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Atypical Jobs: Stepping Stones or Dead Ends? Evidence from the NLSY79[†]

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Abstract
Atypical or contingent work arrangements have long been criticized as offering more precarious and lower paid work than regular open-ended employment. An important British paper by Booth *et al.* (2002) was among the first to recognize that notwithstanding their potential deficiencies, such jobs also functioned as a stepping stone to permanent work. This conclusion proved prescient, and has received increasing support in Europe. In the present paper, we provide a broadly parallel analysis for the United States, where research has been less targeted on this issue. We obtain rather positive results, reporting similar findings for the category of temporary workers in the United States as found for fixed-term contract workers in Britain.

JEL Classification: J30, J40, J63

Keywords: atypical work, temporary jobs, contracting/consulting work, regular open-ended employment, job transitions, earnings development

I. Introduction

Atypical work, as its name implies, has often been looked upon with disfavour by economists on both sides of the Atlantic in terms of the remuneration and career possibilities attaching to temporary work of this nature. Indeed, in their introduction to an Economic Journal (EJ) *Symposium* on temporary jobs, Booth, Dolado, and Frank (2002) summarize the thrust of the contributions as suggesting that the expansion of temporary jobs as a way of increasing labour market flexibility may be undesirable. Yet in analysing the British evidence, these authors temper this judgment with evidence that fixed-term contracts – if not seasonal and casual jobs (the other temporary work category they examine) – do provide a stepping stone to regular employment and imply no long-term wage disadvantage for women who start off their careers in this way.

Since the *Symposium*, the stepping-stones counter argument has if anything gathered currency in Europe. That said, the shifting evidence did not dissuade the EU from passing the long-delayed third and 'final' piece of atypical worker legislation in November 2008 covering agency temporary work.[1] Under Directive 2008/104/EC, the basic working conditions of these temporary help supply/agency temporary workers are for the duration of their assignment at the user undertaking to be at least equal to those that would obtain had they been recruited directly into that job by the undertaking (Official Journal, 2008). This equal treatment principle is to apply from the first day of an assignment unless otherwise amended on the basis of agreement between organized labour and capital (so that the qualifying period is 12 weeks in the case of the United Kingdom).[2] The Agency Workers Regulations became operational in Britain on October 1, 2011. The backdrop was a marked reduction in the stringency of employment protection regulations in the EU15 (especially Germany and Italy) between 1996 and 2008 in respect of atypical employment as a whole, as

well as a growth in the share of workers employed under fixed-term contracts and agency work contracts (see OECD, 2011; Jahn, Riphahn, and Schnabel, 2012: F117-F118).

The present paper focuses on the impact of atypical work in the United States, where investigation of the phenomenon has rather tended to lag European research (see section II). By way of a cautionary note, European observers should resist the notion that interest in atypical work in the United States is necessarily undercut by that nation's more limited employment protection architecture. For example, Autor (2003) reports evidence of a rapid growth in U.S. temporary employment – considerably outpacing overall employment – that is directly attributable to the attenuation of the common-law hire-at-will principle governing the employment relation. Specifically, he finds that the actions of state judiciaries in adopting the implied contract exception to the hire-at-will common-law doctrine – limiting the ability of employers to terminate workers and thereby exposing them to potentially costly litigation – explains a little over one-fifth of this job category's remarkable employment growth between 1973 and 1995 (see also Dertouzos, Holland, and Ebener, 1988; Dertouzos and Karoly, 1992, 1993).

Moreover, although contemporary information on the size of the atypical or contingent workforce in the United States is less than stellar, Table 1 assembles information from the 1995-2005 waves of the nationally representative Contingent and Alternative Employment Arrangement Supplement to the Current Population Survey (CAEAS) to illustrate the importance of the sector. (The main limitation of the CAEAS – unlike the National Longitudinal Survey of Youth, 1979 Cohort (NLSY79) used in the present exercise – is that it only allows one to follow individuals for a maximum of sixteen months.)[3] In addition to the categories of temporary workers and contractors/consultants, the table adds on-call workers, that is, workers who are called to work only as needed although they can be scheduled to work for several weeks in a row. Evidently, at around 10 per cent, the share of

the workforce in atypical work arrangements is substantive and fairly similar to that reported by Booth, Francesconi, and Frank for the United Kingdom, albeit differing in composition.

(Table 1 near here)

At face value, the size of the U.S. contingent workforce has decreased modestly since the period covered by Autor's study. This decline, however, might be temporary given recent pieces of legislation enacted in the United States that may have encouraged the substitution of atypical workers for regular workers. As reported by Surfield (2013), employers *continue* to respond to particular constraints on their ability to dismiss workers – here, failure to adopt right-to-work laws – by increasing their use of atypical workers. More recently, concerns have attached to the use of contractors by firms in the construction industry as a means of circumventing the payment of payroll taxes, workers' compensation, and unemployment insurance (Goodwyn, 2013). We shall return to this theme in our concluding remarks, but would contend here that the role played by the atypical workforce in the United States is not inconsequential from either a policy perspective or with regards to the development of an employee's employment and wage history.

In charting the consequences of atypical work in the Unites States, the present paper aims as far as possible to replicate Booth, Francesconi, and Frank's (2002) wage and duration analysis (if not their evaluation of job satisfaction and training), and to provide a useful point of contact between the U.S. and European literatures regarding career prospects. So as to set the scene, it first reviews the former literature and then updates the state of play in European research since the 2002 *Symposium*. The main hypotheses underlying our analysis are next presented. Then, the unique dataset used in the empirical analysis is described and some facts of atypical employment assembled. There follows a cet. par. analysis of the employment and wage implications of atypical work. A summary and modestly broadened discussion concludes.

II. Literature Review

Because of data constraints, much of the early U.S. literature focused on a single atypical work arrangement, namely temporary help supply/agency temporary employment (see Davis-Blake and Uzzi, 1993; Parker, 1994; Segal and Sullivan, 1997). It was reported that such jobs were typically of shorter duration than regular employment and were often poorly compensated as well.[4]

One particular problem with the early studies was that employment transitions were identified on the basis of changes in industrial classification. Specifically, the researchers could only identify workers who self-reported holding employment in the temporary help agency *industry*, thence tracing their pathways out of this industry and into other branches such as manufacturing or other services. Left unclear was whether transitioning workers were moving into open-ended employment in the new industrial sectors or whether they were still temporary workers (although now without the assistance of a temporary help agency). Alone among the studies, Houseman and Polivka (2000) were able to examine worker transitions from a broad spectrum of atypical work forms in addition to agency temporaries – direct-hire temporaries, on-call workers, contract workers, and independent contractors – after an interval of one year. But, as was the case with earlier studies, these authors were unable to ascertain whether switches of employer were indicative of actual changes in the work arrangement (i.e. from atypical to regular employment) as opposed to switches into a different type of atypical work with a different employer or the same type of atypical work with a different employer (say a different temporary help agency).

More recent studies – added detail on which is contained in the Appendix – have been able to exploit administrative or longitudinal data in determining the implications of temporary employment for worker earnings profiles (Lane et al., 2003; Heinrich, Mueser, and Troske, 2005; Autor and Houseman, 2006; Hamersma and Heinrich, 2008; Andersson,

Holzer, and Lane, 2009; Heinrich, Mueser and Troske, 2009) or employment continuity (Autor and Houseman, 2010). The evidence they provide on the ability of atypical work to facilitate transitions into regular employment and promote earnings development is mixed. Some report generally positive implications associated with an earlier interlude of temporary employment (e.g. Andersson, Holzer, and Lane, 2009), with others uncovering some sharply negative effects (Lane et al., 2003; Autor and Houseman, 2010). Yet other studies find either no effect or an initial effect (typically unfavourable but sometimes favourable) that dissipates over time (Hamersma and Heinrich, 2008; Heinrich, Mueser, and Troske, 2005, 2009; Autor and Houseman, 2006).

