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Temporary Help Agencies and the Advancement Prospects of Low Earners

Fredrik Andersson
U.S. Census Bureau
Longitudinal Employer-Household Dynamics
E-mail: fredrik.andersson@census.gov

Harry J. Holzer
Georgetown University
Georgetown Public Policy Institute
E-mail: hjh4@georgetown.edu

Julia Lane
University of Chicago
National Opinion Research Center (NORC)
E-mail: Lane-Julia at norc.uchicago.edu

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Abstract

In this paper we use a very large matched database on firms and employees to analyze the use of temporary agencies by low earners, and to estimate the impact of temp employment on subsequent employment outcomes for these workers. Our results show that, while temp workers have lower earnings than others while working at these agencies, their subsequent earnings are often higher—but only if they manage to gain stable work with other employers. Furthermore, the positive effects seem mostly to occur because those working for temp agencies subsequently gain access to higher-wage firms than do comparable low earners who do not work for temps. The positive effects we find seem to persist for up to six years beyond the period during which the temp employment occurred.

Keywords: temporary agencies; temp employment; low-wage workers; subsequent earnings

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I. INTRODUCTION

Do labor market intermediaries in general, and "temp" agencies in particular, help unskilled workers with limited work experience transition to more stable and higher-wage jobs? Earlier research on the impact of temporary help agencies for this population was generally positive. However, recent research by Autor and Houseman (2005, 2007), using data from a random assignment experiment, has raised questions about the robustness of the early research, and especially on whether any positive effects of temp agency employment persist over the longer run. Other researchers have continued to find positive effects for low earners of temp employment, among other efforts by a range of labor market "intermediaries" such as unions and various not-for-profit placement agencies.

In this paper we contribute to the ongoing discussion about temp agencies and low-wage workers in a number of ways. We do this by using a very large scale matched database on firms and employees that enables us to establish a broad set of facts about the workers who use temp agencies, and the firms to which they transition. The dataset has several key features that we use throughout the study. The first of these is that it is longitudinal in both firms and workers. A second key feature is that we estimated fixed personal characteristics that are unobserved in many studies. We also directly estimate the premium (or discount) that different firms pay observationally equivalent workers.

Our analysis begins by estimating the impact of temp employment for initially low earners on their subsequent earnings. We then examine whether workers who work for temp agencies eventually transition to firms that pay higher wage premia than do workers who find firms on their own. This is followed by a consideration of the extent to which these firm characteristics can account for any observed improvements in the earnings of these workers. Finally, we examine the long-term stability of the employment and earnings outcomes for low-wage workers engaged in temp work, relative to those who are not.

II. PREVIOUS LITERATURE

The fact that the temporary-help industry generates substantial employment for workers in the low-wage labor market has been well-documented (Autor and Houseman, 2002). But its impact on the employment outcomes of these workers, however, is not clear *a priori*. On the one hand, temp agencies might provide a productive stepping stone on the path to more stable employment, both by reducing search time and imparting useful job skills. On the other hand, they might be seen as part of a "secondary" labor market in which low-wage workers churn from bad job to bad job.

Why might temp agencies have positive effects? A body of earlier work strongly suggests that the characteristics of *firms* and *jobs*, independently of worker skills, affect the labor market outcomes of less-skilled workers (Abowd, Kramarz, and Margolis, 1999; Holzer and Martinson, 2004).[1] And various groups of less-skilled workers, especially minorities, might have less access on their own to stable employment and higher-wage jobs. For example, these workers might lack the informal networks and contacts that are often necessary to gain such employment (Holzer, 1987; Ioannides and Loury, 2004); or they might lack the transportation and information needed to overcome "spatial mismatch" between their residential locations (particularly in inner-city neighborhoods or rural areas) and the more suburbanized locations of better jobs (Holzer, 1991; Kain, 1992; Ihlanfeldt and Sjoquist, 1998). On the latter issue, Andersson, Holzer and Lane (2005) also show that employers paying higher wage premia tend to locate further away from the residential areas inhabited for low-wage workers than do other employers, further suggesting some geographic mismatch between less-skilled workers and higher-wage job opportunities.

But do "temp" agencies help less-skilled workers overcome these geographic and informational gaps, thus improving their employment opportunities? Does the general skills training that they often provide these workers (Autor, 2001) perhaps contribute to their opportunities as well?

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[1]This notion, of course, has been heavily debated for decades in the labor economics literature—especially in discussions over "dual labor markets" and "efficiency wages." See Katz (1987) and Rebitzer (1993) for thoughtful reviews on these issues. For an earlier treatment of this topic see Dunlop (1957).

Initial empirical research based on both survey and administrative data provided some evidence that temp agencies were providing pathways to more stable employment. Lane,, Mikelson, Sharkey and Wissoker (2003) applied matched propensity score techniques to data from the Survey of Income and Program Participation and concluded that spells in temp agency employment improved labor market outcomes relative to spells of unemployment. Heinrich, Mueser and Troske (2005) came to similar conclusions.

In a more broad-ranging study using the same dataset used in this paper, Andersson et al. (2005) found that low earners employed by temporary help services who subsequently changed firms were more likely to exit their low-earning status than were low earners not working for temps; while those who stayed with the temporary help firms had much lower chances of improving their earnings status. This was true even after controlling for person fixed effects, and a variety of observable worker characteristics. Furthermore, the research suggested that the positive impacts of earlier temp employment were largely accounted for by the characteristics of the firms in which they were subsequently employed. This suggested that temp agencies seemed to offer low earners better access to other higher-wage firms, rather than higher-wage employment while at the agency.

More recent work continues to show positive effects. For instance, Benner, Leete and Pastor, (2007) examined survey data on employers and workers in Milwaukee and Silicon Valley who used temp agencies, and a variety of not-for-profit intermediaries, to help fill job vacancies. Like Andersson et al. (2005), they find that workers who used temp agencies to find employment had higher earnings in subsequent jobs—though this seemed more due to higher number of hours worked than higher wages. Some other types of intermediaries—including community colleges, labor unions, and other not-for-profit agencies—seemed to generate higher wages as well as hours worked in subsequent jobs. A large number of European studies have similar positive findings (see Ichino, Mealli and Nannicini, 2006, for a review).

However, all of these studies relied on econometric techniques to identify the appropriate comparison groups, and concerns remain about selection on variables (including time-varying characteristics in studies that control for person fixed effects) that are unobservable to the econometrician.

In the only study to date that has used random assignment of TANF recipients to temporary help agencies, Autor and Houseman (2005, 2007) found that temp agencies increased the short-term earnings for workers; but their longer-term employment was characterized by lower earnings, less frequent employment, and higher welfare recidivism.

