

# Temporary Help Work: Earnings, Wages, and Multiple Job Holding\*

SARAH HAMERSMA, CAROLYN HEINRICH, and PETER MUESER

Temporary help services (THS) employment has been growing in size, particularly among disadvantaged workers. An extended policy debate focuses on the low earnings, limited benefits, and insecurity that such jobs appear to provide. We investigate the earnings and wage differentials observed between THS and other jobs in a sample of disadvantaged workers. We find lower quarterly earnings at THS jobs but a \$1 per hour wage premium. We reconcile these findings in terms of the shorter duration and lower hours worked at THS jobs. We interpret the premium as a compensating wage differential.

## Introduction

EXCEPT DURING THE MOST RECENT RECESSION, THE TEMPORARY HELP SERVICES (THS) industry has been growing faster than regular employment, with THS employment more than doubling (from 1.1 to 2.3 million) during the 1990–2008 period (Luo, Mann, and Holden 2010). Studies suggest that as many as 15 to 40 percent of former welfare recipients have gone to work in the temporary help sector since 1996 (Autor and Houseman 2010; Heinrich, Mueser, and Troske 2005), prompting concern about the disproportionate share of low-skilled and disadvantaged workers among THS employees. Autor and Houseman (2000) and Luo, Mann, and Holden (2010) also point to a marked shift in the sectors of employment in which THS workers are taking jobs, from largely clerical and office work to an increasing share in blue-collar occupations and other low-wage jobs that are filled by less-skilled workers. Manufacturers, for example, significantly increased

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\*The authors's affiliations are, respectively, Maxwell School of Citizenship and Public Affairs, Syracuse University, Syracuse, NY. Email: [sehamers@maxwell.syr.edu](mailto:sehamers@maxwell.syr.edu); Lyndon B. Johnson School of Public Affairs, Austin, TX. Email: [cheinrich@austin.utexas.edu](mailto:cheinrich@austin.utexas.edu); Department of Economics and Harry S. Truman School of Public Affairs, University of Missouri, Columbia, MO. Email: [mueserp@missouri.edu](mailto:mueserp@missouri.edu).  
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their use of staffing services<sup>1</sup> to fill core production jobs in the 1990s, contributing 9.2 percent to manufacturing employment by 2006, compared with 2.3 percent in 1989 (Dey, Houseman, and Polivka 2012).

This substantial concentration of disadvantaged workers in THS employment has spurred additional research about the implications of THS employment for these workers' wages, access to fringe benefits, job stability, subsequent labor market transitions, and longer-term earnings. The disproportionate job loss that the THS sector bears during recessions also adds to these concerns; in the latest recession (2007 to 2009), employment in staffing services fell by 30 percent (compared to a 4.9 percent decline in average annual nonfarm payroll employment), although it is also leading net job growth in the recovery (Dey, Houseman, and Polivka 2012). THS jobs accounted for 26 percent of new private-sector jobs in 2010, compared with 7.1 percent in the same period following the 2001 recession (Nash and Romero 2011).

Of key interest in policy debates is whether THS employment provides some benefits to these workers—in the form of flexibility in work hours, a wage premium and/or access to on-the-job training—or by opening a path to more stable, long-term employment for workers who might otherwise be excluded from permanent job opportunities. There does appear to be some consensus that if the next best alternative to a THS job is no employment, then working in a THS job provides potential benefits; however, workers who remain in the THS sector are likely to have long-run earnings that are substantially below those who transition to work in other sectors (Andersson, Holzer, and Lane 2005, 2007; Booth, Francesconi, and Frank 2002; Heinrich, Mueser, and Troske 2005, 2009).

The majority of U.S.-based research on this topic has used administrative data that include information on workers' quarterly earnings, although some have implemented surveys to gather workers' self-reports of hourly wages, hours worked, and earnings in THS and non-THS jobs. Benner, Leete, and Pastor (2007) suggest that many of the differences in findings across seminal studies were likely due to differences in data, measurement, and comparison groups.

In this study, we break new ground by drawing on a unique compilation of administrative data that allow us to examine hourly wages and total hours of work, as well as quarterly earnings, in investigating employment and compensation patterns in THS work. We use these data to explore the possibility that THS workers receive a wage premium relative to pay at a traditional job. If the answer is affirmative, this might suggest that THS work is, in fact, *less*

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<sup>1</sup> Temporary help services accounted for 77 percent of staffing services in 2010. (The other two categories are professional employer organizations and employment agencies.)

desirable for the marginal worker (e.g., fewer work hours, less stability, shorter duration) but that they are compensated with higher wages. If we do not observe a compensating differential, this suggests either that THS jobs have characteristics that are positively valued by marginal workers and compensate for lower wages, or that THS offers jobs of last resort that are inferior both in terms of wages and work characteristics.

Determining whether the benefits of THS work outweigh the costs for low-skilled and disadvantaged workers is complicated by the fact that a nontrivial proportion of these workers hold multiple jobs, sometimes in more than one sector. The examination of multiple job-holding among disadvantaged THS and non-THS workers is another important contribution of this work.

In the next section, we briefly review the concept of compensating wage differentials and link it to the literature on THS employment. We pay particular attention to what we know about THS workers' wages and patterns of employment, earnings, and multiple job-holding. We then describe our data and methods of analysis. In the analysis, we first briefly explore how quarterly earnings among the disadvantaged differ for those in THS versus non-THS work, and whether these patterns are different for those holding multiple jobs. Our main analysis then investigates these patterns for a large subsample of workers for whom we have data on hourly wages and total hours of work, allowing us to address our key question about a possible compensating wage differential for THS work.

Consistent with related research, we find lower quarterly earnings at THS jobs relative to non-THS jobs, even when controlling for worker and job characteristics. This holds for those in multiple jobs as well: having any THS job (whether alone or along with another THS or non-THS job) is correlated with lower quarterly earnings. However, when we examine hourly wages rather than quarterly earnings for a subsample of our data, we find that wages are about \$1 per hour higher, on average, for THS work relative to non-THS work (approximately 15 percent of the typical hourly wage). This wage premium occurs whether or not the THS job is held during the same quarter as a direct hire job. The difference in results for quarterly earnings compared to hourly wages is largely explained by the much shorter duration of THS jobs.

*Literature Review.* A substantial body of research on THS employment has addressed the basic question concerning whether disadvantaged workers benefit from THS work or fare more poorly in terms of longer-term labor market outcomes relative to those who take direct-hire jobs. Autor and Houseman (2008) find that some employers screen THS workers for permanent jobs with promising career trajectories and/or offer skills training, whereas others use THS workers primarily to fill low-skill, short-term staffing needs or as

“permatemps,” temporary employees who are retained or repeatedly rehired to lower overhead costs to the employer and to offer greater flexibility in scheduling work.<sup>2</sup> A number of high-profile, class-action lawsuits have been brought against employers in the last decade alleging unfair exclusion of temporary workers from benefits extended to other workers, including successful litigation in 2000 against Microsoft (Frauenheim 2005). Employers have countered that temporary workers sometimes earn better wages than their full-time peers and can often purchase a benefit package from their THS agency, whereas worker advocacy organizations contend that THS workers are frequently paid lower wages, get fewer or more variable work hours, and receive fewer benefits while performing the same jobs as regular employees (Eisenberg 1999).

Adam Smith (1776) first spelled out the idea that earnings would have to compensate for differences in the nonpecuniary attractiveness of jobs in a competitive labor market. In this first discussion of compensating differentials, Smith commented on the potential importance of “constancy or inconstancy of employment” (1776: 106), among other factors. In a survey of studies on compensating differentials, Robert Smith (1979: 246) concluded that job insecurity was one of the few job characteristics that came close to being “a prior specifiable as unpleasant.” This is clearly a trait of all THS jobs—they are by definition limited-term assignments that allow for immediate worker dismissal—and end-user employers frequently choose to use temporary help workers to avoid worker protection costs (Katz and Krueger 1999). We show below that THS jobs are much shorter-lived than direct-hire jobs. Averett, Bodenhorn, and Staisiunas (2005) and the studies they review provide empirical support for the view that differential risk of unemployment across job types is associated with differences in wages.