Such mixed evidence might be attributed to the very limited scope of the supporting data. Although unlike their precursors these studies are able to track changes in the employment arrangement, they typically focus on narrow slices of the workforce – low income types or a single contingent work group – or are restricted in their geographical reach. Partly in response to these limitations, we chose in the present inquiry to use the National Longitudinal Study of Youth, 1979 Cohort (see section IV).

What of the European literature? The tenor of the material contained in the aforementioned EJ *Symposium* was frankly negative as regards the career prospects opened up by temporary work as a whole in Britain; in pointing to unfavourable spillover from the temporary sector to the permanent sector for France; in linking the growth of temporary work to adverse states of nature in Sweden; and in respect of the stubborn persistence of temporary employment once such working practices had become entrenched in the case of Spain.[5] But since then the empirical evidence, while mixed, has proven much more favourable to temporary employment and to agency work in particular. Thus, evidence consistent with a stepping stones interpretation has been reported for atypical work (comprising fixed term contracts, temporary help supply/agency work, and on-call contracts – as well as subsidized

employment) in the Netherlands by Zijl, Heyma, and van den Berg (2011); for fixed-term contracts in Portugal by Portugal by Portugal and Varejão (2010); and for temporary help supply/agency work in Denmark, Spain, and (two regions of) Italy by Jahn and Rosholm (2010), García-Pérez, J.I., Muñoz-Bullón (2005), and Ichino, Mealli, and Nannicini (2005), respectively.

And in the case of Germany, although there is little to suggest that temporary jobs lead to increased regular employment,[6] there is some suggestion that temporary employment does no harm and in fact provides an access-to-work function (i.e. a reduced risk of future unemployment). Evidence to this effect is reported by Kvasnicka (2009) in the case of temporary help supply work and by Freier and Steiner (2008) for 'marginal employment', namely employment at low working hours and earnings not covered by social security.

Nevertheless, there remains real concern in Europe over the (co)existence of two-tier labour markets – comprising regular open-ended contracts on the one hand and temporary employment contracts on the other – that are subject to *different* rules and restrictions. Modelling the interaction between these two sectors – involving the notion of an optimal share of flexible workers – received emphasis in a second EJ disquisition on the subject in 2012 (see Jahn, Riphahn, and Schnabel, 2012) . A particular concern was the possibility that reforms creating or modifying two-tier labour markets might be second-best compared with modifications of regular contracts or reforms introducing a single labour contract (e.g. Bentolila et al., 2012). In sum, although the European empirical evidence has turned more positive of late as regards flexible work arrangements, recent theoretical developments have proven more pessimistic.

III. Preliminary Considerations

In the most general (competitive market) sense, workers in temporary jobs should receive higher wages as a form of compensating advantage for the reduced constancy of employment. As a practical matter, however, such workers may receive lower wages because they have less firm-specific human capital, or are of lower average quality, or because efficiency wages play no role in this work arrangement. One obvious exception to this latter observation is the group of independent contractors and consultants (also examined in the present study), many of whom are professionals and who may actually command a premium because of the various savings they offer employers.

These observations remind us that there are many types of atypical work as well as differences between individuals. In addition to the niche services of contractors/consultants, temporary work may be of a probationary nature (often influenced by employment protection legislation), or it may be used to replace permanent workers on leave, or it may take the form of fixed term contracts that serve as a buffer stock. For their part, individuals may be distinguished according to whether they entered into the temporary employment relation voluntarily or involuntarily.

Booth, Francesconi, and Frank (2002: F191-193) first discuss temporary employment that is unlikely to transition into regular employment, namely, the buffer stock and replacement labour cases. Such jobs are not conducive to firm specific training for either side, but may nonetheless be attractive to those groups who have a lower probability of wishing to remain at the firm. Examples include women who are contemplating exiting into nonmarket activities and younger workers unsure of their career preferences. For workers who voluntarily sort into these jobs the long-term wage implications are expected to largely neutral.

But what of the case of temporary jobs that fulfil a probationary function. The implication is that individuals of lower expected ability will be hired into temporary jobs and individuals of higher expected ability hired into permanent jobs. The latter are deemed to have involuntarily sorted into fixed term contracts. More importantly, the greater the extent the sorting is on the basis of ability, the more permanent the wage penalty.

For these authors, then, an important consideration is whether sorting into atypical work is voluntary or involuntary to begin with. Booth, Francesconi, and Frank further suggest that, since voluntary sorting, is more likely in the case of women than men, an initial temporary job is a better signal of low ability for men than for women.

Since their data do not allow them to differentiate temporary help supply jobs from seasonal and casual work, Booth, Francesconi, and Frank pay little direct attention to such work arrangements. Recent research has indicated that temporary help supply firms may themselves provide general training to lower paid workers who lack certain skills but who have an aptitude for and interest in learning. This training in turn enables temporary help agencies to screen such workers and learn about their abilities (Autor, 2001). Employers may use temporary help supply firms to screen workers and ultimately recruit them in permanent jobs. Indeed, so important may be the screening role played by agencies that they may be used to acquire information on applicants for permanent jobs directly. The implication is that, while they may suffer some initial wage penalty, temporary help supply workers might see faster wage growth once they transition onto regular employment. Rather, Booth, Francesconi, and Frank draw a distinction between seasonal and casual employment and other types of atypical work, arguing that it will be marked by an absence of human capital formation, be populated by low ability individuals and always pay less than permanent work, with incumbents possibly 'cycling' between short spells of employment and longer spells of unemployment or inactivity.[7]

An abbreviated set of hypotheses might therefore run as follows. Temporary work may attract a wage premium in competitive markets, and in circumstances where the work is professional in nature where individuals seeking high employment flexibility find it optimal to invest in general human capital. Voluntary choice of temporary work implies little in the way of a wage penalty, while involuntary choice broadly implies the reverse. But the latter situation is more nuanced by reason of the screening efficiencies of temporary help supply firms. Workers using temporary employment as a means of getting 'a foot in the door' may suffer an initial wage penalty in the probationary period but faster wage growth if the job converts into regular or open ended employment. Finally, transition rates into open-ended employment are expected to be lower for those who chose to engage in temporary work because of the increased employment flexibility offered by such jobs. In the case of involuntary choices, the situation is again more nuanced. If a temporary job was all that the individual could find, then such workers are going to encounter great difficulty in securing regular employment in the future. For those individuals seeking to demonstrate their worth to the firm, however, transition rates will be higher than for those who voluntarily choose such work – and very possibly higher than for those who opted to search off the job.

IV. The Data

The National Longitudinal Study of Youth (NLSY79) is a nationally representative sample of 12,686 young men and women aged 14 to 22 years when they were first surveyed in 1979. Interviews were conducted annually through 1994 and on a biennial basis thereafter, covering a period of adolescence through middle age. A key feature of the NLSY79 is that it gathers information on labour force activity in an event history format. This information includes the beginning and end dates for each job held since the last interview, thereby facilitating the

measurement of actual labour market experience, tenure with a specific employer, and employer transitions.

