Assessing the WOTC:

Executive Summary

The Work Opportunity Tax Credit (WOTC) was created to address the problems of the chronically unemployed and to do so by helping them get jobs. The mechanism behind the program is to give tax credits to employers who hire individuals targeted by the WOTC, effectively subsidizing the cost of hiring and employing them.

The unique idea behind the program is that getting a job helps break the vicious cycle affecting these individuals, who often find that a lack of job experience prevents them getting hired. The unique idea behind the mechanism used by the program is that these employment subsidies leverage private funds, adding enough assistance to tip the balance so that employers hire the targeted applicants.

In the analyses below, I review relevant evidence to assess whether the WOTC program is successful in its goals. Addressing that question begins by recognizing that there are at least three different standards used in assessing success: Does the program generate statistically significant improvements in desired employment outcomes? Are those outcomes big enough to be meaningful? Are the results cost effective – are they better than what could be achieved through other means, and how do the benefits stack up against the costs?

The goal of the WOTC is to get targeted individuals into jobs, which is different than the goal of creating new jobs associated with other employment subsidies. The jobs do not have to be permanent to provide the desired effect of offering work experience, although it would be troublesome if employers "churned" through existing employees – laying them off to hire WOTC-subsidized applicants.

There is very little direct evidence on the WOTC program per se, so the analysis here also uses evidence for programs that are similar to the WOTC. That evidence shows:

- That targeted wage subsidies appear to be among the most effective – for some analysts the most effective – labor market policy for getting individuals into jobs.

- US specific evidence shows that the effects of the WOTC and similar programs on targeted individuals are uniformly positive: Significant effects on the probability of getting jobs, of length of employment, on wages, and on tenure (the studies do not all find the same effects, but all the effects are positive).

- The increase in the probability of targeted individuals getting employed is relatively modest because the size of the program is small relative to the population of potential applicants.

- On the other hand, the cost-effectiveness of the program is quite high because subsidies are only paid when targeted individuals are placed in jobs.

- The benefits to taxpayers from moving a targeted individual into a job are meaningful. Indeed, a reasonable estimate is that those benefits are easily twice the magnitude of the maximum subsidy payment, suggesting that the WOTC quite likely more than pays for itself.

In terms of potential negative effects:

- The evidence seems strong that employers who use the WOTC program are adjusting their hiring and employment practices to the targeted individuals. In other words, it does not appear that they would have hired such individuals even without the program: It is not a windfall for them, although they may well capture a great deal of benefit from the subsidies.

- There is no evidence that employers "churn" their workforce to exploit the subsidies. While the idea behind the program is to get employers to prefer targeted to non-targeted applicants, there are reasons for believing that negative effects on non-targeted applicants are less of a concern because many applicants for jobs are already employed.

Assessing the Effect of the Work Opportunity Tax Credit

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WHAT IS THE WOTC?

The Work Opportunity Tax Credit (WOTC) is a Federal program designed to help those individuals who have attributes that may make success in the labor market difficult. It does so by providing subsidies for employers who hire and keep them in jobs for a specified period of time. The subsidies come in the form of tax credits, hence the program's name. An important issue for this program, indeed for all Government programs, is to assess how well it achieves its goals.

HISTORY: The motivation behind programs that subsidized employment begins with the notion that getting individuals into work not only has the immediate benefit of getting them income in the form of wages but that doing so improves their longer-term employability and economic prospects. In part, the benefit of work comes from learning personal discipline that comes from following workplace schedules; in part from learning through practice to get along with other workers and to take direction, what many call the "soft skills" of the workplace; in part through on-the-job and other training programs that teach task-specific skills; and in part through overcoming the stigma in the labor market associated with not having any previous employment. In this context, the stigma represents something of a "catch 22" paradox in that not having had much employment experience is seen as a proxy for some unobserved fault that has kept one from getting a job. Not having had a job therefore becomes a reason for subsequent employers to reject one's application.

The ultimate motivation for these programs comes from the idea that getting jobs may improve the circumstances of the targeted individuals in a variety of ways that go beyond earned income. Workplace discipline, for example, helps stabilize the lives of individuals, improving many aspects of their well-being. Society and taxpayers benefit when individuals move out of unemployment, especially chronic unemployment, and into regular jobs because they make less demands on social services. These benefits include reductions in crime, improved health with associated drops in publicly provided healthcare, reduced use of income-related public assistance such as welfare programs, less government provided job training and skills programs, and a variety of potential benefits to the economy as a whole associated with increasing both the supply of labor and the skill level of the labor force (see below for evidence).

The WOTC, like many government programs, has a long lineage. Decades of programs beginning with the 1960s War on Poverty have attempted to improve the economic

circumstances of disadvantaged groups in society by helping them secure access to wage income. A fundamental conclusion from these efforts is that improving outcomes for these groups is very difficult in part because so many factors can contribute to failure: Health issues, individual attitudes and dispositions, family constraints and distractions, lack of skills and experience, and of course a lack of demand for workers. Any of these may be enough to keep individuals from securing steady employment.

The most important precursor – indeed, the immediate predecessor - to the WOTC was the Targeted Jobs Tax Credit, which operated from 1978 to 1994. That program was designed to encourage employers to hire applicants from targeted groups, especially low-skill unemployed, by subsidizing their hiring through tax credits eligible employers would receive.

The outcomes associated with the Targeted Jobs Tax Credit program were far from perfect, however. Most of the complaints focused on the details of its administration. Specifically, the complaint was that employers who used it would have hired the same people even without the tax credit. Although a counterfactual argument like this is difficult to prove, there was at least circumstantial evidence suggesting that the attributes of individuals hired through the program did not differ much from those hired without it. There was also concern that job tenure in the program was too short to offer enough benefits to participants.

After the Targeted Jobs Tax Credit ended in 1994, the WOTC program was created as part of the Small Business Job Protection Act of 1996 to serve similar goals but with more effective administrative requirements. The basic goal remained the same – to facilitate the employment of targeted job applicants through subsidies in the form of tax credits for hiring. The administration of the program was changed to target more specifically those individuals who most need help, and the length of time individuals need to be employed before the employer can receive the tax credits was extended.

The WOTC has been amended and reauthorized seven times since then, most recently with The American Recovery and Reinvestment Act (ARRA) of 2009, which extended coverage to unemployed veterans and "disconnected youth." Eleven categories of individuals are now covered under WOTC. They are:

A-Qualified IV- A Recipient
B-Qualified Veteran
C- Qualified Ex-felon
D-Designated Community Resident
E-Vocational Rehabilitation Referral
F-Qualified Summer Youth Employee
G-Qualified Food Stamp Recipient
H-Qualified Supplemental Security Income Recipient
I-Long-Term Family Assistance Recipient
J-Unemployed Veteran
K-Disconnected Youth

Assessing Whether the WOTC is Worth Continuing

The reauthorization of programs like the WOTC turns on whether they are worthwhile. While this seems like a straight-forward question, answering it is complicated by many factors, the most basic of which is that there are different definitions of what constitutes "worthwhile." The different standards turn on the difficulty in assessing the benefits from such programs.

The simplest approach, and one that we typically use for most government programs, is whether the program does what is says it will do. For example, if we are assessing a new classroom teaching approach, the outcome we're looking for would be, does the program improve student learning? We might quibble as to what measure of learning outcomes we should use, but generally the standard would be whether we see a statistically significant improvement in test scores or other accepted measures of student learning. We might ask next as to whether the improvement is big enough to be meaningful in practice, even when it is statistically significant. But in general, if we can show that the program raises student learning in a meaningful way, we declare it a success.

In the context of the WOTC program, such a standard might be, do targeted individuals who participate in the program have better labor market outcomes? And is the improvement meaningful?

A related approach is to take a longer-term view to see whether the immediate objectives translate into longer term objectives. In the context of a teaching intervention, for example, we might ask whether higher test scores after the intervention translate into longer-term improvements in educational outcomes, such as higher graduation rates. The equivalent approach in the context of the WOTC program might be to ask whether participants who get jobs stay in them longer and whether they earn more money than non-participants.

A more complete picture of the outcomes of a program might include looking at all the related outcomes that might be affected by the program. Beyond one measure of impact, are there other effects that we should be considering? In education programs, for example, we might want to see whether there are spillover effects on discipline and student behavior problems or on academic subjects that were not the focus of the intervention. With respect to the WOTC, we might want to include reductions in public assistance associated with employment-related participation as part of the benefits. We might also want to consider possible negative effects on non-participants, such as whether it reduces their chances of getting a job.