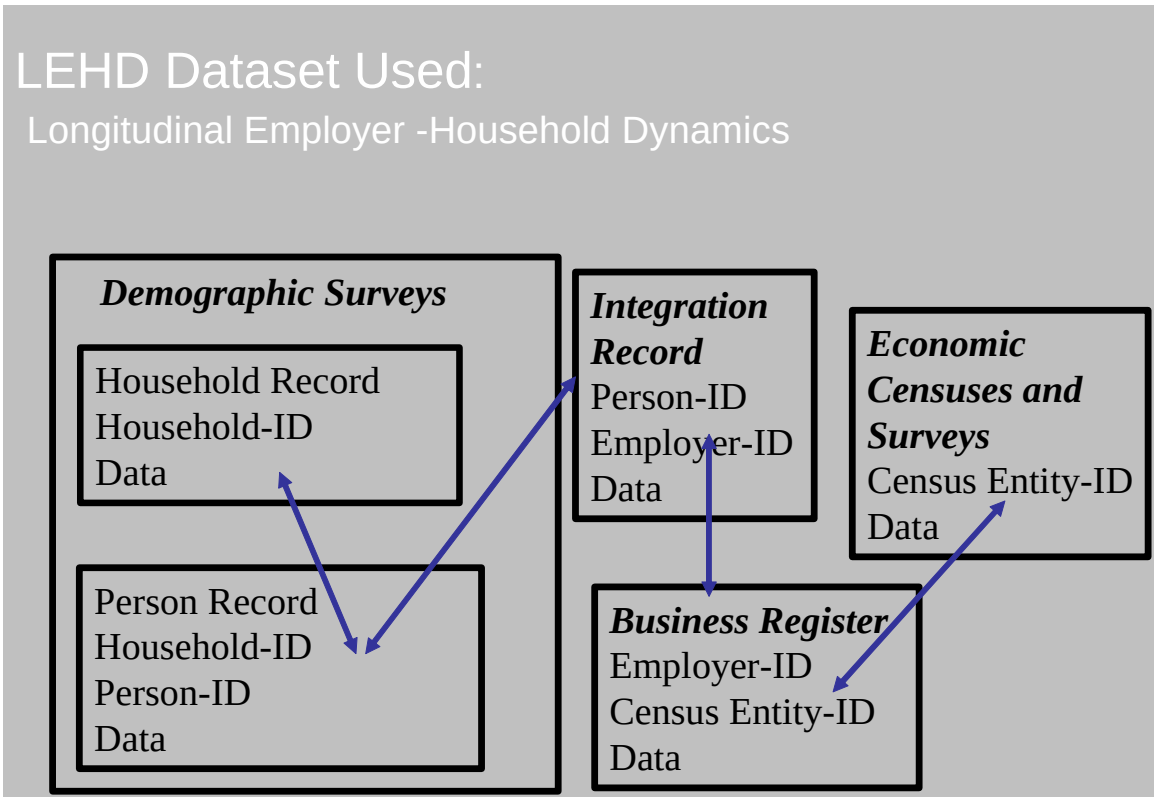
Autor and Houseman also found that other intermediaries, which generated longer-term job placements for their clients, also generated some positive impacts over time. But some questions remain about the external validity of their results—especially since they are based only on TANF recipients, rather than a broader range of low-wage workers—and they use data from the "Work First" agency in only one city (Detroit) to generate their findings.[2]

III. OUR DATA

A. An Overview of the LEHD Data

The data used in this study are drawn from the Longitudinal Employer-Household Dynamics (LEHD) program at the U.S. Census Bureau. The core of the dataset is the universe of state-level quarterly Unemployment Insurance (UI) earnings records from 44 states and the District of Columbia. The UI wage records cover data from the early 1990s to the third quarter of 2006, and have been merged with a variety of other household and employer survey data, including the 2000 Decennial Census of Population, the Current Population Survey (CPS), and the American Community Survey (ACS). This integration, which takes place under strict confidentiality protection protocols, is represented in Figure 1.

[2]Autor and Houseman note that their nonexperimental results are very similar to those of other researchers, perhaps implying that their results are more generalizable than might be expected on the basis of the particular sample on which they are based.



The LEHD data have elsewhere been described in great detail (Andersson et al., 2005; Abowd et al., 2004). Briefly, the UI wage records, which consist of quarterly reports filed by employers every quarter for each individual in covered employment, permit the construction of a database that provides longitudinal information on workers, firms, and the match between the two. The coverage is roughly 96 percent of private non-farm wage and salary employment; the coverage of agricultural and federal government employment is less comprehensive. Self-employed individuals and independent contractors are also not covered. Although the administrative records themselves are subject to some error, staff persons at the LEHD program have invested substantial resources in cleaning the records and making them internally consistent.[3]

The Census Bureau information used in this study consists primarily of basic demographic information: date of birth, place of birth, sex, and a crude measure of race and ethnicity. These are

[3]The approach is described in Abowd and Vilhuber (2003).

available for almost all workers in the dataset—the non-match rate is about 4 percent. The UI wage records have also been matched with the Current Population Survey, but since this is a cross-sectional match we simply use it as a consistency check in the research.

There are clearly many advantages associated with this integrated data base—its enormous sample size, longitudinal structure, and information on employer-employee matches. There are also some disadvantages. One is that hours or weeks worked are typically not reported by employers. Another is that it is impossible to identify whether, when multiple jobs are held within a quarter, they are held sequentially or at the same time. We address both of these issues by creating, for each individual in the data, a measure of that person's annualized earnings at the primary employer in each year that they appear in the data. That is, for the entire year that an individual appears in a state, we identify his/her primary employer as the one that pays them the highest earnings in that year.

There are two additional conceptual issues to be addressed. Although we typically refer to the employer as a ``firm,'' the actual reporting unit in the data is an administrative, rather than an economic entity; in other words, the filing unit reflects an ``Employer Identification Number,'' rather than a specific firm. The distinction is immaterial for about 70 percent of workers, who work for a single-establishment employer, but for those who work for a multiple-establishment employer, it is really not clear whether they are working for the ``firm'' or an establishment. The other conceptual issue involves the measurement of earnings. According to the *BLS Handbook of Methods* (1997), UI wage records measure ``gross wages and salaries, bonuses, stock options, tips, and other gratuities, and the value of meals and lodging, where supplied.'' They do not include employer contributions to OASDI, health insurance, workers compensation, unemployment insurance, and private pension and welfare funds.

Given the sensitive nature of the dataset, it is worth discussing the confidentiality protection in some detail. All data that are brought in to the LEHD system have been made anonymous, in the sense that standard identifiers and names are stripped off and replaced by a unique ``Protected Identification Key'' or PIK. Only Census Bureau employees or individuals who have Special Sworn Status are permitted to work with the data, and they have not only been subject to an FBI check but also are subject

to a $250,000 fine and/or five years in jail if the identity of an individual or business is disclosed. All projects have to be reviewed by the Census Bureau and other data custodians, and any tables or regression results that are released are subject to full disclosure review.

Standard measures of human capital include such variables as education and experience. Other measures, such as ability or family background, have rarely been able to be captured. Yet work by Juhn, Murphy and Pierce (1993), for example, demonstrates that a major contribution to increased earnings inequality in the 1980s was an increase in return to "unmeasured" characteristics—for example, interpersonal skills. Work by Holzer (1996), as well as the sociology literature, also finds that businesses increasingly value characteristics of the employee that have not traditionally been observable—again, interpersonal skills are frequently mentioned.

