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ABSTRACT

Atypical Work and Employment Continuity

Atypical employment arrangements such as agency temporary work and contracting have long been criticized as offering more precarious and unstable work than regular employment. Using data from two datasets – the CAEAS and the NLSY79 – we determine whether workers who take such jobs rather than regular employment, or the alternative of continued job search, subsequently experience greater or lesser employment continuity. Observed differences between the various working arrangements are starkest when we do not account for unobserved individual heterogeneity. Controlling for the latter, we report that the advantage of regular work over atypical work and atypical work over continued joblessness dissipates.

I. Introduction

Analysis of the impact of atypical work (e.g. contracting, consulting, on-call, and temporary agency work) on the job prospects of its incumbents has passed through a number of stages in both the United States and Europe. This is nowhere more obvious than in the case of workers employed by temporary help agency firms. Most if not all of the early literature on temporary work arrangement reached pessimistic conclusions. Thus, the jobs in question were viewed as dead-end, offering atypical workers little opportunity or incentive to invest in themselves or to develop productive job search networks. Accordingly, such workers were characterized as confronting continuing job instability and ongoing skill deficits (Parker, 1994; Nollen, 1996; Blank, 1998).

More recently the research pendulum has if anything swung the other way, and in Europe may have helped hinder the passage of legislation seeking to regulate inter al. the pay, working time, rest periods, holidays, and holiday pay of agency temporary workers.[1] This new, revisionist literature – much of it unpublished (see, for example, García-Pérez and Muñoz-Bullón, 2002; Ichino et al., 2004; Kvasnicka, 2005; Zijl et al., 2004) has tended to suggest to the contrary that temporary jobs facilitate labor market advancement, reducing the time their incumbents spend in largely unproductive job search (where temporary agencies have lower screening and termination costs than conventional direct-hire employment, this may facilitate the hiring of individuals who might not have found any work in their absence), while also leading to longer term job attachment (via heightened human capital investment and improved labor market networks).

There is, however, no real consensus and the new literature has come under challenge on technical grounds.[2] Further, the alternative work arrangement most closely studied, *agency temporary workers*, represents a minority among the totality of atypical jobs that also include direct-hire temporaries, on call-workers, and those engaged in contracting and consulting. Note that agency temporaries make up just 7 percent of atypical work in the United States.

Accordingly, our understanding of the consequences of the historically rapid growth in atypical work, facilitated in large part by structural changes in the economy (see, for example,

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[1] Two so-called atypical worker directives were enacted into law in the EU in 1997 and 1999 (see, respectively, Official Journal, 1998, 1999). A third directive on the working conditions of temporary workers was introduced by the European Commission in 2002 (Commission of the European Communities, 2002), but little definitive progress on this controversial draft legislation has been made since then.

[2] Principally, inadequate modeling of the likely nonrandom selection of workers with different earnings capacities into atypical work (see below).

Abraham and Taylor, 1996; Segal and Sullivan, 1997a; Garen, 1999), is both contested and substantially incomplete. The goal of the present exercise is to help clarify one aspect of the impact of atypical employment on the labor market prospects of its incumbents by investigating their employment continuity.[3] In this context, the main contribution of the paper is inclusiveness rather than methodological. That is to say, we investigate the *full range* of atypical work arrangements, not just a subset thereof, and provide *updated* estimates of their effect on employment continuity using pooled data and panel estimates.

We conclude that atypical workers are indeed a diverse lot, such that the continuing focus on temporary agency employment can be misleading. Some categories of atypical work are shown to enjoy no less employment continuity than regular employment, even if others do not. In each case, however, unobserved individual heterogeneity casts a long shadow, blunting if not overturning the sharper edges of differences between the various categories of atypical work and regular employment. But selecting atypical work may yield greater employment continuity than the alternative of continued job search.

II. Existing Research

Prior to the publication in 1995 of the Contingent and Alternative Employment Arrangement Supplement (CAEAS) to the Current Population Survey. U.S. research focused almost exclusively on a single alternative work arrangement, namely, agency temporary work.[4] Agency temps were typically identified by their self-reported industrial code, giving rise to potential measurement error in circumstances where workers reported the industrial classification of the client firm rather than the temporary help agency. This early empirical literature reported that temporary help service workers experienced shorter (and coincidentally poorly-paid) spells of employment compared with workers in other industries (see, for example, Davis-Blake and Uzzi, 1993; Parker, 1994).

In recognition of the limitations of worker-provided data prior to the CAEAS, Segal and Sullivan (1997b) examined the impact of temporary work on employment continuity using data from the state of Washington's unemployment insurance program that maintains quarterly records on the employment history of workers covered by the system, where that information is

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[3] We do not consider earnings development in the present paper, but see Addison and Surfield (2007), for one such treatment, together with the papers reviewed in the next section.

[4] Although questions on atypical work arrangements, as well as other work forms such as self-employment, were introduced into the 1994 National Longitudinal Survey of Youth and continued until 1998.

reported by the employer. Since the authors have longitudinal data (for 1984 to 1994), they observe repeated spells of employment for the same individual, allowing them to include an individual-specific intercept in their regression analysis and thereby control for unobserved factors that might influence the decision to become a temporary worker.

The results obtained by Segal and Sullivan were mostly supportive of the earlier literature. That is, temporary help service workers were found to experience significantly shorter employment durations than those of workers in other industries. Moreover, roughly 40 percent of the observed spells of temporary employment ended with the worker entering into either unemployment or exiting from the labor force. Among those who remained in employment, however, more than one half of temporary employment spells ending within six months were followed by regular employment. Finally, the inclusion of individual fixed effects had little impact on the duration of temporary employment, implying that unobserved individual heterogeneity did not contribute materially to the differential employment continuity of agency temporaries.

A more positive evaluation of temporary employment is reported by Lane et al. (2003) in an analysis of Survey of Income and Program Participation panel data, 1990-93. The authors seek to match at-risk (of welfare) temporary workers – defined as those who either received public assistance or had family income below 150 percent of the poverty line in the previous year – with control groups assembled from the regular worker population, using propensity score techniques based on demographic characteristics and employment histories (see Heckman et al., 1997, 1998). They find that although individuals who experienced a spell in temporary employment had worse employment (and earnings) outcomes than those who worked in open-ended employment, they did considerably better than similar workers who had a spell of unemployment. Specifically, comparing the unemployed who found temporary employment after one month with similar workers who were not employed in either month, the former had a 69 percent chance of being employed one year later and the latter only a 35 percent chance. However, Lane et al. (2003, p. 598) do caution that the comparison groups were not well matched on all characteristics (namely, work history variables).

The two most recent U.S. studies also focus narrowly on the temporary employment option for disadvantaged workers. They reach differing conclusions. In an analysis of welfare recipients in North Carolina and Missouri – using samples for 1993/97 and 1997 respectively,

observed eight quarters before and eight quarters after the sample period(s) – Heinrich, Mueser, and Troske (2005) again report that individuals who go to work for temporary agency firms fare substantially better than those who fail initially to find work. Moreover, although recipients in temporary jobs receive lower pay and are more likely to be on welfare in two years than are other employed recipients (even if they do not seem to have materially fewer quarters of positive earnings) these differences are small once the authors control for individual characteristics and potential selection bias in the decision to take an agency temporary job.[5] No less important, the earnings of temporary workers in subsequent years increase faster than those in other industries. After two years, then, temps have earnings close to those of other workers, and they are no less likely to be employed. Only in terms of welfare recidivism is their performance inferior to regular workers – and, to repeat, for all outcomes it remains much better than for initially/currently unemployed workers. The bottom line from this study is that temporary jobs provide a path to other industries with greater employment stability *and* higher earnings.

Somewhat different results are provided by Autor and Houseman (2005) in a unique analysis of administrative data from the Michigan Work First program for welfare recipients that are linked with that state's UI wage records data base. Payroll earnings and employment continuity (quarters of employment) are charted for up to two years. The sample comprises 38,689 Work First spells initiated between 1999 and 2003. The study is notable for its quasi-experimental status. Under Michigan's workfare plan, employment services are provided by nonprofit private or public sector agencies whose placement practices vary significantly *but who otherwise offer similar services*. In circumstances where multiple such contractors are involved in the provision of services within a geographic district they take turns in enrolling applicants. Accordingly, the distribution of participants among contractors is random, providing a new experimental context for the evaluation of the employment service of temporary employment.

Autor and Houseman obtain similar results to the modern (welfare) literature for simple OLS specifications. That is to say, post-assignment earnings for temps considerably exceeded the earnings of the initially unemployed over time as did their employment continuity, while differences between direct hires and temps were muted. However, the authors' instrumental variables regressions (wherein contractor-by-year dummy variables replace the direct hire and

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[5] The selection model is identified through the exclusion of various measures such as the county unemployment rate, industrial structure, and industry-specific earnings from the earnings equation but not the selection into employment equation.

temporary work status variables) produce very different results once one proceeds beyond the first post-assignment quarter. And the disparities increase in the follow-up period. Thus, for example, over a two-year interval temporary help job placements are associated with earnings *losses* and insignificant increases in employment continuity vis-à-vis those receiving no placement, while direct hire placements produce major increases in both earnings and total quarters of employment. The impression that temporary jobs do not improve and may actually harm labor market outcomes is sharpened by the authors' analysis of marginal treatment effects which suggests among other things that marginal temporary worker gains in earnings and employment during the first year come at the cost of sacrificed earnings and employment in direct-hire jobs. Any first-quarter benefits associated with 'temping' are eliminated within the first year. In sharp contrast, direct-hire placements point to strong and continuing gains in earnings and employment, with the suggestion that welfare recipients might be better advised to eschew temporary help jobs and search for open-ended employment at the outset, agency temporary employment being a poor substitute for continued unemployment.