Although the main focus of the survey is upon labour force behaviour, the content of the NLSY79 ranges further afield. It thus contains questions on educational investments, marital and fertility histories, income and assets, health conditions and workplace injuries. Additional labour force information includes number of hours worked and earnings, as well as occupation, industry, and specific job characteristics. Furthermore, the NLSY79 includes an aptitude measure, namely the full Armed Services Vocational Aptitude Battery which was administered to 94.4 per cent of sample respondents in 1980 (see below).[8]

For present purposes, the NLSY79 first began asking workers about their type of working arrangements in 1994. As in previous rounds, the 1994 wave also contains data on the current job identifier, as well as retrospective data on the last four jobs held up to that point. After 1994, the questions on working arrangement were continued biennially until the 1998 wave, at which point they were discontinued.[9] (Note that we can recoup the working arrangements between these three waves from data contained in the respondents' work histories.)

We extracted two datasets from the NLSY79. The first uses information from the 1994, 1996, and 1998 surveys,[10] including their retrospective content, to construct the pathways and durations of jobs and working arrangements held by respondents from 1992 onwards. The second sample uses the 1993 to 1998 waves of the NLSY79 for the analysis of wage development. For this second sample, we do not go quite so far back in time given the progressive loss of data on *both* pay and work type prior to this wave of the NLSY79.[11]

Using the NLSY79 we can identify two principal forms of the five commonly-identified types of atypical work in the United States. These two forms are 'temporary workers' and 'contractors/consultants'. The former category comprises the separate

categories of temporary help supply (or agency temporary) workers and direct-hire temporaries which we shall amalgamate on sample size grounds (see the justification below), while information on contractors and consultants is not separated out in the survey and is therefore a composite grouping to begin with.[12]

There is no information on 'on-call workers' (the final category of commonly identified atypical worker jobs – see Table 1) in the NLSY79. Nor for that matter, as was noted earlier, can we separate contractors from consultants. Information on on-call workers and contractors *is* available in the other main data set available to U.S. researchers – the Contingent and Alternative Employment Arrangement Supplement (CAEAS) to the Current Population Survey – but use of this material is ruled out because, as was noted earlier, worker histories are only available for a maximum of sixteen months.

Three further remarks regarding the atypical work arrangements identified in the NLSY79 are in order. First, our contractors/consultants grouping clearly differs from the British category of fixed-term contracts – defined as "job(s) done under contract or for a fixed period of time" – used in Booth, Francesconi, and Frank (2002). In European parlance, contract workers are those who are typically hired under contract or for a fixed term. In our case, workers engaged in contracting/consulting work are hired for a specific reason, if not for a specific term. The reason might be developing a software code in the case of contractors or providing compliance advice with respect to a legal mandate in the case of consultants.[13] Contractors/consultants are likely to considerably more skilled than British category of fixed-term contract workers.

Second, our temporary worker classification – to repeat, a conflation of agency temporaries and direct-hire temporaries – will on the other hand resemble Booth, Francesconi, and Frank's other temporary work category of *seasonal and casual work* (formally "a seasonal, temporary, or casual job") to the extent that either type of worker is

used to meet cyclical product demand or deployed in substitution for absent regular employees. And the link is presumably closer for those are identified as 'temporary' in the British definition. As a practical matter, however, there may be even closer overlap between our category of temporary workers and fixed-term contract workers in Booth, Francesconi, and Frank. The bottom line is that the category of temporary workers on a U.S. definition is probably much closer in fit to the *two* separate categories used by Booth, Francesconi, and Frank than that between contractors/consultants and workers employed under fixed-term contracts.

Finally, returning to the issue of *our* conflation of the agency workers and direct-hire temps, other research indicates this is unlikely to be a cause for concern. The primary motive for aggregating agency and direct-hire temporaries into a single composite category was the practical one of sample size. But Addison and Surfield (2009) provide formal support for this aggregation, using the larger sample contained within the Current Population Survey/CAEAS. They report that the *employment continuity* implications of the two forms of temporary work are not significantly different. Major differences in employment outcomes are reserved for employees in temporary employment on the one hand and contractors/consultants on the other.

Returning to the present exercise, using our first set of data extracted from the NLSY79 we are able to trace the pathways used by workers engaged in atypical work over the interval 1992–1998 (see above). That is, using the three main surveys and their retrospective elements, we can identify the sequence of jobs and the associated work arrangements held by workers over this not inconsiderable period. This sequencing provides us with some guidance as to whether or not temporary employment serves as a potential stepping stone into regular employment, and of the employee characteristics that underpin such transitions. We are able to determine, for example, whether an interval of temporary

employment ends with another spell of similar employment or if the subsequent job taken is open-ended employment. For each job held by workers, we identify its industrial and occupational affiliation, the size of the employment unit, and a measure of working hours (part-time or full-time). This job information is supplemented with data on the demographic and other characteristics of the worker (e.g. age, education, region, race/ethnicity, etc.) at the time of each NLSY interview to estimate their potential impact on job transitions.[14]

We can also investigate the medium-term implications of temporary and contract work on a worker's wages with the second set of data culled from the NLSY79. Like Booth, Francesconi, and Frank, we are able to identify the total number of temporary and contracting jobs held by a worker – in our case, over 1993–1998. But we also seek to improve upon this measure by recording the *number of years* spent in either type of atypical employment on the grounds that worker remuneration is more likely to be impacted by a prolonged period of time spent in an atypical job – and, in particular, temporary employment – than by the frequency of such jobs.

The wage data pertain to the primary job held by a respondent at the time of each NLSY interview. Note further that we included those temporary or contracting jobs starting and ending between any two waves in our measure of the time spent in atypical work. But for reasons of temporal consistency the wages of such jobs were not used in our wage analysis.[15]

For both samples extracted from the NLSY79, we also assemble information on the total amount of general labour market experience accrued by a worker since 1975 as a measure of accumulated general human capital and examine its implications for wage development and job transitions. We also constructed proxies for a worker's ability using the Armed Forces Qualification Test (AFQT), comprising four sections from the Armed Services Vocational Aptitude Battery (ASVAB) and reported in the 1981 NLSY. Specifically, proxies for a worker's mathematical, verbal, practical and scientific ability were constructed by using

the test results for these general areas and then recouping the residuals obtained from the regression of scores on a vector of age and education dummies.[16]

V. A Picture of Temporary Work

We preface our cet. par. analysis with descriptive information on the types of workers filling atypical jobs, their distribution and remuneration, and their job durations and pathways, in each case juxtaposed against corresponding information on those in regular or traditional open-ended employment. Table 2 provides descriptive statistics on atypical workers by individual and job characteristics, AFQT scores, location, industry, and broad occupational affiliation. As can be seen, there are significant differences in the types of workers who are filling regular jobs relative to their atypical counterparts. Both contractors/consultants and temporary workers are likely to be younger and work part-time relative to those engaged in open-ended employment. As also reported by Cohany (1998), temporary workers are more likely to be a minority members, have lower educational attainments and less likely to be married when compared to regular workers – and conversely for contractors/consultants. We observe a similar pattern for AFQT test scores (see also below). That is to say, temporary (contractors/consultants) fare poorly (favourably) when compared to regular workers.

(Table 2 near here)

In terms of their industrial and occupational characteristics, contractors/consultants are more likely to be engaged in agriculture, construction and mining, and business services than regular workers. For their part, temporary workers are disproportionately employed in business services, while under-represented in construction and mining, retail and wholesale trade, finance, insurance and real estate, as well as professional services. Finally, contractors/consultants are more likely to be found employed as managers or technical/sales

workers vis-à-vis regular workers, while temporary workers are more concentrated amongst the ranks of clerical workers and operators/labourers.