The final approach to assessing whether a program is worthwhile involves asking about the value of the benefits relative to the costs. Does the program generate more benefits than it costs? In the context of money, does it save more money than the program costs to operate? This is quite a high standard and is not commonly used for most government programs. (Here the premise is generally that net public expenditures are merited to produce a desired result.) But for economic programs in particular it is appropriate to know how the value of the benefits corresponds to the costs. Consider, for example, tax incentives used to lure employers to a region of the country. Beyond knowing whether employers relocate because of those incentives, we would like to know the other consequences of those moves and, ultimately, what the overall costs and benefits are. For example, to what extent is the lost tax revenue associated with a real estate tax abatement made up by the increased revenues from sales taxes associated with more business in the location

or by wage taxes on additional employees? Is the net gain from such taxes worth the cost of additional services needed to support the new businesses? In principle, any program that meets this standard should be expanded as it is unequivocally generating value.

There have been a great many attempts to assess active labor market programs designed to improve job outcomes. For the most part, those assessments use only the first standard: What is the impact on a particular outcome, such as employment rates, and is the effect statistically significant? Less typical but nevertheless influential are assessments that consider the cost of the program against that single outcome. The most common of these is to assess the cost of the program against the number of new jobs created by it. Approaches like this are not necessarily designed to be true cost-benefit assessments because they are not actually calculating the value of the benefits. They are often interpreted as such, however, and as a consequence stack the deck against a positive evaluation of the program by leaving out other benefits and their value.

In the analysis that follows, I use a range of evidence to provide a more complete assessment of the WOTC. They include whether the program meets its stated goal, whether longer-term and broader-based outcomes improve as well, and how the overall benefits of the program match up to its costs.

The Mechanism Behind the WOTC

As noted above, the WOTC encourages the hiring of targeted groups through a subsidy given to employers who then hire individuals from such groups. The idea is the commonsense notion that if we subsidize something and make it cheaper, we will use more of it. In this case, the subsidy means that we should expect employers to make greater use of individuals from these groups in their hiring decisions.

The textbook treatment of hiring subsidies like the WOTC is that they have the effect of reducing the cost of hiring and then employing workers. As such, we can think of subsidies as causing a shift in the demand for labor, an increase equivalent to the amount of the subsidy. Employers who receive, say, a $1 per hour wage subsidy can pay $11 per hour to workers while the cost to them is only $10 per hour. So the demand curve shifts up by $1. This increase should encourage employers to hire more labor than they would have previously.[1] The more elastic the supply of labor is, the bigger the increase in labor that employers will hire (i.e., if a one dollar increase in demand will lead many more qualified applicants to show up, then employment subsidies will have a much bigger effect on actual hiring). The effects on wages move in the opposite direction: When labor supply is more elastic, employment subsidies have a big effect on hiring but little effect on wages. When labor supply is inelastic, they have a big effect on raising wages but little effect on hiring.

The idea of subsidizing employment is not new. Whether to do so by creating subsidies for hiring or subsidies paid to employees is a topic of some debate. Employment subsidies are paid directly to targeted workers once they are hired while hiring subsidies are paid directly to employers once they hire a targeted worker.

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[1] See George J. Borjas. 2010. Labor Economics, 5th edition. New York: McGraw-Hill, p.160 for a literal textbook treatment of the subject.

The WOTC is a hiring subsidy, and such programs have been popular for some time. A 1994 Federal Reserve convening of prominent US macro and labor economists found as close to a consensus as a room of economists could get that such subsidies should be a useful part of economic policy for reducing unemployment[2] (s 1994).

In terms of practice, employment subsidies have been and continue to be used more extensively outside the US, especially in Europe. We consider their experience with such programs at some length below.

The largest of the hiring subsidy programs in the US was the New Jobs Tax Credit that operated from 1977 to 1978 and applied to all new hires as did the Hiring Incentives to Restore Employment Act that operated in 2010. These programs were designed to create new jobs and help the labor market recover from recessions. Most wage subsidy programs like the WOTC, however, apply only to targeted workers. For example, the Job Opportunities in the Business Sector for hiring disadvantaged workers, Work Incentives Tax Credit for AFDC recipients, the Targeted Jobs Tax Credit mentioned earlier, temporary subsidies for firms providing training for Job Training and Partnership Act participants, the Welfare to Work Tax Credit for welfare recipients, and a range of state-level programs. [3]

The distinction between the goals of programs like the WOTC that target particular groups within the population and more general hiring subsidies is crucial for assessing them. Whereas general hiring subsidies are designed to increase the number of jobs in the economy as a whole, targeted subsidies like those for the WOTC are designed to expand the employment of the targeted group. The latter does not require adding jobs to the economy.

Potential Drawbacks to Hiring Subsidies:

The description above suggests the appeal of hiring subsidy programs. They allow the government to make use of the private sector to expand employment opportunities and to do so with minimal levels of intervention and administration. Employment is an excellent treatment for a great many social problems, and this approach to expanding employment seems simple and straightforward.

The main objections to these programs come from perverse incentives created by flaws in designs that lead to unintended and undesirable consequences. For example, programs that offer incentives for employers to hire will cause such employers to maximize hiring and arguably at the expense of a reasonable period of employment. One way to maximize hiring is to dismiss workers and then hire new ones, an approach that creates more new hires by shortening job tenure. Dismissing workers simply to hire new ones certainly seems like a less than desirable social outcome even if it does in the end lead to more employment for targeted applicants.

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[2] See Byron Higgins. 1994. Reducing unemployment: Current issues and policy options--a summary of the bank's 1994 Symposium: Economic Review. Vol. 79 Issue 4, 45-60.

[3] For a descriptive account of these hiring subsidy programs, see David Neumark. Policies to Encourage Job Creation: Hiring Credits vs. Worker Subsidies. Cambridge, MA: NBER Working Paper 16866 March 2011.

Similarly, hiring subsidies may not lead to permanent jobs even if employers are not deliberately laying off new hires. But that may not be a bad outcome. A program that leads to targeted applicants being employed for, say, a year and then a new group of targeted applicants come in may be very successful if the goal is to get work experience for lots of individuals, they learn useful skills and abilities during that year, and they move on to other jobs elsewhere.

Potential perverse incentives can be addressed by adjusting the terms of the subsidy program. In the case of the WOTC, for example, the terms of the program were altered as compared to the Targeted Jobs Tax Credit program so that new hires had to be employed longer before the tax credits could be received. This effectively reduces the incentive to churn through new hires quickly.

Another complaint about hiring subsidies, arguably the most common one as noted above, is that the subsidies end up being used by employers who would have hired someone anyway. Such subsidies are obviously most attractive to employers who were going to hire already as it requires nothing new from them. And in that situation, the argument goes, the subsidy is simply a windfall for the employer.

This complaint should only apply to programs that are designed to expand the total number of jobs in the economy. It is not relevant to those like the WOTC that are designed to encourage the hiring of targeted individuals, which is quite a different goal. For targeted programs like WOTC where the goal is to expand the employment of targeted groups, it is simply a bonus if the program also expands the total number of jobs.

Overall, it is not a surprise that those already planning to hire make use of these programs. As noted above, the extent to which employment subsidies in the economy as a whole expand the number of jobs depends on the elasticity of labor supply. Part of this complaint, then, is that supply is apparently not elastic enough in most cases to generate many new jobs. Because the subsidies typically apply only to a subset of an employer's total jobs (those that suit typically low-skill targeted populations) , it is also not surprising that the net effect on overall jobs in the economy should be quite small and hard to measure carefully. Unless the demand for labor is extremely elastic, it would take a substantial reduction in employment costs, no matter what the source, to cause a typical employer to expand hiring in a substantial way.

Subsidies also lead to substitution effects. Some of those are desirable and intended, as in the case of the WOTC. As noted above, making something cheaper implies that we will use more of it. In the case of targeted subsidies, what gets cheaper are the targeted applicants. What gets relatively more expensive are non-targeted job applicants. We will use less of the substitutes as we use more of the subsidized item. There is as a result some trade-off between the employment prospects of targeted vs. non-targeted employees: Targeted applicants are more likely to be hired and non-targeted employees less likely to be hired, other things equal. That is the essential goal of the program. Unless the supply of labor is almost completely elastic, the subsidies will not create a substantial number of net new jobs.

If the economy were completely static, and there were only a set number of jobs available, then one could argue – as some who are less informed might – that programs like the WOTC simply take jobs away from other workers and give them to targeted workers.