There are other known differences in nonpecuniary attributes between THS and non-THS jobs, although some may favor THS jobs. For example, THS jobs may allow greater schedule flexibility, which could be of particular value for those holding multiple jobs. For other workers, the irregularity of work hours might be a net disadvantage. One of the major challenges in empirically testing the theory of compensating differentials is that it requires a prior specification of job characteristics that are less desirable for the marginal worker (Rosen 1986; Smith 1979). Because employers frequently have more than one wage offer function<sup>3</sup> and workers have varying preferences for job characteristics, it is difficult to conclusively link a positive wage differential to a purportedly undesirable job.

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<sup>2</sup> See Center for a Changing Workforce: <http://www.cfcw.org/permatemps.html>.

<sup>3</sup> One argument made in the literature is that the THS industry helps to reduce wage rigidity, where employers use their ability to draw on the temporary help workforce to offer more than one wage plan, i.e., paying lower wages to THS workers versus incumbent workers (Houseman 2006; Yellen 1984).

Much of the literature focusing on THS jobs appears to find that even after controlling for worker characteristics, such jobs offer both inferior job attributes—including unstable employment and lower benefits—and lower wages, which is inconsistent with a simple model of compensating differentials. Explanations are offered by models of imperfect competition, including monopsony, efficiency wage, and search models, which suggest that there may be some low-productivity jobs that are inferior on all dimensions. It is also possible that these empirical results are misleading. Even if wages do compensate for job characteristics, it may be difficult to observe this empirically if important elements of worker productivity are not measured, since any model of optimal compensation implies that lower-productivity workers will be in jobs that are inferior on all dimensions.

In short, if we observe that THS jobs pay *lower* wages, this may indicate either that such jobs provide nonpecuniary benefits for the marginal worker, or that such jobs are generally inferior (with lower productivity expected from workers). Alternatively, if we observe a wage premium, the primary candidate to explain this would be compensating differentials, particularly if our analyses include sufficient controls for worker characteristics.

Indeed, among the most vexing issues in research on THS employment and its implications are the empirical challenges of accounting for worker self-selection into job type (THS, direct hire, or no job) that make it difficult to disentangle effects of job type from unmeasured worker characteristics, such as motivation or unobserved employment barriers. Studies by Finegold, Levenson, and Van Buren (2003), Carre (1992), and Segal and Sullivan (1997) suggest a relationship between worker characteristics associated with lower productivity (e.g., fewer formal educational qualifications and less work experience) and selection into THS jobs, and Finegold, Levenson, and Van Buren also report that low-skilled and disadvantaged workers were more likely to enter THS work after being unemployed or looking for work. Similarly, Heinrich, Mueser, and Troske (2009) found that participation in government programs (welfare, job training, and labor-exchange programs) was associated with a substantial increase in temporary-help employment, although their analysis also showed that participants in Temporary Assistance for Needy Families (TANF) or job-training programs who took THS jobs were not disadvantaged relative to other program participants.

The challenges associated with estimating the effects of THS employment while controlling for selective differences among workers are also exacerbated by the fact that most U.S.-based research relies on employer reports of quarterly earnings (Unemployment Insurance [UI] records) to measure labor-market outcomes. Although these data usually include information on the employer and the worker's earnings during a quarter, they do not include information on

hourly wages, weekly hours, or whether jobs in the same quarter were held simultaneously or sequentially. Primarily because of these data limitations, only a few studies have looked at wages, wage premia, or wage-work hours trade-offs, despite the fact that compensating differentials (if they occur) are expected to appear at the level of the hourly wage.

Benner, Leete, and Pastor (2007) conducted a detailed quantitative and qualitative study of workers' use of labor market intermediaries, including THS firms, and their labor-market outcomes in two regional labor markets: Milwaukee, Wisconsin and San Jose, California. Using administrative data supplemented with survey data on earnings, hourly wages, and hours worked, they found that THS workers have both lower earnings and lower wages than others. However, given their limited sample and use of cross-sectional data with few controls for selection into THS jobs, the generalizability of their results is unclear.

Taking advantage of detailed data linking workers and firms in Portugal, Böheim and Cardoso (2007) compared temporary-agency workers with direct-hire workers to assess whether those working for temporary agencies had lower wages initially or in the two years following entry into THS jobs. As THS workers in Portugal are entitled to the same wage paid by the user firm to similar direct-hire workers (or to the wage set by collective bargaining for temporary-agency work if it is higher), they expected to find no or very small wage differentials between THS and direct-hire workers. In simple comparisons of average wages, they observed THS workers receiving about 10 percent lower wages than direct-hire workers. However, once they controlled for firm and worker characteristics, including unobservable worker quality with worker fixed effects, the pattern reversed, with young temporary-help workers receiving an hourly wage premium of about 1–5 percent. Similarly, Forde and Slater (2005) found that wages for THS employment in Britain are more than 20 percent below direct hire employment, but once individual and job characteristics and selection into jobs were taken into account, the differential fell to 9 percent.

Using administrative data for Germany and controlling for individual characteristics and selection into the THS sector, Jahn (2010) estimated that THS employment provided wages about 15 percent below that in direct-hire jobs, a penalty that has grown over the last decade. Jahn (2012) found, however, that the wage penalty tended to decline with time in the THS industry, presumably a reflection of skill accumulation.

Segal and Sullivan (1997) undertook a careful comparison of wages for THS and other workers by occupation based on the 1983–1993 Current Population Survey. Although they found a 10–30 percent difference in wages between THS and other employment, when they controlled age, race, gender,

education, and geographic area, this declined by about a third. Estimates based on a model controlling for individual fixed effects and a variety of job characteristics implied a differential less than 5 percent for most occupations.

In summary, most—but not all—studies that have examined the impact of THS employment on wages for the average worker have found that THS employment is associated with lower wages, although the difference is small when characteristics and selection are taken into account. However, much of the policy concern focuses on the impact of THS employment for disadvantaged workers. In contrast to the result above, when studies have focused on such groups—the groups most likely to be found in THS employment—they have not found penalties for THS employment.

In their study of Michigan welfare-to-work programs that randomly assigned program participants to service providers that placed clients in jobs, Autor and Houseman (2008, 2010) collected notably detailed data on the jobs clients secured through the programs, including their hourly wages, weekly hours, job title, and employer name. They reported that the THS jobs obtained were highly concentrated in low-skilled manufacturing occupations, general laborer positions, and health care and clerical occupations, while direct-hire jobs were distributed across a wider range of occupational categories. Autor and Houseman's (2008, 2010) data analysis showed that not only were the average hourly wages (\$7.83 versus \$7.43) and weekly hours of work (37 versus 34) higher at THS than direct-hire jobs, but the entire distribution of wages and hours was also uniformly higher for THS than for direct-hire jobs. Although this may reflect in part the differing occupational distributions of these job types, at least in the short term, a differential in compensation was apparent.

Moretti (2000) looked at temporary labor contracts for seasonal workers in the agricultural sector, hypothesizing that the higher risk of unemployment typically experienced by seasonal workers in this sector would be compensated by higher wages (compared with year-round workers). Any differential, he suggested, would approximate the value of job security to the workers. Moretti (2000) employed two-step estimators and distribution-free semiparametric estimators to separate job risk from the risk of unemployment due to unobserved worker characteristics, using data from the 1992–1995 National Agricultural Worker Survey. He found that a worker employed under a temporary labor contract earned a wage 9–12 percent higher than a similar worker in a year-round job (or approximately \$0.52–0.61 per hour), a premium comparable to the differential observed by Autor and Houseman (2010) for THS workers.

We have found very little research that has considered multiple job-holding among workers in the temporary help and other sectors and the implications of

multiple job-holding for their THS wages, earnings, and/or compensating differentials. We conjecture, for example, that for some THS workers who hold a traditional job as well as a temporary job, the THS job may, in fact, be valued because it requires fewer hours or allows greater flexibility; alternatively, for a THS worker for whom the temporary job is his or her only job, these same job characteristics may make it less desirable, compelling a compensating differential. In their study of the employment and earnings trajectories of persons following their entry into employment or social assistance programs, Heinrich, Mueser, and Troske (2009) confirmed that individual selection into THS jobs only versus THS plus a job in another sector is distinct. They found that while the earnings of those working only in temporary employment were lower than for workers in other sectors, those holding jobs in multiple sectors had earnings close to the level of workers in most other sectors. With only measures of quarterly earnings, however, they were not able to observe workers' wages at these different types of jobs or to assess whether the differentials in earnings were due to differences in wages or hours worked.