Descriptive information on the distribution of work arrangements and hourly remuneration are given in Table 3. Somewhat more than 12,700 jobs were recorded by the NLSY79 respondents over the period 1993-1998. From panel (a) of the table it can be seen that approximately 6 per cent of all jobs held were temporary, whereas contracting or consulting positions accounted for less than 2 per cent of the total. Note that, while our NLSY79 data have approximately the same proportion of temporary jobs as was observed in the Current Population Survey tabulations, we see a significantly lower proportion of workers engaged in contracting/consulting work (see Cohany, 1998: Table 1). The under-representation of contractors/consultants in the NLSY79 data likely reflects the survey's oversampling of the economically disadvantaged and minorities.

(Table 3 near here)

Panel (b) of Table 3 presents information on the inflation-adjusted average hourly wages of the three groups, while panel (c) provides *t*-tests of the respective wage differences. Temporary workers appear to fare poorly relative to those employed in either regular work or contracting/consulting. The $4.82 differential reported for the whole sample represents a 45 per cent wage disparity between regular and temporary work, and captures the much greater earnings penalty applying in the case of men than women. All wage differences between temporary and regular workers (and contracting/consulting workers) are statistically significant. When we compare contracting/consulting workers with regular workers, however, the broad earnings picture is reversed, although only in the case of females is the now favourable earnings gap (of almost $4) statistically significant.

(Table 4 and Figure 1 near here)

Finally, Table 4 presents information on job durations (panel (a)) and job pathways (panel (b)) over the 1992 to 1998 waves of NLSY79 data for workers as a whole,[17] with data from the 2000 wave being used to update the former information. Kaplan-Meier estimates of both completed and incomplete durations of the various work arrangements are given in Figure 1 and reveal that fully fifty per cent of temporary jobs are completed within six months. From the table we see that the median duration for contracting/consulting work is, at 1.71 years, more than twice that of temporary employment. Regular open-ended jobs had a median duration of just under three years. Only three per cent of temporary jobs lasted more than five years as compared with almost 40 per cent in the case of regular jobs.

As for the pathways, slightly more than one-half of temporary and contracting/consulting workers remained in the same work arrangement over the sample period. Unsurprisingly, of those who transitioned out of either atypical work arrangement, regular employment rather than another form of atypical work was the preferred path: 48 per cent of temporary workers and 44 per cent of contractors/consultants subsequently entered open-ended employment. The transition rates out of regular work show that this is a highly stable work arrangement: more than 96 per cent of all those initially in regular employment either took another regular job or remained in the same job across all seven years of the sample period.[18]

VI. Temporary Employment and Career Prospects: Transitions, Wage Gaps, and Selection Issues

We next present the cet. par. evidence on transitions and wage development. A brief caveat is required in respect of transitions out of contracting/consulting work into regular employment. Although it is the case that similar proportions of contractors/consultants and temporary workers transition into regular work, the smaller absolute number of

contractor/consultant transitions (which becomes acute when we disaggregate by gender) rules out a parallel analysis for this group. For the wage analyses, since we use the whole sample (of contractors/consultants) and not just those who eventually secure an open-ended job, this problem recedes. Accordingly, our analysis of wage gaps between regular and atypical work is presented for both groups and not just temporary workers.

(a) Exit from Temporary Agency Work to Regular Work

We have seen that around one-half of atypical workers transition into permanent employment. But what type of workers are they? To address this issue, we specify a discrete time Cox proportional hazard model in the manner of Booth, Francesconi, and Frank (see their Table 5: F203–205) linking transitions into open-ended employment to a number of individual attributes, including AFQT scores and job specific characteristics. This analysis focuses on workers who changed jobs during the sample time period from temporary work to regular permanent work. Our hazard model is defined as:

$$(1) \qquad H(t|X) = H_0(t) * \exp(\beta_1 X_1 + \beta_2 X_2 + ... + \beta_k X_k)$$

where $H(t|X)$ is the hazard of transition into a permanent work arrangement given at time t; $X_1 ... X_k$ are predictor variables; and $H_0(t)$ is the baseline hazard at time t, which represents the hazard for a worker with the value 0 for all the predictor variables. It provides significant strength to this empirical approach, as it corrects for baseline differences between workers that might influence the likelihood of transition over time. Specifically, the Cox proportional hazard regression model produces an adjusted hazard ratio that takes into account any baseline differences between workers that may have influenced the choice or ability to transition and are not captured in the predictor variables. Within this hazard analysis framework, the goal is to capture the factors that lead to permanent work. In this context, a worker is included in the analysis up to the point that he or she transitions to a permanent work arrangement. Once a transition occurs, from that point on that worker is no longer

included as part of the "at-risk" set. Although the covariates are not identical between our two studies, the results make sense in general and are relatively consistent. We note parenthetically that estimation was also performed with gamma-distributed latent random effects in order to capture unobserved heterogeneity between individuals. Since the gamma variance parameter converged to zero, results of this procedure are not reported here, but are available upon request.

(Table 5 near here)

Our findings are reported in full in Table 5. From the table, we see that age – here a continuous rather than a categorical variable – is strongly negatively associated with transitions into open-ended employment *and* for both genders (whereas this is the case for males alone in Britain). The coefficient estimate for schooling – again a continuous rather than a categorical variable here – is positive throughout. That said, it is not statistically significant for females. Interestingly, black male temporary workers have a greater probability of exiting into regular employment than their (non-Hispanic) white counterparts whereas the opposite is true for Hispanics of both genders, even if this latter result is only marginally significant for females. The incorporation of AFQT scores is somewhat disappointing. Although higher verbal ability improves the chances of exiting from temporary work into regular employment for females, this is not true for males for whom the coefficient estimate is negative albeit statistically insignificant. For its part, practical ability appears to detract from transitioning into regular employment for females.

Unlike the British case, part-time status has no adverse effect on transition rates. Nor for that matter is employer size related to transitions into regular employment, which might suggest that it is not only large employers that use temporary employment as a screen. The contribution of industrial affiliation is statistically insignificant throughout with the one exception of the personal services sector. Males in this sector are less likely to transition into

regular employment. Interestingly, Booth, Francesconi, and Frank obtain the same result for the 'protection and personal services' *occupation* in respect of seasonal and casual (if not fixed-term) work. Finally, none of our occupational coefficients proved statistically significant.

(b) The Impact of Temporary and Contract Work Spells

To what extent do the large wage gaps between regular, open-ended employment and atypical work observed for males and females, but especially for the former, reflect differential human capital endowments and the like? In Table 6 we report simple OLS regressions to measure the effects of such factors on log wages. Our regressors include those used earlier in modeling (temporary) worker transitions into regular employment. They are augmented in the manner of Booth Francesconi, and Frank, to include labour market experience. The authors of the British study measure experience over their survey period, 1991-1997, whereas we measure it as time spent in employment since 1976. We think this more accurately captures a worker's true workforce experience, and therefore provides a better reflection of how experience impacts wages. Following Booth, Francesconi, and Frank we also include a quadratic in the number of previous jobs held – that is, the number of temporary jobs and the number of contracting/consulting jobs – as well as interactions between each and lifetime experience to determine whether the returns to experience differ by contract type. Also, as the same individuals appear multiple times, the standard errors are clustered at the individual level so as to take into consideration any correlation in the error term over time by individuals. Lastly, we recognize that a number of regressors in our wage equation are potentially correlated with unobserved individual and job-specific characteristics. Unfortunately, given insufficient variation in the number of jobs held by respondents, we were unable to fully instrument for potentially endogenous variables in the manner of Booth, Francesconi, and Frank (see their IV/GLS estimates in Table 6: F209).