The newly developed longitudinal dataset permits the quantification of the value of these measures, although not permitting a decomposition of the source.[4] This is achieved by capturing the portable component of individual earnings—that component that belongs to an individual as she or he moves from job to job in the labor market (and that is separate from the type of firm for which she or he works). In order to estimate this effect, the LEHD staff decomposed of the log real annualized full-time, full-year wage rate (ln w) into *person* and *firm* effects.[5]

$$\begin{aligned} \ln w_{it} &= \theta_i + x_{it}\beta + \psi_{J(i,t)} + \varepsilon_{it} \\ \hat{h}_{ijt} &= \hat{\theta}_i + x_{it}^{\exp}\hat{\beta}^{\exp} \\ \hat{z}_j &= \hat{\psi}_j \end{aligned} \tag{1}$$

[4]We interpret this person fixed effect as a broad measure of human capital, though the source of the human capital—whether interpersonal skills, cognitive ability, family background, or some combination of these and other factors—cannot be determined.

[5]This methodology is drawn from Abowd, Kramarz and Margolis (1999) and further developed by Abowd et al. (2003). A key assumption underlying this methodology is that worker mobility is (largely) exogenous. See Abowd, et al. (1999) for more discussion.

The definition of human capital we use here, h, is the part associated with the person fixed effect—the unobservable individual heterogeneity—and the measurable personal characteristics (labor force experience, education). We are also interested in capturing and analyzing the role of the firm effect ψ. The firm effect literally captures the extent to which the firm the worker is attached to pays above or below average wages (after controlling for person effects).[6]

The firm fixed effect similarly captures a variety of factors. Most simplistically, it captures the premium or discount that a given firm pays workers on average, controlling for their individual characteristics. This premium might be due to a higher level of capital in the firm, which would clearly increase the productivity of individual workers. Or, it might be due to unionization—the transportation equipment industry, for example, has a relatively high average firm fixed effect. It might also be a compensating differential—the high average firm fixed effect in the mining industry is presumably in order to compensate workers for the riskiness and unpleasantness of mine work. Finally, the firm effect will capture a range of human resource policies chosen by the firm, including the effects of training and promotion policies as well as compensation.

B. Sample Used Here and Definitions

Consistent with our earlier work (Andersson, Holzer and Lane, 2005), we use a sample of LEHD data for five states in this study: California, Florida, Illinois, Maryland and North Carolina. These were the first five states for which long panels of microdata on both firms and workers were available to LEHD researchers. As we note below, we use data over the period 1993–2001 for workers who were prime-age adults in 1993 and who had at least minimal labor force attachment and earnings in each year. The result was a sample that included roughly 18 million workers working in over 1 million firms per year.

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[6]The individual fixed effects in our sample are estimates based on data through the year 1998. In our empirical work below, we report some earnings equations based on our own sample of data from 1996–98 and also from 1999–2001. Clearly, our empirical work using the latter sample is not subject to any concerns about the use of fixed effects wage measures that have been estimated over part of the time same period. Results over the two time periods are generally quite consistent with one another, as we note below.

The demographic characteristics of the workforce in the LEHD data, both overall and within these five states, are very similar to those of the decennial Census. There are, however, a few differences. The LEHD data used here have a high proportion of younger workers overall (about 20 percent), than do either the five-state Census sample or the full Census, which may be due to coverage and reporting differences. The five states that we are studying have a lower proportion of white workers than does the country at large—about 66 percent here rather than 78 percent for the nation. The industry distribution is, by and large, very similar—although the LEHD data show more workers in professional services, and fewer in educational, health, and social services. The earnings in the five states are typically slightly higher than for the country at large, but the LEHD earnings measures are, on average, slightly lower—probably primarily due to the coverage differences that were mentioned earlier.

As pointed out in our book, there are a variety of considerations associated with defining low earners on the basis of administrative data on quarterly and annual earnings only. It is important to try to separate out individuals who *voluntarily* work part-time at high wage from those who work full-time but at low wages, since UI wage records do not provide information on hours or weeks worked. Similarly, from a policy perspective, it is useful to separate those with *transitory* earnings difficulties—such as those returning to the labor market after a lengthy absence or those who have recently been displaced from a job—from those with *persistent* earnings difficulties over some number of years. Similarly, when studying the impacts of temp agencies, it is also important to measure impacts over a substantial period of time, so that transitory impacts can be separated from persistent ones in the labor market.

The practical way in which we address the first of these challenges is to limit the sample to one of prime-age workers—i.e., those aged 25 through 54—at the beginning of our period of analysis (1993). This at least partially eliminates the largest groups who are most likely to work part-time—such as students and the elderly (and near-elderly). While some groups of voluntary part-time workers—such as homemakers—will remain in the sample, the analysis will provide breakouts by gender (and also by race/ethnicity), thereby separating groups with many voluntary part-time workers (such as white females) from others where there presumably are fewer.

The second practical challenge is to identify people who are both attached to the labor market and persistently low earners. We address the attachment issue by only including in our sample of low earners those who have worked for at least one quarter in each year, and earn at least $2,000 per year when doing so. These conditions are also applied for the subsequent six years of the sample, which tends to omit those who left the population of earners in a state for any number of reasons.[7]

We define *persistently low earners* as those who earn $12,000 per year or less for each of three years during a three-year base period of 1993–95.[8] The three-year base period is long enough that we generally avoid those with strictly transitory problems, and focus instead on those with persistent low earnings. The implications for our sample sizes, and the characteristics of our sample (both in terms of employment outcomes, person fixed effects, and temp agency employment) of these various sample restrictions are considered in the Appendix. As expected, limiting the sample to persistently low earners in the base period clearer reduces outcomes and personal skills (while raising the incidence of temp agency employment, as we note below); but further limiting the sample in subsequent years beyond the base period has little effect on any of these measures.

In any event, after analyzing temp agency employment during the base period, we then examine labor market outcomes for low earners, and especially the impact of temp employment during the base period, in the six years *subsequent to the base period*. We also divide the six-year period into two three-year periods, 1996–98 and 1999–2001. This enables us to examine the stability of these subsequent labor market outcomes for a lengthy period of time, and separate out transitory from more persistent impacts.

The $12,000 cutoff for low earnings may seem somewhat arbitrary, but we have an extended discussion in our earlier work (Andersson et al., 2005) in which we discuss the basis for, and implications

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[7]Since each individual is required to appear in our data in each year of the analysis, we omit those who move out of state, or who drop out of the labor force for other reasons.

[8]Earnings are measured in 1998 dollars. We have used the CPI-U to deflate earnings over time. Though this index is known to overstate the rate of inflation over time (e.g., Schultz, 2003), this will have no effect on comparisons across groups in earnings or earnings growth in comparable time periods. We also have no data on the pecuniary values of fringe benefits for employees; however, these data are routinely omitted from calculations of poverty rates and the like. Inclusion of these measures would, if anything, exacerbate measured inequality across groups (Hamermesh, 1998).

of, this cutoff.[9] The bottom line is that we find that the $12,000 cutoff generates a sample of workers whose personal and family characteristics approximate those in which we are most interested.[10] However, we also consider those in an intermediate category of earnings in the base period (whom we call "occasionally low earners"), who earn less than $12,000 a year for at least one but not all of the three years in the base period.

