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Temporary Services Employment Durations: Evidence from State UI Data

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Abstract

We use administrative data from the unemployment insurance system of the state of Washington to study the duration of job spells in the temporary services industry. We find that the average duration is approximately two quarters and that approximately three quarters of temp employment is accounted for by spells of four quarters or less, figures that are significantly lower than for workers in other industries. Because temp job spells are usually short, the industry is involved in a higher fraction of employment transitions than its two percent share of employment might suggest. About 5% of workers have a temp job at some point over a two year period. We also find that 58% of temp employment is accounted for by spells that end in a transition to a job in another industry, with the remainder ending in a spell of nonemployment.

I. Introduction

Employment in the temporary services industry has grown very rapidly over the last quarter century. Indeed, according to the Bureau of Labor Statistics' (BLS) Current Employment Survey (CES), temporary services employment has increased at an annual rate of over 11 percent since 1972, bringing its share of total U.S. employment from essentially zero to over two percent in recent years.

This rapid growth has raised concerns because many view temporary services jobs as "bad jobs." For instance, CES data show that average hourly earnings for production and nonsupervisory workers in the industry are 20% or more below national averages. Moreover, in previous work using the BLS's Current Population Survey (CPS) (Segal and Sullivan (1997)), we have shown that temps are much less likely to receive health insurance benefits from their employers. Though we also found evidence that much of the gap in wages between temps and other workers was explained by permanent worker characteristics and other characteristics of their jobs, a significant differential in wages remained even after adjusting for such factors. Moreover, practically none of the differential between temps and other workers in the extent of health insurance coverage could be explained by worker or other job characteristics. Finally, we also found that temp workers were more likely to become unemployed and to work involuntarily part time. All these factors suggest that temp jobs are often less attractive from the worker's point of view.

To the extent that temp jobs are unattractive, it is of interest to know whether a small number of workers are "trapped" in them or, conversely, whether temp work is a "burden" that is widely spread. This, of course, depends on whether temporary services employment durations tend to be long or short. If durations are relatively long, then a semi-permanent underclass of temp workers may conceivably be developing. However, if they are short, then for most workers, temp work will be merely a bridge to more attractive forms of employment. Indeed, a more optimistic view of the growth of temporary services is that its expansion is improving the efficiency of the process by which firms and workers are matched. One might even speculate that the growth of the temporary services industry has allowed the economy to operate at lower levels of unemployment without generating inflationary pressures.¹

1. Otoo (1997) studies the relationship between the natural rate of unemployment and the share of workers in temporary services.

Though the industry is no longer small – there are now more temporary services workers than there are workers collecting unemployment insurance benefits – it could only plausibly affect the natural rate of unemployment if it was involved in a greater share of employment transitions than its two percent employment share would suggest. This, of course, would require that most temp employment spells be short. In our previous work, we showed that relatively few temps remained temps one year later and that many did go on to jobs in other industries. However, our ability to follow workers' careers was limited to two dates, one year apart. So our ability to study how temporary services employment fits into workers' careers was quite limited.

In this paper, we use a new data source, administrative files from the Unemployment Insurance (UI) system of the state of Washington, to study the typical duration and place in workers' careers of temporary services employment. We also provide a new measure of the scope of temporary services, the fraction of workers in a given one or two year period that at some point work in temporary services. As we discuss further below, administrative data have a number of important advantages for studying these issues. These include large sample sizes and long and complete records of workers career histories. There are, of course, also disadvantages. Most importantly, we have no demographic or occupational information about the workers we study, which means that we cannot study how results differ according to workers' occupation, a factors we found to be very important in our previous work.

II. Data

The primary data source for this paper is a 10% sample of quarterly wage records from Washington State covering the years 1984 to 1994. This sample was created as part of the Continuous Wage and Benefit History (CWBH) program that collected Unemployment Insurance (UI) data from several states for the 1970s and early 1980s.² Of the states that participated in the original CWBH program, Washington is one of the few to have continued to create data samples for use by researchers.

Each quarter, employers covered by the state's UI system are required to report total earnings and hours worked for each of their employees. The main categories of workers not covered are the self-employed and federal government workers. Our 10% sample of workers is based on the last

2. See, for example, Anderson and Meyer (1994).

two digits of workers' Social Security Numbers (SSN). For all sampled workers this file includes worker and firm IDs, the four digit SIC code of the employer, and worker earnings and hours. Altogether the research files contain nearly 10 million records. Large sample sizes are very helpful because temporary service workers are still only a small fraction of the labor force. Using the SIC code on the UI administrative data, we are able to identify about 1,400 temporary services workers in the first quarter of 1984, a figure that rises to over 6,000 by the last quarter of 1994.³

Using the UI data allows us to follow workers' careers at a quarterly frequency over an eleven year span from 1984 to 1994. Thus we are able to observe the place of temporary work in workers' long-term career histories. We also get a nearly complete record of workers' employment relationships. This is important because temporary services jobs are frequently second jobs and thus would be missed in data sources that only record workers' primary jobs. Finally, because the records are used to compute benefit eligibility and levels, measurement errors are likely to be less than in survey data sources in which inaccuracies have no consequences for those reporting the data.

There are, of course, also drawbacks to using administrative data. As already mentioned, a major one is the lack of any demographic information on workers. Thus we can't determine whether our results for temporary services differ according to workers' age, race, or sex. We also cannot disaggregate results by occupation, a factor we found in previous work to make a significant difference to estimated wage differentials and mobility patterns.⁴ In future work we plan to examine the particular experiences of workers who claim unemployment insurance. For these workers, we have extensive demographic information as well occupational information.

Another difficulty associated with the use of administrative data is the lack of any direct means of distinguishing between cases in which workers are unemployed for a full quarter, are working in the uncovered sector, are working under another social security number, or have moved out of state. All of these possibilities result in there being no record for the worker's SSN that quarter.

3. Temporary services firms are those with SIC code 7362 up until 1986. In 1987 and after they are in SIC 7363 along with employee leasing firms also known as Professional Employer Organizations, or PEOs. As we discuss below, the mismeasurement caused by the possible confusion of leased and temporary workers is likely to be slight in Washington state.

4. Segal and Sullivan (1995, 1997) found significant differences between white-collar, pink-collar and blue-collar temps. For example, among white collar workers, temps were more likely to remain temps one year later. Among blue-collar workers, temps were less likely to remain temps a year later. Results for pink-collar temps were generally in between those for white- and blue-collar temps.