(Table 6 near here)

Table 6 presents summary findings from our wage regressions.[19] The basic result, after controlling for human capital, observed ability, and demographic, industrial and occupational differences, is that atypical work appears to have few adverse implications for female earnings over the 1993-1998 interval, while seemingly impacting male earnings unfavourably.

Focusing on the separate findings for males and females, and beginning with the results in the third column of the table, we see that the first temporary job held by males serves to reduce wages, by 16.6 per cent (exp[-0.230 + 0.049] - 1 = -16.6) when compared to those males who never held a temporary job. The coefficient estimate for the squared term suggests that this gap falls with the number of jobs taken over the six-year interval. At the margin, each additional temporary job held by a male serves to reduce his earnings by an additional 12.4 per cent on average (exp[-0.230 + 2(0.049)] - 1 = -0.124). Observe that the estimated cet. par. differential is around one-half that of the crude wage gap earlier reported in Table 1, suggesting that a good portion of the wage disadvantage for males in temporary employment can be attributed to other observed characteristics. There are seemingly modest differences between the wages of males employed in contracting/consulting work and those of their counterparts in regular employment. Finally, there is the general result that additional years of general labour market experience have positive implications for wage development: each year of additional lifetime experience increases earnings by 5.4 per cent.

The results presented in the next column of the table look beyond the latter finding in providing estimates of any differential effect of atypical work on experience capital. Given the transitory nature of temporary jobs, it might not be unexpected to see a lesser return vis-à-vis open-ended employment. Coefficient estimates of the interaction terms imply that a male worker with one year of lifetime experience would receive a wage penalty from one

temporary job over the first six years of a career of 22.2 per cent (exp[-0.313 + 0.044 + 0.019 -0.001] - 1 = -0.220). This falls to 15.2 per cent with ten years' experience. For male contracting/consulting workers, the corresponding values are a premium of 31.6 per cent, falling to a slight penalty of 4.1 per cent. This said, these estimates are only jointly significant (p-value=0.000), so strong inference is inappropriate.

In the case of females, as can be seen in the fifth column of the table, taking one temporary job over the first six years of a career implies a negative wage premium of 6.6 per cent, with this wage penalty increasing in the number of temporary jobs taken. Each additional temporary job taken by females serves to decrease their wages by an additional 6.9 per cent on average. There appears to be little evidence that taking a contracting job significantly influences a female's log wages. Although somewhat diminished in magnitude vis-à-vis males, observe that females also garner a wage premium for each year of prior labour market experience. The results presented in the sixth and last column of the table would imply that only experience interacted with the number of temporary jobs held is of importance, but again the estimates are only jointly statistically significant (p-value=0.002). If accepted at face value, however, taking a temporary job initially results in a discounted return to labour market experience that is heightened over time. In sum, it would appear that temporary employment holds a marginally deleterious effect on female wage development while contract work seemingly holds no effect.

In contrast, the results presented by Booth, Francesconi, and Frank (2002) indicate that the wage penalty associated with a seasonal-casual job (to include 'a temporary job') actually increased for both genders with additional years of full-time experience. In the case of British men, for example, the wage penalty for one year of full-time experience and a seasonal-casual job is stated to be approximately 11.5 per cent. After completing ten years of full-time experience, the penalty associated with a single seasonal-casual job increased to

12.3 per cent. For British females, the wage penalty was 4.5 per cent for one year of experience, almost doubling to 8.8 per cent with the accrual of ten years' experience.

This being said, the results are much closer for the category of fixed-term contracts. For British workers taking up such work arrangements, the wage gap between them and their counterparts in open-ended work actually decreased with additional full-time experience. The initial wage penalty for male and females working under a fixed-term contract was estimated at some 8.5 and 4.7 per cent, respectively. After ten years of full-time experience, however, this penalty decreased to 5 and 0.4 per cent for men and women respectively.

In focusing on the number of atypical jobs held by a worker to derive the above results, we are not accounting directly for the actual time spent in such work arrangements. As an extreme example, consider two workers one of whom takes a temporary job as a (certain) stepping stone into regular employment while the other spends the entire six-year period in the same temporary job. Both workers will record only one temporary job, but it seems unlikely that this would have the same effect on each worker's earnings. To investigate this issue, we further exploited the work diaries maintained by the NLSY79 respondents to derive a measure of the number of years spent in each type of atypical employment. We then substituted this measure for the number of jobs variable(s) previously used in Table 6. Summary findings of our re-estimations using the new argument(s) are contained in Table 7.

(Table 7 near here)

As was the case in Table 6, spending time in temporary employment is more detrimental for males. The results obtained in the third column of Table 7 indicate that a male who spent just one year in temporary work reduced his earnings by 14.1 per cent, although the coefficient estimate for the squared term again suggests that there is some mitigation of this wage penalty over the employment interval. At the margin, each additional year spent in temporary employment serves to reduce a male's wage by an additional 12.8 per cent on

average. For females, the results given in the fifth column of the table indicate that temporary employment plays even less of a role than before in the determination of their earnings once other observed differences are taken into account.

If we hold experience constant and focus on the results in the fourth and sixth columns of the table, however, we can see that the cost of working as a temporary worker for one year results in a continuing penalty for both genders (although the results are not significant for females). For males, the penalty is 21.3 per cent after a year falling modestly to 14.6 per cent after ten years. But for females the implied wage effect is a penalty of just 3.1 per cent after one year of lifetime experience that turns into a slight wage premium of 2.2 per cent after ten years. There is no such continuing penalty in the case of one year's employment in contracting/consulting job; for males, there is actually a premium (of 27.9 per cent after one year falling to 4.9 per cent after ten years), while for females there is again even some suggestion of a penalty morphing into a modest premium (from -13.4 per cent after one year to 1.8 per cent after ten years).

(Figures 2 and 3 near here)

The effects of different contract types on wages can be explored diagrammatically by describing wage paths for a number of career choices. Using the full results for the specifications summarized in columns 4 and 6 of Tables 6 and 7, we construct four such synthetic profiles for males and females. Profile 1 describes the case where the worker is employed in a permanent job throughout the sample period. Profile 2 (3) depicts a situation in which the worker holds a temporary (contracting/consulting) job in the first period, followed by employment in a permanent job therereafter. Finally, profile 4 is the case where the worker holds three temporary jobs before transitioning into permanent employment. These wage trajectories are reproduced in Figures 2 and 3, respectively.

Beginning with the specification based on the *number* of atypical jobs (see columns 4 and 6 of Table 6), it is apparent from Figure 2 that male contracting and consulting workers are a cut above the rest and conversely for their counterparts in temporary jobs. That is, workers who take either one or three temporary jobs before transitioning into regular open-ended employment earn less and continue to earn less than their counterparts in continuous regular employment, the gap between them narrowing only very slowly over time. It is as if the number of temporary jobs directly proxies unobserved differences in ability. As far as male consulting/contracting jobs are concerned, no earnings benefit accrues to switching out of this type of atypical work into regular employment since the earnings gap favouring former contracting/consulting workers narrows through time although it certainly persists over the time frame considered in the figure.