IV. RESULTS

A. Summary Statistics

We begin with some data on the use of temp agencies by workers during our three-year base period (1993–95). In Table 1 we present summary data on the incidence of temp employment for all workers as well as separately by their earnings status in the base period—namely, for persistently low earners, occasionally low earners, and non-low earners.[11] We also present these results for individuals who had any employment through a temp agency over a three-year period, as well as for those who had temporary agencies as their primary source of employment over that period.

Our results show that, over a three-year period, roughly 8 percent of the sample's entire prime-age workforce has had some employment through a temporary agency—though only about 1 percent of the workforce had temp agencies as their primary employer over that period. However, when the sample is limited to include only persistently low earners, it is clear that temp agencies play a much greater role in securing employment for these workers than for the workforce overall—with 16 percent of all such low

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[9]During this time period, a family relying on the earnings of a single worker earning $12,000 or less would clearly have income below the poverty line for a family of three, and even below the poverty line for a family of four if potential eligibility for the Earned Income Tax Credit were taken into account. Varying this cutoff in our earlier work never affected our qualitative results.

[10]See the Appendix to Chapter 4 of our book, where we consider the educational characteristics and family incomes of workers from a smaller sample of LEHD workers who are matched to Current Population Survey (CPS) data, and who are persistently low earners by our definition. The vast majority of these workers had education levels of high school or less, and had family incomes below twice the poverty line.

[11]"Persistently Low" earners are those who earned less than $12,000 per year (in 1998 dollars) for all three years between 1993 and 1995; "Occasionally Low" had earnings less than $15,000 for at least some years; and "Non-Low" earners had earnings above $15,000 for each of the three years.

Table 1
Use of Temp Agencies By Workers in the Base Period (1993–95)

Temp Work:	Non-Low	Occasionally Low	Persistently Low	All Workers
Any	4.0%	16.0%	16.3%	8.0%
Primary	0.6%	2.4%	3.8%	1.3%

Note: Temp employment is considered "primary" if the agency was the worker's employer for the largest number of quarters in the three-year period. "Persistently Low" earners are those who earned less than $12,000 per year (in 1998 dollars) for all three years between 1993 and 1995; "Occasionally Low" had earnings less than $15,000 for at least some years; and "Non-Low" earners had earnings above $15,000 for each of the three years.

earners having some temp experience during those three years and about 4 percent having temp work as their primary source of employment. Temp employment for the "occasionally low earners" is very similar to that of workers whose earnings "persistently low," but it is considerably lower for the "non-low earners," with 4 percent of this latter group having any temp experience and less than 1 percent working primarily for temps.

In Table 2 we consider the personal characteristics of those who work for temp agencies during our base period. Once again, we consider these characteristics for all workers and for persistently low earners who have either worked for a temp agency or not; and we separately consider any work through a temp agency v. temp work as a primary source of employment. For all of these groups, we present data on the gender (female), age groups (25–34, 35–44, or 45–54), and race of such workers, as well as whether they are foreign born. We also tabulate the mean person fixed effects of workers in each category.

A number of findings appear in Table 2. Among workers of all earnings categories, those working at temp agencies are generally younger, more likely to be minority (especially black), and more likely to have below-average personal earnings characteristics (i.e., fixed effects) than those not working at temp agencies.

Among those workers with persistently low earnings, those who work at temp agencies are still more likely to be young or black. But we also find that low earners who work for temp agencies are also more likely to be male, to be native-born, and to have above-average personal characteristics than those not working for temps. In other words, the self-selection mechanisms into temporary employment are somewhat different among low earners than among others, with *somewhat more positive self-selection into temp agencies occurring among low earners*, suggesting that it is important to control for such forms of selection in regression analysis, if possible.

Once these workers spend some time working for temp agencies during the three-year base period, how likely are they to continue with this form of employment in subsequent years? The answer to this question obviously has important implications for the issue of the extent to which temp agencies help

Table 2
Personal Characteristics of Workers By Temp Agency Employment in the Base Period

	Any		Primary	
Temp Employment	Yes	No	Yes	No
A. All Workers				
Female	49.4%	46.5%	46.7%	47.7%
Age				
25–34	50.5%	36.6%	43.6%	37.7%
35–44	32.6%	36.9%	34.9%	36.6%
45–54	16.9%	26.4%	21.5%	25.7%
Race				
White	60.8%	74.0%	63.3%	73.1%
Black	21.5%	11.1%	20.0%	11.8%
Asian	4.8%	4.3%	4.4%	4.4%
Hispanic	13.0%	10.6%	12.4%	10.8%
Foreign Born	18.1%	17.6%	18.0%	17.6%
Person Fixed Effect	-0.06	0.08	-0.08	0.07
B. Persistently Low Earners in the Base Period				
Female	50.9%	65.1%	48.3%	63.4%
Age				
25–34	54.1%	40.2%	46.7%	42.3%
35–44	31.1%	35.0%	34.6%	34.4%
45–54	14.7%	24.8%	18.7%	23.3%
Race				
White	48.8%	59.9%	47.7%	58.5%
Black	30.1%	13.1%	32.0%	15.3%
Asian	4.8%	2.9%	2.9%	4.5%
Hispanic	18.2%	22.2%	17.4%	21.7%
Foreign Born	20.3%	29.7%	19.7%	28.4%
Person Fixed Effect	-0.41	-0.59	-0.47	-0.56

workers—and especially low earners—transition to more stable and perhaps higher-wage employment later on.

Table 3 presents data on the extent to which those who worked for temp agencies during the base period—either with any amount of temp employment or as their primary form of work—continue to work for temp agencies during the subsequent three years or six years. These data thus constitute elements of *transition matrices* for those at temp agencies during the base period, which shed light on the persistence of such employment over long periods of time. Once again, the data appear for all workers at temp agencies and only for those who were persistently low earners during the base period.

The results of Table 3 show some persistence over time in the attachment of workers to temp agencies, though large majorities of these workers no longer use temps by the period 1999–2001. For instance, among all workers who used temp agencies at any point in the base period, roughly 40 percent still use them at some point over the 1996–98 period, and about a fourth still do so during 1999–2001. Among those for whom temp agencies constituted the primary employer in the base period, persistence is even greater—with about 61 and 37 percent, respectively, having some temp employment in the 1996–98 and 1999–2001 periods. Also, those who were low earners in the base period and who used temp employment show modestly higher persistence in temp agency use than do workers overall, though qualitatively the pattern is quite similar for low earners.

In any event, the impacts of temp agencies on subsequent advancement for low earners will likely depend heavily on whether workers who used temps in the base period continue to do so subsequently, and this factor must be taken into account when we do our multivariate analysis of earnings gains for temp users over time below.

Having analyzed the personal characteristics of temp workers and the persistence of temp employment over time, we now consider a range of employment outcomes among these workers—both during the base period and in the subsequent three- and six-year periods. For here onward, we focus exclusively on those who were persistently low earners during the base period—as this is the group for whom temp agency might be considered a stepping-stone to more stable and successful job opportunities.