For the duration analysis of this paper, this causes no biases. However, it does limit our ability to study what happens to workers when they leave temp work. All we know is whether they take a job in another industry or not. A final weakness of our current data base is that firms occasionally change their identifiers, producing what appears to be the death of a firm and all of the associated employment relationships, when in fact the only thing that has occurred is some less significant event like the sale of the firm from one party to another. This may in some cases lead us to underestimate the length of job durations. However, we also study the duration of spells in which workers remain in the temp services industry regardless of the particular employer. These measures, which are not affected by changes in firm identifiers, yield similar conclusions to the measures of firm based spells.

Table 1 shows the growth of temporary services employment levels and employment shares in Washington State and nationally. The rate of growth of temporary services employment in Washington has been slightly faster than that of the nation as a whole, but the pattern over time is fairly similar. The shares of employment accounted for by the industry in Washington State, which are shown in Figure 1, are also reasonably similar to those for the nation. This is reassuring since it suggests that our findings for Washington State may generalize to the nation as a whole. More evidence in this regard comes from Washington State Department of Employment Security (1997) which compares the occupational shares in temporary help supply in the Seattle metropolitan area to those for the nation as a whole using the BLS's Occupational Compensation Survey: Temporary Help Supply Services for 1989 and 1994. They find that employment shares for most occupations are similar in Seattle and nationally. In particular, shares in executive, administrative and managerial; sales and marketing; and clerical and administrative support are very similar, though shares for professional specialty and technical and related support are somewhat higher than nationally, while those for blue-collar occupations are somewhat lower.

A final difference between Washington State and the rest of the nation is the lower fraction of leased workers in SIC 7363. The SIC 7363 category contains both temporary services firms and employee leasing firms, also known as professional employer organizations (PEOs). This latter group of firms assume the existing work forces of other firms, performing all the administrative work associated with employing workers, such as writing pay checks and paying taxes, but have no role in recruiting or training workers. Their employees are typically long-term workers tied to the firms they are leased to. Since our interest is in temporary services employment, we view it as

a plus that the 1992 Census of Services Industries reported that only about 3% of SIC 7363 workers in Washington are leased, compared to about 23% nationally.⁵

III. The Scope of Temporary Services

In the previous section, we showed that in recent quarters, the temporary services industry has accounted for about 2% of Washington State employment, a figure comparable to that for the nation as a whole. However, as we detail below, employment spells in the temporary services industry are often very short. Thus it is possible that a significantly higher fraction of workers are employed by the industry at some point in their careers. Understanding the extent to which this is true is important for evaluating claims that the growth of the temporary services industry may be significantly changing the nature of the worker-firm matching process or otherwise lowering the natural rate of unemployment. If temporary services employment is concentrated among essentially the same set of workers over time, then even a 2% share of employment is likely not enough to significantly effect important macroeconomic aggregates. Conversely, if the pool of temporary workers is essentially new every quarter, then it may have a big enough impact on labor market flows to affect aggregate quantities.

Table 2 shows the fractions of workers who were employed some time during various time intervals ending in 1994Q4 who held at least one temp job in that interval. Clearly, as the length of time covered increases, the fraction of workers who have been employed in the industry increases. In a single quarter, the fraction is only about 2.5%, but over a two year interval the fraction doubles, to nearly 5%. Figure 2 plots the fraction of workers in temporary services in one quarter, one year and two year intervals ending on the dates shown. The growth, that has been previously noted, in the level of employment at a point in time extends to these broader notions of the scope of temporary services. About 2% of workers were temps sometime in the 1984-85 period whereas we have already noted that the fraction for 1993-1994 was nearly 5%.

The above results demonstrates that temporary services may play a larger role in the economy than its still fairly small fraction of employment would suggest. Of course, it would be extremely speculative to suggest that its growth was lowering the natural rate of unemployment, but the

5. Washington State Department of Employment Security (1997)

industry does appear to play a role in the careers of a significant fraction of the working population.

IV. Multiple Job Holding

Anecdotal reports suggest that temp jobs are often second jobs. That is, workers with more stable jobs sometimes supplement their income by taking an additional job as a temp. To the extent that this is common it is relevant to controversies over the quality of temporary services jobs. Those most troubled by the growth of temporary services employment likely believe that such jobs are temp workers' only source of income. To the extent that temp jobs only supplement more stable employment relationships, there may be less reason for worry. Alternatively, if temporary service workers must work several temp jobs in order to piece together sufficient income, then their situations may be considered even worse. Thus it is of interest to quantify the extent that temps hold additional jobs.

Another reason to study multiple job holding by temps is simply to gain a firmer understanding of the level of temporary services employment. Segal and Sullivan (1995) show that employment counts for SIC 736, Help Supply Services, the three digit industry containing Temporary Services, are much lower in the CPS than they are in the CES. They suggest that the most likely explanation for this finding is misreporting in the CPS. That is, temporary services workers interviewed in the CPS may often report the industry of the firm where they are assigned to work rather than their legal employer, the temporary services firm. This interpretation is at least partly supported by evidence from the February 1995 CPS supplement on contingent work in which many workers who in the regular CPS had reported working in other industries, subsequently reported that they were employed by temporary services firms when directly asked that question.⁶ However, another interpretation of the difference between CES and CPS employment counts is that many temp jobs are secondary jobs and thus don't show up in CPS industry totals, which at least until recently were collected only for workers' primary jobs.

The wage records data base has both significant strengths and significant weaknesses for quantifying the extent of multiple job holding. On the one hand, we have essentially complete data on workers' employment histories, so no jobs are missed. On the other hand, because the unit of

6. See U.S. Department of Labor(1995) and Polivka (1996).

observation is a quarter, it is difficult to distinguish *simultaneous* job holding from cases in which workers change jobs within the quarter. In both cases multiple employers will submit data for the quarter.

Several measures of multiple job holding for temporary and permanent workers are shown in Table 3.⁷ For instance, about 47% of workers who had at least one temp job in a quarter had an additional job, either temp or perm. This is much higher than for workers with a perm job, about 12% of whom had another wage record in the quarter. We also show separately the number of additional temp and perm jobs. In particular, about 7% of workers with a temp job had at least two temp jobs in the quarter. While one might view this as a high rate of multiple job holding, it is not so high as to provide an explanation for the differences between the temp counts in the CES and CPS. About 44% of temps also had a perm job in the quarter. However, as noted above, these jobs are not necessarily held at the same time, so one should not conclude that temp jobs so frequently supplement permanent jobs.

