	Welfare	No	No	Yes

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	hiring recipients of family independence payments (Employer tax credit)	(Jan)				credit		payroll		forward				recipients			
SC	Corporate headquarters tax credit	1996 (Jan)	Current	16	Permanent	Tax credit	Jobs and investment	Other	Not determinable	Carry-forward	Full-time	-	Headquarters	-	Yes	Yes	No
SC	Job tax credit	1996 (Jan)	Current	16	Permanent	Tax credit	Jobs and investment	Jobs	High	Carry-forward	Full-time	-	-	-	No	Yes	Yes
TN	Sales and use tax credit for qualified headquarters facilities	1997 (Jan)	Current	15	Temporary	Tax credit	Jobs and investment	Other	Not determinable	Not specified	Full-time	-	Headquarters	-	Yes	Yes	No
TN	Jobs tax credit	1999 (Jul)	Expires 2013 (Dec)	12	Temporary	Tax credit	Jobs and investment	Jobs	High	Carry-forward	Full-time	-	-	-	No	Yes	Yes
TN	Headquarters relocation credit	2005 (Jun)	Current	7	Permanent	Tax credit	Jobs and investment	Jobs	High	Refundable	Full-time	-	Headquarters	-	Yes	Yes	No
TN	Credit for hiring disabled persons	2006 (Jul)	Current	5	Permanent	Tax credit	Jobs	Jobs	High	Carry-forward	Part-time	-	-	Disabled	No	No	No
TN	Super jobs tax credit	2009 (Jul)	Current	2	Permanent	Tax credit	Jobs and investment	Jobs	High	Equal to tax owed	Full-time	-	-	-	No	Yes	No
TX	Economic development act	2002 (Jan)	Expires 2014 (Dec)	10	Temporary	Tax credit	Jobs and investment	Investment	Discretionary	Not specified	Not specified	Targeted	-	-	Yes	Yes	Yes
TX	Texas enterprise fund (TEF)	2003 (Sept)	Expires 2013 (Sept)	8	Permanent	Grant	Jobs and investment	Jobs and other	Discretionary	Not specified	Not specified	-	-	-	Yes	Yes	No
UT	Industrial assistance fund	1991 (Mar)	Current	21	Permanent	Grant	Jobs and other requirements	Jobs and investment	Discretionary	Not specified	Not specified	-	-	-	No	Yes	Yes
UT	Hiring persons with disabilities (Targeted jobs tax credit)	1995 (Jan)	Current	17	Permanent	Tax credit	Jobs	Jobs and payroll	High	Carry-forward	Not specified	-	-	Disabled	No	Yes	No
VT	Economic advancement tax incentive program	1998 (Jan)	Repealed 2006 (Dec)	8	Permanent	Tax credit	Jobs and other requirements	Payroll	High	Carry-forward	Full-time	-	-	-	Yes	Yes	No
VT	Vermont employment growth incentive (VEGI)	2007 (Jan)	Current	5	Permanent	Grant	Jobs and investment	Jobs, payroll, and investment	Discretionary	Carry-forward	Full-time	-	-	-	Yes	Yes	No
VA	Major business facility job tax credit	1995 (Jan)	Expires 2019 (Dec)	17	Temporary	Tax credit	Jobs	Jobs	Low	Carry-forward	Full-time	-	-	-	Yes	No	No
VA	Governors opportunity fund	1996 (April)	Current	16	Permanent	Grant	Jobs, investment and other requirements	Jobs, payroll, and investment	Discretionary	Not specified	Full-time	-	-	-	No	Yes	No
VA	Employees with disabilities tax credit	1999 (Jan)	Expired 2002 (Dec)	3	Temporary	Tax credit	Jobs	Jobs and payroll	High	Carry-forward	Not specified	-	-	Disabled	No	No	No
VA	Tax credit for small business employers hiring recipients of TANF	1999 (Jan)	Current	13	Permanent	Tax credit	Jobs	Jobs and payroll	Low	Carry-forward	Not specified	-	-	Welfare recipients	No	No	No

State	Program	Initial date	Final date	Duration of Program (yrs.)	Temporary/ permanent	Type of benefit provided	Eligibility requirements	Basis for providing benefits	Value per job created	Limitations to the program's benefits	Type of job required	Industry Targeting	Targeting by type of business	Targeting by type of worker	Recapture provisions	Wage requirements	Geographic provisions
VA	Virginia investment partnership – Major eligible employers grant (Performance grant for major eligible manufacturers)	1999 (Mar)	Current	13	Permanent	Grant	Jobs and investment	Jobs, payroll, and investment	Discretionary	Not specified	Full-time	Targeted	Large business	-	No	Yes	No
VA	Virginia investment partnership – Virginia investment performance grants	1999 (Mar)	Current	13	Permanent	Grant	Jobs and investment	Jobs, payroll, and investment	Discretionary	Not specified	Full-time	Targeted	-	-	No	Yes	No
VA	Virginia investment partnership – Economic development incentive grant (VEDIG)	2005 (Mar)	Current	7	Permanent	Grant	Jobs and investment	Jobs, payroll, and investment	Discretionary	Not specified	Full-time	-	-	-	No	Yes	No
VA	Small business jobs grant fund	2010 (Jul)	Current	1	Permanent	Grant	Jobs and investment	Jobs and other	High	Not specified	Full-time	-	Small business	-	No	Yes	No
VA	Jobs investment program (VJIP) – New jobs program	2012 (April)	Current	0	Permanent	Grant	Jobs and investment	Payroll	Not determinable	Not specified	Full-time	-	-	-	No	Yes	No
VA	Jobs investment program (VJIP) – Small business new jobs program	2012 (April)	Current	0	Permanent	Grant	Jobs and investment	Payroll	Not determinable	Not specified	Full-time	-	Small business	-	No	Yes	No
WV	Business investment and jobs expansion tax credit	1985 (Jan)	Expired 2002 (Dec)	17	Permanent	Tax credit	Jobs and investment	Jobs and investment	Not determinable	Carry-forward	Full-time	-	-	-	Yes	Yes	No
WV	Economic opportunity tax credit (EOTC)	2003 (Jan)	Current	9	Permanent	Tax credit	Jobs and other requirements	Jobs and investment	Not determinable	Carry-forward	Full-time	-	-	-	Yes	Yes	No
WI	Economic development tax credit – Job creation	2009 (Jan)	Current	3	Permanent	Tax credit	Jobs	Jobs and payroll	High	Not specified	Full-time	-	-	-	No	Yes	Yes
WI	Economic development tax credit – Corporate headquarters	2009 (Jan)	Current	3	Permanent	Tax credit	Jobs	Jobs and payroll	High	Not specified	Full-time	-	Headquarters	-	No	Yes	Yes

Sources: See text. Duration of credit is calculated through June, 2012.

[a] Some of the other programs listed here (by acronym) do not meet the criteria for inclusion in our state hiring credit database.