In summary, our analyses fill several gaps in the current literature. By focusing on disadvantaged workers, we address an important policy-relevant question about the relationship between THS and direct-hire jobs for a class of individuals where these jobs play an important role. Because we have access to panel data that allow us to estimate models with individual fixed effects on a sample of individuals who have held both THS and non-THS jobs, we expect our analysis to better handle the selection problem, as workers have all had both types of jobs and the individual fixed effects can net out time-invariant determinants of compensation. Although the few studies that have examined THS or temporary job wages for disadvantaged populations suggest that wages may compensate for insecurity, more general studies yield ambiguous results. Our analyses generate important evidence that not only contributes to the literature on compensating differences, but also increases our understanding of the trade-offs faced by those workers who are most likely to work in THS jobs. While the literature makes abundantly clear the difficulties of proving the existence of compensating differentials, we think this study makes a credible attempt for an increasingly important sector of the economy (Heinrich and Houseman 2012).

## Data and Empirical Approach

We use uniquely available data on a sample of disadvantaged workers in Wisconsin who were employed with firms that applied for the Work Opportunity Tax Credit (WOTC). The WOTC is a federal employer subsidy available

for firms that hire welfare recipients, food stamp recipients, and members of other designated target groups under specific conditions.<sup>4</sup> In our prior research on the WOTC (Hamersma and Heinrich 2008), we found that many firms that typically hire low-skilled and disadvantaged workers, whether THS or non-THS, commonly include the WOTC application with other employment application forms. Firms collect these forms and submit them to third parties for processing or directly to the state employment service for certification. Upon approval, firms may claim the tax credits the following year, depending on the hours worked and total earnings of the employee.<sup>5</sup>

Although the goal of the WOTC subsidy program is to increase hiring of disadvantaged workers, our previous research (Hamersma 2008; Hamersma and Heinrich 2008) suggested that most employers, including THS firms, simply assemble the forms for processing and collect the tax credits later, without paying attention to which workers get certified. We also found that THS firms apply in disproportionately large numbers for the credit, but that they also have many certified workers for whom they ultimately receive little or no subsidy due to the workers' short job tenure with the THS firm.<sup>6</sup> The participation of both THS and non-THS firms in the WOTC program allows us to use a sample of "WOTC-applied" workers to examine THS wage and earnings differentials and to generate findings directly relevant to workers who are more likely to be employed in the THS sector.<sup>7</sup> Specifically, we use workers for whom employers submitted WOTC applications (regardless of whether they were certified or credits were received by the employer) to take advantage of the availability of matched demographic and employment data from other

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<sup>4</sup> See Bartik (2001) for a full description of the WOTC and similar prior programs.

<sup>5</sup> The tax credit is a percent of total earnings of the worker (applying to earnings up to \$6000). The percent of the credit depends upon hours worked in the following way: 0–119 hours provides no credit, 120–399 hours provides a 25 percent credit, and 400+ hours provides a 40 percent credit. The effects of this structure on firm participation are discussed in detail in Hamersma (2011). For our purposes, the important finding is that firms are more likely to apply for the tax credit when they have longer average worker tenure, but there is no evidence that firms adjust tenure in response to the credit on the relevant margins (i.e., the 120-hour and 400-hour thresholds).

<sup>6</sup> Hamersma and Heinrich (2008) evaluate two key issues. First, they use a sample of WOTC recipients to compare some basic THS and non-THS outcomes. The current work is a substantially expanded treatment of this issue, with the addition of examining hourly wages and handling multiple jobs in each quarter, and utilizing a much longer sample period. Second, Hamersma and Heinrich (2008) use a sample of THS workers and compare those who are WOTC-certified to those who are WOTC-eligible (but not certified) to estimate the effect of the WOTC subsidy on worker outcomes within the THS industry. To avoid redundancy, we do not examine the effects of the WOTC in the current paper.

<sup>7</sup> We include all possible applicant records, including those that were not ultimately certified for the subsidy. This allows for a larger sample size than that restricted to certified applicants. Analyses limited to certified applicants are very similar and are available upon request. Analysis cannot be limited to those for whom credits were claimed, as the IRS does not collect information on a per-worker basis when firms claim credits.

sources (discussed below), and most importantly, the hourly wage data at the WOTC job itself. We further consider the implications of this sample choice where relevant in the analysis and discussion of findings.

*Empirical approach.* We begin by providing some basic descriptive information about job-holding patterns in our sample, separately identifying workers who hold only one non-THS job, multiple non-THS jobs, one THS job only, multiple THS-only jobs, and both THS and non-THS jobs within a quarter. We then undertake multivariate analyses to estimate differences in earnings for workers in THS and non-THS jobs, controlling for worker demographic characteristics, and, in some specifications, individual fixed effects. These same analyses are performed including indicators for multiple job-holding. Recognizing the limitations of earnings as an outcome measure, we move to our main estimates of the hourly wage differential between THS and non-THS jobs, controlling for available worker characteristics and occupation categories, and conduct similar analyses accounting for multiple job-holding categories. While wages are still not a perfect measure of compensation in the presence of nonpecuniary benefits, an examination of the jobs held by disadvantaged workers suggests minimal benefits in both THS and non-THS jobs; particularly in short-duration jobs (like most of those in our sample), there is little opportunity to claim any benefits that an employer may offer.<sup>8</sup> In reconciling the findings on THS and non-THS wage and earnings differentials, we also examine the duration of employment in THS and non-THS jobs, as well as transitions of workers from THS into non-THS jobs (and other employment transitions).

*Details of data and study sample.* We obtained all administrative records for WOTC applications submitted by employers in Wisconsin during ten quarters, from 1999 quarter (Q) 3 to 2001 Q4. These records report the occupation of each job and the starting wage (in \$1-wide brackets).<sup>9</sup> Moreover, this sample of workers provides our foundation for a much richer data set formed by merging the records of these individual workers (by Social Security Number)

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<sup>8</sup> If we assumed that workers in direct-hire jobs receive benefits whereas those in temporary help jobs do not, we might conclude that any wage differential may merely compensate for lack of benefits. We do not have data on benefits to examine this directly, but it is clear that this assumption does not hold. Many THS firms offer benefits to their workers (Bureau of Labor Statistics 1995), and many disadvantaged workers in the traditional sector find it difficult to obtain benefits (see, for example, Hamersma and Kim [2009], who note the low prevalence of employer-provided health insurance among low-income workers). In our context of low-duration jobs (for example, nearly half the jobs even in our sample of *non*-THS jobs end within one quarter) few workers are likely to qualify for substantial benefits. Thus we conclude that hourly wages should be a reasonable approximation to the value of hourly compensation.

<sup>9</sup> The occupations are reported in nine broad categories: Service, Clerical and Sales, Professional/Technical/Managerial, Machine Trades, Processing, Structural, Farm/Forestry/Fishery, Bench Work, and Other.

to other databases containing substantial information on their demographic characteristics and employment patterns.

For those workers qualifying for WOTC due to participation in public assistance programs, we can link their WOTC record with further information contained in the state's Client Assistance for Re-employment and Economic Support (CARES) database. Along with information on welfare and food stamp program participation, the CARES records contain demographic information including education level, number of children under age 18, number of children under age 6, age, gender, race, and some geographic information. We can access these records for the period 1998 Q1 through 2001 Q4.