As an attempt to distinguish between cases in which multiple jobs were held sequentially within a quarter and cases of true simultaneous job holding, we also tabulated instances in which workers held another “major” job, which we defined to be a job in which the employer reported at least 400 hours, a figure that corresponds to an average of approximately 30 hours per week over the quarter. Table 3 shows that only about 15% of temps held such jobs, compared to about 54% for perm workers. About 10% of temps had major jobs outside the temporary services industry, which may provide at least some sense of how often temp jobs supplement the incomes of workers with more secure employment.

V. Duration of temp jobs

As we noted above, since temp jobs tend to be somewhat unattractive for workers, it is of interest to know whether a small number of workers are trapped in these jobs or whether the burden of temp work is widely distributed because the temporary workforce turns over rapidly.⁸ In the latter case there may be less reason for concern. The duration of temp employment may also provide

7. Table 3 is based on fractions of workers in a quarter. If a worker has two jobs he still contributes one observation to each mean shown. It is also possible, and in fact common, for workers to be represented in both columns. They will be if they have both a temp and a perm job within the quarter.

8. Similar concerns motivated Clark and Summers (1979) analysis of unemployment durations, to which this section bears some similarity.

some clues about why the industry is growing. On the one hand, if growth is due to an increase in the supply of workers who value flexibility in their working life, as some have argued, then long spells should be at least somewhat common since such workers' preferences for temp work would not be expected to change quickly. On the other hand, if temp services is growing because of efficiency improvements in the matching process, then short spells are likely to be common. This may also be the case if firms are using temp services to screen potential permanent hires, since a long spell may not be necessary to distinguish good workers from bad.

In the earlier section on the scope of temporary services, we presented indirect evidence that turnover was high in temporary services when we showed that the fraction of workers with some temp work experience increases significantly with the length of the period studied. In this section we more formally quantify the notion that temp jobs tend to be short by presenting estimates of the distribution of completed job tenure for temp and non-temp workers. We also study the duration of periods in which workers are employed as temps, though not necessarily by the same firm. In both cases we determine the typical length of a spell as well as how much of employment is accounted for by spells of various lengths.

Let T stand for eventual completed job tenure with a particular firm measured in quarters. Then T can be thought of as a discrete random variable with probability function $f(k) = \text{Prob}\langle T=k \rangle$. Let the retention rate as a function of initial quarters of job tenure be denoted by $R(k) = \text{Prob}\langle T \geq k+1 | T \geq k \rangle$ which gives the probability that a job spell that has lasted at least k quarters will last at least one more quarter. From information on retention rates one can recover the probability function and the survivor function, $S(k) = \text{Prob}\langle T > k \rangle$, which is the probability that a spell will last longer than k quarters. Specifically, they are related to the retention rates by the recursive relations $S(k) = S(k-1)R(k)$ and $f(k) = S(k-1) - S(k)$ along with the starting values $f(1) = 1 - S(1) = 1 - R(1)$. Thus any aspect of the distribution of completed spell lengths can be obtained from the retention rates.

In order to estimate the retention rates, we identify spells that begin within our sample period, 1984-1994. For these spells we can determine how long they last or whether they are censored on the right by the end of the data period. Let $N(s, k)$ be the number of such spells in calendar quar-

ter s that have been active for k quarters. To obtain estimates of retention rates we pool across quarters:

$$\hat{R}(k) = \frac{\sum_s N(s+1, k+1)}{\sum_s N(s, k)}$$

where the sum is taken over s such that $N(s, k) > 0$ and we are able to observe $N(s+1, k+1)$. If we date the quarters so that our first quarter of data, 1984Q1, is $s = 1$, then the range of summation is $s = k+1, \dots, 43$ where 43 is the next to last quarter of data and, thus the last quarter for which we can tell if spells continue for one more quarter. Separate estimates are computed for temp and perm jobs.

Since our sample period is only 11 years long, we can only estimate retention rates up to durations of 42 quarters. Moreover, the estimates of the retention rates are means that are based on progressively smaller sample sizes. Thus as k increases, estimates of $R(k)$ tend to become more imprecise and therefore to bounce around a good deal. For the perm workers, this does not become noticeable until k is greater than 30 quarters. However, for the temp workers, for whom we have smaller sample sizes, it begins to become a concern after about 15 quarters. To focus on the important features of the data, we use the values from a smooth line fit to the retention rates for $k > 15$ for temp workers and $k > 30$ quarters for the perms.⁹ The recursive nature of the calculations implies that survival probabilities up through k quarters only depend on retention rates up through k quarters. Thus our calculations of $f(k)$ and $S(k)$ for k up to 15 for temps and for k up to 30 for perms do not depend on the smoothing. Moreover, the smoothing starts to be necessary at the point where there is relatively little mass left in the distribution. Thus, even estimates of means depend relatively little on the smoothing.

Figure 3 shows our estimates of the retention probabilities for temp and perm workers. These evidently have much the same shape, but the rates for temps are always lower by ten to twenty percentage points. For instance, the figure shows that about 41% of temp spells last past the first

9. The smooth line is based on a regression of $\log\left(\frac{R(k)}{1-R(k)}\right)$ on a constant, k and $\frac{1}{k}$.

quarter, compared to about 56% of perm spells. The chances that a temp spell that has already gone two quarters will last at least another are also about 40%, while the corresponding probability for perms is over 60%. Thereafter, retention rates for temps and perms both increase steadily. In the case of temps the retention rates approximately level off at a rate of around 85%, while for perms, the rates approach 95%.

Figure 4 shows the probability functions of completed employer job tenure for temps and perms for tenures up to 15 quarters. Evidently, more than 58% of spells with a temp employer are only a single quarter long. Of course, temp spells are not the only short employment spells. Even for perm employers, 44% of employer spells last only a single quarter. The distribution of temp spell lengths also places greater weight on spells of length two than does the distribution of perm spells. For durations of three quarters or more, the weight is heavier for perm spells.