Table 3
Dynamics of Temp Agency Employment Across 3-Year Time Periods

Temp Work	Temp Work in:	
In Base Period:	1996–98	1999–2001
A. All Workers		
Any	40.2%	26.4%
Primary	61.2%	36.9%
B. Persistently Low Earners		
Any	49.2%	34.4%
Primary	63.9%	41.5%

Note: Samples consist of all workers (Panel A) and persistently low earners (Panel B) in the base period who worked for temp agencies, either at any time or as their primary employer . The table thus indicates the fractions of these workers who still work for temp agencies in 1996–98 and in 1999–2001.

In Table 4 we present a set of employment outcomes for those who used temp agencies for employment during the base period and those who did not. We present the outcomes for the base period, and also for the two subsequent three-year periods. The outcomes we consider are: a) The number of quarters during which the individual was employed over the three-year period—a rough measure of overall employment activity; b) The number of full quarters worked with any employer during that time-period, which measures employment instability; c) The quarters of job tenure accumulated in their primary job during this period, or a measure of employment stability; d) Average quarterly earnings during the three-year period; e) Average quarterly earnings for full quarters worked with any employer during such a period; and f) Average annual earnings. Once again, these are presented separately for those with or without any temp employment in the base period, and for those with or without such employment as their primary source of work. And, in the two subsequent periods, we present results separately for the full samples of originally low earners (panels B and D) and for those omitting temp workers in the current period (panels C and E).

A number of findings appear in Table 4. During the base period, those low earners who work at temp agencies work a bit less (in terms of quarters of employment), and are considerably less likely to work full quarters for their employers or to generate significant job tenure on these jobs. Their quarterly earnings in this time period are not greatly different from those without such work, though their annual earnings are consistently lower (especially among those for whom such employment is their primary source of work over the base period).[12]

What happens to these low-earning workers over the subsequent three or six years in the labor market? Those who worked for temp agencies earlier on (of whom we now know that only a small fraction still work for temps) still work fewer full quarters for specific employers and therefore accumulate less tenure on any job. But *now their earnings are higher than those of low earners who did*

[12]Since we are truncating the earnings distribution at a fairly low level when generating this sample, it is not surprising that earnings differences between those working and not working at temp agencies during this period are modest.

Table 4
Employment Outcomes In All Periods of Low Earners During the Base Period: By Temp Agency Employment During The Base Period

	Any Temp Employment		Primary Temp Employment	
	Yes	No	Yes	No
A. Base Period				
Quarters Worked	10.09	10.39	9.99	10.34
Full Quarters Worked	5	7.85	5.15	7.48
Quarters of Tenure	4.27	5.93	4.31	5.74
Quarterly Earnings	$2,098	$2,021	$1,993	$2,089
Full Quarter Earnings	$2,365	$2,217	$2,221	$2,242
Annual Earnings	$6,729	$7,110	$6,544	$7,068
B. 1996–98				
Quarters Worked	11.05	11.67	11.04	11.07
Full Quarters Worked	7.38	9.01	7.27	8.82
Quarters of Tenure	7.12	12.22	6.73	11.66
Quarterly Earnings	$3,275	$2,997	$3,265	$3,030
Full Quarter Earnings	$3,513	$3,076	$3,486	$3,129
Annual Earnings	$12,510	$11,048	$12,093	$11,181
C. 1996–98 Excluding Current Temp Workers				
Quarters Worked	11.07	11.08	11.07	11.08
Full Quarters Worked	7.52	9.04	7.35	8.87
Quarters of Tenure	7.09	12.29	5.72	11.78
Quarterly Earnings	$3,356	$2,996	$3,498	$3,033
Full Quarter Earnings	$3,609	$3,074	$3,780	$3,130
Annual Earnings	$12,476	$11,052	$13,305	$11,196
D. 1999–2001				
Quarters Worked	11.1	11.15	11.07	11.14
Full Quarters Worked	7.48	8.57	7.43	8.44
Quarters of Tenure	9.97	15.83	9.56	15.13
Quarterly Earnings	$4,295	$4,038	$4,279	$4,070
Full Quarter Earnings	$4,473	$4,082	$4,452	$4,130
Annual Earnings	$16,058	$15,107	$15,945	$15,225
E. 1999–2001 Excluding Current Temp Workers				
Quarters Worked	11.14	11.16	11.13	11.16
Full Quarters Worked	7.68	8.63	7.68	8.52
Quarters of Tenure	10.20	16.03	9.39	15.39
Quarterly Earnings	$4,420	$4,045	$4,553	$4,084
Full Quarter Earnings	$4,601	$4,087	$4,744	$4,141
Annual Earnings	$16,590	$15,147	$17,054	$15,298

Note: “Any Temp Employment” and “Primary Temp Employment” refer only to the base period; thus, outcomes for 1996–98 and 1999–2001 are conditioned on temp employment during the base period (1993–95). Results for the latter period are also presented with temp workers in those periods included (panels B and D) or excluded (panels C and E).

not work for temp agencies earlier. Specifically, those with any temp agency employment in the base period now earn 8 to 9 percent more per quarter than those without such experience, and 9 to 14 percent more for full-quarter employment or annual employment. For those whose primary employment was through temp agencies in the base period, the positive earnings differentials relative to those without such work are fairly comparable (though just slightly smaller in most cases).

Among those who do not work in temp agencies in the subsequent periods, the earnings of earlier temp workers relative to non-temp workers are even larger.[13] And, in tabulations not included in Table 4, we find these earnings gains among both women and men who were low earners in the base period, and among those of each racial/ethnic group—though the gains associated with earlier temp employment are somewhat larger for women than for men and for minorities than whites.[14]

Do these subsequent earnings advantages persist over time? During the second subsequent three-year period, those who had worked for temp agencies continue to have lower numbers of full quarters worked and less tenure accumulated, but they still earn more than those who did not—with differentials that are just a bit smaller than during the first subsequent period. Now we find quarterly earnings that are about 5 to 6 percent higher among temp workers than among non-temp workers, full quarter earnings that are about 8 to 10 percent higher, and annual earnings that are 5 to 6 percent higher. Thus, most of the earnings advantages associated with earlier temp work seem to persist over time.

Of course, these summary statistics on earnings do not control for personal characteristics, and we observed above (in Table 2) that there is positive self-selection into temporary employment among low

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[13]Panels C and E show earnings that are 12–19 percent higher among those who had earlier worked in temp agencies during 1996–98 and 9–15 percent higher in 1999–2001.

[14]For instance, full quarterly earnings are 16 percent higher among women and 7 percent higher among men in 1996–98 among low earners who worked in temp agencies in 1993–95 (when their earnings were only 8 percent and 2 percent higher, respectively). Full quarterly earnings are 17 percent higher among whites, 12 percent higher among blacks and 11 percent among Hispanics in 1996–98, respectively, among those who worked for temp agencies in 1993–95 (when their earnings were only 10 percent, 2 percent and 2 percent higher, respectively). The gains associated with earlier temp work are thus higher for women than for men but higher for minorities than whites among low earners in the base period.

earners in the labor market. We consider below whether or not the subsequently higher earnings among temp workers are still evident after controlling for observable differences in personal characteristics.