To examine employment outcomes, we also link the workers in our sample to the state's Unemployment Insurance (UI) database containing quarterly earnings records for every job held by each of these individuals over almost 10 years (1995 Q1–2004 Q2). Note that quarters with multiple jobs contain a separate earnings record for each job. Across these years, we observe job transitions as well as job types, although within a given *quarter*, it is not possible to determine if multiple jobs were held simultaneously or sequentially. The particular job that was subsidized via WOTC can be identified in the UI records via an employer identification number, so that starting wages (available only in the WOTC records) can be linked to total earnings at the appropriate job. This linkage is central to our examination of hourly wages and job tenure (in hours rather than quarters) at these jobs, which complements and extends our analysis of quarterly earnings that utilizes all jobs reported for these workers. These records also contain industry codes that are used to differentiate THS and non-THS jobs.<sup>10</sup>

Following the full merge, our dataset contained 293,432 person-job-quarter observations. This is based on 11,335 workers who are observed for up to

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<sup>10</sup> We identify firms as THS if they have NAICS industry code 5613, "Employment Services." Because we cannot make a finer distinction than this code, our sample of workers in this industry will include those who have nontemporary jobs working at THS offices and workers in other employment service firms. In the 2000s, between 70 and 80 percent of employment in firms coded as NAICS 5613 was in THS firms, and more than 90 percent of THS employees were temporary workers assigned to other firms (Antoni and Jahn [2009] found 5–7 percent of THS firm employees were direct hire workers at the agency). However, given that our sample is of disadvantaged workers, we expect the actual number of temporary workers to be higher than these figures imply. Insofar as there is a misclassification, it will bias our estimates against finding any differentials between THS and non-THS jobs. We do not have data on the industry a temporary worker's assignment is in; he or she may in fact have multiple assignments during the time employed with the THS firm, but earnings records simply reflect payments made by the THS firm itself, as it is the worker's legal employer. Multiple assignments with a given THS agency within a quarter or in successive quarters count as a single job. (Internal personnel records from THS firms would be necessary to identify separate job assignments within a worker's spell at a given THS firm.)

9.5 years (thirty-eight quarters), with a total number of jobs for individuals ranging from a single job to ninety jobs over the sample period. About 16 percent of the person-job-quarters reflect THS jobs. Reconstructing the data into person-jobs (so that multiple quarters at the same job are collapsed into one observation) yields a sample size of 139,107 person-jobs, of which 22 percent are THS.<sup>11</sup> Note that this higher percentage of THS jobs when using person-jobs reflects the typically shorter duration of THS jobs. We can also approach the data by person-quarter (218,895 observations) to analyze multiple job-holding within a quarter.

### Examining Employment Patterns and THS Work

It is well established that disadvantaged workers tend to have less stable employment patterns than typical workers. This pattern holds in our data set of workers who had an employer apply for WOTC on their behalf, where the average number of jobs per person was nearly eleven over the 9.5-year study period (with only 8.4 percent holding three or fewer jobs and over 11 percent holding twenty-two or more jobs).

To study THS employment, we need sufficient observations of both THS and non-THS jobs in our sample. Fortunately, the sample composition and long length of the time series yield a rich sample for this purpose; more than two thirds of workers had at least one THS job during this time period. In addition, nearly all of these workers (7654 of the 7707 with a THS job) also had a non-THS job at some point during this time period. This uniquely situates us to look at person-specific differences in earnings at each type of job in our analysis.<sup>12</sup>

We next examine within-quarter patterns of multiple job holding. It is evident from Table 1, Panel A that many disadvantaged workers in our sample hold multiple jobs within a quarter, reflecting both job transitions within a quarter and simultaneous jobs. An important finding in our sample is that

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<sup>11</sup> If a person has multiple spells with the same employer (i.e., quarters of employment with a given employer are not successive) we code these as distinct person-jobs.

<sup>12</sup> Although we do not model nonemployment, it may be helpful to note that the median person in our sample has earnings records for about half of the thirty-eight quarters possible (25th percentile = 13, median = 19, 75th percentile = 26), reflecting, in part, weak labor force attachment. However, it is also partly due to the fact that some people who secured a (WOTC) job during 1999 Q3 through 2001 Q4 were not yet in the labor force in the earliest quarters of the UI data, which go back to 1995 Q1. This is particularly relevant because some WOTC eligibility groups include age restrictions, making our sample rather young; for example, food stamp recipients were only eligible if they were between the ages of 18 and 24 during this period. Nonemployed person quarters (regardless of the reason) are not included in our analysis.

TABLE 1  
 MULTIPLE JOB-HOLDING WITHIN QUARTERS BY DISADVANTAGED WORKERS

	For All 218,895 Person-Quarters Percent	For Person-Quarters with at Least One THS Job (N = 38,599) Percent
Panel A: Number of Jobs		
1 Job in quarter	73.26	46.23
2 Jobs in quarter	20.99	36.07
3 Jobs in quarter	4.52	12.96
4 + Jobs in quarter	1.22	4.74
Panel B: Composition of Jobs		
One job, not THS	65.11	0
Multiple jobs, no THS	17.25	0
Multiple jobs, both types	7.86	44.57
One THS job	8.15	46.23
Multiple jobs, all THS	1.62	9.20

SAMPLE: All employed person-quarters during the sample period 1995:1–2004:2, for workers whose employers applied for WOTC on their behalf sometime during 1999:3 to 2001:4.

those in THS jobs are particularly likely to hold multiple jobs within a quarter. To better understand the ways in which people combine work within quarters, we report the distribution of several quarterly work patterns in Table 1, Panel B. There are multiple jobs occurring in 26.09 percent (17.25 + 7.86 + 1.62) of all person-quarters and in over half of person-quarters among those with at least one THS job. Of these multiple-job quarters, more than one third included at least one temporary help job.

In summary, consistent with prior research, these data show a great deal of THS work among disadvantaged workers and a tremendous amount of job mobility. Second, it is not unusual for workers to hold multiple jobs during a quarter, particularly if they have a THS job; for every person-quarter involving a single THS job, there is another person-quarter that combines a THS job with at least one other job (THS or non-THS). In addition, as almost all THS workers in our sample also had traditional jobs during the time period we examine, our data do not suggest a distinct “secondary” labor market in the THS industry.

### Earnings Analysis and its Limitations

*Earnings at THS and non-THS jobs.* We begin with a brief analysis of quarterly earnings, in line with the typical literature on THS versus non-THS work. We use a linear regression model throughout our analysis, with different groups of covariates depending on the sample being used. Our basic model is:

$$Y_{ij} = \alpha + \beta_1 THS_{ij} + \beta_2 X_{ij} + \beta_3 T_q + \varepsilon_{ij}$$

where  $Y$  is measure of earnings,  $THS$  is an indicator for a temporary job,  $X$  is a vector of control variables,  $T$  is a vector of year-quarter dummy variables, and  $\varepsilon$  is a random error term. The subscript  $i$  labels individuals,  $q$  labels quarters, and  $j$  labels jobs. Throughout our analysis, our greatest interest lies in the value of  $\beta_1$ , which represents any difference in earnings that can be attributed to a job being in the THS industry.

Our first approach maximizes our sample size by utilizing only the demographic data that are available for our full sample period: age, gender, and race.<sup>13</sup> We estimate a regression at the person-job-quarter level, modeling job-quarter earnings as a function of a THS indicator, time (year-quarter) indicators, gender, race, and age. The results of this analysis, reported in column 1 of Table 2, suggest that temporary work is associated with nearly \$900 less in quarterly job earnings.<sup>14</sup>

A richer set of demographic variables—including number of children, education level, and geographic information—is available over a more limited time period (1998 through 2001). As these variables may provide additional explanatory power (given potential within-person variation over time), we also estimate our model with these variables for this restricted time period. The second column of Table 2 displays the estimates from this model, which similarly indicate a large negative effect (more than \$650) of THS employment on quarterly job earnings.<sup>15</sup>

The analysis thus far still does not fully utilize the panel nature of the data available to us. Since 67 percent of the sample of workers had at least one THS job *and* at least one non-THS job during the sample period, we can do a separate analysis of within-person earnings differences between the two types

<sup>13</sup> These variables are available only in 1998–2001 via CARES, but they are easily imputed to the rest of the period.