The issue raised by this sole experimental study is whether non-experimental studies are biased by the selection of workers into job types on the basis of unobserved characteristics or simply reflect a difference between marginal and average treatment effects. We note parenthetically that the authors of this careful treatment pay especial attention to eliminating other factors that might influence their results, namely, unmeasured differences between contractors and the issue of parameter instability.

It is appropriate at this stage to briefly mention a number of European studies of the effects of temporary employment. Despite the regulatory actions of the EU (foot)noted earlier, the most recent European research points in a fairly optimistic direction. For Britain, in an analysis of job duration and reason for exit using data from the British Household Panel Survey for 1991-97, Booth et al. (2002) report that fixed-term contracts – if not seasonal/casual employment, the other category of temporary work examined – provide effective stepping stones to permanent jobs, while any costs in the form of reduced wages are transitory especially for females. For Italy, using propensity score matching methods, Ichino et al. (2004) find that relative to starting off unemployed being in a temporary help job significantly improves the probability of the worker finding permanent employment within 18 months. Finally, for the Netherlands, Zijl et al. (2004) advance a formal structural model of transitions into open-ended

employment and report that taking a temporary job materially reduces jobless duration while facilitating subsequent job continuity. To begin with, newly unemployed temporary workers have a somewhat lower rate of transition into regular employment than do unemployed workers but after 18 months the escape rate from temporary employment exceeds that from unemployment, suggesting an accretion of human capital assets and the formation of social networks. Interestingly, to the extent that they use temporary work, the stepping stone effect is found to be somewhat higher for lower educated individuals than for their more educated counterparts and for male ethnic minorities than for the native population.

Thus far we have seen atypical work presents a rather different and more optimistic assessment of the prospects of temporary agency workers than earlier analyses. To be sure there are some disagreements (chiefly between Autor and Houseman and the rest over the efficacy of non-experimental methods) so that the question of the robustness of the new literature is not settled. Moreover, the near exclusive focus on temporary agency employment presents only a partial picture of atypical work. Agency temporaries account for about one percent of the U.S. workforce, while direct-hire temporaries and independent contractors each constitute around five percent of the U.S. workforce (see Cohany, 1996; Polivka, 1996).

In concluding this literature review, therefore, we turn to the study that considers a more comprehensive range of alternative work arrangements. Taking advantage of the then newly administered CAEAS, Houseman and Polivka (2000) include in their investigation not only agency temporaries but also direct-hire temporaries, on-call workers, contract workers, and independent contractors. They were able to identify the labor market outcomes of workers by matching the February 1995 CAEAS to the subsequent CPS surveys for March 1995 and February 1996. Since their primary focus was upon the *job* stability associated with atypical work, those initially observed as being unemployed or out of the labor force were excluded from their analysis.

Their empirical results seem to be more in line with the earlier U.S. research literature. Specifically, they find that many atypical workers are likely to find themselves transitioning into both labor market inactivity and joblessness at rates that are significantly greater than those observed for (full-time) regular employment. But these effects are not uniform. Agency temporaries fare the poorest: the likelihood they will be unemployed after one year is roughly two to eight percentage points greater than is the case for those engaged in open-ended

employment. For direct-hire temps and on-call workers the corresponding increases in the probability of entering joblessness are three to four and four to five percentage points, respectively. Only independent contractors are (about one percentage point) *less* likely to be observed unemployed than are regular workers.

Two concerns arise from the literature on atypical work. First, most of the studies either focus narrowly on just one type of atypical work (most often agency temporary employment) or are otherwise restricted in scope (being based on single states or groups of economically disadvantaged individuals). Disagreement about the implications of atypical work might reflect these restrictions. Second, the material in the major study examining a wider range of atypical work types (Houseman and Polivka, 2000) is now somewhat dated. Therefore we need to determine whether its findings are supported by newer CAEAS/CPS information. Even more importantly, we also include those initially unemployed and out of the labor force to directly test the effects of the various forms of atypical work on *employment* continuity rather than job continuity. Finally, we shall examine a truly longitudinal data set – the National Longitudinal Survey of Youth, 1979 Cohort (NLSY79) – that also permits investigation of a wide range of alternative work arrangements while allowing us to address the nonrandom selection of workers with different earnings capacities and labor market opportunities.[6]

III. Data and Methodology

The Contingent and Alternative Employment Arrangement Supplement to the Current Population Survey (CAEAS/CPS) is a large, nationally representative dataset. It was first conducted in February 1995 and biennially since then. One key advantage of the CAEAS/CPS resides in its large number of observations, which is important given the relatively small number of workers engaged in some atypical work arrangements (contract and on-call workers in particular). The data contained in the parent CPS surveys conducted one year later is used to identify the labor market outcomes of workers.

Our second and overlapping source of data is the National Longitudinal Survey of Youth, 1979 Cohort (NLSY79). Although the NLSY79 tracks a narrower age cohort – it covers workers aged 29 to 34 years in 1994 – than the CAEAS/CPS, it does contain richer information on labor

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[6] The data on atypical work arrangements contained within the NLSY79 have been accorded little attention by researchers. Exceptions are Rothstein (1996) and Ferber and Waldfogel (1998), neither of whom exploit data on the different types of alternative work arrangements.

market histories. In particular, the weekly diaries maintained by respondents allow us to more precisely determine the length of time they have been employed. The NLSY79 also allows us to follow individuals for longer time intervals and potentially to draw stronger inferences about the labor market implications of atypical work.

The CAEAS/CPS Data

We extracted one cross section each from the four CAEAS/CPS surveys issued from 1997 until 2005.[7] Each cross section was then linked to the parent CPS issued exactly one year later. We also link the CAEAS to the Displaced Worker Survey (DWS), conducted in the February of the following year for three of the four cross sections. In 2006, the DWS was administered in January, meaning that in matching the 2005 CAEAS to the two surveys – the January DWS and the February CPS – there emerge slight differences in sample sizes. In each case, we used the matching algorithm outlined in Madrian and Lefgren (1999) in linking the CAES to these subsequent surveys.

The rotational design of the CPS has households being actively interviewed for four months, rotated out for eight, and then re-interviewed for four additional months prior to being permanently rotated out of the survey. This pattern limits the number of households identified in the CAEAS that can be matched to the survey that is administered one year later. Since there is no overlap of individuals contained in each of the four cross sections, we combine them into single pooled sample.

We classify workers into one of nine mutually exclusive work and non-work categories. The first two work arrangements pertain to open-ended employment and comprise *regular workers* and *screened workers*. Following the convention established in the literature, we next distinguish between five types of atypical employment: *agency temporaries*, *direct-hire temporaries*, *on-call workers*, *contract company workers*, and *independent contractors*. Our two residual categories are those initially reported as being *unemployed* or *out of the labor force*. Definitions for each of these work arrangements are given in Table 1.

(Table 1 near here)

Using regular workers as one basis for comparison, we can directly assess if atypical work offers employment that is more (or less) stable than open-ended employment. Use of the

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[7] Budgetary cuts prevented the CAEAS/CPS from being issued in 2003, while the 1995 CAEAS/CPS was not usable given a change in the household identifier in September 1995 which prevented us from matching it with the subsequent CPS survey.

initially unemployed as a second reference category, allows us to determine whether being employed in an atypical arrangement affords workers with greater (or lesser) employment continuity than results from continued search.

Matching the CAEAS data with the CPS and the DWS provides us with two distinct measures of a worker's employment continuity. These are respectively the labor market status of the worker one year after the CAEAS and whether or not the worker was displaced over the course of the following year. Beginning with the former measure, the three possible outcomes identified in the subsequent CPS are: *employed one year later, unemployed one year later,* or *out of the labor force one year later*. A multinomial logit choice model is adopted to analyze the employment outcome. Ceteris paribus, the multinomial logit will provide us with an estimate of the probability of observing an individual with a particular characteristic in a given outcome *relative* to the probability of observing an individual with a reference characteristic being observed in that outcome. For example, we can determine how much more (or less) likely an agency temporary will be employed one year later than will a regular worker. Again note that two reference characteristics are to be used.

For our second measure of employment continuity, we construct a dichotomous variable equal to one if, at some point between the CAEAS and DWS interviews, a worker lost his or her job due to displacement (zero otherwise). A worker is displaced if the job was lost due to slack work, plant closure, or the elimination of the shift or position. A standard (dichotomous) logit model is used to analyze the displacement phenomenon/variable. As was the case with the multinomial logit, two different reference categories are again used.