But, before we move to our regression analysis, we consider some data on the differences in job characteristics of low earners in the base period who work for temp agencies and those who do not—with the job characteristics presented for the base period and also for subsequent periods. In Table 5 we present data on the industries and firm fixed effects of employers of these different groups of workers. Once again, we present results for the base period and for the two subsequent periods, and separately for full samples and for those omitting current temp workers in the latter periods.

The results suggest that, during the base period, low earners working for temp agencies were much less likely to work in agriculture, retail trade, and other services. To a lesser extent, this remains true in the subsequent periods as well, because of the persistence of temp agency employment across these periods. But, in subsequent periods, those who worked for temp agencies in the base period are also now more heavily concentrated in a variety of higher-wage industries—notably durable manufacturing, but also to some extent in construction, nondurable manufacturing, transportation/utilities and wholesale trade. This remains true even in the period 1999–2001, with the data showing relatively little erosion of this effect between the first and second subsequent periods. Indeed, by 1996–98, 26 percent of previously low earners who had any temp work in the base period had jobs in these higher-wage industries, compared with only 18 percent of previously low earners who had no temp work in the base period. By 1999–2001 the proportions were roughly the same, at 28 percent v. 19 percent; the differences between those whose primary employment was in a temp agency and those for whom it was not are similar (though slightly smaller). And these differences are all considerably larger in the samples that exclude current temp workers than in those that include them.

Furthermore, *in the subsequent periods, those who worked for temp agencies in the base period now work for employers with higher firm fixed effects than those who did not work for temp agencies.* This was true to a small extent during the base period, but in subsequent periods, the gaps between the firm fixed effects of low earners who did and did not work for temp agencies in the base period,

Table 5
Job Characteristics of Low Earners By Temp Agency Employment During the Base Period

	Any Temp Employment		Primary Temp Employment	
	Yes	No	Yes	No
A. Base Period				
Industry:				
Agriculture	4.4%	13.1%	2.0%	11.9%
Construction	4.3%	3.4%	3.2%	3.6%
Durable Mfg.	4.2%	2.4%	2.7%	2.7%
Non-Durable Mfg.	6.0%	5.7%	5.6%	5.9%
Trans., Comm. and Ut.	2.3%	2.3%	1.5%	2.3%
Wholesale Trade	3.2%	3.1%	2.1%	3.2%
Retail Trade	19.4%	28.8%	9.0%	27.8%
Fin., Insur. and RE	2.1%	3.0%	1.2%	2.9%
Services				
Temp Agency	28.8%	0.0%	60.6%	3.0%
Other	24.8%	37.0%	14.1%	35.7%
Public Admin	0.6%	1.3%	0.3%	1.2%
Firm Fixed Effect	-0.30	-0.34	-0.35	-0.34
B. 1996–98				
Industry:				
Agriculture	3.7%	12.0%	2.1%	10.9%
Construction	4.7%	3.6%	3.8%	3.8%
Durable Mfg.	6.2%	2.8%	6.3%	3.2%
Non-Durable Mfg.	6.1%	5.4%	5.6%	5.5%
Trans., Comm. and Ut.	3.3%	2.6%	2.7%	2.7%
Wholesale Trade	3.9%	3.2%	3.4%	3.3%
Retail Trade	19.0%	25.5%	12.7%	24.8%
Fin., Insur. and RE	3.2%	3.0%	3.2%	3.1%
Services				
Temp Agency	21.2%	2.2%	37.2%	4.2%
Other	28.0%	38.3%	22.2%	37.1%
Public Admin	0.9%	1.5%	0.8%	1.4%
Firm Fixed Effect	-0.24	-0.3	-0.26	-0.29
C. 1996–98 Excluding Current Temp Workers				
Industry:				
Agriculture	3.70%	10.90%	2.20%	10.20%
Construction	5.40%	3.30%	5.30%	3.50%
Durable Mfg.	10.00%	3.20%	12.80%	3.90%
Non-Durable Mfg.	9.90%	6.50%	10.70%	6.80%
Trans., Comm. and Ut.	4.60%	2.70%	5.00%	2.90%
Wholesale Trade	5.90%	3.50%	7.50%	3.70%
Retail Trade	21.20%	25.60%	18.80%	25.20%
Fin., Insur. and RE	4.20%	3.30%	4.90%	3.30%
Services	33.50%	39.30%	38.80%	31.00%
Public Admin	1.70%	1.70%	1.90%	1.70%
Firm Fixed Effect	-0.11	-0.26	-0.06	-0.25

(table continues)

Table 5, continued

	Any Temp Employment		Primary Temp Employment	
	Yes	No	Yes	No
D. 1999–2001				
Industry:				
Agriculture	3.1%	11.2%	1.6%	10.2%
Construction	5.5%	4.1%	4.2%	4.3%
Durable Mfg.	7.1%	3.6%	7.7%	4.1%
Non-Durable Mfg.	6.6%	5.1%	6.4%	5.4%
Trans., Comm. and Ut.	4.1%	2.9%	3.8%	3.1%
Wholesale Trade	4.4%	3.6%	5.1%	3.7%
Retail Trade	17.9%	24.0%	13.0%	23.3%
Fin., Insur. and RE	3.2%	3.5%	3.2%	3.5%
Services				
Temp Agency	16.5%	3.3%	26.1%	4.7%
Other	30.2%	37.2%	36.3%	27.6%
Public Admin	1.3%	1.6%	1.5%	1.3%
Firm Fixed Effect	-0.17	-0.25	-0.18	-0.24
E. 1999–2001 Excluding Current Temp Workers				
Industry:				
Agriculture	3.00%	9.70%	2.00%	9.00%
Construction	5.90%	3.90%	6.00%	4.10%
Durable Mfg.	10.40%	3.90%	13.30%	4.60%
Non-Durable Mfg.	9.10%	5.90%	10.00%	6.30%
Trans., Comm. and Ut.	5.30%	3.10%	5.60%	3.30%
Wholesale Trade	6.40%	3.80%	7.50%	4.00%
Retail Trade	18.00%	22.80%	14.80%	21.40%
Fin., Insur. and RE	4.20%	3.70%	5.30%	3.80%
Services	34.70%	41.00%	33.40%	40.40%
Public Admin	2.40%	2.20%	2.50%	2.20%
Firm Fixed Effect	-0.05	-0.2	-0.01	-0.19

Note: See Table 4.

respectively, has grown. This is a critical finding, and suggests that temp agencies act as labor market intermediaries to link low earners to better employers than those whom they might be able to find on their own. And, once again, there is only modest evidence of erosion in the magnitude of this effect between 1996–98 and 1999–2001.

B. Regression Equations for Earnings in Subsequent Periods

The extent to which employment in these higher-wage industries and firms might account for the stronger employment outcomes in subsequent periods for low earners who initially worked at temp agencies, especially once we control for other personal characteristics, must now be ascertained.