By 15 quarters, the probability mass on any single tenure level is very small. Thus it is perhaps easier to visualize the distribution through the survivor functions shown in Figure 5. The cumulative effects of lower retention rates for temps than perms shows up in a fairly dramatic way in the survivor functions. Even for perms, the chances that any spell will last a long time are relatively small. For instance, the chances that a perm spell will last 10 or more quarters is only about 10%. But for temp spells, the probability is only slightly over 1%. Moreover, the temp distribution has a long enough tail that there is at least about a 3% chance that a spell will last 60 or more quarters. But for perms, the probability that a spell will last even 20 quarters is effectively zero.

One way to summarize the typical length of a completed employment spell is its expectation, $E[T] = \sum_t tf(t)$. For perm employer job spells, the mean length is 3.88 quarters, while for temps it is 1.87 quarters, about half as long.

One can also calculate what fraction of employment is accounted for by spells of a particular length. In our notation, the fraction of employment accounted for by spells of length s is

$$\frac{sf(s)}{\sum_t tf(t)}$$

Our results say that employer job spells of length one quarter account for about 32% of temp employment, but only about 11% of perm employment. Figure 6 shows the cumulative amount of employment accounted for by spells up to various lengths. Again the differences between temps and perms are fairly dramatic. About 78% of temp employment is accounted for by employer job spells of four quarters or less. The corresponding fraction for perms is only 35%. Alternatively, about 90% of temp employment is accounted for by spells lasting eight or fewer quarters, while for perms, only about 49% of employment is accounted for by such spells. Similarly, about 99% of temp employment is accounted for by spells up to length 20 quarters, while only about 72% of perm employment is accounted for by such spells.

The above analysis shows that job spells with a particular temp services employer tend to be relatively short. It may be, however, that some workers move from one temp service employer to another without accumulating a long tenure with any one firm. In such a case they might still be considered stuck in temp work. To address this possibility, we analyzed job spells defined by consecutive quarters with some job in the temporary services industry, regardless of whether it was with the same firm.¹⁰

Figure 7 plots the retention rates for this definition of temp job spells along with the retention rates calculated previously using consecutive quarters with the same temporary services employer. Retention rates calculated on the basis of industry are three or four percentage points higher than those calculated on the basis of employer for initial tenure values of one or two quarters, but quite similar for higher values of tenure. The divergence that occurs after about 15 quarters is in the region where the data are smoothed and thus not particularly relevant. Thus it is not surprising that the survivor functions shown in Figure 8 and the plot of fractions of employment accounted for by various spell lengths shown in Figure 9 are quite similar for the two definitions of temp spell. The mean spell length according to the industry definition is 2.08 quarters, compared to 1.87 quarters using the firm based definition. Also, the fraction of temp employment accounted for by industry defined spells of a year or less is about 72%. Thus, even if we consider a temp spell to be a period of temp work with possibly many temp services firms, temp spells tend to be short.

10. We eliminated the data from calendar quarters 1987Q1 and 1988Q1 in which a new set of SIC codes was introduced. XXX Did we need to do this if we only care about temps?

We have seen that temp job spells tend to be considerably shorter than other job spells. This may be because temp work inherently leads to short job spells. However, it is also possible that temp spells tend to be shorter because the workers that start them always tend to have short job spells even in jobs with other industries. We can evaluate this hypothesis using a fixed effects framework to estimate retention probabilities.

Our previous analysis of retention rates can be thought of as a linear probability regression model. For quarters in which a worker is employed, define $y_{is} = 1$ if the worker is employed by the same firm next quarter and $y_{is} = 0$ otherwise. If $D_{is}^k = 1$ if the worker is in the k th quarter of his employment spell and $D_{is}^k = 0$ otherwise and $T_{is} = 1$ if the worker is in a temporary services spell and $T_{is} = 0$ otherwise, then the retention rate estimation is equivalent to the regression model $y_{is} = \sum_k D_{is}^k R_p(k) + \sum_k D_{is}^k T_{is} (R_p(k) - R_t(k)) + \varepsilon_{is}$. The coefficient on D_{is}^k when this regression is estimated by OLS is $\hat{R}_p(k)$ the overall estimate of the retention probability for perm workers. Similarly, the coefficient on $D_{is}^k T_{is}$ is the difference between $\hat{R}_p(k)$ and $\hat{R}_t(k)$, the retention probability for temps. If we want to test for whether temp spells are shorter because of something inherent in temp work or because of the people who are temp workers, we can estimate the above model with a fixed effect: $y_{is} = \alpha_i + \sum_k D_{is}^k R_p(k) + \sum_k D_{is}^k T_{is} (R_p(k) - R_t(k)) + \varepsilon_{is}$ where the α_i are fixed parameters. If temp workers are inherently prone to short spells, the magnitude of the coefficients on $D_{is}^k T_{is}$ should decline when we include the fixed effects. However, when we estimate the fixed effect model we find only a small decline in the significance of the $D_{is}^k T_{is}$ terms. The F statistic for the hypothesis that the hazard rates for temps and perms drops only from about 620 to about 610. Either value is more than sufficient to reject the hypothesis that the hazards are the same. Moreover, quantitatively, the differences between temp and perm retention rates are very similar when we control for fixed effects.

VI. Transitions from Temporary Services

In this section, we study what happens when temp work spells end. Do workers typically experience a spell of nonemployment or do they go on to jobs in the non-temp sector?

We can address these questions with a generalization of the framework used above to analyze the distribution of spell lengths. Suppose that the possible ways that spells can end can be listed as $j = 1, \dots, J$. We can define T_j to be the number of quarters until outcome j happens. Then the spell lasts $T = \min(T_1, \dots, T_J)$. Note that we only observe the T_j that “happens first.” Let $f(j, k) = \text{Prob}\langle T_j = k \rangle$ be the discrete probability function, which completely characterizes the distribution of possible outcomes and let the “hazard” for end j be $H(j, k) = \langle T_j = k | T \geq k \rangle$. The latter is the probability that a spell will end after k quarters for reason j , given that it has lasted at least k quarters. Then $f(j, k) = S(k-1)H(j, k)$ where $S(k-1) = \text{Prob}\langle T > k-1 \rangle$ is the survival function as before. Note also that the overall retention rate is $R(k) = 1 - \sum_j H(j, k)$.

Thus we can recover the distribution of the possible outcomes if we can estimate the hazard function $H(j, k)$.