The reason that view is not correct is because the economy is not static. There are not simply a fixed number of jobs in the economy, and it is not the case that when one individual gets a job, it comes at the expense of another. Labor markets do adjust to additional workers, the extent of the adjustment depending on the elasticities of supply and demand. And given the size of the US labor market, the number of individuals affected by the WOTC has a trivial effect on overall labor supply in any case.

It is also important to remember that the vast majority of individuals who are hired in the US for most every job, including newly created positions, are already employed. It is difficult to know with certainty the exact percentage of job applicants who are already employed, and the rate no doubt varies considerably across labor markets. But about two-thirds of individuals who leave jobs immediately move to another – in other words the huge amount of voluntary turnover in the economy is largely accounted for by individuals who are already employed moving into job openings.[4] We also know that proprietary surveys of individuals suggest that half or more of those employed are searching for new jobs (although what counts as searching varies across individuals) at any given time.[5] Further, many employers refuse to consider job applications from unemployed individuals, suggesting that they have enough applicants from those with jobs already. In 2011, the incidence of employers who would not accept job applications from individuals who were not currently employed was great enough for the Equal Opportunities Employment Commission to develop policies to address such situations.[6] Finally, there is evidence that employed applicants "crowd out" those who are unemployed, demonstrating the stigma affect that is one of the motivations for the WOTC program in the first place.[7]

When employed individuals apply for a different job and do not get it, there is relatively little economic loss. The situation for individuals targeted by the WOTC is very different. When any of them get a job, it is a net addition to the employed population, and they have been moved

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[4] See Georg Ackerlof, Andrew Rose, and Janet Yellen. 1988. Job switching and job satisfaction in the U.S. labor market. ***Brookings Papers on Economic Activity***, (2): 495-592. See also Fallick, Bruce and Charles A. Fleischman. 2004. Employer-to-Employer Flows in the US Labor Market: The Complete Picture of Gross Worker Flows. Federal Reserve Working Paper # 2004-34.

[5] The largest of these surveys has been conducted by Towers-Perrin (now Towers-Watson). There most recent data in 2010 suggests that even when US employment topped 9 percent, almost 20 percent of employed respondents were actively searching for jobs. See **http://www.towerswatson.com/press/1365.**

[6] Zeller, Shawn. 2011. Wanted: Jobs For the Jobless. Congressional Quarterly Weekly. 2/28/2011, Vol. 69 Issue 9, p447-447.

[7] Burgess, Simon M.. **1993. A Model of Competition Between Unemployed and Employed Job Searchers: An application to the Unemployment Outflow Rate in Britain.** Economic Journal, **Sep93, Vol. 103 Issue 420, p1190-1204**

from the ranks of the unemployed to those who are employed. That has a great many more positive benefits, especially for taxpayers, as compared to a situation where an employed individual moves from one job to another.[8]

In other words, it is wrong to think that the employer's choice is between hiring an unemployed applicant who is eligible for WOTC tax credits and an unemployed applicant who is not. It is much more likely to be a choice between an applicant who already has a job and one eligible for WOTC.

Again, the idea behind the WOTC is that the individuals it targets have been disadvantaged in their ability to participate in the workforce in part because of a lack of any initial job experience. So the WOTC increases the chances that they will get some work experience, which will help them secure jobs later. The program is temporary so the extent that it advantages each recipient is only temporary as well. In short, the overall negative effects on non-targeted employees should be modest or even trivial.[9]

There are two other practical concerns raised about employment subsidies generally. The first is simply that the subsidy may not be big enough to cause employers to hire from the targeted group. This situation is likely to occur when the attributes of the targeted group are those that make them more difficult and expensive to employ. A typical example would be someone who has had little labor market experience and therefore could be expected to need more support from an employer, such as a longer lead time getting comfortable with a job, before they could become productive. Such individuals who are targeted for support by subsidy programs are more expensive to hire: They might have a higher probability of quitting or being fired or have other problems that require investments to offset. But this is not a problem with targeted subsidies per se. It is simply a problem with creating the appropriate size for the subsidy.

The second practical concern is the notion that subsidies to targeted workers create a stigma of sorts that may actually make it more difficult for them to be hired. The idea is that the attributes of the targeted groups are ones that make it difficult to be hired, and that subsidy programs effectively label such individuals and exacerbate the problem of getting hired. Burtless suggested that in a Dayton, Ohio program, the stigma of hiring subsidies actually reduced the hiring rate among program participants relative to the control group[10], although Bartik points out that the specific attributes of participants in that program made the likelihood of stigma unusual

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[8] It is certainly possible to tell a story suggesting that hiring subsidies like the WOTC that cause employers to hire more targeted applicants lead to less good matches between candidates and job requirements than would otherwise be the case and that this overall economic efficiency. The ability of employers to predict who will be successful in jobs in practice is so poor, however, that in practice, this is at best a minor concern.

[9] The exception is for those unemployed job seekers who are not covered by the WOTC. They are placed at a relative disadvantage, but many of those not covered have attributes that give them advantages in getting a job as compared to WOTC recipients. Indeed, those attributes are precisely what defines WOTC coverage.

[10] Gary Burtless. 1985. "Are Targeted Wage Subsidies Harmful? Evidence from a Wage Voucher Experiment." *Industrial and Labor Relations Review*, 39, 105–114.

high as did the fact that they were coached to advertise their identification with the program during the recruiting process, before applicants had been screened for more serious selection processes.

To be clear, the subsidies do not themselves create a stigma. The attributes that individuals have that impede their ability to be hired are already there. The concern comes because some of those attributes might otherwise not be knowable by an employer, such as with the WOTA where some participants receive food stamps. Some of the eligibility requirements for WOTA, such as being a qualified ex-felon, may well reflect attributes that could lead employers not to hire a candidate. State law may prohibit an employer from asking about felony convictions, but the employer might assume that WOTA eligibility reflects at least a chance of such a conviction.

An employer who is sophisticated about employee selection would be able to identify the attributes among applicants that truly predict job performance and would not be so interested in the attributes that lead to WOTA eligibility. Moderately sophisticated employers interested in WOTA-related attributes could probably identify those attributes with relative ease in any case. The concern is mainly with unsophisticated employers who rule out candidates based on their personal views and might do so with WOTC eligible applicants. To the extent that this situation occurs, it reduces the effectiveness of the WOTC program.

The final concern is a conceptual one that economists refer to as the "deadweight loss." It is the notion that in market situations, the choices made by buyers and sellers represent their true preferences, and any interference with market outcomes leads to decisions that are less than optimal. The value of the distortions is the deadweight loss. Any government regulation, taxes, or subsidies in theory creates deadweight loss.

Concern about the possible deadweight loss created by wage subsidies is at a minimum a highly abstract exercise given that employment is already regulated by the federal, state, and local government in dozens of ways, taxed in almost as many, and essentially regulated privately by unions, professional organizations, and administrative policies. There is no straightforward value of what the current deadweight loss is with employment relationships. The net distortion effect of a wage subsidy on top of that mass of existing distortions is unlikely in practice to be discernable. These deadweight loss arguments are a concern about any government program and as a practical matter are almost impossible to factor in to assessments of a program like the WOTC.

Evidence about the Effects of Hiring Subsidies and of the WOTC in Particular:

Understanding the effects associated with a program like hiring subsidies seems like a reasonably straight-forward question. But it is devilishly tricky to answer clearly. It is not difficult to look and see what happens to participants in hiring subsidy programs. But knowing whether those outcomes are truly the result of the subsidy is the hard part. That requires being able to first say, what would have happened to the participants had they not been in the program?

Only knowing that answer allows us to look at the difference between what happened to participants and what would have happened to them had they not participated in the program. That difference provides information about the program's true effect.

To see what the challenges are to making that assessment in practice, consider the following questions. Participants in programs like hiring subsidies are obviously different from those who are not eligible for such programs. Those differences not surprisingly include attributes that make it difficult for them to find jobs, such as low skills and limited work experience. To what extent is their experience after participating in a wage subsidy program still tied to those initial attributes, the ones that caused them problems in the first place, as opposed to being the result of the subsidy program? The answer is probably a lot, but we cannot easily tell how much. We call such problems "omitted variables" because they represent factors that could account for effects but have been left out of the story

In some programs, participants have to take the initiative to become part of the program. We say that such people "self-select" into the program, and the factors that motivate them to take that initiative may also influence their subsequent experience in the labor market. Can we sort out the effect of factors like the motivation that caused them to participate in the program from the effects of the program per se? We call these problems "selection biases" because the process of self-selection into the program or selection by the program team itself causes participants to be different in important ways from non-participants. Whether differences in outcomes are due to differences in the factors that cause individuals to be participants in the program or due to the experience with the program itself are hard to sort out.