In Tables 6 and 7 we present the results of estimated regression equations of the following form for those who were low earners in the base period:

$$ln(EARN)_{ij,t+l} = f(TEMP_{it}, TEMP_{i,t+l}, X_i, X_{i,t+l}, TEN_{ij,t+l}, TIME_{t+l}; X_j) + u_{ij,t+l} \quad (2)$$

where EARN represents quarterly earnings; TEMP represents employment at a temp agency; TEN represents job tenure; TIME represents quarter dummies; X represents a variety of characteristics; i, j, and t denote the person, firm, and time period, respectively; and l takes on the values of 1 or 2, depending on whether the observation is in the first or second of the three-year periods subsequent to the base period.

In other words, we have estimated earnings equations across person-quarters, separately for the period 1996–98 and 1999–2001. We are primarily interested in the coefficients (and t statistics) on employment at temp agencies during the base period, which is what we present in those tables. All other variables appear as controls.[15]

In Table 6 we present five specifications of each equation. In the first, we control for observable fixed characteristics such as race/gender and foreign born status, as well as age, and time (quarter). In the

[15]These regressions are based on random 10 percent samples of the full populations that meet our sampling criteria; sample sizes are thus about 1/10 of those that appear in the Appendix for the two subsequent periods.

Table 6
Estimated Effects of Temp Agency Employment During Base Period on Earnings in Subsequent Periods: All Low Earners During the Base Period (T-Statistics)

	All Earnings		Full Quarter Earnings	
	Temp Employment:			
	Any	Primary	Any	Primary
1996–98				
Controlling for:				
1) Race/Gender, Foreign Born	-.193	-.168	.144	.120
	(22.18)	(10.13)	(17.98)	(7.69)
2) Race/Gender, Foreign Born, Current Temp	-.070	.062	.181	.192
	(7.74)	(3.64)	(21.86)	(11.69)
3) Person Fixed Effect	-.103	.018	.156	164
	(11.87)	(1.07)	(20.10)	(10.55)
4) Person Fixed Effect, Tenure	.036	.103	.112	.124
	(4.17)	(6.35)	(14.21)	(8.02)
5) Person Fixed Effect, Tenure, Firm Fixed Effect	-.039	.032	.043	.049
	(4.89)	(2.15)	(5.98)	(3.50)
1999–2001				
Controlling for:				
1) Race/Gender, Foreign Born	-.129	-.136	.126	.090
	(12.66)	(6.95)	(13.90)	(5.12)
2) Race/Gender, Foreign Born, Current Temp	-.037	.018	.152	.135
	(3.61)	(10.94)	(16.56)	(7.55)
3) Person Fixed Effect	-.074	-.021	.131	.118
	(7.43)	(1.10)	(14.92)	(6.84)
4) Person Fixed Effect, Tenure	.021	.035	.098	.083
	(2.17)	(1.88)	(11.03)	(4.85)
5) Person Fixed Effect, Tenure, Firm Fixed Effect	-.056	-.033	.028	.014
	(6.17)	(1.91)	(3.42)	(0.90)

Note: The dependent variable in these regression equations is ln(quarterly earnings). Observations are person-quarters. The samples are restricted to those with full-quarter employment with any employer for results listed as "full-quarter." Each equation also includes controls for age and time dummies. Regressions are based on a 10% random sample of the relevant population (as described in the Appendix).

second, we add a control for current employment at a temp agency. In the third, we replace the fixed personal characteristics noted above with a person fixed effect. In the fourth, we add a control for tenure in the current job. Finally, in the fifth, we add the firm fixed effect. These different specifications shed light on how our results might be influenced by the omission or inclusion of all of these variables, since it seems that temp employment in the base period draws workers with different personal characteristics than the overall population of low earners, and since temp employment may or may not causally affect not only subsequent job tenure and firm characteristics but also subsequent temp employment.

Separate equations have been estimated for all earnings and for full-quarter earnings (in the latter case, the sample is restricted only to individual workers' person-quarters of full quarter employment with any particular firm). Separate estimates are also provided for those with any temp employment in the base period v. those whose primary employment was through the temp agency, and also for 1996–98 v. 1999–2001. Also, Table 6 presents results for all workers who were persistently low earners in the base period, while Table 7 presents them only for non-temp workers in the subsequent three-year periods.[16]

Overall, the estimated effects of temp employment for low earners in the base period on their subsequent earnings are somewhat varied. The estimates for all earnings are quite mixed, with primary employment at a temp agency showing more positive effects than any temp employment; but the effects of temp employment on full quarter earnings are uniformly positive.

Without controlling for current temp employment, effects on all earnings are negative, though still positive for those with full-quarter earnings only. Controlling for current temp activity makes the results for all earnings considerably less negative, and even positive for those with primary temp employment in the base period. Controlling for person fixed effects consistently makes the estimated effects of temp agencies less positive, by 2 to 4 log points; this is consistent with the notion of some positive self-selection into temp employment among low earners. Controlling for tenure has mixed effects, making the estimates more positive for all earnings (consistent with the shorter tenure among

[16]Table 7 thus contains just four specifications, since the second one from Table 6 is omitted.

Table 7
Estimated Effects of Temp Agency Employment During Base Period on Earnings in Subsequent Periods: Low Earners During the Base Period Who Do Not Work for Temp Agencies in Subsequent Periods (T-Statistics)

	All Earnings		Full Quarter Earnings	
	Temp Employment:			
	Any	Primary	Any	Primary
1996–98				
Controlling for:				
1) Race/Gender, Foreign Born	-.075	.025	.203	310
	(8.10)	(1.26)	(24.05)	(16.59)
2) Person Fixed Effect	-.102	-.018	.180	.278
	(11.41)	(0.90)	(22.69)	(15.71)
3) Person Fixed Effect, Tenure	.065	.187	.132	.212
	(7.26)	(9.74)	(16.28)	(1194)
4) Person Fixed Effect, Tenure, Firm Fixed Effect	-.027	.063	.055	.098
	(3.24)	(3.55)	(7.39)	(6.09)
1999–2001				
Controlling for:				
1) Race/Gender, Foreign Born	-.004	.081	.180	.206
	(0.34)	(5.69)	(19.21)	(10.71)
2) Person Fixed Effect	-.035	.041	.161	.186
	(3.40)	(1.91)	(18.00)	(10.01)
3) Person Fixed Effect, Tenure	.081	.149	.127	.144
	(8.00)	(7.14)	(14.00)	(7.75)
4) Person Fixed Effect, Tenure, Firm Fixed Effect	-.024	.017	.042	.036
	(2.57)	(0.89)	(5.08)	(2.15)

Note: Samples exclude workers who worked for temp agencies during the quarter observed in the periods 1996–98 or 1999–2001. Other conditions from note in Table 6 apply.

temp users that we observed in earlier tables) but less positive for those with full quarter earnings (implying longer tenure among temp users who have full quarter employment). Also, the estimated effects of current temp agency employment are large and negative in all equations (not shown in the tables), but controlling for these makes the effects of previous temp employment more positive as well.