Turning to the regressors, in addition to a worker's employment arrangement, we have data on traditional demographical controls such as age, education, ethnicity, and gender. We also include information on the number of children in the household under six years of age on the grounds that atypical work offers individuals with pre-school children a more flexible work form potentially better suited to their needs than does regular employment (e.g. Rothstein, 1996). If so, it would not be surprising to see a diminished employment continuity attaching to atypical work. Next, for those who held a job of some kind, be it open-ended work or atypical employment, we can also include controls for industry and occupation (set equal to zero for those individuals we initially observe as being unemployed or out of the labor force). The CAEAS data also allow us to construct a variable that is analogous to a worker's tenure (in years). For those engaged in

regular, screened and direct-hire temporary work, it is the actual tenure acquired by the worker with his or her employer. For agency temporaries and contract company workers, the variable measures the number of years that the individual has been with their agency/contract company, which may not be the same as the tenure accumulated with the client firm reported at the time of the contingent survey. For independent contractors and on-call workers, the variable simply measures the time incumbents have been engaged in these work arrangements.[8]

The characteristics of the workers in the various work and non-work categories are similar to those obtained by earlier researchers (e.g. Polivka et al., 2000). To address the effect of the demographic characteristics on the probability of observing a worker in a given work arrangement, we estimated a set of probit equations in which the reference work category is open-ended (regular and screened workers) employment. Full details are available from the authors upon request, but the salient results are as follows. First, age has a significant impact on the likelihood that a worker will be observed in an atypical work arrangement. For each atypical work arrangement save one – independent contractors – atypical workers are significantly younger than their regular counterparts. Second, agency and direct hire temporary workers are more likely to be blacks and Hispanics than are regular workers, and conversely for independent contractors. Third, although single females are less likely to be atypical workers this is not the case for their married counterparts who are significantly more likely to be agency and direct-hire temporaries, on-call workers, and independent contractors. Fourth, the effects of educational attainments on the rates of holding the various types of atypical work are mixed. Although more highly educated individuals are more likely to be independent contractors, there is otherwise no consistent effect of education on the likelihood that workers will be engaged in temporary, on-call, or contract company work. Fifth, for those who are initially observed to be out of the labor force or unemployed, the pattern of findings is more consistent. Such individuals are disproportionately minorities, married females (though not females per se), and less well educated, while age is significantly and negatively correlated with labor market withdrawal. Finally, although the number of children under six years of age is only loosely associated with atypical employment, their presence is strongly positively associated with the residual, non-work

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[8] A final restriction imposed on the data, other than the exclusion of individuals with any missing information, was the excision of workers under (over) the age of twenty-five (sixty-five) years, so as to avoid contamination arising from more fundamental differences in labor market attachment.

categories: each pre-school child increases the likelihood that an individual will be initially unemployed or out of the labor market by between two and five percentage points, respectively.

The NLSY79 Data

Our second data set is used to derive additional insights into atypical work and its stability. Specifically, the NLSY data permit examination of a longer period of time – up to four years – to evaluate the implications of atypical work for at least some aspects of employment continuity. The present study exploits the 1994 to 2002 waves of NLSY79.

We also use these data to address one of the concerns attaching to the use of the matched CAEAS/CPS data, namely, the potential bias that arises from our inability to completely match respondents from one survey to another. For example, workers who were initially unemployed may have moved to take advantage of better labor market opportunities elsewhere and thus be missing from subsequent CPS surveys. (We note parenthetically, that respondents are selected for inclusion in the CPS on the basis of their address, with those who leave the address being replaced in the survey by the new occupants.) In such cases, the CAEAS/CPS comparisons will over-state the potential benefits of atypical work over joblessness.

As shown in Table 1, we can classify individuals into workers into one of eight mutually exclusive work and non-work arrangements. As is the case for the CAEAS/CPS data, we can identify *regular workers*, *screened workers*, *agency temporaries*, and *direct-hire temporaries*. But the NLSY79 does not distinguish between contract workers and independent contractors, only allowing us to work with an aggregated *contractors/consultants* category. A further difference from the CAEAS is the category of *other work types*. The most common such work type reported by individuals to the NLSY interviewers is self-employment. Although not traditionally considered to be atypical work, this category shares one key characteristic with it: the lack of a guarantee, implicit or explicit, of continued employment. The two residual categories are again the *initially unemployed* and *initially out of the labor force*.

From the NLSY79 we fashion our third, additional measure of employment continuity: the fraction of time between two interviews that the respondent reports being employed. We use the data contained in the work diaries maintained by the NLSY respondents to construct the new dependent variable *fraction of time employed*. It is obtained by taking the weeks of time employed between interviews reported by the individual and dividing it by the number of weeks between interviews. This standardized ratio is, arguably, a better gauge of employment continuity

than is labor market status at a single point in time. We have repeated observations on individuals' employment spells; that is we can measure the fraction of time a worker is employed over two and four year intervals after each of 1994, 1996 and 1998 interviews.[9]

These repeated observations allow us to adopt panel estimation techniques in analyzing the fraction of time a worker has been employed. In addition, we can address the concerns raised by Segal and Sullivan (1997b) that workers employed in atypical work may quickly transition out of such employment well within the two year interval. In our least squares models, we are assuming that the work arrangement in which a worker is initially employed influences his or her subsequent employment continuity. Workers may of course be engaged in a different employment arrangement at the beginning of each two-/four-year period.

The work diaries maintained by the NLSY79 respondents also provide us with some additional human capital controls not found in the CAEAS/CPS data. Specifically, we have direct data on a worker's (cumulative) general labor market experience as well as his or her tenure on the current job. The NLSY79 gives the actual number of weeks that the respondent has been employed since entering the survey, as well as the actual number of weeks employed with the current employer (or employment type in the case of contractors/consultants and other work types). Moreover, we can also form a standardized measure of the number of jobs held by individuals by dividing the reported total number of jobs held by (cumulative) general labor market experience. This *jobs* measure can be also viewed as an inverse proxy for the attractiveness of the worker to an employer. Finally, the selfsame restrictions stemming from incomplete demographic, industrial, and occupational characteristics apply here as for the CAEAS/CPS samples.

Finally, as regards the characteristics of atypical workers in the NLSY79, these broadly mimic the CAEAS. Thus, for example, agency and direct-hire temporaries occupy one end of the spectrum, disproportionately made up of minorities, married females and, on this occasion, lesser-educated workers, with contractors/consultants occupying the other. In general, there were more indications than in the CAEAS of a closer correspondence between contracting/consulting and regular, open-ended employment. As before, the descriptive statistics and probit regressions are available from the authors upon request.

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[9] The 2000 and 2002 waves of the NLSY79 were unusable for the *multinomial logit* component of our employment continuity analysis. They do not provide information on the three labor market end-states, only indicating on this occasion whether or not the worker was employed.

IV. Findings

Results from the CAEAS/CPS

Simple descriptive statistics on the employment status of incumbents of the various job categories identified in the CAEAS/CPS one year after its administration are presented in Table 2 for the pooled sample.

(Table 2 near here)

The main features of the cross tabulations are as follows. First, although regular or open-ended employment is associated with greater employment stability than atypical work as a whole, atypical work is not a monolithic entity and some atypical workers are just as likely to be employed one year later as are regular workers. Second, there is little indication that initially serving an employer in an atypical work capacity before being inducted into open-ended employment serves to increase the employment stability enjoyed by screened workers: the slightly higher employment rate observed for screened workers is not statistically different from that observed for those hired directly into regular employment. Third, agency temporaries and on-call workers are much less likely than regular workers to be holding a job of some kind one year later. Part of this 8 to 10 percentage point discrepancy vis-à-vis regular work resides in their much higher exit rates into inactivity. No less that fourteen (thirteen) percent of agency temporaries (on-call workers) transition out of the labor force one year later. Also, their transitions into joblessness are between two and three times greater than those of regular workers. Fourth, direct-hire temporaries fare only marginally better than their agency temporary counterparts in terms of employment, while recording similar transition rates into inactivity and unemployment. Fifth, located at the other end of the spectrum are contract workers and independent contractors. Their employment probabilities after one year resemble regular employment. Transitions into unemployment can even be lower than for regular employment, and both groups are more prone to leave the labor force than are regular workers. Sixth, displacement rates among atypical workers are only materially higher for agency temps and direct-hire temporary workers. Unsurprisingly, of all those employed initially, independent contractors have the lowest displacement rates. Finally, the initially unemployed and the economically inactive record the least favorable outcomes. Thus, the unemployed are significantly less likely to enter into employment than regular and atypical workers and

significantly more likely to leave the workforce and be displaced; while for its part labor force inactivity is evidently a highly persistent state. The suggestion thus far is that some atypical workers are engaged in more precarious employment than are regular workers. But these tabulations are only suggestive. To proceed further, we must turn to our cet. par. analysis.

(Table 3 near here)

Results of fitting the multinomial logit model to the CAEAS data are given in Table 3. Recall that the coefficient estimates represent the impact that a worker possessing a particular characteristic (including being in atypical work) has on the probability of that individual subsequently being observed in a particular reference outcome (such as employment) than a worker with the reference characteristic. Table 3 uses two such reference characteristics. The first set of coefficient estimates (given in first and third columns) gives the likelihood that atypical workers are to be either employed or inactive, respectively, than unemployed one year later relative to the corresponding rates observed for regular workers. The employment stability of atypical work is here assessed against the yardstick of open-ended employment. The second set of coefficient estimates (in the second and fourth columns of the table) obtain when using initial unemployment as our reference characteristic. This latter exercise helps us determine whether engaging in atypical work is preferable to (continued) job search.[10]

To give a concrete example, take the coefficient estimate for direct-hire temporaries in the first column of the table. Its negative sign implies that direct-hire temporaries are less likely to be employed one year later than they are to be unemployed when compared with the same relative probability observed for regular workers after one year. In contrast, their agency temp counterparts have rates of employment one year later that are no different from those observed for regular workers.