The picture for women is somewhat different. Most obviously, the structure is much less dispersed and the gaps between profiles less pronounced. Points of contact with the male trajectories are, first, that former contracting/consulting workers continue to earn the most, although the gap between them and regular workers narrows, and, second, that those with three temporary jobs before they transition into regular employment continue to earn distinctly less than regular workers and actually deteriorate relatively. The main difference, then, is that those with one temporary job who transition into regular employment seemingly earn more than ever-regular workers to begin with but are subsequently overtaken by them. That said, the earnings gaps in question are very modest. With the possible exception of profile 4 types, there is little to suggest in the female case that number of temporary jobs might proxy unobserved heterogeneity.

Figure 3 replaces the number of jobs (see columns 4 and 6 of Table 7) measure with time spent in atypical jobs, so that Profile 1 corresponds to the situation where zero years are spent in atypical employment, Profile 2 denotes the situation where one year is spent in

temporary work, and so on. The earnings profiles shown for males fairly closely follow those reported earlier in Figure 2. That is to say, there is no indication that switching out of temporary work into regular work is associated with catch-up, while the earnings advantage of former consulting/contracting workers is now subject to less erosion. As far as females are concerned, however, there is much stronger evidence of catch-up in the wake of transitions following one or three years in temporary jobs into regular employment. And for this specification, those transitioning from contracting/consulting work display the sharpest earnings progression of all.

(c) Propensity Score Matching

Lastly, we recognize that our identification strategy in Tables 6 and 7 is predicated on the assumption that the control variables make individuals who had temporary work arrangements (the implied treatment group) comparable to those who did not have similar employment experiences (the implied control group). Although we control for many demographic, human capital, and employment-related characteristics of the observed workers, selection bias may still be a concern. Specifically, workers have some choice over the jobs they accept, which potentially invalidates our quasi-experimental design, as the treatment and control groups may not be well matched. We address this potential problem by using propensity score matching (PSM) analysis.

(Table 8 near here)

A propensity score is an individual specific predicted probability of having selected into a temporary or contract work arrangement. We obtain these scores by estimating a logistic regression wherein the temporary or contract work variables serve as the dependent variable in each analysis, respectively. All available covariates from the primary analysis were utilized as each, theoretically, may influence the probability of a temporary or contract work outcome. Results of the logistic scoring model are presented in Table 8 and indicate that

older workers, Hispanics, and married individuals, are less likely on average to engage in temporary work. Conversely, we see that age and race play no meaningful role for contract workers, although education is now an important determinant. There are also differences between the two atypical work groups by location, workers from the Northeast and South being less likely to engage in temporary work than their counterparts from the North Central region, although the exact opposite pattern applies for contractors. Lastly, while there is little evidence of differences between workers with temporary and standard work arrangements in terms of skills, as measured by the AFQT, some difference are apparent when considering contractors/consultants; specifically, while demonstrating lower coding skills, this group performs significantly higher on the practical ability section of the test.

With the propensity scores computed, respondents from each group are now matched using the propensity scores for each respective PSM analysis. To perform these PSM analyses we use the standard "nearest neighbour within calliper" approach, which matches workers having propensity scores within plus or minus 1 per cent of each other (see, for example, Oakes and Johnson 2006). In our case, a calliper of 1 per cent results in 5.69 per cent unmatched observations (using replacement) in the temporary worker analysis and only 2.45 per cent unmatched observations (using replacement) in the contract worker analysis. These results imply a strong match based on included observable characteristics in each case.[20]

Next we assess the underlying covariate balance, which helps identify the bias caused by off-support estimation. The "common support" criterion is gauged by using standardized differences for each covariate included in the logistic regression to calculate the per cent bias for each covariate. Ideally, each standardized per cent bias would be less than 10 per cent after matching. There is little cause for concern over covariate imbalance in respect of either atypical work arrangement; specifically, all of the covariates in the temporary work analysis

and over 96 per cent of them in the contractors/consultants case fell within the 10 per cent window after matching. Moreover, in each case, the average per cent bias across the covariates was less than 5 per cent, and none of the variables exhibited a statistically significant difference between the treatment and control groups, indicating a very strong covariate balance and common support structure. Details of the test for covariate imbalance are provided in Table A.2.

Having completed the matching and covariate balancing, we are in a position to perform the desired PSM estimation. The average treatment difference of exposure to a temporary work position on log wages between the treatment and control groups equals -0.1807 (bootstrap standard error = 0.0283). Hence, these PSM results are consistent with the inference taken from the estimates presented in Tables 6 and 7, suggesting that selection bias between temporary work arrangements and wages is not a material concern once observables are accounted for in the model. The PSM results for contract workers are similar to those shown in Tables 6 and 7, the estimates now illustrating no statistically significant average treatment effect of contract work exposure on wages (p=0.719).

VII. Conclusions

Reflecting data considerations, there has been rather less investigation of the nature and consequences of atypical work in the United States than in Europe. Of late, this imbalance has if anything grown. Partly for this reason, the extant U.S. evidence on the implications of atypical work for employment continuity and wages is also more polarized, with some observers continuing to characterize atypical work as providing dead end jobs with poor wages and prospects (particularly for welfare clients) and others seeing them more as stepping stones to permanent or at least regular employment. The caveat in all of this is of

course that some atypical jobs in the United States have always been regarded as well-paying, even offering a premium over regular, open-ended employment.

In the present treatment we have sought to offer a fresh view of the U.S. evidence by examining job transitions and wage development for two atypical jobs at either end of the wage continuum: temporary workers, comprising agency and direct hire temps, and consulting/contracting workers. In this endeavour we have drawn directly on Booth, Francesconi, and Frank's (2002) important study of workers on fixed-term contracts and those in casual and seasonal jobs. Although we are unable to investigate the job satisfaction enjoyed by temporary workers (or examine their training opportunities as do these authors), we can broadly replicate their treatment of the effects of temporary work on career prospects subject to the limitations of the U.S. data. Moreover, we recognize that a number of regressors in our wage equation are potentially correlated with unobserved individual and job-specific characteristics, so that the potential for some endogeneity exists. This limitation needs to be kept in mind when interpreting our analysis of wage dynamics. That said, the results of the propensity score analysis do help to alleviate concerns that selection bias has dramatically invalidated identification or confounded our estimates.

Subject to these caveats, we report suggestive and detailed results that provide a real measure of support for Booth, Francesconi, and Frank with respect to our admittedly somewhat different category of temporary workers, while at the same time confirming past (U.S.) research on the more privileged position of contracting/consulting workers. That is to say, on the negative side we find that male temps suffer a material cet. par. wage disadvantage that persists with only very slight sign of narrowing after the transition into regular work. More positively, however, the situation confronting female temporary workers is much brighter, also in line with Booth, Francesconi, and Frank, at least for our preferred

measure of time spent in atypical work. The difference in our case is that there is less evidence of a wage penalty to begin with.

At a descriptive level, temporary jobs are indeed stepping stones to regular employment. Males who enter regular employment after one or more spells of temporary work close the gap, although at a very slow rate. For females, on the other hand, any earnings gap associated with taking temporary jobs before entering regular employment is modest to begin with and narrows over time. More work is clearly required in evaluating the stepping stone function of atypical work for the unemployed using standard administered social experiment techniques.