Controlling for current temp status and also for job tenure, all of the estimated effects of temp agencies on either earnings measure are positive. Thus, both the estimates for full-quarter earnings and those controlling for tenure show that *temp agencies have positive effects on the earnings of low earners who manage to transition to stable non-temp employment afterwards*. And, while some—though not all—of the positive estimated effects of temp employment diminish between the first and second three-year periods after the base period, at least some positive effects persist over time, suggesting that the positive effects are not purely short-term.

But all of the positive estimates become much smaller (or even negative) once we control for firm fixed effects. Indeed, controlling for firm characteristics consistently reduces the positive impacts of temp agencies by about 7 log points. In other words, *most of the positive effects of temp agencies on subsequent earnings of low earners occur because they improve the access of these workers to higher-wage employers*. This is consistent with the results reported in Andersson et al. (2005).

When we consider the effects of earlier temp employment on those not working as temps in the subsequent periods in Table 7, we generally find much more positive effects of earlier temp employment than in Table 6. As before, results for those with full-quarter earnings are positive and quite large—with earlier temp employment raising subsequent earnings by 20 to 30 log points in 1996–98 and 16 to 20 log points in 1999–2001. For those with any earnings, the effects remain mixed but are clearly positive after controlling for job tenure. And controlling for firm fixed effects now reduces the estimated effects of early temp employment by 9 to 13 log points.

To see more clearly the apparent positive impact of temp employment on the quality of firms to which workers get matched subsequently, we present estimates of early temp employment on the firm fixed effects in 1996–98 and 1999–2001 in Table 8. As before, estimates appear for full-quarter earnings

Table 8
Estimated Effects of Temp Agency Employment During Base Period on Firm Fixed Effect in Subsequent Periods: Low Earners During the Base Period Who Do Not Work for Temp Agencies in Subsequent Periods

	All Earnings		Full Quarter Earnings	
	Temp Employment:			
	Any	Primary	Any	Primary
1996–98				
Controlling for:				
1) Race/Gender, Foreign Born	.099	.131	.127	.178
	(31.15)	(19.00)	(29.31)	(18.63)
2) Person Fixed Effect	.088	.118	.092	.135
	(28.26)	(17.67)	(22.65)	(15.16)
1999–2001				
Controlling for:				
1) Race/Gender, Foreign Born	.113	.139	.133	.163
	(30.46)	(18.10)	(28.39)	(16.93)
2) Person Fixed Effect	.102	.128	.103	.130
	(28.16)	(17.09)	(23.02)	(14.20)

Note: Samples exclude workers who worked for temp agencies during the quarter observed in the periods 1996–98 or 1999–2001. Other conditions from Note to Table 6 apply, except that the dependent variable is now the firm fixed effect for that quarter.

only and for all earnings, and for any earlier temp employment as well as primary employment during the base period. Results from two specifications are presented: the first in which we control for observable personal characteristics (i.e., race/gender and foreign born status), and the second controlling for person fixed effects. As in Table 7, those who still work with temp agencies in the subsequent periods are removed from the sample.

The results show quite substantial positive effects of early temp employment on the subsequent quality of firms to which low-earning workers are matched. For all earners, firm fixed effects are 9 to 14 percentage points higher among those who earlier had worked for temp agencies; among those with full-quarter earnings, firm fixed effects are 9 to 18 percentage points higher. Thus, for those making successful transitions to stable post-temp employment, access to higher-wage firms is improved by having worked for a time with a temp agency.

V. CONCLUSION

Using new longitudinal data from the Census Bureau on the universe of UI-covered workers and their employers in five states, we have estimated the effects of temp employment on the earnings of persistently low earners over a subsequent six-year period.

Our results show that temp earners clearly have lower earnings than others while working at these agencies; and even their subsequent earnings are somewhat mixed. But these earnings are generally higher if they manage to gain stable employment with other employers. In particular, we find that the effects of temp agency employment in the base period on subsequent earnings are uniformly positive for those reporting full-quarter earnings, and for all earnings once we control for job tenure.

While there is some positive self-selection among low earners into temp employment, controlling for person fixed effects does not completely eliminate the positive effects associated with temp employment. Furthermore, the positive effects seem mostly to occur because those working for temp agencies subsequently work for higher-wage firms than do comparable low earners who do not work for

temps. And the positive effects we estimate seem to persist over time, for as much as six years beyond the base period during which the temp employment was observed.

Thus, our results are consistent with the notion that low earners, in addition to any deficiencies in skills that they bring to the labor market, sometimes have difficulty "matching" themselves to higher-wage employers in the labor market. This might reflect employer discrimination, their own limited information and informal contacts in the labor market, transportation and geographic "mismatch," or other problems.

But temp agencies, and perhaps other labor market intermediaries, can help these workers overcome these problems and gain access to better employers across their regional labor markets. By providing the initial contact with employers, these intermediaries can perhaps overcome transportation and informational barriers that limit initial access (Giloth, 2003); and by providing information about worker quality and previous performance that might be unobservable to employers on their own, they might overcome discriminatory behaviors among employers (Holzer et al., 2003). Indeed, the results suggest that such intermediaries might play a significant role in a strategy of helping the working poor advance in the labor market by moving them into better jobs over time, as long as such placements can be combined with appropriate job training and support services (Holzer, 2004; Holzer and Martinson, 2005).

Our results are thus consistent with much of the earlier literature on temp agencies that we reviewed above, though somewhat less consistent with the recent work by Autor and Houseman in Detroit which suggested that any positive effects are spurious or transitory. On the other hand, even in their work, contractors who placed TANF recipients into permanent jobs also generated positive impacts on earnings that persisted over time. In this broader sense, the results of Autor and Houseman are quite consistent with our results here, suggesting that temps and/or other intermediaries who manage to achieve more permanent job placements for their workers can have positive impacts.

Of course, we have not fully eliminated possible self-selection effects regarding temps, since person fixed effects do not control for any time-varying characteristics of these individuals. But, combined with the clear evidence that temp agencies result in subsequent employment at higher-wage

firms, our findings at least suggest that the positive effects of temp agencies or other intermediaries on the job-matching process for low earners might be real and persistent.

Appendix
Effects of Sample Selection Criteria on Sample Size, Temp Agency Employment, Earnings and Personal Characteristics

Sample Including:	N	Temp Employment	Quarterly Earnings	Person Fixed Effect
1) All workers aged 25–54 in 1995 with at least one quarter of work and $2,000 earned per year, 1993–95	17,010	8.0%	$9,126	0.07
2) Only persistent low earners, 1993–95	1,384	16.3	2,085	-0.56
3) At least one quarter of work and $2,000 earned per year, 1996–98	880	14.8	2,118	-0.55
4) At least one quarter of work and $2,000 earned per year, 1999–2001	670	14.1	2,129	-0.55

Note: Sample size (N) is measured as person-quarters during the base period of 1993–95. Temp Employment reflects the percent of workers with at least one quarter of employment at a temp agency during the base period. Quarterly Earnings reflects average quarterly earnings during the base period. Person Fixed Effect is defined as in the text. The four conditions imposed on the sample are added sequentially.

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