To obtain estimates of the hazards, let $M(j, s, k)$ be the number of spells whose length is k , whose last quarter was s and which end for reason j . Then our estimate of the hazard is

$$\hat{H}(j, k) = \frac{\sum_s M(j, s, k)}{\sum_s N(s, k)}$$

where the range of summation is the same as in the case of estimating

retention probabilities.

In the present case, we consider two ways in which temp spells can end: (1) The worker has zero earnings in the following quarter or (2) the worker has a perm job the next quarter. Figure 10 plots the two hazards. For durations up to about 6 quarters, the hazard to a permanent job is higher than the hazard to a quarter of nonemployment. After that, the two hazards are approximately the same. Cumulatively, the chances are about 57% that a temp spell will end with a transition to a perm job. This is about the same as the fraction of temp employment, 58%, that is accounted for by spells that end in a transition to permanent work. This suggests that though the majority of temp employment is accounted for by spells that end in a transition to a perm job, a good deal, 43%, is not.

VII. Conclusion

We found that durations of temp work spells, whether defined by an individual employer or the temporary services industry, tend to be short. The average duration is approximately two quarters. Of course, longer spells make significant contributions to total temp employment. However, about three quarters of temp employment is accounted for by spells of four quarters or less. Moreover, there is much less chance that a temp job spell will last, say, five years than there is for a perm spell.

Because temp job spells are usually short, the temporary services work force turns over very rapidly. As a consequence, a larger fraction of workers are temps in a period of a year or two than one might guess based on the industry's approximately two percent share of employment. In particular, over a two year period, about 5% of workers have a temp job at some point.

Finally, we found that a significant portion, 42%, of temp employment is accounted for by spells that do not end in the transition to a perm job. This, perhaps, should temper claims that temp work is almost exclusively a step in a path towards work in other industries. Evidently a significant fraction of temp work is attributable to workers who are either loosely attached to the labor force or subject to unemployment.

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Table 1: Temporary services employment levels and shares, U.S. and Washington State

Period	Washington State		Total U.S. ^a	
	Employment ^b	Share ^c	Employment	Share
1984:Q4	17.04	0.95	674.00	0.70
1985:Q4	20.03	1.0913	773.67	0.79
1986:Q4	21.92	1.1422	880.33	0.88
1987:Q4	32.08	1.4898	1045.00	1.01
1988:Q4	34.32	1.5969	1137.33	1.09
1989:Q4	41.34	1.7345	1236.33	1.14
1990:Q4	43.67	1.7578	1279.33	1.17
1991:Q4	40.91	1.6334	1300.00	1.20
1992:Q4	44.59	1.7688	1494.33	1.37
1993:Q4	49.14	1.8855	1785.33	1.60
1994:Q4	60.14	2.24	2125.00	1.84
1984:Q4 to 1994:Q4	253% ^d	1.29 ^e	215%	1.14

a. Average of October, November, and December.

b. In 1,000s

c. In percent of employment.

d. Growth

e. Change in share

Table 2: Fraction of workers with temporary services employment

Time Period	Quarters	Percent of Workers
1994Q4	1	2.38
1994Q3 - 1994Q4	2	2.92
1994Q2 - 1994Q4	3	3.34
1994Q1 - 1994Q4	4	3.67
1993Q4 - 1994Q4	5	4.09
1993Q3 - 1994Q4	6	4.44
1993Q2 - 1994Q4	7	4.72
1993Q1 - 1994Q4	8	4.98

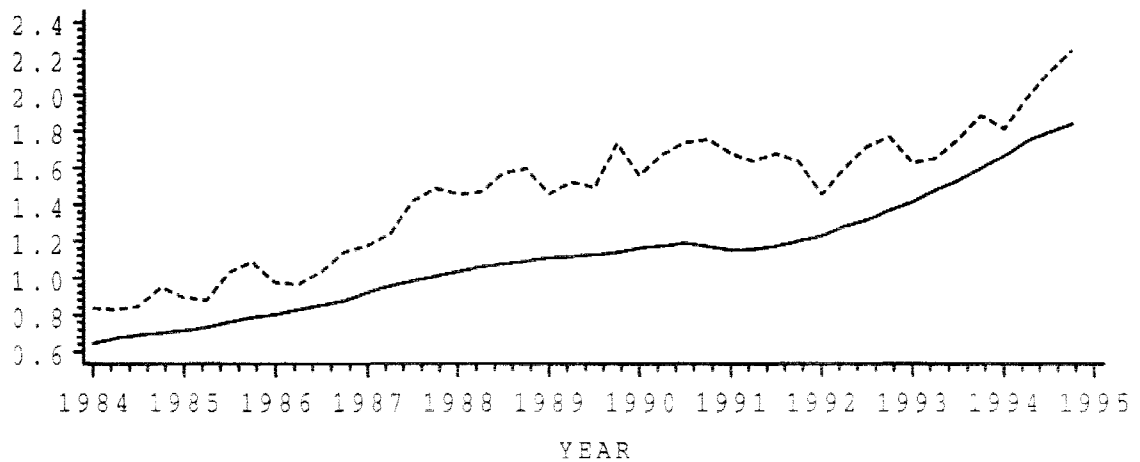
Table 3: Multiple job holding by temporary and permanent workers

	Temporary Workers	Permanent Workers
Fraction with an additional job	0.474	0.119
Fraction with one job	0.338	0.100
Fraction with two jobs	0.102	0.015
Fraction with three or more jobs	0.033	0.004
Average number of additional jobs ^a	1.389	1.218
Fraction with additional temp jobs	0.069	0.007
Fraction with one additional temp job	0.062	0.006
Fraction with two additional temp jobs	0.006	0.000
Fraction with three or more additional temp jobs	0.001	0.000
Average number of additional temp jobs	1.133	0.082
Fraction with additional perm jobs	0.436	0.114
Fraction with one additional perm job	0.327	0.096
Fraction with two additional perm jobs	0.086	0.014
Fraction with three or more additional perm jobs	0.023	0.004
Average number of additional perm jobs	1.330	2.207
Fraction with major ^b jobs.	0.154	0.538
Fraction with a major perm job	0.052	0.537
Fraction with a major temp job	0.103	0.000

a. Average among those with additional jobs.