Finally, we have the more general problem of endogeneity, of which self-selection is a special case. Endogeneity implies that the outcome of the program and participation in the program may be intertwined in ways that make them hard to differentiate. For example, attributes of the individuals in the program may cause the tax credits to be used differently and to have outcomes that vary across individuals. In some communities, attributes of the employers may lead to more chronic unemployment and to more eligibility for WOTC, which in turn may reduce the odds of program participants getting a job.

We need to keep the above issues in mind when assessing the effects of the WOTC. Among other things, that implies paying attention to evidence that addresses those issues explicitly.

Empirical Evidence: Because hiring subsidies have been used in many different programs and have often involved considerable investments by governments, there are a fair number of studies attempting to assess their effects. The reason for reviewing studies of programs other than the WOTC is first because evidence about similar programs gives us insight as to the effects of the WOTC itself and second because studies specifically about the WOTC are limited.

Experience with hiring subsidies is more extensive outside the US, where the conclusions about their effectiveness on increasing employment are quite positive. The OECD, for example,

currently advocates using general hiring subsidies to deal with current high levels of unemployment in the US and other countries. Among OECD member states, Austria, Korea, Portugal and Sweden are currently using hiring subsidies as a strategy to recover from the Great Recession. Most of the EU countries also use targeted hiring subsidies like the WOTC to improving the employment outcomes of disadvantaged groups.[11]

Estevao reviews prior studies of European hiring subsidies and concludes that they have substantial positive effects on increasing employment, effects that are much stronger than those of training programs, for example. These include studies of programs in Australia, Poland, Sweden, Switzerland, and France. His own analysis across 15 countries shows that employment subsidies have the strongest effects on job creation of any active labor market policy.[12]

DeKoning reviews 13 prior studies of the effects of subsidies on employment outcomes in Europe and finds that all but two showed positive effects (the two find no significant relationship).[13] Kluve's 2006 review reaches a similar conclusion, emphasizing the fact that the employment outcomes associated with subsidy programs are substantial.[14]

Among noteworthy country studies are those by Kangasharju (2007) showing sizeable effects for hiring subsidies in Finland[15]; by Blundell et al. (2004) finding that targeted subsidies in the UK raised the employment level of the affected groups by a full five percentage points, a level 26 percent higher than the control group; and by Bucher (2010), who presents evidence suggesting that the French program not only improved employment levels for the targeted group but reduced welfare-related costs enough in the process that the program paid for itself.

The evidence that hiring subsidies and more specifically targeted hiring subsidies have significant effects on improving the employment outcomes of participants in Europe and the UK is substantial. These countries are different from the US, of course. The most obvious differences are the greater fixed costs of hiring in Europe (because of the difficulty in dismissing them), which we should expect would make employers there less sensitive to the equivalent hiring subsidy than their US counterparts. But there may be other, less obvious differences that could affect the take-up rate across countries, so focusing on US evidence clearly makes more sense.

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[11] OECD 2010. Return to Work After the Crisis. OECD Economic Outlook, May2010, Vol. 1 Issue 87, p251-292.

[12] Marcello Estevao. 2007. Labor Policies to Raise Employment. IMF Staff Papers, Volume 54 No.1. http://www.imf.org/external/pubs/ft/staffp/2007/01/estevao.htm.

[13] De Koning, J. 2005. Active labour market policies: relevance, expenditure and effectiveness. SEOR Working Paper 2005/2. Rotterdam: SEOR Erasmus School of Economics.

[14] Kluve, J. 2006., The Effectiveness of European Active Labor Market Policy. IZA Discussion Paper no. 2018, March 2006. Bonn: IZA – Institute for the Study of Labor.

[15] Aki Kangasharju. 2007. Do Wage Subsidies Increase **Employment** in **Subsidized** Firms? Economica, Vol. 74 Issue 293: p51-67.

US Evidence: There have been fewer hiring subsidy programs in the US than in Europe, which may account for the fact that there have been fewer US studies of such programs.

With respect to broad-based hiring subsidies designed to create more jobs, there is clear evidence that they do so. The question is simply how many, or another way to put the same question, at what cost. The New Jobs Tax Credit, which operated from 1977 to 1978, is thought to have created a significant number of jobs. But because it applied to most of the economy and many other factors were in play at the same time, it is difficult to know exactly how many and therefore the cost per job.[16]

The effects of broad-based state-level hiring subsidies are reasonably positive. Faulk reports that a Georgia program generated between 23.5 and 27 percent more jobs among employers who used it, other things equal, at a cost of about $630 per job.[17] Bartik and Erickcek examine Michigan's program that ties tax credits to employee income taxes on new or retained jobs and conclude that it added jobs to the state at a cost of $4000 per job. The value of such jobs to the State, they argue, is $20,000 per job, so the program more than pays for itself at least in terms of overall value to the community.[18] Chirinko and Daniel look at hiring subsidy programs across all states that were put in place since the Great Recession and conclude that the effects on employment are on balance positive but more modest overall than the Georgia and Michigan examples above.[19]

Our interest here is in targeted hiring subsidies as opposed to general hiring subsidies of the kind described above. There have been more such programs but not necessarily more assessments of them. For example, there are no good assessments of the Job Opportunities in the Business Sector (JOBS) program, which targeted low income individuals, or of the Work Incentives Tax Credit, which targeted welfare recipients. There is a small body of research on the Targeted Jobs Tax Credit, in place from 1979 to 1994, which suggested that employment gains were positive but modest[20] perhaps in part because the program design was flawed in ways that made it easy for employers to claim credit for jobs that would have been created in any case.[21]

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[16] Among these studies are Perloff and Wachter (1979) and Bishop (1981). Retrospective assessments by Katz (1998) and Bishop (2009) suggest that the effects were positive but modest and positive but substantial, respectively.

[17] Dagney Faulk. 2002. "Do State Economic Development Incentives Create Jobs? An Analysis of State Employment Tax Credits." *National Tax Journal* 55(2) 263-80.

[18] Timothy J. Bartik & George Erickcek, 2010. "The Employment and Fiscal Effects of Michigan's MEGA Tax Credit Program," Upjohn Working Papers 10-164, W.E. Upjohn Institute for Employment Research.

[19] Chirinko, Robert S., and Daniel J. Wilson. 2010. "Job Creation Tax Credits and Job Growth: Whether, When, and Where?" Federal Reserve Bank of San Francisco Working Paper 2010-25.

[20] Larry Katz. 1998. "Wage Subsidies for the Disadvantaged." In *Generating Jobs,* edited by Richard Freeman and Peter Gottschalk. Russell Sage Foundation, New York.

[21] Edward C. Lorenz 1995. "TJTC and the Promise and Reality of Redistributive Vouchering and Tax Credit Policy." *Journal of Policy Analysis and Management*, Vol. 14, No. 2, Spring, pp. 270-90

Arguably the most extensive studies are of the Job Training and Partnership Act, which provided temporary wage subsidies to firms that provided on-the-job training in the context of jobs with long-term prospects. Economically disadvantaged individuals were eligible for the program, and employers received a subsidy equivalent to half the wages paid to participants. The most rigorous study of the program, based on a randomized experimental design, found quite positive effects on labor market outcomes: Employment rates were 2.4 percent higher for women (3.9 percent for men) as compared to the control group, wages were 8.6 percent higher (6.3 percent for men), and hours of work were six percent higher (6.3 percent for men).[22]

Two smaller programs targeted at welfare recipients combined hiring subsidies with other forms of support. The Supported Work Demonstration project provided a wide set of support mechanisms that continued while the Home Health Aide Demonstration project added initial classroom training before the subsidized employment began.[23] Participants in these programs earned substantially more than non-participants, and the effects persisted two years later.[24] Long-term follow-up showed that earnings were significantly higher eight years later.[25] In addition to higher wages, participants made less use of welfare and other forms of government support, leading to the conclusion that the programs effectively paid for themselves.

The WOTC Evidence: The direct evidence on the WOTC per is unfortunately very limited: Two studies spread across four published papers, and a case study from New York State. It is worth examining these studies carefully, of course, to be clear about what they say and do not say about the effectiveness of the WOTC program.