<sup>14</sup> In an alternative model specification (comparable to the model in column 1, Table 2), we interacted year indicators with the THS indicator to explore whether the decrement in earnings associated with THS employment varied over time and with cyclical economic changes. The results (available from the authors) show considerably smaller differences in “boom” years—approximately \$700–\$800 less in quarterly earnings over the 1998–2000 period—compared to differences in recessionary years (2002–2004) of more than \$1,100–\$1,400 less in quarterly earnings for workers in THS jobs. We suspect that larger differences in quarterly earnings in recessionary times are due to longer gaps between jobs (or shorter THS job duration), an issue we further explore empirically in the final section.

<sup>15</sup> The geographic variables used were a set of indicators for nine economic regions of Wisconsin, defined by Shields and Deller (1996). Coefficients for these indicators are not included in the table for brevity, but are available upon request.

TABLE 2  
REGRESSION OF JOB-QUARTER EARNINGS ON THS WORK AND DEMOGRAPHICS

Variables	(1) Person-Job Level All Years	(2) Person-Job Level 1998-2001 with Time-Varying Variables	(3) Person-Job Level for Those w/ Both Job Types Using Person Fixed Effects All Years	(4) Person-Job Level for Those w/ Both Job Types Using Person Fixed Effects and Time-Varying Variables 1998-2001
THS Indicator	-881.17*** (-56.43)	-657.59*** (-44.62)	-730.79*** (-88.25)	-566.91*** (-52.41)
Female	-178.21*** (-6.703)	-94.52*** (-3.985)		
Black	115.88*** (4.573)	34.39 (1.478)		
Hispanic	204.01*** (4.701)	189.56*** (4.758)		
Other nonwhite race	163.77*** (6.006)	103.97*** (4.019)		
Age	143.03*** (16.27)	98.09*** (12.79)		
Age squared	-1.72*** (-12.86)	-1.21*** (-10.16)		
# of children under age 18 in household		26.65*** (4.592)		-22.69*** (-2.991)
# of children under age 6 in household		33.31*** (3.832)		3.80 (0.374)
High school graduate		213.76*** (12.37)		42.12 (1.644)
Some college		369.84*** (10.76)		139.64*** (2.848)
College graduate		308.89** (2.191)		35.70 (0.241)
Observations	293,432	118,322	219,040	90,201
R-squared	0.114	0.070	0.350	0.322

NOTES: The first column is based on the largest possible sample from these data, utilizing all 293,432 person-job-quarter observations for the period 1995 Q1-2004 Q2. The second column adds covariates that are only available in 1998 Q1-2001 Q4 (including indicators for nine geographic/economic regions not included in the table), thus limiting the sample to that time period. The third column uses only those with both THS and non-THS jobs over the sample period, and the fourth column further restricts this to 1998-2001. All regressions include quarterly time indicators and a constant, and the first two columns (those without person fixed-effects) cluster by individual. Numbers in parentheses are t-statistics. Statistical significance: \*\* 0.05 level; \*\*\* 0.01 level.

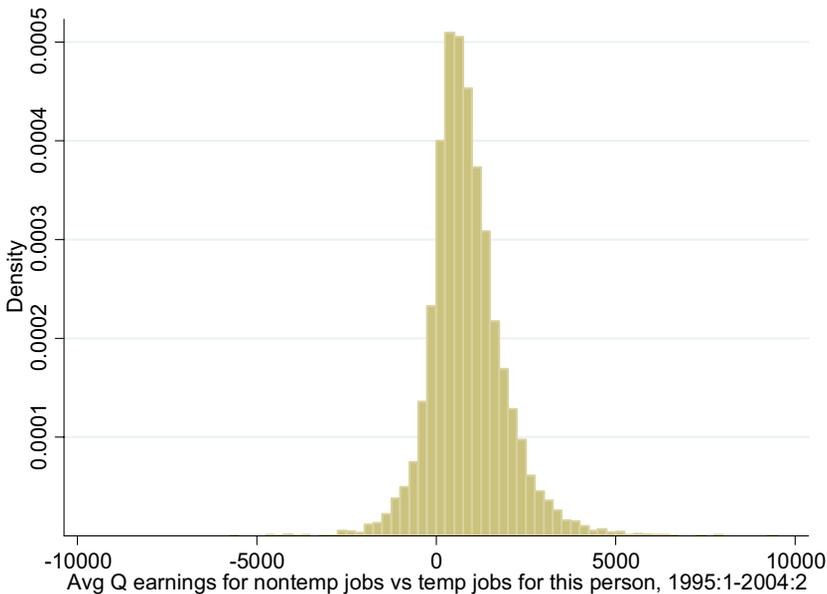
of jobs. We expect this analysis to better handle selection into THS work, as the estimates will net out time-invariant determinants of earnings.

The simplest comparison is to calculate the pay gap between THS and non-THS jobs for those who had both job types. Comparing average quarterly earnings at each type of job (calculated for each individual), we find that the median gap between THS and non-THS pay is an additional \$670/quarter at

non-THS jobs, and the mean gap is \$782. This result is quite consistent with the previous estimates based on a regression model using the entire sample with covariates. However, it is clear that there is heterogeneity in the net benefits people obtain from non-THS work; in fact, about 16 percent of this sample had higher quarterly earnings at their THS job(s) than at their non-THS job(s). The histogram in Figure 1 presents a wide distribution of earnings gaps. This suggests that any estimated effect of THS jobs on earnings is likely an average among people with varying experiences.

The comparison of earnings in Figure 1 controls for stable individual factors, but it does not remove economic cycle effects or time-varying individual factors. The third and fourth columns of Table 2 present regression models with individual fixed effects, allowing for such controls. The results presented in the third column of Table 2, which control for quarter and year of employment, suggest that the average person who has worked in both types of job has experienced a premium of \$731 in quarterly earnings at non-THS jobs relative to THS jobs, very similar to the simple difference estimate. Using a more limited sample that includes time-varying covariates suggests a modestly smaller difference (see column 4), with an estimated per-quarter earnings gap of \$567.

FIGURE 1  
DISTRIBUTION OF AVERAGE EARNINGS GAP BETWEEN THS AND NON-THS WORK



There are several possible explanations for the lower quarterly earnings we observe in THS jobs. THS workers may have lower hourly wages than other workers or may work fewer hours per week. Earnings may also be lower because THS jobs are of shorter duration (a smaller number of weeks worked within a quarter). If those moving from a THS job can readily move to an alternative, these lower earnings overstate the earnings penalty suffered by THS workers. The following analysis addresses this issue by focusing on multiple jobs within a quarter, examining the total quarterly earnings, not just those for a single job.

*Analysis explicitly accounting for multiple jobs.* In analyzing THS in the context of multiple job-holding, we use a more detailed measure of employment for each quarter that indicates whether that quarter contains: (1) one non-THS job record; (2) more than one record, no THS jobs; (3) more than one job record, with at least one THS job and one non-THS job; (4) one THS job record; or (5) more than one record, all THS jobs. We expect to find that quarters involving THS work will be associated with lower earnings. Predicting the effect of being in multiple jobs is more difficult, however, and ultimately, an empirical question. If jobs are held simultaneously, earnings are likely to be higher than a single-job quarter; alternatively, multiple-job quarters may reflect sequential jobs with a gap of nonemployment in between, so that earnings for the whole quarter may be lower.

Results using observations at the person-quarter level (rather than the person-job-quarter level) are presented in Table 3. We report results with specifications parallel to the last two columns of Table 2 (the fixed-effect model) since these have the strongest identification strategy.<sup>16</sup> We supplement the model with the set of job-holding patterns discussed above, where the omitted category is a single, non-THS job. The first column regression in Table 3 includes the 158,241 person-quarter earnings observations in the sample period 1995 Q1–2004 Q2 for workers who had both THS and non-THS jobs over the time period. The second column adds time-varying covariates but includes only the time period 1998 Q1–2001 Q4.

This analysis likewise suggests economically (and statistically) significantly lower quarterly earnings at THS jobs. The estimated difference in quarterly earnings between a quarter with a single non-THS job (reference category) and one with a single THS job ranges from \$695 to \$842, similar to the range of our earlier estimates. The estimates are similar for those with multiple THS jobs, which show a strong disadvantage relative to a single non-THS job.

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<sup>16</sup> Regressions parallel to those in the first two columns of the prior table produce results that are substantively similar.