We also present the marginal effects estimated for each set of results in brackets. These estimates represent the increase, or decrease, in the independent probability that a worker possessing a particular characteristic will be observed in that labor market state than would a worker possessing the reference characteristic. Again, consider the result for direct-hire temporaries in the first column of the table. The estimated marginal effect of -0.072 suggests that direct-hire temporaries are seven percentage points less likely to be employed than are regular workers. Again recall that we are no longer conditioning this estimate on the likelihood of being

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[10] These are summary findings. The full CAEAS/CPS results for Table 3 (and Table 4) are available from the authors upon request.

in the reference outcome of unemployment (as is the case in interpreting the coefficient estimate).

Continuing, the negative and statistically significant coefficient estimate for on-call work again implies such workers are significantly less likely to be subsequently observed in employment than unemployment relative to regular workers. Engaging in on-call work leads to a probability of being employed one year later that is roughly eight percentage points lower than obtains for regular workers.

Consistent with the descriptive material in Table 2, our cet. par. results confirm that atypical workers are not a monolithic group. Observe that contract work has no unfavorable labor market implications compared with regular employment, while there is some weak evidence that independent contractors enjoy a *greater* degree of employment continuity than regular workers.[11]

As was the also the case in Table 2, we find little evidence that initially serving an 'apprenticeship' in an alternative work arrangement increases employment continuity. That is, the coefficient estimate for screened workers, although of the expected positive sign, lacks significance at conventional levels.

As for the initially jobless, these individuals record a 22 percentage point reduction in the probability of being employed rather than being unemployed when compared with the corresponding probability for regular workers. For its part, having initially left the labor force serves to decrease the likelihood that such individuals will be observed holding a job one year later by nearly fifty percentage points.

The coefficient estimates contained in the third column of Table 3 chart the likelihood that a worker possessing a particular characteristic will move out of the labor force than be unemployed one year later relative to the corresponding likelihood for a regular worker. With the exception of independent contractors, there is scant evidence of statistically significant differences in labor force attachment across the various forms of atypical work. Consistent with

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[11] Note that, in the case of independent contracting, we obtain an estimate of the marginal effect that is of opposite sign to the coefficient estimate. This result is possible when there is a dominant *relative* outcome associated with one particular characteristic. In this case, it would appear that independent contractors are *much* less likely to be unemployed than they are to be employed relative to the corresponding likelihood for regular workers. As was evident in Table 2, only a very small fraction of independent contractors are subsequently reported as being unemployed. Rather, they tend to be either employed or to quit the labor force one year later. When we focus solely upon the independent likelihood of being observed as employed one year later, therefore, we find that independent contractors are about three percentage points *less* likely to be employed than are regular workers.

the tabulations presented in Table 2, those out of the labor force at the time of the CAEAS are more likely (47 percentage points) to be economically inactive than they are to be unemployed when compared with regular workers.[12]

In sum, we have found that regular work is associated with a greater degree of employment stability than direct-hire temporaries and on-call workers. But agency temporaries, contract workers and independent contractors are as likely or even slightly more to be employed than to be unemployed one year later compared to regular workers. Also there is every indication that atypical work provides workers with greater employment stability than initial unemployment.

But all of this pertains to the reference characteristic of open-ended employment. The coefficient estimates in the second column of Table 3 represent the likelihood that a worker in either an atypical job or open-ended employment will be employed rather than be unemployed one year later when compared with the corresponding likelihood for an initially unemployed individual. Positively signed coefficients imply that a particular characteristic, say agency temporary employment, results in a greater likelihood that such a worker will be subsequently employed than unemployed than his or her counterpart who had continued searching for a job.

It can be seen that agency temps are, in fact, more likely to be employed one year later than are the initially jobless. The estimated marginal effect would suggest that taking an agency temporary position increases the probability of holding employment of some kind one year later by twelve percentage points vis-à-vis those initially unemployed. Similar advantages over the initially unemployed attach to direct-hire temping (fifteen percent) and on-call work (fourteen percent) in this regard.

We are less surprised to observe such favorable relative outcomes among contract workers and independent contractors since they appear to enjoy the same employment stability as regular workers. Nonetheless, these two alternative work arrangements increase by twenty-four and twenty percentage points, respectively, the likelihood that their incumbents will be employed relative to the initially unemployed. Regular and screened workers have an increase in their employment probabilities that are of the same magnitude.

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[12] The signs of the coefficient estimate and that of the marginal effect are opposite for the initially jobless. Again, this not a surprising result given the dominance of the continued unemployment outcome for this group who are much more likely to continue searching for work than they are to leave the labor force. In absolute terms, however, we see that initially being jobless serves to increase the probability of exiting the labor market 18 percentage points beyond that observed for regular workers.

Although in the fourth column of the table, we estimate positive coefficient estimates for regular and screened workers exiting the labor force, these results should not be construed as implying such individuals exhibit lesser attachment to the labor market than do the initially unemployed. Thus, when we examine the unconditional estimates – the marginal effects – we observe that they are indeed less likely to be moving out of the labor force than are the initially unemployed. Again, given the very strong propensity of the initially jobless to remain in this (unemployed) labor market state, we will estimate coefficients and marginal effects that may not be of the same sign. To further illustrate, note that the five atypical work forms also appear to point to weaker labor market attachment (than for the initially unemployed). But in all cases the marginal effects are again negative.

Turning briefly to the controls, we see that the coefficients for tenure and its quadratic are of the expected sign and statistically significant. Each year of tenure that workers accumulate with their employer increases the probability of being employed one year later by slightly more than one percentage point. For its part, the coefficient estimate for the average unemployment rate in a state over the course of the year – designed to hold constant labor market conditions – suggests that higher levels of joblessness serve to decrease the likelihood that a worker will be employed one year later. Each one percentage point increase in the unemployment rate decreases the likelihood of holding a job by about one and one-half percentage points. However, although the coefficient estimates for the number of children under the age of six in the household are of the expected sign, they lack significance at conventional levels. Note that we report only two sets of results for the labor market controls since the coefficients are not influenced by the reference category.

Finally, the likelihood ratio tests at the foot of Table 3 serve to indicate that atypical work is not a homogeneous grouping. The tests reject the possibility, at the .01 level, that the five different forms of atypical work hold uniform implications for a worker's subsequent labor market outcomes. It would appear that we can aggregate agency temporaries and their direct-hire counterparts into one composite category, as well as fold contract workers in with independent contractors. What appears to be the case, however, is that contracting work is dissimilar from either temporary or on-call work, in its labor market outcomes. Moreover, the final hypothesis test rejects the possibility that open-ended employment affords workers with the same degree of

employment continuity as atypical work as a whole. The on-net interpretation is that regular work is preferable to atypical work which is, in turn, preferable to being unemployed.

(Table 4 near here)

The second measure of employment stability available in the CAEAS/CPS data is the likelihood the worker will be displaced over that course of one year. We present summary results from the logistic estimation results in Table 4. Again, we use two reference characteristics. That is, the results in the first (second) column of the table use regular employment (initial unemployment) as the reference characteristic.

Beginning with the former, we again fail to uncover any evidence that being inducted into the regular workforce after a spell as an atypical worker does much in the way to enhance employment stability: the coefficient estimate for screened workers is statistically insignificant. Much of the difference in the displacement rates between regular workers and agency temporaries pointed to in Table 2 seems on closer inspection to be the function of observed differences in worker characteristics. Thus, the coefficient estimate for agency temporaries is not statistically different from zero. That said, their direct direct-hire counterparts, are more likely to be displaced over the course of a year, and although the one percentage point increase might appear small it will be recalled from Table 2 that that regular workers have displacement rates of a little more than two percent. Independent contractors have a displacement probability that is just under one percentage point lower than that observed for regular workers.

The initially unemployed are more likely to see a (subsequent) job ending through dislocation than regular workers. That those initially out of the labor force are less likely to encounter a break in employment from displacement than are regular workers is not surprising: any dislocation effect will likely be dwarfed by the persistence of inactivity.

From the second column of the table, when the initially unemployed are used as the reference characteristic, it would appear that atypical work does very little to improve a worker's relative employment stability. Only regular and screened workers are likely to have lower rates of displacement over the course of a year. For this measure of employment continuity, at least, atypical workers fare just as poorly as those who continued their job search.

As reported earlier, increased tenure serves to increase the stability of employment. Specifically, each year of tenure reduces the probability of being displaced over the course of a year about one-tenth of a percentage point. On this occasion, however, although the coefficient

estimate for the state average unemployment is of the expected sign, it is poorly determined. Young children in the household also have little explanatory power in this model.

Finally, as was also true for the multinomial logit estimates, it seems that not all atypical workers share the same labor market experience with respect to displacement. The likelihood ratio tests at the foot of the table suggest that aggregating the five different types of atypical work in our logit analyses is inappropriate. The last row entry again leads to the conclusion that atypical work fails on net to provide the same degree of employment security as open-ended employment. Indeed, as we have seen, atypical workers are just as likely as the jobless to experience displacement.