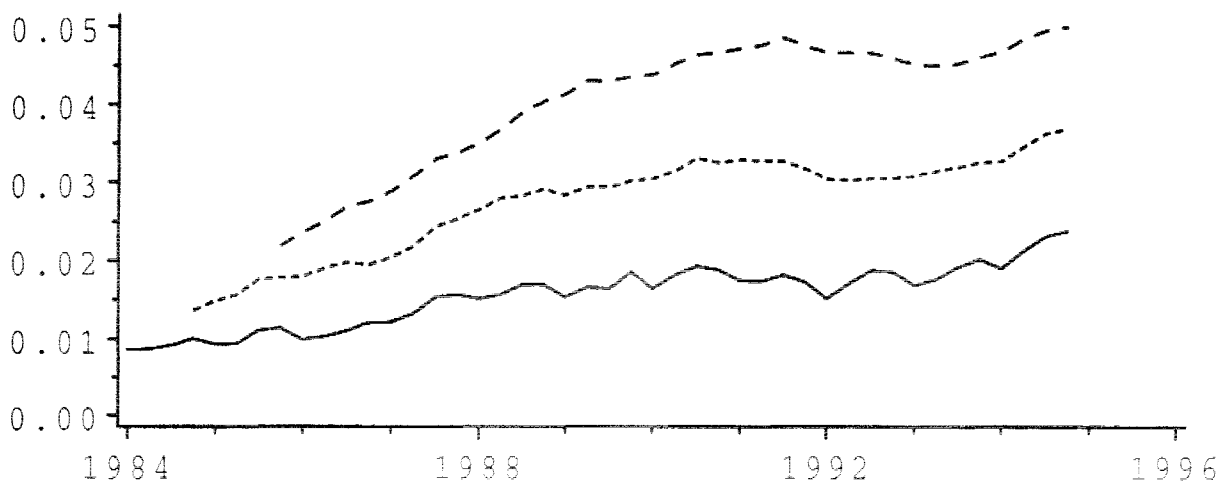
b. Jobs in which the worker worked more than 400 hours in the quarter.

Figure 1: Employment share of Temporary Services, monthly U.S. and quarterly Washington State
percent



U.S.: solid Washington: dashed

Figure 2: Temporary services employment shares over one quarter, one year and two years



Solid line corresponds to employment during a single quarter. Small dashes correspond to a year and large dashes correspond to two years.

Figure 3: Estimated employer job spell retention rates for temp and perm workers

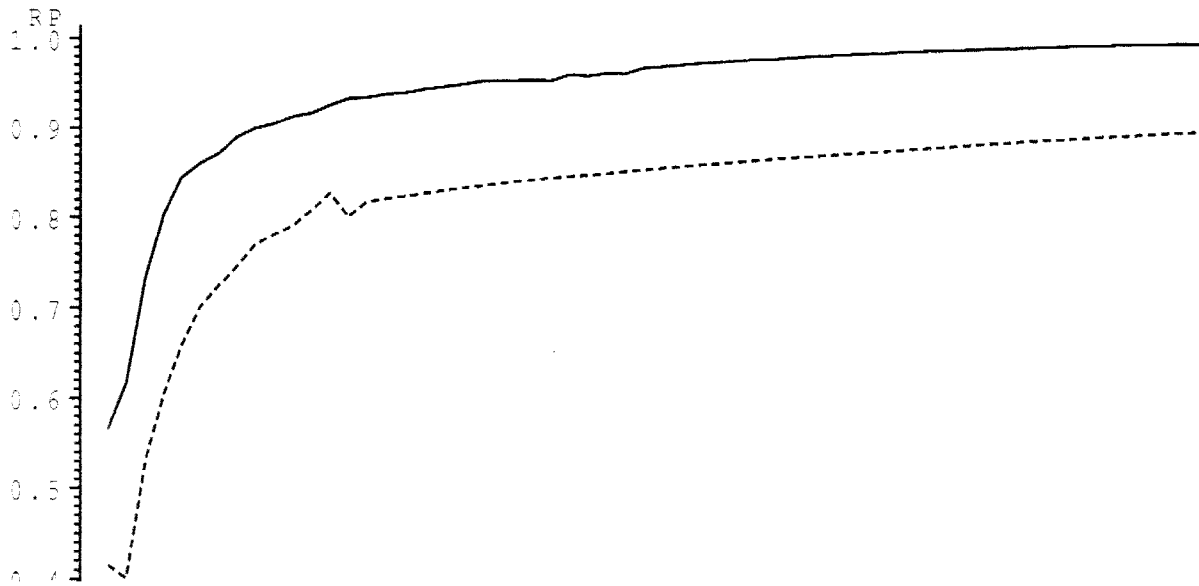


Figure 4: Completed employer job spell tenure probabilities for temp and perm workers