The first study is based on data from a single large employer operating in the state of Georgia. The authors identify employees within that company who are WOTC participants and compare them to employees in the same jobs who are not WOTC participants but otherwise are similar to them. They find that the WOTC participants are significantly less likely to leave the company than are the non-participants, although their average tenure is only trivially longer.[26] At least with this employer, there is no evidence of "churning" through WOTC participants to maximize the subsidy. If we believe that job tenure is at least in part a sign of good employee performance, then the WOTC participants were on this dimension better than their counterparts. Such

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[22]Howard S. Bloom, et al. 1994. "The National JTPA Study: Overview: Impacts, Benefits, and Costs of Title II-A." Bethesda, MD: Abt Associates, January.

[23] Edward Pauly and Judith M. Gueron. 1991. From Welfare to Work. New York: Russell Sage Foundation.

[24] Stephen H. Bell and Larry L. Orr. 1994. Is Subsidized Employment Cost Effective for Welfare Recipients? Experimental Evidence from Seven State Demonstrations. Journal of Human Resources. 29(1)

[25] Kenneth A. Couch. 1992, "New Evidence on the Long-Term Effects of Employment Training Programs," *Journal of Labor Economics*, 10(4), 380-388

[26] J.M. Gunderson and Julie L. Hotchkiss. "Job Separation Behavior of WOTC Hires: Results from a Unique Case Study." *Social Service Review,* 81, 2007, 317-42.

evidence is at least suggestive of the broad claim for targeted wage subsidies, that if we can get the participants into jobs, they may be able to prosper.

Among those who leave the company, the researchers find that WOTC participants are just as likely to move to another job and not to unemployment as are non-participants, although when they do move, they make less money than do non-participants.[27] Again, such evidence is at least suggestive of the notion that the WOTC-induced experience is either screening in people who can succeed or that the experience per se helps them succeed past the initial, subsidized job.[28]

A caveat to these results, which makes them more positive, is that the omitted variable problem above. WOTC participants are different from the comparison group is significant ways that worsen their employment prospects. (Indeed, some of those differences are precisely what make them eligible for the WOTC program.) Non-participants do not have at least those same negative attributes or they would have qualified for the WOTC. Once they are in these jobs, the WOTC recipients should be relatively disadvantaged because of those attributes as compared to non-participants and should have worse outcomes, other things equal. So the deck here is arguably stacked against finding positive effects for WOTC.

The fact that the WOTC recipients do as well as non-participants in finding new jobs when they leave the company and, more important, stay in their jobs even longer than non-participants is surely an encouraging outcome.

What cannot conclude from this study is anything about whether participation in the WOTC makes it more likely for the individuals to be employed in the first place because everyone we observe in this study is by definition already employed. To the extent that the non-participants are truly similar to participants except for WOTC support, then involvement in the WOTC seems to produce very good subsequent outcomes: lower average turnover and at least as good subsequent employment records, despite the attributes of disadvantage that led to them being covered by the program. The WOTC seems to have offset any initial disadvantage.

The second study is based in Wisconsin and looks at wage and employment outcomes for welfare recipients. In the first set of analysis, participation in WOTC is established by looking at only those who meet the welfare criterion for program eligibility, which is being on welfare nine or more months within the past 18 months. There are ten other attributes that can also qualify individuals for WOTC participation, so an important caveat to these results is that they apply only to WOTC participants eligible through welfare status, a quite small proportion of the WOTC population.

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[27] J. Fitzpatrick and Julie L. Hotchkiss. 2009. Job Separation Outcomes of Welfare Hires: Insight from Linked Personnel and State Administrative Data. Contemporary Economic Policy, Vol. 27 Issue 2, p137-146.

[28] WOTC participants who left this company, with very few exceptions, would not be eligible for the WOTC program at another employer because they were not unemployed at the time of switching jobs.

The study then combines participation in WOTC with participation in the Welfare-to-Work Tax Credit program (WtW), a program that was created by the Taxpayer Relief Act of 1997 and ran for two years. That program also had a wage subsidy component. WOTC welfare-based participants and WtW participants are then compared to individuals who are just shy of having been on welfare long enough to meet the WOTC and WtW eligibility criteria. The reason for this comparison is that such individuals are likely to be similar to the WOTC participants except for their enrollment in the WOTC program.

During the period of the study, the State Government in Wisconsin was engaged in a significant effort to move all welfare recipients into jobs. Most welfare recipients in the State were required to work. Community service jobs were available for those who are unable to handle regular jobs, and a variety of support services were also available to help them keep and stay in jobs.[29] As a result, many if not most of the comparison group are likely to be employed as well. The effect of WOTC/WtW is net of these other efforts, and for that reason, the effects observed are likely to be diminished substantially in comparison to a more typical state because here the comparison group is subject to other efforts to get them into jobs. In other words, the most employable of the individuals who are eligible for the WPOTC/WtW in this sample as well as in a potential comparison group already have jobs. So we are effectively looking at the least employable subset of both groups.

Those who are eligible for WOTC/WtW are 5.9 percent more likely to be employed in the second quarter of participating in the program than roughly equivalent but ineligible individuals. After a year, however, there are no differences.[30]

An important caveat to the study and to these results is that it is measuring the effect of being eligible for the WOTC/WtW subsidies, not actual participation in them, even for the long-term effects. The author notes that one reason why long-term effects may not appear is because relatively few of the WOTC/WtW eligible individuals who were in jobs were actually claimed as such by their employers. Their employers were not receiving the tax credit subsidy.

There is no reason why eligibility for these programs per se should improve employment outcomes once one is in a job. If the employer is not participating in the program and not receiving the subsidy for the WOTC/WtW eligible employees, it is unlikely that they are doing anything different for those employees, such as making additional investments in them, and no reason to expect any difference in outcomes. Indeed, eligibility without participation should actually worsen outcomes because it proxies attributes that are likely to make it harder to be employed, albeit it trivially so in the context of this study. The relevant subsample of employers

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[29] See Wisconsin Works (W2) Overview http://dcf.wisconsin.gov/w2/wisworks.htm for eligibility requirements.

[30] Sarah Hamersma, Sarah. 2008. "The Effects of an Employer Subsidy on Employment Outcomes: A Study of the Work Opportunity and Welfare-to-Work Tax Credits." *Journal of Policy Analysis and Management*, Vol. 27, No. 3, Summer, pp. 498-520.

who actually participated in the program is quite small, making it difficult in a statistical sense to find true estimates even when such effects might actually exist.

The author also finds that WOTC/WtW participants earn nine percent more than non-participants soon after their jobs begin. That gain represents a little more than one-third of the value of the tax credits received by their employer. This is a surprising result suggesting that the employers must see more value in hiring these participants than non-participants, arguing against the stigma notion presented earlier. There is no effect on job tenure or on long-term earnings. A change in the sample that eliminates individuals who are coded as WOTC/WtW participants but on closer examination not apparently eligible for the programs (perhaps as a result of coding errors) leads to significant long-term results for earnings and tenure.

A second analysis looked only at WOTC/WtW participants (again defined only by the welfare recipient criterion) employed in the temporary help industry. They find again that earnings are higher for participants but only in the short-term and that job tenure was similar to the non-participant comparison group.[31] A caveat to this study concerns the nature of participation in the temporary help industry, where the idea is that such jobs serve as stepping stones to permanent jobs elsewhere. In that sense, it is not clear whether longer tenure in such jobs would necessarily be a positive outcome.[32]

What we learn from the above two studies is rather focused. First, they apply only to the welfare-based participants in WOTC, and second they refer to a state context where differences in employment outcomes between WOTC participants and non-participants should be narrowed because of other programs underway to get them into jobs. Although the results are not especially robust to choices concerning the sample, they seem to replicate closely those of earlier studies of hiring subsidy programs with the caveat that here, the longer-term effects are smaller, at least until the sample is adjusted.[33] The studies look at one or two employment outcomes that could be attributed to participating in a hiring subsidy like that provided by WOTC.

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[31] Sarah Hamersma and Carolyn Heinricht. 2008. Temporary Help Service Firms' Use of Employer **Tax** Credits:Implications for Disadvantaged Workers' Labor Market Outcomes. Southern Economic Journal. Vol. 74 Issue 4, 1123-1148.