Results from the NLSY79

Descriptive statistics on the employment status of the various work arrangements identified in the NLSY79 data are presented in Table 5. We construct two cross sections spanning two-year intervals and a third cross section covering a 'full' four-year period. Workers are classified according to the work arrangement in which they are employed at the beginning of each cross section. Although the same individuals overlap across each cross section, they may of course be subsequently employed in a different work arrangement (a theme that is taken up below).

(Table 5 near here)

Generally, the NLSY79 descriptive statistics mirror those reported earlier for the CAEAS/CPS, although they are perhaps sharper. Thus, the two types of open-ended employment are associated with higher levels of (subsequent) employment relative to atypical work in the NLSY79. And for each cross section, both forms of temporary work are associated with considerably lower employment rates relative to regular work. Much as was the case for the CAEAS/CPS, the now consolidated category of contractors and consultants enjoy a degree of employment stability not greatly dissimilar from that of open-ended employment. The probability that they will be unemployed is actually lower than that for regular workers and likely reflects their greater propensity to leave the labor force. More than two-thirds of those who were initially unemployed are in employment two and four years later. Such individuals evince unemployment rates that are significantly higher than those associated with either regular or atypical work. And over one-half of non-participants remain out of the labor force two and four years years later.

Our third and final measure of employment stability is reported in the last row of each of the panels in Table 5, namely, the fraction of time between each interview that the respondent reported being employed. Open-ended employment is again associated with a higher level of employment continuity relative to temporary work, with contractors/consultants more or less on on a par with regular workers. Over the course of two years, regular and screened workers are employed about 94 percent of the time, or some 22.6 months. For their part, agency temporaries report being employed 78 to 81 percent of the time for the two-year cross sections. Direct-hire temporaries seemingly fare the worst: they can expect to be employed for about three-quarters of the time in any two years. For the residual non-employment categories, the measure of employment continuity is lowest of all. This is most notable in the case of the economically inactive. But for such individuals and the initially unemployed, employment rates rise the longer the cross section.

(Table 6 near here)

Multinomial logit regressions of the labor market outcomes after two years are provided in Table 6.[13] The estimates were obtained by aggregating (using year dummies) both of the usable two-year cross sections into a single pooled sample. We control for the cross-correlation in the error terms for individuals contained within each of the two-year cross sections and present robust clustered standard errors. The first and third (second and fourth) columns present results using regular workers (the initially unemployed) as the reference characteristic.

Use of regular workers as the reference characteristic uncovers little evidence that atypical work yields significantly different labor market outcomes, ceteris paribus. From the first column of the table we see that being employed in either type of temporary work or in contracting/consulting neither increases nor decreases the likelihood that its incumbents will be employed two years hence rather than being unemployed when compared with regular workers. We also detect little in the way of differential labor market attachment of atypical workers. Thus, the corresponding result in the third column suggests that atypical workers are just as likely as regular workers to be out of the labor force than to be unemployed. Taken as a whole, therefore, these findings suggest that the distribution of outcomes for agency and direct-hire temporaries and contractors/consultants are much the same as for regular workers**.** Only individuals employed in other work types are (about five percentage points) less likely to be observed

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[13] The results in Table 6 (and Tables 7 and 8) are again provided in summary form. Full multinomial logit and panel estimates are available from the authors upon request.

holding employment two years later than are regular workers. It is the initially unemployed that fare particularly poorly vis-à-vis regular workers. Specifically, they are some nine percentage points less likely to be subsequently unemployed than are regular workers. Like the initially unemployed, those initially out of the labor force are less (more) likely to be employed (out of the labor force) two years later than to be unemployed relative to regular workers.

The second and fourth columns of Table 6 use the initially unemployed as the reference category. Evidently, regular, screened, agency temporary, and contracting/consulting workers are all more likely to be employed two years later than they are to be unemployed compared with the initially unemployed (in the range six to eleven percentage points). But those who initially hold a job of any kind fail to display different attachment to the labor market than the initially unemployed.

The effects of the controls are mixed. General labor market experience apparently plays little or no role in explaining the subsequent employment rates experienced by our NLSY79 samples, but does reduce the likelihood that workers will subsequently leave the labor force. Unsurprisingly, tenure is associated with a higher probability of being employed: each year of employment that a worker acquires with his or her employer increases the probability of holding a job two years later by slightly more than one percentage point. As for those individuals who held a larger number of jobs in the past, it would appear that they experience diminished future employment stability. Each prior job held decreases the likelihood that a worker will be observed in employment by about one percentage point. Contrary to the CAEAS/CPS results, local labor market conditions are no longer statistically significant,[14] although the presence of young children does serve to increase the likelihood a worker will subsequently leave the labor force.

The results of our hypothesis tests appear at the foot of the table. From the first row, we see that the distribution of outcomes for agency temporaries is not significantly different from that associated with direct-hire temping. Unlike the CAEAS/CPS results, however, it would seem that one can aggregate the various types of atypical work into one composite category since we fail to reject the possibility that contracting/consulting, temporary work and other work types hold similar implications for a worker's labor market outcomes (second row entries). The findings in the final row suggest that atypical work and the two forms of open-ended employment hold different implications for future labor market outcomes.

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[14] Although we note that the NLSY79 does not report the unemployment rate in continuous form, necessitating the deployment of categorical variables.

(Table 7 near here)

Turning next to the longer, four-year cross section in Table 7, we uncover further evidence that initially holding employment of some kind may be preferable to initial unemployment. That is to say, when using regular employment as our reference characteristic, we observe that workers in two types of atypical work – temporary workers[15] and contractors/consultants – experience not dissimilar labor market outcomes from regular workers.[16]

We now see a suggestion that those who were initially screened for a regular position through atypical work are slightly more likely to be employed in 1998 than they are to be unemployed when compared with those hired directly into regular work. Initially serving one's employer in an atypical work arrangement increases the probability of being employed four years later by two percentage points compared with regular workers. We also see that those who are initially unemployed are (around twelve percentage points) less likely to be holding employment of some kind four years later than are regular workers. On the other hand, the negative coefficient estimate for those initially out of the labor force is not statistically significant.

Using the initially unemployed as the reference category in the second column of Table 7 reveals that not only regular and screened workers are significantly more likely to be observed as being employed after four years than are the jobless but also temporary workers as well. Finally, as regards the out of the labor force outcome in the last two columns of the table, we find that only those initially observed in this labor market state have a heightened probability of being inactive four years later.

Turning briefly to the human capital variables, the results are broadly as expected. Thus, tenure is positively correlated with the probability of being employed four years later, while experience is negatively associated with labor market withdrawal (if not employment). Again, having held a large number of jobs in the past reduces (by about one percentage point) a worker's (ongoing) employment stability over the course of four years. As was the case in our

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[15] We now fold agency temporaries and direct-hire temporaries into a single composite temporary category as there are no agency temporaries recorded as unemployed in 1998.

[16] One concern with this statement is that temporary employment is a transient feature of a worker's employment history. Accordingly, we may be understating the longer-run implications of such employment if workers are transitioning into regular employment over the course of the four years covered by this cross section. Tabulations of the NLSY79 data reveal that this is the case for 53 percent of those initially employed as temporary workers in 1994.

discussion of worker transitions over two years, the coefficient estimates for the (categorical) unemployment variables lack significance throughout. Also, we again see that increases in small children serve only to influence the likelihood of quitting the labor force.

We now turn to our final measure of employment continuity, replacing the comparison of an individual's labor market status at a subsequent point in time with the fraction of time spent employed over the respective two- and four-year intervals. We adopt panel data estimation techniques to allow for the estimation of both a random and a fixed effects specification. Each model allows for the cross-correlation in the error term that arises when we have repeated observations on the same individual. The fixed effects linear model improves upon the random effects specification by allowing for an individual-specific intercept, which should capture the effect that unobserved heterogeneity – such as worker motivation or ability – has on employment continuity. This unobserved heterogeneity may be particularly problematic if it is biasing our results regarding the amount of time a worker is employed between the various waves of our NLSY79 data.

(Table 8 near here)

The three two-year cross sections were pooled to estimate the models contained in the first four columns of Table 8, and the three four-year cross sections to obtain the results contained in the last four columns of the table. As before, there are two reference categories – namely, those initially employed as regular workers and those initially unemployed – for each model estimated.

Beginning with the two-year results, we observe that both types of temporary workers are employed for less time than are regular workers. The estimated coefficient for agency temporaries implies that initially being employed in this work arrangement serves to reduce by about 4.2 percentage points the fraction of time spent in employment over a two-year interval vis-à-vis regular workers, ceteris paribus. This means that an agency temp is employed for about 1.1 months less than a comparable regular worker. Direct-hire temporaries fare even worse: they are employed 8.5 percentage points less than regular workers. But there is no significant difference in time spent employed for contractors and consultants. Similarly, there appears to be no advantage accruing to having been previously screened in an atypical work arrangement. But engaging in a work form other than open-ended or atypical work appears to reduce by 3.6 percentage points the time that an individual will be employed over the course of two years.