TABLE 3  
REGRESSION OF TOTAL QUARTERLY EARNINGS ON DETAILED MEASURES OF JOB-HOLDING

Variables	(1)	(2)
	Person-Quarters with Person Fixed Effects	Person-Quarters with Person Fixed Effects and Time-Varying Covariates 1998-2001
Multiple jobs, no THS	110.06*** (10.13)	81.74*** (5.504)
Multiple jobs, both types	-215.68*** (-16.73)	-187.01*** (-11.15)
One THS job	-841.51*** (-64.48)	-695.45*** (-37.17)
Multiple Jobs, All THS	-758.28*** (-28.53)	-629.72*** (-18.80)
# of children under age 18 in household		-56.71*** (-6.239)
# of children under age 6 in household		3.42 (0.280)
High school graduate		73.99** (2.410)
Some college		184.49*** (3.045)
College graduate		397.24** (2.141)
Observations	158,241	60,720
R-squared	0.460	0.484

NOTES: Sample is of quarters of employment for individuals. Regression specifications correspond with those in columns 3 and 4 of the prior table. Numbers in parentheses are t-statistics. Statistical significance: \*\* 0.05 level; \*\*\* 0.01 level. Estimates without fixed effects included (and thus using a larger sample including those without both job types) are qualitatively similar and available upon request.

A person with both THS and non-THS jobs is at less of a disadvantage than one with a single non-THS job, with estimates ranging from \$187 to \$216. The only group that has higher quarterly earnings than those with a single non-THS job is the group with multiple jobs that are all non-THS.

*Investigating the potential role of selection.* To further explore the potential role of selection in our analysis, and specifically, selective factors related to the WOTC qualification criteria (that could influence the likelihood of WOTC certification or application submission), we estimate these same models including only jobs that *begin* in a quarter after WOTC application submission.<sup>17</sup> In doing so, we ensure that the employment outcomes we examine are not directly limited by the WOTC selection criteria. With sample sizes that are

<sup>17</sup> We also experiment with selectively dropping only the quarter of the WOTC job start and then a varying number of adjacent quarters. Appendix C reports details of this analysis.

one third or less of those in Tables 2 and 3, the patterns of results and magnitudes of effects are remarkably consistent, albeit the estimated penalty associated with working in the THS sector (Appendix A, Table A1) or only one THS job (Appendix A, Table A2) is approximately 15 percent higher.

In summary, a THS job—even if it is one among others—seems to be associated with lower quarterly earnings relative to single or multiple non-THS jobs, and earnings in other jobs within a quarter do not appear to even partly compensate for the short length of THS jobs. This implies that those with short THS jobs experience earnings shortfalls in part because of problems they have in transitioning from one job to another.

While our results provide consistent evidence on the relationship between THS work and quarterly earnings, our earlier documentation of the high job mobility of disadvantaged workers indicates that measuring job duration in quarters (and earnings by quarter) may be too coarse a measure for fully understanding job outcomes. Because each worker in our sample had at least one WOTC application reporting a starting hourly wage, we can look directly at a measure of hourly wages at those jobs to assess the possibility of a THS-compensating differential.

### Finer Measures of Wages and Job Duration

There are a total of 12,486 person-jobs for which employers applied for the WOTC, and this is the sample for which wages are available. Fourteen percent of these jobs, or 1753, are in the THS industry. Table 4 displays characteristics of the sample of WOTC jobs (column 3), providing comparisons with the full person-job-quarter sample (column 1) and the person-job sample with demographics (column 2). Note that while the same individuals are in all samples, the WOTC sample is a much smaller set of their jobs both because it is restricted to “WOTC-applied” jobs, and because the time period is shorter (a ten-quarter period, rather than the sixteen or thirty-eight quarters available for the other samples). Of course, the first sample is larger as well because jobs that span quarters appear multiple times. Most individuals in the WOTC sample (91 percent) have only one WOTC-applied job in the 1998–2001 period; they appear only once in this sample, and most of the others appear twice. This sample restriction reduces the power of the analysis but also limits heterogeneity in the sample because it captures only jobs around the time of social service program participation and, among those, only those for which an employer sought WOTC eligibility. In addition to providing wage information, these data allow us to identify the occupation, which is not available for other jobs in our dataset.

TABLE 4

DESCRIPTIVE STATISTICS FOR FULL SAMPLE, 1998–2001 SAMPLE, AND WOTC SAMPLE

	All Person-Job-Quarters		Person-Jobs 1998–2001		WOTC Jobs	
	Non-THS	THS	Non-THS	THS	Non-THS	THS
	Number of person-jobs	247,528	45,904	64,220	18,516	10,733
Fraction of sample:	84.35	15.64	77.62	22.38	85.96	14.04
Quarterly earnings	1707	876	1002	629	1175	941
Total earnings at job	12,234	2839	3748	1319	5586	2125
Female (percent)	80.68	74.84	80.44	74.66	80.68	65.77
Age	26.36	27.77	25.32	27.18	26.08	28.01
# of children under age 18 in household	2.25	2.14	2.21	2.14	2.21	2.01
# of children under age 6 in household	1.15	1.15	1.17	1.17	1.15	1.04
Ever received welfare <sup>†</sup> (1998–2001)	29.36	32.90	31.24	33.73	31.53	24.47
RACE (proportions)						
Race (proportions):						
Black	37.45	50.83	38.47	51.19	41.07	41.64
Hispanic	4.72	6.79	4.65	6.30	5.09	5.99
Other nonwhite	18.08	15.44	18.08	16.19	19.25	20.71
Region (proportions):						
Milwaukee			52.90	63.34	54.95	57.26
Dane County			19.39	18.12	19.30	10.62
Elsewhere			27.71	18.54	25.75	32.12
Education (proportions):						
< High school			50.05	48.22	49.10	40.79
High school			41.59	41.93	42.11	47.20
More than high school			7.99	9.43	8.35	11.32
College degree			0.38	0.42	0.44	0.69
Hourly Wage (proportions):						
Less than minimum wage					2.80	0
\$5.15–\$5.99					23.67	5.34
\$6.00–\$6.99					39.47	24.76
\$7.00–\$7.99					15.82	25.52
\$8.00–\$8.99					11.44	25.38
\$9.00 +					6.78	19.00
Occupations (proportions):						
Professional/technical/managerial					11.51	2.83
Clerical and sales					39.87	16.41
Service					29.11	52.69
Others <sup>††</sup>					19.52	28.07

<sup>†</sup>NOTES: The 1998–2001 sample uses jobs starting in that period. The WOTC sample contains only jobs for which employers applied for WOTC between 1999 Q3 and 2001 Q4. Sample sizes vary slightly depending on a small number of missing values.

<sup>†</sup>We also estimated the models presented in Tables 2–3, A1–A2, and 5 including the indicator “ever received welfare” and found no substantive differences in results. For parsimony and because of the limited timeframe these data are available, we do not report these results.

<sup>††</sup>The “Other” occupations include a few small, identified occupations, but the vast majority coded here as “Other” are reported as “Other” in the data itself.

There are some key differences between this WOTC-job sample and the larger sample that underscore the importance of adequate controls in our regression analysis. First, the fraction of jobs that are THS in this sample is smaller than in the larger sample. This is expected in light of evidence from Hamersma (2011), who shows that firms have a lower likelihood of participating in the WOTC program if their workers have shorter average job duration—a common characteristic of THS jobs. Second, the raw average earnings per quarter are higher overall in this WOTC-job sample and are more similar across THS and non-THS workers. While one might expect this to be directly related to the subsidy program itself—which, in principle, would allow firms to pay higher wages—past evidence suggests only about a 10 percent earnings premium (Hamersma 2008). The larger difference in our sample may reflect higher education levels (particularly among the THS workers).

The wage distributions for the two different job types, reported at the bottom of Table 4 in \$1-wide categories as provided to us by the WOTC administrative office, give a very different impression of the pay gap between THS and non-THS jobs than the analysis of quarterly earnings. The distribution seems to suggest that wages in THS work dominate those in non-THS work. Coding wages as midpoints, we find mean non-THS earnings of \$6.85/hour and mean THS earnings of \$7.88/hour. However, we also see differences in the educational and occupational distributions, which suggest a question: Could this apparent wage premium for THS work point us toward the importance of controlling for covariates, especially occupation and education? Or is it evidence of a compensating differential?