[32] A surprising observation in this study is the finding from interviews that local managers at the temporary help agencies were not aware of who was eligible for the WOTC/WtW program although the companies as a whole were aware as to who was eligible and collected the appropriate subsidies. The reason this result is surprising is that the subsidy cannot be collected unless the participants were kept on long enough to meet the tenure requirement, and if the local supervisors did not know who was eligible for the program, they could not make job decisions to ensure that tenure was achieved and the subsidy was paid. Our own discussions with a major temporary help agency found that their local managers not only knew who was eligible for the WOTC but received bonus payments based on securing the associated wage subsidies.

[33] The conclusions that Hamersma 2009 draws from these results are less optimistic than those of other authors whose studies produced similar results, but the actual results are more important than the judgments about them.

Does the WOTC Work?

The two studies/four papers above are too limited to constitute by themselves the basis for overall conclusions concerning the WOTC's effects. What we learn from them, however, is that the findings are generally consistent with those of other wage subsidy programs both here and abroad. Those programs, along with the WOTC, work in that they achieve the result hoped for, which is being associated with statistically significant improvements in the labor market outcomes of participants. As noted above, this conclusion is the equivalent of finding that an educational intervention leads to better student outcomes on relevant measures of learning.

The tougher standard is how meaningful the effects are in terms of their size and, ultimately, whether the overall effects of the program are worthwhile. At the extreme, is the expenditure on the program worth the costs?

There is no single measure and certainly no individual study that allows us to answer whether the WOTC meets this much higher standard of effectiveness. One approach to the question is to assess whether the program is more effective than other, equivalent programs designed to meet the same goal. This would be the equivalent of saying that an educational intervention was more effective at raising learning outcomes than other competing approaches. A higher standard still would be that the intervention is more cost-effective than other approaches in that it produces a better result for the same level of expenditure. Some of the studies above, such as Estevao's (op cit) do assert that wage subsidy programs are more effective than other arrangements for expanding employment as well as increasing employment rates for targeted groups.

The highest standard of effectiveness noted above is whether the costs of the program exceed the benefits. If so, then the argument for continuing the program and indeed expanding it is straight-forward.

We can get at the answer to this last, most difficult question in a convincing fashion through the process of backward induction: What is required in terms of results from the program to equal its costs? In other words, how big do the effects need to be, and are those effects broadly consistent with the range of findings from the various studies above?

Establishing whether the WOTC is worth the costs spent on it requires first establishing what counts as a benefit and how those benefits should be measured. The basic goal of the WOTC is to increase employment among targeted groups, but how do we assess the value of achieving that goal? What is it worth to move someone from long-term, chronic unemployment into employment?

The answer turns in part on another question, "worth to whom?" The benefits to the individual who moves out of chronic unemployment are obviously huge. An employee being paid $10 per hour would earn $4000 when the 400 hours of work threshold has been met for an employer to receive the maximum $2400 subsidy. A WOTC eligible employee working a full year would

earn $20,000 at 40 hours per week. The longer the eligible employee keeps a job, the greater is the return to them from the government's $2400 subsidy.

Not everyone would agree that the goal of government programs is to enhance the well-being of specific individuals, of course, or that the value of a program should be assessed based on how much those individuals benefit from it. A more general standard, which clearly is accepted for economic programs run by the government, is to consider benefits to taxpayers.

What are those taxpayer benefits in this context? They include costs to the broader community associated with unemployment but indirectly associated with it, such as crime rates, that are reduced when targeted individuals move into jobs. We know, for example, that a one percent decline in unemployment is associated with as much as a 2 percent decline in property crime (relationships with violent crimes are less clear) and that levels of incarceration also rise with unemployment.[34] Such costs affect citizens both as individuals and as taxpayers.

A similar story can also be told about health and healthcare costs. Unemployment is associated with increased rates of health problems, both physical and mental, many stress-related.[35] The cost of these illnesses is borne in part by the individuals, but they spillover to Medicaid payments and state-level programs for the unemployed, which of course are funded by taxpayers.

The benefits obviously also include reductions in expenditures that the government otherwise make to those who are chronically unemployed. Not counting unemployment insurance, which is funded by employees and employers, those include welfare and public assistance payments, alternative job training or job finding programs, and other forms of subsidies and support for low or no income individuals and families.

And there are some direct financial benefits to taxpayers associated with having individuals move into employment, such as taxes collected on the wages of newly employed individuals. Whether one should count all the taxes paid by targeted individuals who are employed as a result of a wage subsidy program or only those employed in net new jobs goes back to the earlier conversation about whether the total number of jobs in the economy is fixed so that targeted hires are displacing other workers (in which case count only net new jobs) or more elastic such

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[34] See, e.g., S.D. Levitt. 1996. The Effect of Prison Population Size on Crime Rates: Evidence from Prison Overcrowding Litigation, Quarterly Journal of Economics 111, 319-352.Raphael, S. and Winter-Ebmer. 2001. Identifying the Effect of Unemployment on Crime, Journal of Law and Economics 44, 259-283.

[35] A popular survey of the literature on the negative effects of unemployment on health is Don Peck. 2010. How a New Jobless Era Will Transform America. The Atlantic, July 24th.

that jobs expands elsewhere (in which case count all jobs). As noted above, all of the WOTC participants by definition are moving from unemployment to employment, so all such moves count for this purpose, not net new jobs per se.

Finally, there are macro-economic benefits to improving the quality and supply of labor to the economy.

Calculating the Value of the WOTC:

New York State's Department of Labor attempted to calculate the overall benefits of the WOTC program in that state as compared to its costs over the period since 1996. The benefits they see include economic stimulus effects and reduced expenditures on public service programs for recipients who move into jobs.[36] Their estimates are based on potential savings, and unfortunately, they do not explain how those estimates were calculated, but they conclude that every dollar spent on the program generates two dollars of net savings for taxpayers. Getting a clearer sense of the value of the WOTC requires looking at other sources.

We can get a sense as to whether the WOTC pays off by looking at cost-benefit studies that have been conducted for similar programs. Paula Greenberg and Andreas Cebulla calculated cost-benefit ratios for 50 studies of welfare-to-work programs. These programs do not include the WOTC, unfortunately, and again not all WOTC participants receive welfare. But the results are still suggestive of some of the benefits associated with moving individuals who are unemployed into employment where their welfare payments are reduced if not eliminated.

They estimate average and median benefits to program participants, to individuals not in the program (other employees), to the government in the sense of expenditures on the program minus expenditures that would have been made in the absence of the program and its success in moving individuals off welfare, and then society as a whole, which sums all of the above.[37]

There is considerable variance across programs and some large outliers in terms of their effects. But both mean and median results suggest net positive benefits for society. Much of that is driven by the benefits to the individual participants, not surprisingly. And again, some will see that result as a distributional practice.

If we focus purely on costs to the government, we see an interesting picture. There is a sharp division between those programs that continued to provide benefits to individuals who gain employment, albeit at a diminished rate in line with the idea of a negative income tax, and those that did not. The former are associated with much bigger benefits to individual participants but much higher net costs to the government. The latter have much lower benefits to participants but

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[36] New York State Department of Labor. 2003. The Work Opportunity Tax Credit: The New York State Experience. Albany, New York.

[37] David Greenberg and Andreas Cebulla. 2008. The Cost Effectiveness of Welfare to Work Programs: A Meta-Analysis. Public Budgeting and Finance. Volume 28 Issue 2, p. 112-145.

greater net benefits to the government, both in the median and mean contexts. The WOTC falls into this latter category because the benefits stop being paid relatively soon. The WOTC's effects should therefore be more like those of the non-incentive welfare to work programs, which are net positive for the government. The results from this study suggest that programs like these not only "work" in the sense of having statistically significant effects on participants that are economically meaningful. They save more money for the government than they cost, and they further create net benefits for society.

We attempt below to perform somewhat similar calculations directly for the WOTC program. The backward induction exercise starts with the cost of the WOTC subsidy, which is a maximum of $2400 paid to employers who have hired a targeted applicant and kept them employed long enough to qualify for the subsidy. (The tax deduction for wages paid is reduced by the amount of the WOTC credit, so the value of the credit may be less than the $2400 maximum, depending on the employer's tax situation.)

The first step in the analysis is to determine the benefits of the program, and that begins by getting a sense of the gains from moving an individual from unemployment to employment. The way to get at those gains is first by understanding the costs to the public and taxpayers of having an individual unemployed. This question is a bit more complicated to answer than one would think because the WOTC participants are a diverse group who receive different amounts of government support based on their attributes.