When we take the labor market experience of the initially unemployed as our reference category (column 2), it is very clearly the case that workers in employment *ab initio* irrespective of their particular work arrangement are more likely than their initially unemployed counterparts to spend more time employed over the course of two years. Specifically, agency (direct-hire) temps are employed eighteen (fourteen) percentage points more than the initially unemployed. For contractors/consultants, the corresponding advantage is about twenty-two percentage points. As expected, workers engaged in open-ended employment, be it regular or screened, enjoy among the greatest degree of employment continuity. Only the initially economically inactive are employed for less than the initially unemployed: the disparity is around twenty-three percentage points.

The labor market variables are largely of the expected sign. Having greater general labor market experience increases the percentage of employed time, as do greater levels of tenure with a firm. Those who report having a greater number of jobs in the past appear to not be significantly impacted, although having (additional) children under six in the household does serve to materially reduce the fraction of the two-years that a worker reports being employed. The coefficient estimates for the unemployment variables, while statistically insignificant, are largely of the expected (negative) sign.

Turning to the fixed effects results (in columns 3 and 4 of Table 8), we see that the estimated coefficients are clearly diminished in absolute magnitude, implying that unobserved characteristics are upwardly biasing our results. Workers engaged in either atypical or regular work may be more able workers or possess other characteristics that are associated with greater employment stability. Abstracting from other work types, comparing the results presented in column 3 with those in column 1, only the coefficient estimate for direct-hire temporaries retains its significance – and its absolute magnitude is halved. Atypicals as a group now broadly resemble regular workers whose employment continuity is also exaggerated in the random effects specification. Comparing the results contained in column 4 with those in column 2, there are still generally positive returns to atypical work per se but the benefits in terms of time spent employed are again halved after allowing for unobserved heterogeneity. And in one case – direct-hire temporaries – the coefficient estimate is not statistically insignificant.

For the two types of jobless individuals, we see that much of their seemingly-reduced employment continuity again stems from unobserved heterogeneity. The random effects results

would imply that the initially unemployed (out of the labor force) are employed for twenty-two (forty-five) percentage points over a two-year period than are regular workers. When the fixed effect estimator is used, both coefficients are reduced by more than one-half in absolute magnitude.

Turning to the four-year results (the last four columns of Table 8), when compared with regular workers, we now find that atypicals (with one exception) are employed for similar intervals as regular workers. That is to say, the results presented in column 5 of the table would imply that both agency temps and contractors/consultants experience no penalty over a four-year period when compared to their counterparts in open-ended employment. Only direct-hire temps are less continuously employed: about 4.5 percentage points (or approximately nine months) less than regular workers.

Although of a lesser magnitude than the two-year results, our two types of initially jobless individuals still face a significant disadvantage relative to regular workers. Those initially unemployed (out of the labor force) are employed for ten (twenty-four) percentage points less than individuals who are initially employed in regular work.

The results presented in column 6 of the table imply that taking a job of any kind, be it regular or atypical, serves to increase the employment continuity over that enjoyed by the initially jobless. We find that both types of open-ended employment as well as contractors/consultants are employed for about ten percentage points more than the initially jobless. Agency (direct-hire) temporaries have employment rates that are approximately eight (five) percentage points higher.

As was the case with our two-year results, we find that the random effects estimator produces coefficient estimates that are sharper in absolute magnitude than the fixed effects. Not surprisingly given the results obtained in the random effects model, after controlling for unobserved heterogeneity, there appears to be no difference between regular and atypical workers (column 7). More importantly, for the two types of jobless individuals, the fixed effects estimator produces coefficient estimates that are much reduced, implying that a good deal of the disparity between these two labor market states and regular work can be attributed to something other than status.

Finally, the advantage that those who initially held a job might have over the initially unemployed vanishes once we take into consideration unobserved heterogeneity. In contrasting

the results contained in column 8 with those in column 6, the suggestion is that those who initially held a job might be more able individuals or have more favorable (unobserved) characteristics which result in greater employment continuity than the initially unemployed.

The results of the hypothesis tests located at the foot of Table 8 are not surprising. When we fail to take into consideration unobserved heterogeneity, we find that aggregating atypical workers into one composite group is inappropriate. The results obtained from the fixed effects models would suggest that, after controlling for unobserved worker characteristics, there are no significant differences observed across the different atypical work forms.

One of the concerns of the fixed effects estimator is that if the unobserved heterogeneity is changing over time (e.g. one's preference for a particular work type), then the results are still going to be biased. We sought to take this concern into consideration by including number of pre-school children in the household. Presumably, their presence might make some types of atypical work more attractive given their flexibility in scheduling or hours. We find that, for both the two- and four-year results, the coefficient estimates of this variable are both statistically significant and negatively-signed. The fixed effects estimator produces coefficient estimates that are sharply lower in magnitude but generally significant.

Our analysis of the NLSY79 data provides some support for a more positive view of atypical work as a whole, at least over the medium-term. The evidence obtained from the *multinomial logits* would imply that the distribution of employment outcomes after two (and four) years is no different for atypicals than for regular workers. And both types of worker are more likely to be observed in employment at the end of either two or four years than are the initially jobless.

In analyzing the *fraction of time employed* over a two-year period, however, we uncover evidence that atypicals are employed less continuously than are regular workers. Nevertheless, this disadvantage is greatly mitigated once unobserved heterogeneity is taken into consideration, while the observed advantage associated with atypical employment over the initially unemployed remains. Over the course of four years, we see that only the initially inactive experience lower employment continuity when we allow for unobserved heterogeneity.

V. Conclusions

At first blush, our analysis of both the CAEAS/CPS and much of the NLSY79 data provides support for the use of atypical work as a means of extending employment continuity and stability relative to continued job search. That is to say, we find that atypicals of all stripes are more likely to be employed at subsequent periods in time than the initially unemployed. In addition, these work arrangements might increase the amount of time spent in employment.

However, when we compare the employment stability of atypical work with that of open-ended employment, the evidence is mixed. The CAEAS/CPS results would suggest that temps and on-call workers are seemingly less likely to be subsequently employed after one year than are regular workers. The NLSY79 results, however, fail to produce any significant coefficient estimates over longer intervals. We can rule out one potential explanation for this: the limited cohort contained in the NLSY79 data. When we re-estimated the multinomial logit using CAEAS/CPS data restricted to the age cohort contained within the NLSY79, the results were broadly as before. In short, it is not cohort that is producing the differences between the two surveys.

It may be tempting to conclude from the multinomial logits that, when faced with continued job search and an offer of atypical work, atypical work is the preferable outcome. This also appears to be the case using our final duration-based measure of employment stability at least over a two year interval. That is to say, even after controlling for unobserved worker characteristics, there still is a significant advantage from opting to take atypical work over continued job-search. Over a longer four-year interval, however, much of the "benefit" enjoyed by atypicals over the initially unemployed dissipates. Equally on this measure, over the same time period, differences between regular work and atypical work disappear.

The bottom line of the present study therefore is that the sharpest differences between atypical workers, regular workers and initially unemployed workers obtain when one does not account for unobserved individual heterogeneity. The differences in employment continuity associated with the initial labor markets states are apparently less a function of the arrangements themselves than the unobserved characteristics of the workers filling them.

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Table 1: Descriptions of worker categories in the CAEAS/CPS and NLSY79		
Work Category	CAEAS/CPS data	NLSY79 data
Regular workers	Workers who are directly hired into open-ended, regular employment. Initially hired using standard interview techniques and without having been first screened through an atypical work arrangement.	Same as CAEAS/CPS.
Screened workers	Workers who are employed in open-ended employment, but who indicate that they earlier worked for the same firm in an alternative work arrangement. No break in employment with the firm is reported.	Same as CAEAS/CPS.
Agency temporaries	Workers are employed by a temporary help service agency and who rely on this agency to secure their clients/projects.	Same as CAEAS/CPS.
Direct-hire temporaries	Workers hired directly by a firm in a temporary position. This category also includes those who indicate that they are hired directly by the client firm to fill a temporary position, complete a specific project, or substitute for an absent or vacationing employee. Also included are those who are hired for only a fixed period of time or into jobs that are seasonal in nature.	Workers who indicate that they are temporary in nature and hired directly by the paycheck-issuing firm.
On-call workers	Workers hired into a per-diem or as-needed position. This category also includes those who indicate they are day laborers.	Not able to be identified in the data.
Contract company workers	Workers who are employed by a company that contracts out their services to a client firm. This category is restricted to those workers who were assigned to only one client and worked primarily at the client's premises.	Not able to be identified in the data.
Independent contractors	Self-employed consultants and contractors who are responsible for the acquisition of their own clients or projects.	Not uniquely identifiable in the data.
Contractors/consultants		An aggregated category comprising both contract company workers *and* independent contractors.
Other work types		Workers employed in any other arrangement. This work arrangement typically includes the self-employed, and the CAEAS work forms not uniquely identifiable in the NLSY.
Initially unemployed	Those workers who do not have a job, but who are searching for one.	Same as CAEAS/CPS.
Initially out of the labor force	Those individuals who do not have a job and who are not searching for one.	Same as CAEAS/CPS.