Despite the advantages of temporary jobs as stepping stones to regular employment, especially in an economy emerging from a period of major recession, expansion of temporary work as a means of increasing labour market flexibility comes at a cost. As reported by ourselves and by Booth, Francesconi, and Frank that cost may be transitory. But there are some worrying elements of atypical work exposed in the Economic Journal *Symposium* on temporary jobs, one aspect of which is also hinted at in the recent U.S. experience with contractors, a seemingly favoured group. We refer here to emerging evidence from the construction industry in Texas of the use of this work arrangement to avoid the payment of workman's compensation, payroll taxes, unemployment taxes, and overtime (see Goodwyn, 2013). Reclassifying employees as independent contractors can lead to a race to the bottom and destabilize labour markets, aggravated by a U.S. context of undocumented labour. In short, a proper accounting for the effects of atypical jobs is not independent of institutional and economic context. Our treatment has perforce largely abstracted from the wider institutional context, while being limited to the decade of the 1990s. For both reasons, the recent programme changes to the Federal budget to add an Annual Current Population Survey

Supplement (see footnote 3) that will enhance the capability of the BLS to produce data on contingent work and alternative work arrangements can only be applauded.

Footnotes

1. Atypical worker directives dealing with part-timers, fixed-term contract workers, and agency temps were first mooted in the early 1980s but draft legislation covering the first two groups was not enacted into law until in the late 1990s (see Official Journal, 1998, 1999, respectively). Legislation on agency workers has proved altogether more controversial given the diversity of law and custom practice within the EU. Thus, for example, the present legislation was first proposed by the Commission in 2002. Final passage of the draft legislation some six years later hinged on a mix of external and internal concessions. The former included British opt-outs on yet more controversial legislation in the form of the ultimately abortive working hours' directive. Among the internal concessions, apart from the derogation noted in the text, was the exemption from equal treatment in respect of pay where agency temps having a permanent employment contract with their agency continued to be paid between assignments.

2. By the same token, member states are to review existing restrictions or prohibitions of the use of temporary agency workers – presumably including limits on the sectors or special situations in which temporary agency workers can be used or on the maximum duration of assignments – in order to verify that they are justified on grounds of health and safety 'or the need to ensure that the labour market functions properly and abuses are prevented.' Note that these provisions, however, do not cover national requirements on the registration, licensing, certification, financial guarantees or monitoring of temporary work agencies.

3. On February 12, 2012, the President submitted his 2013 budget to Congress. The budget provides additional funding to the Bureau of Labour Statistics (BLS) that will result in improved information on atypical or contingent work. The BLS will add an *Annual Current Population Survey Supplement* to produce data on these work arrangements. Specifically, in even years, a Contingent Work Supplement will be conducted.

4. A review of the U.S. atypical worker wage and employment literature, is contained in Addison and Surfield (2007, 2009).

5. See, respectively, Booth, Francesconi, and Frank (2002); Blanchard and Landier (2002); Holmlund and Storrie (2002); and Dolado, García-Serrano and Jimeno (2002).

6. The exception is a German-language study by Almus et al. (1999), of non-profit temporary help supply firms subsidized by the central labour agency to facilitate the re-employment of unemployed job seekers. Exposure to agency work was found to materially improve the

employment prospects outside atypical work of the treatment group vis-à-vis the control group of unemployed individuals.

7. As before, these consequences are held to be different in the case of high-ability women and, we might add, contractors/consultants.

8. There is also a school survey and high school transcript information. For further information on its content, the reader is referred to the NLSY79 website at http://www.bls.gov/nls/nlsy79.htm or to the NLSY79 Users' Guide (Bureau of Labour Statistics) at *http://www.bls.gov/nls/79guide/2001/nls79g0.pdf.*

9. Although questions on employment arrangement were added back into the survey in 2002, this information is not comparable with that contained in the 1994–1998 waves.

10. In addition, although information on employment arrangement is not available on jobs started after 1998, we are able to use data from the 2000 wave to update the durations of such jobs held by respondents in 1998; see Table 3.

11. However, we can go a little further back in the case of our first sample because of its focus on jobs rather than wages.

12. Another potential group of atypical workers, termed 'other work types', can also be identified in the survey. Since members of this group are disproportionately individuals who identify themselves as self-employed – primarily, small business owners – we chose to exclude them.

13. Observe that Polivka's (1996) tabulations using the CAEAS indicate that eighty-five per cent of contractors/consultants identified themselves as being self-employed, while only one-half of the self-employed identified themselves as contractors/consultants. These tabulations suggest that self-employment itself is not a precondition for being classified into this atypical work form.

14. For those spells of employment whose durations are completely contained between waves we take the worker characteristics recorded in the earlier survey.

15. The retrospective data in the NLSY79 do allow us to identify the wage rate of jobs whose beginning and end dates fall completely within the time span between two successive surveys. For example, those jobs which started after the 1994 interview, but ended prior to the 1996 interview would have had their wage data collected retrospectively in 1996. However, a worker's wage data for 1995 would not be reported if he/she had held the job continuously between 1994 and 1996. Accordingly, we excised the wage data for the minority of jobs whose employment fell between 1994 and 1996 and 1996 and 1998.

Tabulations of the 1994 to 1996 data, for example, suggest that approximately five per cent of jobs were excised due to this restriction.

16. Education dummies, rather than the continuous variable, were used to allow for any nonlinearities in the effects of the variable on a worker's AFQT score.

17. There are only minor differences by gender, as demonstrated in Table A.1.

18. It might appear that the column totals in panels (a) and (b) are inconsistent. In fact, the number of jobs used to derive the tabulations of durations (in panel (a)) and transitions (in panel (b)) are the same (viz. 12,743 jobs). The difference between the two panels resides in relative transitions out of the work arrangements – predominately out of atypical work and into open-ended employment – whereas regular workers are apt to start and remain as such.

19. All covariates included in Table 5 are also included in the wage regressions of Tables 6 and 7, but, as findings are consistent with expectations, they are not separately displayed.

20. The characteristics included are the same as those employed in the wage analysis in Tables 6 and 7.

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Table 1

Estimates of the Size of the Contingent Labour Force in the United States, 1995 – 2005.

	1995	1997	1999	2001	2005
Temporary Workers	0.058	0.054	0.052	0.041	0.042
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Contractors/Consultants	0.065	0.065	0.060	0.045	0.053
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
On-call Workers	0.009	0.010	0.010	0.008	0.009
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Total (Atypical Workforce)	0.131	0.129	0.123	0.094	0.105
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)

Source: Contingent and Alternative Employment Arrangement Supplement to the Current Population Survey, 1995 – 2005 waves.

Note: Results reported as proportions (standard errors).

Table 2

Descriptive Statistics of Workers by Working Arrangement

	Contracting/ Consulting Workers	Regular Workers	Temporary Workers
Individual Characteristics			
Age	35.65**	36.11	35.06**, a
	(3.20)	(3.33)	(2.93)
Black	0.22**	0.31	0.46**, a
Education	14.15**	13.13	12.73**, a
	(2.65)	(2.37)	(2.27)
Experience	14.60	14.56	11.06**, a
	(4.42)	(5.02)	(4.91)
Female	0.39**	0.49	0.53**, a
Hispanic	0.17	0.18	0.19
Married	0.54**	0.52	0.38**, a
AFQT Scores			
Coding ability	0.01	-0.05	-0.17**, a
	(0.98)	(0.99)	(1.01)
Math ability	0.26**	-0.05	-0.26**, a
	(0.91)	(0.86)	(0.86)
Practical ability	0.41**	-0.05	-0.29**, a
	(0.91)	(0.87)	(0.82)
Verbal ability	0.29**	-0.04	-0.28**, a
	(0.97)	(0.95)	(1.00)
Job Characteristics			
Employer size (divided by 1,000)	3.10	1.19	2.46**
	(17.13)	(9.15)	(14.57)
Part-time	0.48**	0.18	0.32**, a
Regional Location			
Northeast	0.14	0.14	0.11**
Northcentral	0.19	0.23	0.25
South	0.42	0.43	0.42
West	0.25	0.20	0.22
Industrial Sector			
Agriculture	0.05**	0.02	0.04**
Construction and mining	0.12**	0.08	0.05**, a
Manufacturing	0.11**	0.17	0.16a