We examine this wage differential controlling for all available covariates at the time of job start, as well as indicators for nine occupation categories. This sample includes only WOTC jobs—one observation per person-job—as we have only one wage (the starting wage) for each job. There are 8755 WOTC person-jobs with complete wage and covariate data, using only the first quarterly observation at the job and covariates from the starting quarter of the WOTC job.

The key coefficients are reported in Table 5, where the outcome of interest is the wage at the WOTC job.<sup>18</sup> The first column of results suggests that THS jobs are associated with an hourly wage *premium* of more than a dollar, despite our earlier finding of a quarterly earnings *penalty*. This premium is equivalent to about 15 percent of the average wage.

We can also examine the effects of multiple job-holding in the context of wages rather than quarterly earnings. This analysis does, however, have some complications, because the existence of multiple jobs is measured at the

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<sup>18</sup> Full model results with quarterly and occupational indicators are available upon request.

quarterly level, while the wage is at the job level. Because the analysis must be done at the job level, for persons with multiple WOTC jobs and job types in a quarter, we also distinguish whether the observation is for a THS or non-THS job. There are subsequently two options for informative analysis that both have some advantages and disadvantages. One option is to continue to use only one observation per person-job. This has the advantage of maintaining the accuracy of the wage, since the starting wage will almost certainly be accurate for the first quarter of employment. The disadvantage is that there are a disproportionate number of people with multiple jobs in that quarter, as it is a starting quarter of a new job (and also potentially an ending quarter of a previous job). This limits the generalizability of the results. Another option is to use all quarters in which there is a WOTC job, which often includes some single-job quarters and other multiple-job quarters. This has the advantage of being a more representative sample of person-quarters (and a larger sample more generally), but the disadvantage of requiring the assumption that the starting wage continues to be accurate throughout the tenure of the WOTC job.

Estimates using the first alternative approach are in the second column of Table 5. The direct comparison between a single non-THS job and a single THS job yields nearly the same estimate as the first column: a THS wage premium of \$1.10. A gap also occurs when comparing someone with a non-THS job to someone with multiple THS jobs. Relative to a single non-THS job, a premium of \$1.17 for a THS job occurs for a person with both THS and non-THS jobs. In contrast, non-THS jobs worked alongside other (THS or non-THS) jobs do not tend to pay much more than a single non-THS job. Estimates using the second alternative approach (in the last column of Table 5) demonstrate that a larger, perhaps more representative sample produces nearly identical results.<sup>19,20</sup>

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<sup>19</sup> One could argue that a regression using  $\log(\text{wage})$  rather than wage itself is more appropriate. We find very similar results using this approach: the predicted THS gap is 14 percent and is statistically significant at the 99-percent level. When we estimate the multiple-job versions of the  $\log(\text{wage})$  model, the findings are also remarkably similar to those using wage levels. Model fit is also similar. Detailed tables are available upon request.

<sup>20</sup> For the regression model presented in column 1 of Table 5, we also estimated similar models that added interactions with the THS indicator and three covariates: age (and age squared), education, and whether there were children under age 18 in the household. For the sake of brevity, we do not report those results here, but they are available upon request. The interactions with education were not statistically significant. For age, the results imply an estimated \$1/hour wage premium for individuals in their mid-20s (the typical age for our sample). When there are children in the household, the wage difference for THS workers increases to \$1.10/hour, and it is lower (\$0.80/hour) for those without children. We also re-estimated Table 5 without occupational controls, and found that despite a large drop in  $R^2$ , the estimated effects of THS employment were very similar.

TABLE 5  
REGRESSION EXAMINING THS AND NON-THS WAGE DIFFERENTIALS

Variables	(1) Person-Job Level, first Q of All WOTC Jobs	(2) Person-Job Level, First Quarter of All WOTC Jobs	(3) Person-Job Level, All Quarters of All WOTC Jobs
THS	1.05 <sup>***</sup> (24.08)		
Multiple jobs, no THS		0.09 <sup>***</sup> (3.208)	0.05 <sup>*</sup> (1.782)
Multiple jobs, both types, this one THS		1.17 <sup>***</sup> (17.61)	1.09 <sup>***</sup> (17.37)
One Job, THS		1.10 <sup>***</sup> (16.92)	1.15 <sup>***</sup> (17.34)
Multiple jobs, THS only		1.02 <sup>***</sup> (11.38)	1.00 <sup>***</sup> (11.40)
Multiple jobs, both types, this one non-THS		0.22 <sup>***</sup> (5.126)	0.19 <sup>***</sup> (4.752)
Female	-0.08 <sup>**</sup> (-2.101)	-0.08 <sup>**</sup> (-2.196)	-0.09 <sup>**</sup> (-2.043)
Black	0.05 (1.564)	0.05 (1.497)	0.08 <sup>*</sup> (1.774)
Hispanic	-0.02 (-0.395)	-0.03 (-0.451)	-0.03 (-0.438)
Other nonwhite race	0.07 <sup>*</sup> (1.679)	0.07 <sup>*</sup> (1.717)	0.08 (1.620)
Age	0.08 <sup>***</sup> (8.563)	0.08 <sup>***</sup> (8.224)	0.09 <sup>***</sup> (7.876)
Age Squared	-0.001 <sup>***</sup> (-7.243)	-0.001 <sup>***</sup> (-6.904)	-0.001 <sup>***</sup> (-7.003)
# of children under age 18 in household	-0.02 <sup>***</sup> (-2.873)	-0.02 <sup>***</sup> (-2.732)	-0.02 <sup>***</sup> (-2.120)
# of children under age 6 in household	0.06 <sup>***</sup> (4.271)	0.06 <sup>***</sup> (4.285)	0.08 <sup>***</sup> (4.608)
High school graduate	0.15 <sup>***</sup> (5.526)	0.14 <sup>***</sup> (5.253)	0.15 <sup>***</sup> (4.471)
Some college	0.28 <sup>***</sup> (5.358)	0.27 <sup>***</sup> (5.211)	0.26 <sup>***</sup> (4.225)
College graduate	0.25 (1.125)	0.23 (1.011)	0.47 <sup>**</sup> (2.164)
Observations	8755	8755	16,988
R-squared	0.268	0.271	0.258

NOTES: Regressions also include indicators for economic regions within Wisconsin, indicators for occupational categories, and year-quarter indicators. Standard errors cluster by person. Time period is 1998–2001. Numbers in parentheses are t-statistics. Statistical significance: \* 0.10 level; \*\* 0.05 level; \*\*\* 0.01 level

To verify that our finding of a THS wage premium is not merely an artifact of the limited sample of WOTC jobs, we also create a weighted version of this sample designed to replicate the descriptive characteristics of the larger

TABLE 6  
WAGE REGRESSION RESULTS USING WEIGHTED VERSION OF WOTC-JOB SAMPLE

VARIABLES	(1) Person-Job Level, First Quarter of All WOTC Jobs	(2) Person-Job Level, First Quarter of All WOTC Jobs	(3) Person-Job Level, All Quarters of All WOTC Jobs
<i>Panel A: Weights designed to replicate original Table 2 column 1 sample (all jobs)</i>			
THS indicator	1.06*** (22.29)		
Multiple jobs, no THS		0.09*** (3.02)	0.05* (1.89)
Multiple jobs, both types, this one THS		1.15*** (15.90)	1.11*** (16.50)
One THS job		1.15*** (15.90)	1.17*** (16.59)
Multiple jobs, all THS		1.04*** (10.64)	1.03*** (11.20)
Multiple jobs, both types, this one non-THS		0.20*** (4.79)	0.18*** (4.43)
Observations	8755	8755	16,988
R-squared	0.273	0.275	0.267
<i>Panel B: Weights designed to replicate original Table A1 column 1 sample (post-WOTC jobs)</i>			
THS indicator	1.06*** (21.49)		
Multiple jobs, no THS		0.08*** (2.78)	0.01 (0.46)
Multiple jobs, both types, this one THS		1.17*** (15.49)	1.08*** (15.00)
One THS job		1.17*** (15.43)	1.17*** (16.26)
Multiple jobs, all THS		1.01*** (10.31)	1.01*** (10.43)
Multiple jobs, both types, this one non-THS		0.23*** (4.96)	0.17*** (3.93)
Observations	8754	8754	16,984
R-squared	0.277	0.280	0.268