Table 2: Labor Market Outcomes One Year Later, Pooled CAEAS/CPS Data

	Regular workers	Screened workers	Agency temporaries	Direct-hire temporaries	On-call workers	Contract workers	Independent contractors	Initially unemployed	Initially out of labor force
Employed	91.3%	92.2%	80.7%	85.3%	82.7%	91.6%	89.5%	56.5%	18.3%
Unemployed	2.0	1.4	5.6	3.9	4.1	0.8	1.5	18.2	2.2
Out of labor force	6.7	6.4	13.6	10.8	13.2	7.5	9.1	25.4	79.5
Displaced	2.1	2.7	4.6	4.4	2.8	2.5	1.2	6.4	0.7

Table 3: Multinomial Logit Analyses of Labor Market Outcomes One Year Later, Pooled CAEAS/CPS Data. (base outcome is being unemployed one year later)

	Employed One Year Later		Out of Labor Force One Year Later	
Regular workers	[1]	2.218*** (0.297) [0.224]	[1]	0.889*** (0.323) [-0.178]
Screened workers	0.295 (0.224) [0.013]	2.513*** (0.368) [0.237]	0.241 (0.246) [-0.006]	1.130*** (0.402) [-0.185]
Agency temporaries	-0.393 (0.255) [-0.100]	1.825*** (0.387) [0.124]	0.281 (0.285) [0.093]	1.170*** (0.427) [-0.085]
Direct-hire temporaries	-0.623*** (0.119) [-0.072]	1.595*** (0.313) [0.152]	-0.185 (0.135) [0.059]	0.704** (0.343) [-0.119]
On-call workers	-0.533** (0.225) [-0.081]	1.684*** (0.369) [0.142]	-0.012 (0.250) [0.071]	0.877** (0.405) [-0.107]
Contract company workers	0.768 (0.717) [0.016]	2.986*** (0.775) [0.239]	0.758 (0.779) [0.002]	1.647* (0.842) [-0.177]
Independent contractors	0.222* (0.132) [-0.023]	2.440*** (0.315) [0.201]	0.419*** (0.144) [0.029]	1.308*** (0.342) [-0.150]
Initially unemployed	-2.218*** (0.297) [-0.224]	[1]	-0.889*** (0.323) [0.178]	[1]
Initially out of labor force	-1.326*** (0.298) [-0.489]	0.892*** (0.076) [-0.265]	2.065*** (0.323) [0.472]	2.954*** (0.080) [0.294]
Tenure	0.131*** (0.011) [0.012]		0.059*** (0.012) [-0.010]	
Tenure^2	-0.003*** (0.000) [-0.000]		-0.001*** (0.000) [0.000]	
Unemployment rate	-0.162*** (0.026) [-0.014]		-0.081*** (0.028) [0.011]	
Kids under six years old	-0.009 (0.030) [-0.007]		0.039 (0.031) [0.007]	
log L	-30,745.47			
n	75,088			

$\beta_{AT}=\beta_{DT}$:	$\rho=2.89$ (p=0.235)
$\beta_{CW}=\beta_{IC}$:	$\rho=1.03$ (p=0.598)
$\beta_{AT}=\beta_{DT}=\beta_{OC}=\beta_{CW}=\beta_{IC}$:	$\rho=43.00$ (p=0.000)
$\beta_{RW}=\beta_{SW}=\beta_{AT}=\beta_{DT}=\beta_{OC}=\beta_{CW}=\beta_{IC}$:	$\rho=101.68$ (p=0.000)

Notes: [1]Denotes the reference category. All analyses include year dummies. Marginal effects are given in brackets. Additional controls are age (and age^2), gender and ethnicity controls, a dummy variable equal to one if married (zero otherwise), an interaction term between gender (being female) and marital status, five educational dummies (omitted category is no high school diploma), a dummy variable equal to one if residing in an urban area (zero otherwise), four regional dummies (omitted category is living in the South), ten industry dummies (the omitted category is agriculture/fishing/forestry), and six occupational dummies (the omitted category is manager).

*** ,**, * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 4: Logit Analysis of Displacement One Year Later, Pooled CAEAS/CPS Data

	Coefficient estimate/ (Standard error)/[Marginal effect]		
Regular workers	[1]		-0.942** (0.365) [-0.013]
Screened workers	0.152 (0.179) [0.002]		-0.790* (0.403) [-0.011]
Agency temporaries	0.258 (0.262) [0.003]		-0.684 (0.445) [-0.009]
Direct-hire temporaries	0.727*** (0.121) [0.010]		-0.215 (0.378) [-0.003]
On-call workers	0.209 (0.286) [0.003]		-0.733 (0.460) [-0.010]
Contract company workers	0.118 (0.512) [0.002]		-0.824 (0.627) [-0.011]
Independent contractors	-0.466*** (0.154) [-0.006]		-1.408*** (0.386) [-0.019]
Initially unemployed	0.942** (0.365) [0.013]		[1]
Initially out of labor force	-1.266*** (0.369) [-0.016]		-2.168*** (0.131) [-0.029]
Tenure		-0.091*** (0.012) [-0.001]	
Tenure^2		0.002*** (0.000) [0.000]	
Unemployment rate		0.028 (0.033) [0.000]	
Kids under six years old		0.001 (0.037) [0.000]	
log L		-5,896.22	
n		67,754	
$\beta_{AT}=\beta_{DT}$		$\rho=2.95$ (p=0.086)	

$\beta_{CW}=\beta_{IC}$: $\rho=1.04$ (p=0.308)
$\beta_{AT}=\beta_{DT}=\beta_{OC}=\beta_{CW}=\beta_{IC}$: $\rho=41.64$ (p=0.000)
$\beta_{RW}=\beta_{SW}=\beta_{AT}=\beta_{DT}=\beta_{OC}=\beta_{CW}=\beta_{IC}$: $\rho=44.84$ (p=0.000)

Notes: [1]Denotes the reference category. See notes to Table 3.

Table 5: Labor Market Outcomes For Selected Waves of NLSY79

	Regular workers	Screened workers	Agency temporaries	Direct-Hire temporaries	Contractors/ consultants	Other work types	Initially unemployed	Initially out of labor force
(a). 1994 – 1996								
Employed	92.0%	93.0%	77.9%	79.2%	87.9%	85.4%	68.7%	35.0%
Unemployed	2.9	1.7	7.5	5.7	1.5	4.4	13.1	5.1
Out of labor force	5.2	5.3	14.6	15.1	10.5	10.1	18.2	59.9
Fraction of time employed	93.3	94.0	78.0	75.0	89.2	89.0	59.7	24.2
(c). 1998 – 2000[1]								
Fraction of time employed	94.2	96.1	80.9	77.8	95.2	90.3	40.6	18.8
(d). 1994 – 1998								
Employed	91.4	92.9	79.4	83.7	88.2	86.0	72.4	44.4
Unemployed	2.3	1.5	0.0	4.8	1.3	3.7	11.7	4.5
Out of labor force	6.3	5.6	20.6	11.5	10.6	10.3	15.9	51.1
Fraction of time employed	92.3	93.0	75.3	79.2	90.5	88.5	66.2	32.4

Note: [1]Labor market states past 1998 (i.e. 2000 and 2002) cannot be identified. See footnote 9.

Table 6: Multinomial Logit Analyses of Labor Market Outcomes Two Years Later, NLSY79 Data (base outcome is unemployed two years later)

	Employed Two Years Later		Out of Labor Force Two Years Later	
Regular workers	[1]	1.127*** (0.382) [0.091]	[1]	0.325 (0.466) [-0.058]
Screened workers	0.179 (0.212) [0.016]	1.306*** (0.437) [0.107]	0.023 (0.260) [-0.011]	0.348 (0.529) [-0.069]
Agency temporaries	0.270 (0.382) [-0.006]	1.397** (0.540) [0.085]	0.453 (0.453) [0.015]	0.777 (0.650) [-0.043]
Direct-hire temporaries	-0.271 (0.386) [-0.064]	0.856 (0.549) [0.027]	0.500 (0.444) [0.058]	0.825 (0.648) [-0.000]
Contractors/ consultants	0.340 (0.524) [-0.028]	1.467** (0.648) [0.063]	0.848 (0.566) [0.040]	1.173 (0.724) [-0.019]
Other work types	-0.601** (0.251) [-0.050]	0.526 (0.413) [0.041]	-0.148 (0.297) [0.033]	0.177 (0.508) [-0.025]
Initially unemployed	-1.127*** (0.382) [-0.091]	[1]	-0.325 (0.466) [0.058]	[1]
Initially out of labor force	-0.926** (0.379) [-0.194]	0.202 (0.140) [-0.104]	1.366*** (0.457) [0.172]	1.690*** (0.153) [0.114]
Experience	0.015 (0.038) [0.010]		-0.115*** (0.039) [-0.010]	
Experience^2	0.005** (0.002) [0.000]		0.005*** (0.002) [0.000]	
Tenure	0.183*** (0.041) [0.013]		0.075 (0.050) [-0.008]	
Tenure^2	-0.010*** (0.003) [-0.001]		-0.007* (0.003) [0.000]	