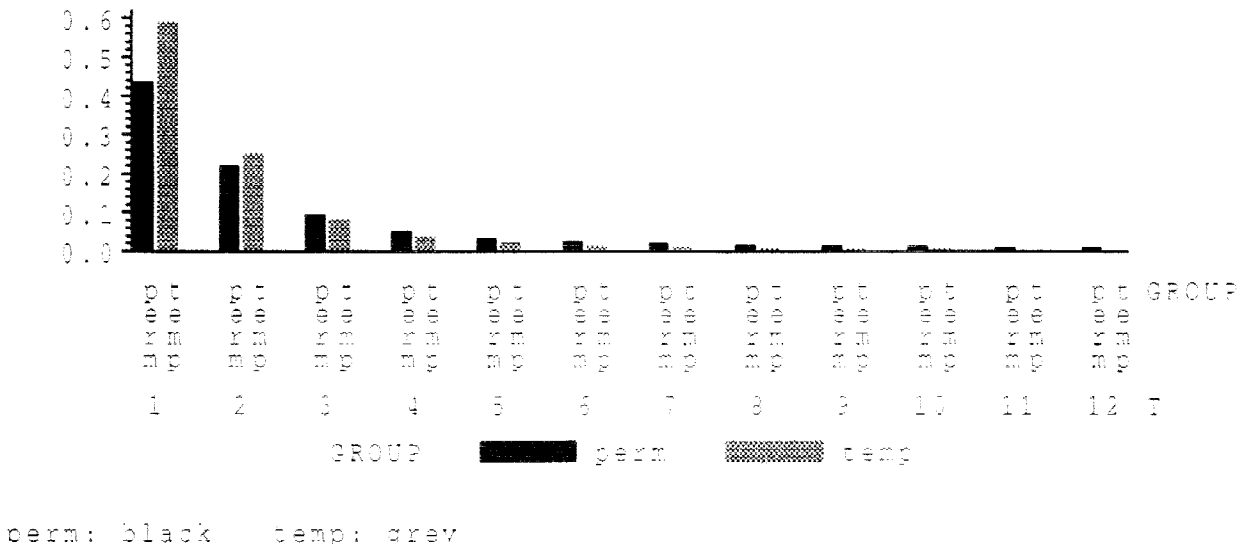
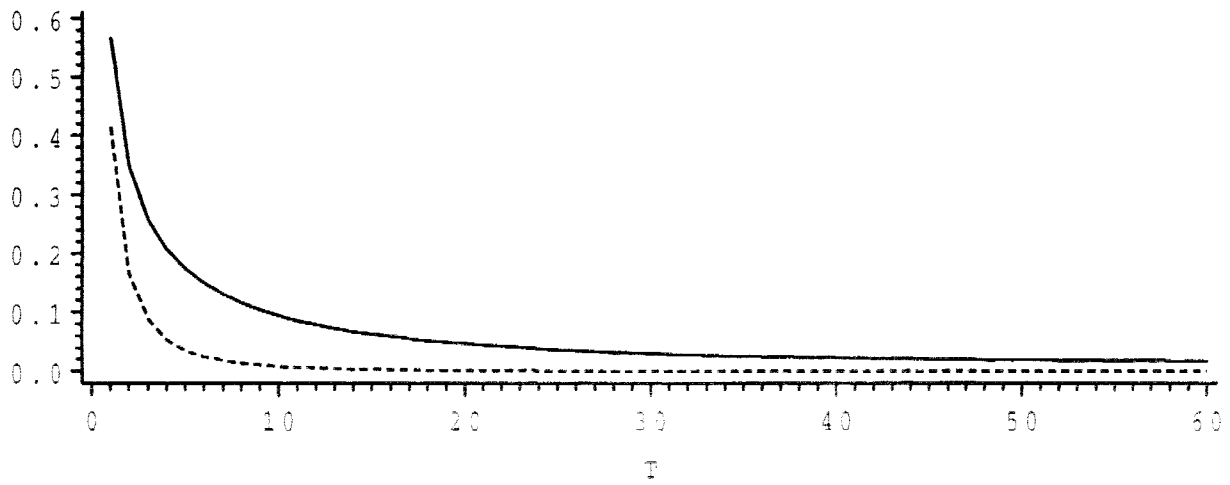
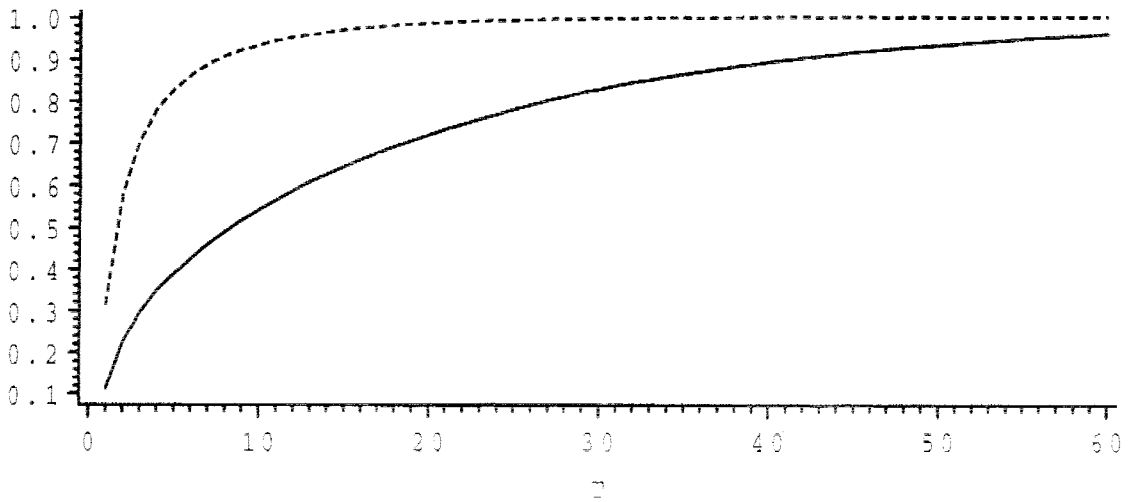


Figure 5: Employer job spell survivor functions for temp and perm workers



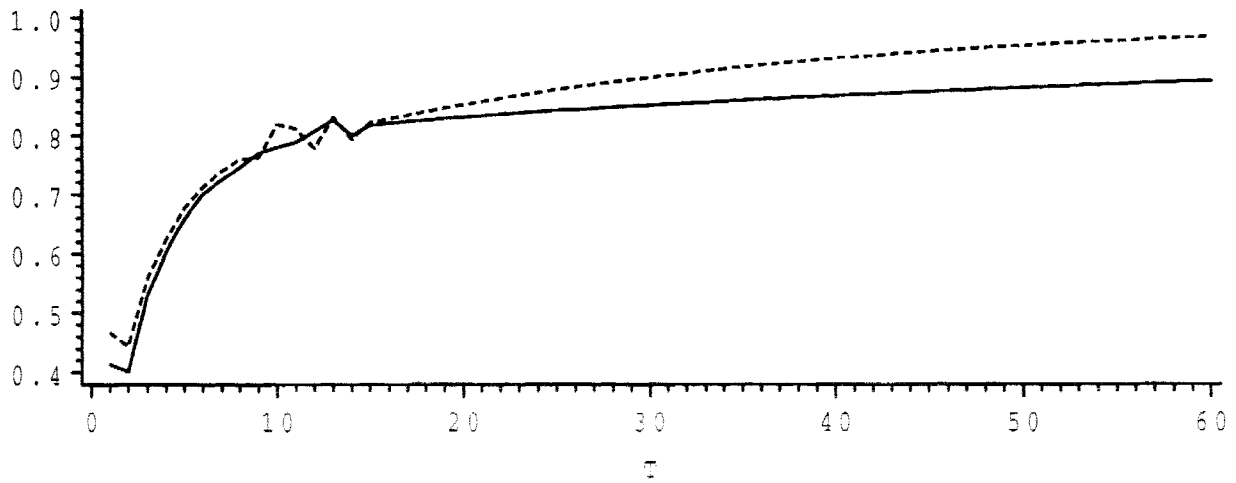
perm: solid temp: dashed

Figure 6: Cumulative fraction of employment accounted for by employer job spells, temp and perm workers