Timothy Bartik and John Bishop cite a Congressional Budget Office estimate that each additional dollar of GNP will cut the budget deficit by 38 cents, presumably because of the stimulative and multiplier effects of that additional expenditure and the subsequent effects on tax revenue. That benefit comes when new jobs are created. They assert that there are fiscal benefits even if new jobs are not created, i.e., if the subsidy goes to employers who would have had the job open in any case. In such situations, the subsidy is a windfall to employers, accruing directly to their bottom line profits. Those marginal profits are subject to a 35 percent Federal tax rate as well as local and state taxes. So the government recoups at least some of the subsidy in those situations.[38]

Job subsidy programs like these have a great fiscal advantage in that they leverage private sector funds when net new jobs are created. If the WOTC maximum subsidy of $2400 subsidy leads to a new job that lasts a year and pays $20,000 (i.e., $10/hour), then each subsidy dollar adds eight dollars to GNP, and each subsidy dollar therefore cuts two dollars off the government deficit.

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[38] Bartik, Timothy J., and John H. Bishop. 2009. "The Job Creation Tax Credit: Dismal Projections for Employment Call for a Quick, Efficient, and Effective Response." Economic Policy Institute Briefing Paper No. 248, Washington, DC, October 20.

The goal of the WOTC program is to get targeted workers into employment, not to create new jobs. How do the benefits change if a targeted worker gets a job that would have been filled in any case? The fact that a targeted individual, who by definition was unemployed, gets a job has significant net economic benefit. As noted above, most applicants for jobs are already employed. If applicants who already have jobs are hired, unemployment is not reduced. The hire would simply create a vacancy elsewhere in the labor market. When a targeted, unemployed individual is hired, in contrast, unemployment is reduced, even though no net new job was created.

How can the total amount of employment be increased if there no new jobs are created? Because frictional unemployment is reduced. Frictional unemployment is that which occurs when employed individuals move from one job to another. There is no frictional unemployment when an unemployed individual fills a vacancy, but there is when employed applicants fill those vacancies. The larger the WOTC program is, the more difficult it would be to move substantial numbers of targeted workers into subsidized jobs without adding net new jobs to the economy, in other words, to absorb those targeted new hires through reductions in frictional unemployment. Given that the program is so small, however, it is not hard to imagine how unemployed applicants could be absorbed into the labor force in the above manner.

Beyond simply helping secure a job, we know from the studies above that wages are often higher for WOTC recipients and that those jobs may last longer than for non-eligible individuals. Although we think of these effects as being private benefits, there is some wage-related tax collected on that earned income that benefits the government. The Earned Income Tax Credit ensures that low wage jobs of the kind that are most common with WOTC subsidies will have very low Federal tax rates, but payroll taxes and state and local taxes, which are less progressive, still apply.

There are a series of arguments for other, economy-wide benefits associated with moving individuals from chronic unemployment into jobs. One is that bringing such individuals into the labor force expands labor supply, puts downward pressure on wages, and lowers the natural rate of unemployment. Another is that the work-related experience and skill that targeted individuals receive improves their productivity, spilling over to benefit the economy as a whole. It is hard to put a value on these effects, and it might be fair to consider them as something like conceptual counterweights to other conceptual notions like deadweight loss that argue against wage subsidy programs.

As noted earlier, the most obvious benefits to the government and to taxpayers from moving disadvantaged individuals from unemployment and into jobs comes from various forms of public assistance that no longer need to be paid. The NY State study calculates, for example, that two-thirds of all WOTC certified individuals were welfare and food stamp recipients (it is possible to keep receiving food stamps even when employed under the WOTC program, when jobs are low-

wage). That study also estimates that vocational rehabilitation services are equivalent to about half the level of federal welfare payments to WOTC recipients.

Bartik and Bishop (op cit)) calculate that the safety net costs per year of supporting an unemployed worker are roughly $5000, not the chronically unemployed individuals targeted by WOTC, where the costs are likely to be considerably higher. They do not define what elements are in those costs. If we look at Federal welfare payments under the Temporary Assistance for Needy Families (TANF) program, however, annual payments for a family of three under the program can equal that amount alone (payments vary by state), not counting other Federal forms of assistance, such as food stamps and job training under the Workforce Investment Act, as well as state-level programs for healthcare, childcare, etc. The Bartik and Bishop estimate is that the savings is roughly double the cost of the maximum WOTC subsidy. Further, the latter is only paid once while the savings can accrue for more than a year.

The New York State Department of Labor study noted above asserts that reduced criminal conduct and jail time should be included in the WOTC's benefits in addition to reduced expenditures on vocational rehabilitation. The latter is especially sizable, and neither is included in the safety net costs of a typical unemployed individual.

Even if we only look at the reduced safety net costs associated with moving a targeted individual into employment, they seem to far outweigh the costs of the subsidy. The macroeconomic benefits described above are difficult to calculate, but they seem to be only icing on the cake of a positive story.

The caveat to this positive account, and an important one conceptually, is that while the WOTC program is a sufficient condition for getting a targeted individual into a job, it is not a necessary condition: Every subsidy payment is associated with a targeted individual moving from unemployment into a job, but the studies above suggest that many individuals in the control groups (those similar to the targeted population but not eligible for the WOTC subsidy) get jobs as well. That implies that some of the WOTC eligible individuals would have gotten jobs even without the WOTC program. How much credit should WOTC get for the employment of targeted individuals who move into subsidized jobs?

The most positive results for wage subsidy programs similar to WOTC imply that they raise the probability of getting a job for targeted individuals by as much as 25 percent above what those in control groups would experience; at the other end of the estimates are more modest effects of about five percent.[39] These are arguably the most effective programs for getting individuals into jobs, but whatever benefit we see from moving an individual out of long-term employment and into a job would appear to require adjustment by that probability. For example, if only one in

[39] The 25 percent figure comes from Richard Blundell, Monica Costa Dias, Costas Meghir and John Van Reenen. 2004. Evaluating the Employment Impact of a Mandatory Job Search Program. Journal of the European Economic Association, Vol. 2 Issue 4, p569-606.

four who received the subsidy got their job because of it, then on average only a quarter of the benefits of moving a targeted individual into a subsidized job should be attributed to the wage subsidy.

But how do we square the above argument with the idea that the subsidy is only paid when employers hire targeted individuals and are unlikely to have hired such an individual without the subsidy? That evidence suggests that the subsidies are highly effective in moving targeted individuals into jobs.

Logicians refer to the above conflict as a frame of reference problem: From the perspective of the employer, the WOTC subsidy is changing their behavior and causing them to shift from hiring a non-targeted individual (typically one already employed) to hiring one targeted by the WOTC. The effect on an individual employer in that context is very large. From the perspective of the typical targeted individual, on the other hand, the WOTC program improves the likelihood of being hired significantly in a statistical sense but only modestly in a practical sense. How can these both be true at the same time?

If all employers participated in the WOTC program, they could not both be true. The effects on employers and their jobs and the effects on targeted individuals would have to be identical: If the subsidy caused all employers to shift from hiring non-covered to WOTC covered applicants, then the probability of a targeted individual being hired would have to be dramatically greater than for a non-targeted individual.

In practice, though, relatively few employers participate in the program. For each of those who do, WOTC subsidies could make a big difference to their hiring decisions. But the effect of those decisions on the probability of a targeted individual getting hired is modest because there are few such employers and hiring decisions relative to the large number of WOTC eligible individuals. It is possible that the subsidy could account for every WOTC-eligible hire made by employers and for the increase in the probability of a typical WOTC-eligible individual getting hired still to increase only modestly.

The point of reference problem illustrated above explains why framing questions carefully is so important. If we ask, has the WOTC program had a substantial effect on moving the typical targeted individual into jobs, the answer would appear to be only modestly so.

But if we ask, is the WOTC a cost-effective approach to moving targeted individuals into jobs, the answer seems to be decidedly positive. Note that only employers who hire targeted individuals receive the subsidy, so the costs only come to bear when such individuals move into jobs. If the subsidy causes employers to shift their hiring to a targeted individual, then all the benefits of moving them into employment should be attributed to the WOTC. It does not have to be the sole factor for hiring the targeted individual. It simply has to be enough to tip the balance toward hiring. The empirical issue is whether the subsidy in fact does so.