Jobs	-0.083***	-0.017
	(0.027)	(0.017)
	[-0.007]	[0.005]
Kids under sixyears old	-0.001	0.195***
	(0.064)	(0.068)
	[-0.014]	[0.015]
3 – 6% Local unemployment rate	-0.552	-0.192
	(0.723)	(0.792)
	[-0.042]	[0.026]
6 – 9% Local unemployment rate	-0.697	-0.316
	(0.721)	(0.791)
	[-0.048]	[0.027]
9 – 12% Local unemployment rate	-0.663	-0.079
	(0.735)	(0.806)
	[-0.062]	[0.043]
12 – 15% Local unemployment rate	-0.791	-0.279
	(0.740)	(0.812)
	[-0.060]	[0.043]
> 15% Local unemployment rate	-0.758	-0.216
	(0.782)	(0.864)
	[-0.061]	[0.039]
log L	-6,558.59	
n	15,355	

$\beta_{AT} = \beta_{DT}$:	ρ=1.06 (p=0.304)
$\beta_{AT} = \beta_{DT} = \beta_{C/C} = \beta_{OWT}$:	ρ=7.87 (p=0.248)
$\beta_{RW} = \beta_{SW} = \beta_{AT} = \beta_{DT} = \beta_{C/C} = \beta_{OWT}$:	ρ=26.36 (p=0.003)

Notes: [1]Denotes the reference category. All analyses include year dummies. Marginal effects are given in brackets. Additional controls are age (and age^2), gender and ethnicity controls, a dummy variable equal to one if married (zero otherwise), an interaction term between gender (being female) and marital status, education (in years), a dummy variable equal to one if residing in an urban area (zero otherwise), four regional dummies (omitted category is living in the South), ten industry dummies (the omitted category is agriculture/fishing/forestry), and six occupational dummies (the omitted category is manager).
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*** ,**, * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 7: Multinomial Logit Analyses of Labor Market Outcomes Four Years Later, NLSY79 Data (base outcome is unemployed four years later)

	Employed Four Years Later		Out of Labor Force Four Years Later	
Regular workers	[1]	1.075* (0.592) [0.119]	[1]	-0.112 (0.712) [-0.095]
Screened workers	0.724* (0.427) [0.022]	1.800** (0.722) [0.141]	0.658 (0.468) [-0.004]	0.547 (0.843) [-0.099]
Temporary workers	0.803 (0.613) [0.015]	1.877** (0.833) [0.134]	0.845 (0.651) [0.005]	0.733 (0.942) [-0.090]
Contractors/ consultants	0.346 (0.736) [-0.034]	1.422 (0.930) [0.086]	0.865 (0.790) [0.043]	0.753 (0.942) [-0.052]
Other work types	-0.732* (0.383) [-0.044]	0.343 (0.649) [0.075]	-0.391 (0.447) [0.026]	-0.503 (0.782) [-0.069]
Initially unemployed	-1.075* (0.592) [-0.119]	[1]	0.112 (0.712) [0.095]	[1]
Initially out of labor force	-0.944 (0.587) [-0.204]	0.131 (0.199) [-0.084]	1.325* (0.701) [0.184]	1.214*** (0.216) [0.089]
Experience	-0.075 (0.061) [0.008]		-0.203*** (0.063) [-0.011]	
Experience^2	0.010*** (0.003) [0.000]		0.011*** (0.004) [0.000]	
Tenure	0.168** (0.068) [0.019]		-0.021 (0.079) [-0.015]	
Tenure^2	-0.010* (0.003) [-0.001]		0.000 (0.006) [0.001]	
Jobs	-0.099** (0.041) [-0.010]		-0.007 (0.032) [0.007]	

Kids under six years old	0.069 (0.087) [-0.008]	0.194** (0.091) [0.011]
3 – 6% Local unemployment rate	0.975 (1.073) [0.055]	0.562 (1.148) [-0.032]
6 – 9% Local unemployment rate	0.600 (1.073) [0.049]	0.161 (1.152) [-0.035]
9 – 12% Local unemployment rate	0.434 (1.080) [0.029]	0.197 (1.156) [-0.019]
12 – 15% Local unemployment rate	0.883 (1.118) [0.053]	0.477 (1.195) [-0.031]
>15% Local unemployment rate	0.580 (1.161) [0.038]	0.274 (1.244) [-0.024]
log L	-3,298.33	
n	7,401	

$\beta_{AT} = \beta_{DT}$: $\rho=1.06$ ($p=0.304$)
$\beta_{AT} = \beta_{DT} = \beta_{C/C} = \beta_{OWT}$: $\rho=7.87$ ($p=0.248$)
$\beta_{RW} = \beta_{SW} = \beta_{AT} = \beta_{DT} = \beta_{C/C} = \beta_{OWT}$: $\rho=26.36$ ($p=0.003$)

Notes: [1]Denotes the reference category; see *Notes* to Table 6.

Table 8: OLS Panel Estimates of Employment Continuity, NLSY79 Data (dependent variable is fraction of time employed)

	Over Two Years				Over Four Years			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Regular workers	[1]	22.071*** (1.710)	[1]	8.475*** (1.994)	[1]	9.706*** (1.618)	[1]	2.196 (2.109)
Screened workers	0.844* (0.512)	22.916*** (1.756)	0.453 (0.586)	8.929*** (2.037)	0.211 (0.471)	9.918*** (1.655)	-0.083 (0.543)	2.112 (2.152)
Agency temporaries	-4.178** (1.996)	17.893*** (2.594)	-1.287 (2.069)	7.189** (2.836)	-1.865 (1.801)	7.841** (2.296)	-1.021 (1.990)	1.175 (2.874)
Direct-hire temporaries	-8.452*** (2.181)	13.620*** (2.812)	-4.855** (2.247)	3.620 (3.059)	-4.494*** (1.661)	5.212** (2.367)	-2.224 (1.780)	-0.025 (2.780)
Contractors/ consultants	0.264 (0.992)	22.336*** (1.950)	-0.327 (0.990)	8.802*** (2.201)	0.461 (1.036)	10.167*** (1.872)	-0.859 (1.158)	3.055 (2.341)
Other work types	-3.568*** (1.055)	18.503*** (1.954)	-2.783** (1.086)	5.692** (2.219)	-2.821*** (0.910)	6.886*** (1.793)	-1.460 (0.984)	0.735 (2.256)
Initially unemployed	-22.071*** (1.170)	[1]	-8.475*** (1.994)	[1]	-9.706*** (1.618)	[1]	-2.196 (2.109)	[1]
Initially out of labor force	-45.019*** (1.496)	-22.948*** (1.386)	-18.969*** (1.917)	-10.494*** (1.375)	-24.005*** (1.526)	-14.299*** (1.108)	-6.935*** (2.042)	-4.740*** (1.158)
Experience	3.706*** (0.186)		-10.840** (0.552)		4.422*** (0.218)		-9.493*** (0.569)	
Experience^2	-0.103*** (0.007)		0.008 (0.013)		-0.121*** (0.008)		0.033*** (0.014)	
Tenure	0.335*** (0.096)		-0.864*** (0.124)		-0.324*** (0.093)		-0.720*** (0.120)	

	RE	FE	RE	FE
Tenure^2	-0.014**	0.040***	0.022***	0.038***
	(0.006)	(0.008)	(0.006)	(0.008)
Jobs	-0.245	4.778***	-0.460**	3.461***
	(0.149)	(0.902)	(0.211)	(0.639)
Kids under six years old	-1.190***	-0.578*	-1.193***	-0.654**
	(0.217)	(0.301)	(0.224)	(0.201)
3 – 6% Local unemployment rate	-0.003	-0.147	0.129	-0.130
	(0.600)	(0.684)	(0.545)	(0.669)
6 – 9% Local unemployment rate	-0.082	-0.115	-0.225	-0.277
	(0.673)	(1.382)	(0.629)	(0.794)
9 – 12% Local unemployment rate	-0.380	0.714	-0.920	-0.096
	(0.824)	(1.029)	(0.765)	(0.970)
12 – 15% Local unemployment rate	-0.811	0.741	-0.455	0.578
	(0.933)	(1.062)	(0.792)	(0.945)
> 15% Local unemployment rate	1.098	4.133*	0.405	0.820
	(1.520)	(2.332)	(1.678)	(2.442)
R^2	0.60	0.21	0.53	0.27
n	22,644	22,644	21,109	21,109
Model	RE	FE	RE	FE
$\beta_{AT}=\beta_{DT}$:	ρ=2.17 (p=0.141)	ρ=0.93 (p=0.336)	ρ=1.28 (p=0.259)	ρ=0.23 (p=0.631)
$\beta_{AT}=\beta_{DT}=\beta_{C/C}=\beta_{OWT}$:	ρ=17.55 (p=0.001)	ρ=1.67 (p=0.243)	ρ=9.75 (p=0.021)	ρ=1.21 (p=0.306)
$\beta_{RW}=\beta_{SW}=\beta_{AT}=\beta_{DT}=\beta_{CC}=\beta_{OWT}$:	ρ=34.32 (p=0.000)	ρ=1.62 (p=0.150)	ρ=9.73 (p=0.021)	ρ=0.99 (p=0.422)

Notes: [1]Denotes the reference category. Additional controls are age (and age^2), gender and ethnicity controls, a dummy variable equal to one if married (zero otherwise), an interaction term between gender (being female) and marital status, education (in years), a dummy variable equal to one if residing in an urban area (zero otherwise), four regional dummies (omitted category is living in the South), ten industry dummies (the omitted category is agriculture/fishing/forestry), and six occupational dummies (the omitted category is manager).

*** ,**, * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.