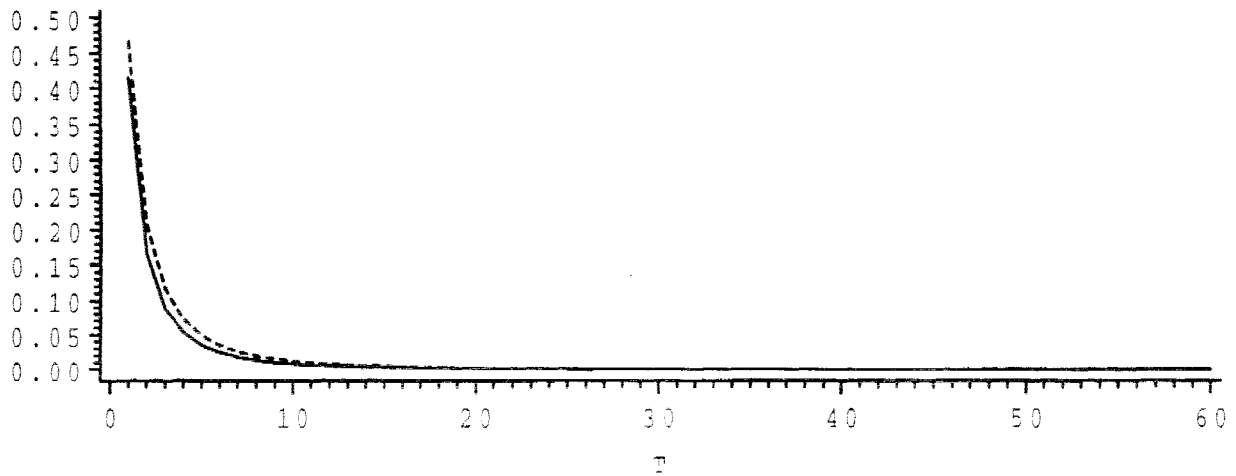
perm: solid temp: dashed

Figure 7: Retention rates, temp firm and temp industry job spells



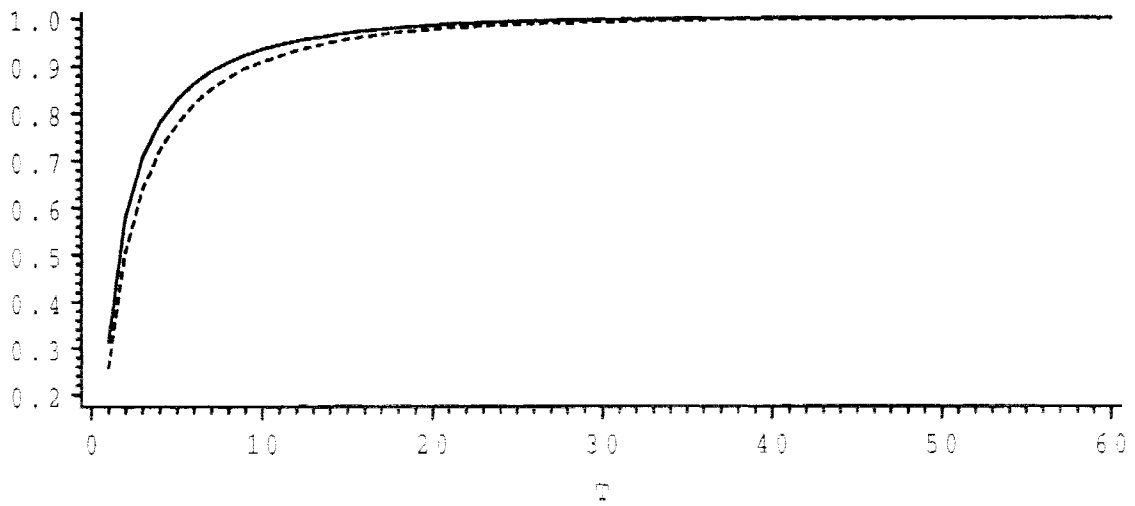
firm: solid industry: dashed

Figure 8: Survival functions, temp firm and temp industry job spells



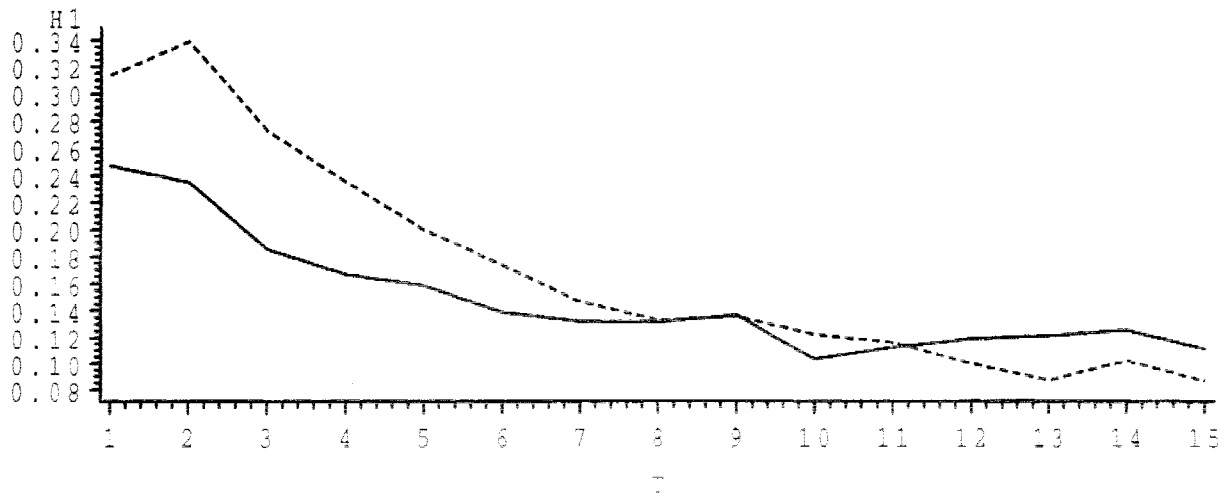
firm: solid industry: dashed

Figure 9: Cumulative fraction of employment accounted for by temp firm and temp industry job spells



firm: solid industry: dashed

Figure 10: Hazard rates from temp industry spells, nonemployment and perm job



nonemployment: solid perm job: dashed