The argument that the subsidy changes the behavior of such employers to hire targeted individuals seems strong. To see it, consider what is required for the WOTC to not have that effect. That would occur only where employers would have hired WOTC-eligible individuals, as opposed to other applicants, even without the WOTC subsidy, so that the subsidy is entirely a windfall for employers.[40] The very reason for being eligible for WOTC is because those individuals have attributes that are associated empirically with greater difficulty in getting hired. If we think about jobs paying $10/hour, the subsidy knocks off over half the employer's wage costs for the first 400 hours of employment and more for lower-wage jobs. It is hard to imagine an incentive of that magnitude not factoring into typical hiring decisions, especially where an employer has the choice of hiring candidates that appear more qualified than those certified by the WOTC.

Here we have some conflicting empirical evidence. A set of case studies conducted for the US Department of Labor in 2001 concluded that while employers liked the program and the WOTC-certified employees they hired seemed to do about as well as other candidates, the employers would have hired those employees in any case and that the subsidies played little role in the hiring decisions.[41]

A more thorough study conducted by the Government Accounting Office (2001) the same year used a random sample of employers participating in WOTC in California and Texas to examine their behavior. This study concluded that the tax subsidy was by far the factor motivating employers to hire WOTC eligible workers, followed in importance by being a good corporate citizen. They estimate that three-quarters of employers changed their employment practices in some way to accommodate WOTC recipients, and half changed training practices. It is difficult to believe that employers who make changes like these would have hired candidates like those eligible for WOTC without the subsidy.

There no doubt are cases where the attributes that targeted individuals are just as attractive as those not eligible for the WOTC. It is very difficult to estimate what percent of all WOTC subsidies paid fall into that category, but we should adjust the benefits associated with WOTC down proportionately to capture it.

It is certainly possible to argue that for many employers, the subsidy is bigger than would be necessary to entice them to hire a targeted applicant. In that situation, the difference between the subsidy and the minimum amount needed to shift them to hire a targeted individual is something like consumer surplus, which the employer captures. Nevertheless, the subsidy in such cases still

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[40] It might seem equally the case that the WOTC would have no effect if the subsidy was not big enough to affect their decision to hire, but remember that in such a situation, the subsidy would not be paid. There would be no expenditure to offset with benefits.

[41] These two findings together are puzzling. If the employers were willing to hire candidates like those the WOTC targets, it would be irrational for them to ignore the subsidies. See Westat and Decision Information Resources, Inc., Employers' Use and Assessment of the WOTC and Welfare-to-Work Tax Credits Program. Washington, D.C.: U.S. Department of Labor, Employment and Training Administration, Office of Policy and Research, Mar. 2001.

tips the balance toward hiring and therefore should get credit for any associated benefits. The ratio of benefits to costs of moving the targeted individual into a job would be unchanged.[42]

A very reasonable conclusion about the WOTC is that the subsidy is not big enough to cause many employers to shift their hiring decision to WOTC-eligible applicants. We know that is true because the program has only modest effects on improving the employment prospects of the average targeted individual. On the other hand, there is every reason to believe that the arguably too modest subsidy currently available is a highly cost-effective way to move targeted individuals into jobs. Given that, expanding the size of the subsidy is a reasonable action to take as it would lead to more participants and bigger benefits.[43]

A Cost-Benefit Calculation:

Assuming the above conclusion that expenditures on the WOTC are a good way to move eligible individuals into jobs, we still need to know whether the value of doing so is worth the costs of the subsidy. Returning to our backward induction exercise, how big do the specific benefits of moving a targeted individual into employment have to be to offset the cost of the $2400 subsidy? First, if we assume that an employer receiving the subsidy would not otherwise have hired a targeted individual, then virtually all the benefits associated with moving an individual from long-term unemployment into a job should be credited to the WOTC program. If, on the other hand, we thought that there was, say, a 20 percent chance that the targeted individual would have been hired in any case, then the WOTC gets credit for 80 percent of all the above benefits.

Not all the benefits from the WOTC need to be adjusted by that probability, however. The economic benefits associated with any net new jobs of the kind Bartik and Bishop discuss above are free from that qualification as are the fiscal effects on taxes associated with raising corporate profits for jobs that would have been filled in any case. Any effects that occur once targeted individuals are in the subsidized job are also free from that reduction. For example, if targeted individuals stay in jobs longer or earn more money than control groups, those effects can be directly attributed to the subsidy.

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[42] To pin down exactly how big the effect of the WOTC is on an employer's hiring decisions would require a different kind of study than the ones we have seen so far. Such a study would begin with a sample of applicants at a given employer where some were WOTC eligible and others not, see which ones were hired, and then calculate – other things equal - how much of the hiring outcome was associated with WOTC eligibility. It is possible for that effect to be modest and still not influence the cost/benefit value of the program, however. If the effect was small because the subsidy was not big enough to induce employers to hire targeted individuals, that also implies that subsidies are not being paid. If the subsidy mattered in only a few cases, the benefit to cost value of the subsidy could still be very substantial.

[43] It is certainly possible, of course, to have too big a subsidy in that the cost of it could exceed the benefits. But the type of increases that are possible in the current context (e.g., keeping up with inflation since the subsidy began in 1996) will not cause that to happen.

WOTC STATE LEVEL SAVINGS
EXPLANATION OF COMPUTATIONS

In his April 2013 study, "A Detailed Assessment of the Value of WOTC" Professor Peter Cappelli of the Wharton School quantified the savings in social spending programs to the United States Government that are generated by moving an individual from public assistance to private sector employment through the work opportunity tax credit (WOTC). The study that follows, prepared under Professor Cappelli's supervision, quantifies the savings at the state level in three programs which formed the basis his 2013 Federal level study.

The computations are as follows:

TANF – The percentage which states contribute to TANF was taken from the FFIS report, derived in turn from Federal Government statistics. The number of participants in TANF in each state and the average TANF benefit per state are taken from Federal Government statistics in a November 21, 2011 report of the Center for Budget and Policy Priorities. These figures were used to derive the average amount of the annual TANF benefit that each state contributes to recipients.[1]

Individuals hired in several WOTC categories are recipients of TANF benefits and the number certified (and hired) in each category is provided annually by the US Department of Labor. Two WOTC categories are specific to individuals on TANF. The Congressional Budget Office in a 2012 report on the food stamp (SNAP) program found that 60% of individuals on SNAP are also on TANF, and as a result, 60% of individuals certified for SNAP are added to the TANF categories to compute the total TANF state level savings under WOTC.

SNAP - Although SNAP is a federally funded program, states contribute to the administration of SNAP and the amount of that state level expenditure is also listed in the FFIS report. The chart derives these savings by dividing the total spent by each state to administer its SNAP program by the number of SNAP participants in each state (that number was taken from the USDA February 2014 report on the "Characteristics of SNAP Households)." The average expenditure for SNAP per individual was multiplied by the number of individuals certified for WOTC under the SNAP category to determine savings.

A reduction adjustment was made to the overall WOTC savings in SNAP and TANF in the amount of 11% to account for the likelihood that not all WOTC hires will earn sufficient amounts to completely come off of these programs as was done in the April 2013 Cappelli study.

MEDICAID – Using figures from the Kaiser Family Foundation the WOTC savings in state Medicaid programs were added to the TANF and SNAP totals. These were derived by determining the total state contribution to Medicaid (by multiplying the total Medicaid spending in a state by the state's FMAP – its share percentage – and multiplying that by the number of WOTC hired individuals who are on Medicaid. This last number is a combination of 60% of all SNAP certified individuals (CBO statistics indicate that 60% of individuals on SNAP are also on

[1] These calculations have since been updated to consider each individual state's TANF-related expenditures.

Medicaid) and 98% of the WOTC TANF certified individuals who statistics show are also on Medicaid.

The total Medicaid savings are adjusted down by 50% to account of individuals who are hired at wage levels that would continue to qualify them for Medicaid.

Final Adjustments – Two final adjustments are made to the savings totals. First, based on a study by New York State under Governor Pataki that showed the average WOTC recipient is retained in the job and is off public assistance for 2.3 years, even though the credit with one small exception is provided for just one year, the total is multiplied by a factor of 2.3. (Because years overlap, the states will realize the total amount of savings computed in these charts in a single year; the first year savings of someone certified in that year should be added in each year to the second year for savings for some certified in the prior year and so on).

A second adjustment reduces the savings by 25%, consistent with Professor Cappelli's finding that while WOTC is a very effective program, an allowance should be made for the possibility that WOTC may not be the main factor driving every hire under the program. Professor Cappelli uses a 25% reduction factor in this regard.

The overall savings figures may in reality be greater because the chart does not take into account state programs which are very difficult to quantify., including housing, health and wellness, crime prevention, and government run training programs.