NOTES: Regressions correspond to those in prior table. Coefficients for controls are suppressed. Numbers in parentheses are t-statistics. Statistical significance: \* 0.10 level; \*\*\* 0.01 level. The sample sizes are slightly smaller in the lower panel reflecting zero weights for a small number of WOTC job quarters.

sample (for which wages are not available). Details of the propensity-score procedure for generating these weights, and evidence of the procedure's effectiveness in producing adequate weights, are presented in Appendix B. We generate separate sets of weights to help re-create the Table 2 sample (all jobs) and the Table A1 sample (post-WOTC jobs) and then estimate the wage regression using our WOTC-job sample with each set of weights. The results, shown in Table 6, are remarkably similar to those of the unweighted sample,

despite weights that substantially change the distribution of covariates. Although our weighting adjustments cannot fully account for selection on unmeasured factors, the finding of no impact of selection on measured factors suggests that unobserved selection probably does not seriously bias our results. We therefore conclude that the selected nature of the WOTC-job sample is unlikely to drive the findings of an approximately \$1 hourly earnings premium for THS work.<sup>21</sup>

### Reconciling the Findings on Quarterly Earnings and Wage Differentials

Our findings using quarterly earnings indicate a penalty to THS work, while those using hourly wages suggest a premium. We attempt to resolve this apparent contradiction by examining job duration. Table 7 shows the distribution of job durations by THS status. Overall, job durations are very short for this sample, but the short duration of THS jobs is particularly remarkable. The fraction of THS jobs appearing in only one quarterly record (66.5 percent) is nearly 40 percent higher than the fraction for non-THS jobs (48.5 percent). The difference in duration is even clearer when we examine the subsample of WOTC jobs, for which we can approximate the hours worked (rather than quarters) by using the starting wage. The average non-THS job lasts 758 hours while the average THS job lasts just 287 hours.<sup>22</sup> The extra \$1.00–1.10 per hour may well be largely compensation for the brevity of THS jobs.

TABLE 7  
JOB DURATION IN THS AND NON-THS JOBS

Quarters at Job	Non-THS Percent	THS Percent
1	48.53	66.50
2	27.84	23.54
3	9.46	5.94
4	4.63	2.13
5	2.67	0.97
6 +	6.88	0.92

SAMPLE: This sample contains all person-jobs in the dataset, of which 108,866 are non-THS and 30,241 are THS. Entries are percentages, such that columns add up to 100.

<sup>21</sup> The regressions in Tables 5 and 6 include time-varying covariates, and therefore omit about a third of WOTC jobs with incomplete data on those measures. We also ran corresponding regressions that omit these controls, allowing a substantially larger sample, yielding results that were substantively identical and are available upon request. In addition, supplemental results on subsamples are available in Appendix C.

<sup>22</sup> The medians are closer, at 192 and 121, but the top of the distribution is very different (the 90th percentiles are 1803 and 705, respectively).

If some of these THS jobs are shorter because workers are transitioning from THS to other THS or non-THS jobs, then we might be able to discern these patterns by looking more closely at workers holding multiple jobs within a quarter (which may reflect job transitions or simultaneous jobs). We begin this final analysis by identifying person-quarters in our sample that include multiple job-holding. While we find workers holding as many as eight or nine jobs in a quarter, about 95 percent of the 58,522 person-quarters with multiple jobs involve just two or three jobs. To keep the analysis manageable, we utilize these 55,843 person-quarters in our analysis and further identify the subset of these in which it is clear that the worker experienced a transition from one job (leading up to the observed quarter) to another job (continuing into the following quarter). This occurs in 15,624 (28 percent) of these observations. A primary question of interest in this analysis is: what fraction of the transitions in this subsample are transitions from THS to non-THS jobs?

First, we note that 2734 of the 15,624 person-quarters consisted of workers who were in THS jobs in the quarter prior to the observation quarter. Among these, we find that 23 percent move into another THS job. Of those (12,890 person-quarters) who began in a non-THS job, about 13 percent transition to a THS job in the next quarter. Although this is a fairly restricted subsample, we view these analyses as offering an important insight about a group of disadvantaged workers that is typically viewed as vulnerable. Specifically, it does not appear that a large proportion of this subsample of workers is more likely to stay in THS jobs, although the level of transition to THS is higher for those already in THS.

While we did not explicitly look for “permatemps” in our analyses, we showed that the majority of THS jobs in our disadvantaged sample do not last longer than a quarter, and those transitioning to another employer from a THS job are most likely to go to a non-THS job. Nonetheless, workers in THS jobs are clearly working a significantly lower number of hours at a given job. In addition, some of them transition to unemployment or periods with few to no hours of work that largely account for the lower average quarterly earnings of workers in the THS sector. Similar to the seasonal agricultural workers in Moretti’s (2000) study, THS workers clearly labor in less stable jobs with fewer work hours.

## Conclusion

In a unique analysis of hourly wages of disadvantaged workers, we find that, conditional on worker characteristics, THS workers receive a higher wage relative to pay at traditional jobs. Although within-worker comparisons of

quarterly THS and non-THS earnings suggest that most workers earn more per quarter in non-THS jobs, for a subset of our sample with richer, hourly wage data, we find a premium of about \$1.00–\$1.10 per hour for THS work. Moretti (2000) describes the differential between workers with temporary and year-round contracts as the value of job security for workers; we correspondingly view the THS differential as compensation for jobs with less stability, fewer hours, and/or shorter tenure. We additionally showed that workers in multiple jobs tend to have lower quarterly earnings than single job-holders if any of their jobs are THS jobs. Our findings suggest that this reflects, at least in part, gaps in employment within a quarter with multiple jobs.

Our data pertain to disadvantaged individuals, and our analysis of hourly earnings is further limited to those whose employers sought certification under the WOTC program. Our weighted analysis of the WOTC sample suggests that this latter form of selection does not drive our results. Gaining a fuller understanding of how THS work affects labor market outcomes (particularly employment transitions) for a broader sample of workers than was available to us is probably feasible only with data from THS firms that can be linked to state administrative data. Even with such data sources, the depth of investigation would depend on the extent to which these firm data include workers' time between temporary job placements and transitions from a THS assignment to a permanent job with an end-user firm. Still, this analysis has uncovered important findings regarding the extent to which THS workers may be compensated for the limited job security and tenure that they tolerate, and it confirms that lower observed earnings are not primarily due to THS workers being paid a lower hourly wage rate than their permanent employee counterparts.

Although caution is always warranted in a study where potential biases in estimation remain, we suggest several policy implications of these findings. First, the typical labor economic analysis that relies on UI quarterly earnings data, without access to information on hourly wages, might suggest to policy makers that an increase in the minimum wage would be appropriate for addressing concerns about THS workers' lower quarterly earnings. However, such a policy response would miss the crux of the problem, which is that job durations are significantly shorter, and would thus have limited impact on improving workers' ability to earn an adequate living. Although we have acknowledged the limitations of our sample of WOTC-applied jobs, the disadvantaged individuals in this sample are precisely the types of workers of concern in the public discussion of the consequences of temporary work.

Our findings also suggest that policy or program supports to aid workers in their transitions to a non-THS job, or in providing additional financial support for periods between jobs, might be considerably more effective in supporting

workers who labor in less stable jobs with fewer work hours. The current UI system has well-known deficiencies in providing a temporary means of assistance to low-income workers such as those in the THS sector, due to eligibility restrictions that are based on the length of work history and the level of earnings. This makes it difficult for those with only a recent work history or who work intermittently to be eligible. If relatively high levels of unemployment and underemployment persist for disadvantaged workers, momentum for policy change to relax the eligibility conditions for these workers might be strong enough to motivate policy action.

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