Transportation, communications and utilities	0.06	0.07	0.04**
Retail and wholesale trade	0.10**	0.20	0.11**
Finance, insurance and real estate	0.06	0.06	0.02**, [a]
Business services	0.17**	0.08	0.31**, [a]
Personal services	0.08	0.06	0.04[a]
Professional services	0.23	0.22	0.17**, [a]
Public administration	0.01**	0.05	0.06[a]
Occupation Managers	0.40**	0.26	0.14**, [a]
Technical/sales workers	0.19**	0.07	0.05**, [a]
Clerical workers	0.02**	0.17	0.27**, [a]
Service workers	0.18	0.24	0.18**
Operators/labourers	0.13	0.15	0.28**, [a]
Skilled labour	0.07	0.10	0.08
N	227	11,776	782

Notes: Results reported as sample mean (standard deviations). [a] denotes significant mean difference between contractors/consultants and temporary workers. ** denotes significant mean differences relative to regular workers at the 0.05 level.

Table 3

Distribution of Temporary and Contracting/Consulting Work, and Mean Hourly Wages by Work Arrangement and Gender (wages expressed in constant 1982-84 dollars)

	Whole sample	Males	Females
(a) Atypical Work [%] (1992 – 98 waves, NLSY79)			
Temporary Workers	6.12	5.57	6.68
Contractors/Consultants	1.78	2.14	1.40
N	12,785	6,482	6,303
(b) Hourly Wages [$] (1993 – 98 waves, NLSY79)			
Regular Workers (RW)	10.79	12.82	8.59
Temporary Workers (TW)	5.96	6.38	5.61
Contractors/Consultants (C/C)	13.36	13.77	12.54
(c) Wage Differences [$] (1993 – 98 waves, NLSY79)			
RW – TW	4.82***	6.44**	2.98***
	(2.78)	(1.98)	(3.18)
RW – C/C	-2.57	-0.95	-3.95**
	(1.36)	(0.29)	(2.32)
TW – C/C	-7.40***	-7.40***	-6.93***
	(7.58)	(5.16)	(4.74)

Source: NLSY79; 1992 (1993) – 1998 waves.
Notes: Wages are expressed in constant 1982-84 dollars. |t|-tests of the wage differences are given in parentheses.
***, ** indicate that the difference is statistically significant at the 0.01 and 0.05 levels, respectively.

Table 4

Employment Duration and Transition Rates by Work Arrangement

(a) Employment Duration, by Work Arrangement

	Contractors/ Consultants	Regular Workers	Temporary Workers
Average, in years (standard deviation)	2.38 (2.34)	4.65 (4.87)	1.09 (1.57)
Median, in years	1.71	2.72	0.58
N	227	11,735	781

(b) Transition Rates, by Work Arrangement

	Subsequent or Ending Work Arrangement		
	Contractors/ Consultants	Regular Workers	Temporary Workers
Initial Arrangement			
Contractors/Consultants	116 (52.02%)	99 (44.39%)	8 (3.59%)
Regular Workers	88 (0.75%)	11,295 (96.51%)	321 (2.74%)
Temporary Workers	8 (1.03%)	375 (48.45%)	391 (50.52%)
N	212 (1.67%)	11,769 (92.66%)	720 (5.67%)

Source: NLSY79; 1992 (1993) − 1998 waves.

Table 5

Exit from Temporary Work to Regular Work
(estimates from a proportional hazard model, non-parametric baseline hazard specification)

Variables	Transition from Temporary to Regular Employment	
	Men (1)	Women (2)
Individual Characteristics		
Age	-0.328***	-0.279***
	(0.051)	(0.039)
	[0.721]	[0.756]
Black	0.700***	0.228
	(0.310)	(0.266)
	[2.014]	[1.256]
Education	0.105*	0.019
	(0.058)	(0.062)
	[1.110]	[1.019]
Hispanic	-0.428	-0.589*
	(0.360)	(0.349)
	[0.652]	[0.554]
Married	0.336	-0.129
	(0.228)	(0.230)
	[1.399]	[0.879]
AFQT Scores		
Coding ability	0.137	-0.091
	(0.156)	(0.131)
	[1.147]	[0.913]
Math ability	-0.084	0.015
	(0.195)	(0.211)
	[0.919]	[1.014]
Practical ability	0.305	-0.558*
	(0.219)	(0.291)
	[1.356]	[0.572]
Verbal ability	-0.148	0.584***
	(0.224)	(0.215)
	[0.862]	[1.793]

Job Characteristics

Employer size (divided by 1,000)	0.008	0.001
	(0.007)	(0.006)
	[1.000]	[0.999]
Part-time	-0.060	0.008
	(0.265)	(0.225)
	[0.942]	[1.008]

Regional location

North East	-0.748**	-0.497
	(0.374)	(0.396)
	[0.473]	[0.608]
South	-0.344	-0.055
	(0.290)	(0.249)
	[0.709]	[0.947]
West	0.122	0.145
	(0.336)	(0.336)
	[1.130]	[1.156]
North Central	a	a

Industrial Sector

Agriculture	-1.090	0.185
	(1.444)	(0.691)
	[0.336]	[1.203]
Construction and mining	-1.069	0.587
	(1.345)	(0.961)
	[0.344]	[1.798]
Manufacturing	-1.237	-0.189
	(1.341)	(0.619)
	[0.290]	[0.827]
Transportation, communications and utilities	-1.170	0.634
	(1.454)	(0.656)
	[0.310]	[1.886]
Retail and wholesale trade	-1.298	0.267
	(1.391)	(0.556)
	[0.273]	[1.307]
Business services	-0.898	0.407
	(1.309)	(0.594)
	[0.407]	[1.502]
Personal services	-2.602*	-0.766
	(1.494)	(0.641)
	[0.074]	[0.465]

Professional services	-1.140	0.098
	(1.372)	(0.573)
	[0.320]	[1.103]
Public administration	-1.327	0.096
	(1.372)	(0.633)
	[0.265]	[1.101]
Finance, insurance and real estate	a	a
Occupation		
Managers	-0.015	-0.477
	(0.680)	(0.537)
	[0.985]	[0.621]
Clerical workers	0.580	-0.006
	(0.911)	(0.432)
	[1.786]	[0.994]
Service workers	0.480	0.626
	(0.709)	(0.459)
	[1.616]	[1.869]
Operator/Labourers	0.341	0.021
	(0.701)	(0.464)
	[1.406]	[1.021]
Skilled workers	0.053	0.176
	(0.746)	(0.564)
	[1.054]	[1.192]
Technical/sales	a	a
Log-likelihood	-415.4	-485.8
χ^2	120.74	92.38
	[0.00]	[0.00]
N	192	236

Notes: Robust standard errors are given in parentheses; hazard ratios in brackets. Standard errors have been clustered by the individual. The model χ^2 statistic has 28 degrees of freedom and its p-value is shown in brackets. Ability scores were obtained by taking the scores reported by the respondents in the 1981 AFQT and regressed on a vector of age and education dummies. The residuals are represented in these variables. The test scores were combined into one of four types of ability: verbal, mathematical, practical, and coding ability.
[a] indicates excluded group. ***,**,* denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 6

Impact of Temporary and Contract Work Spells on Log Wages, Summary Results

Variable	Whole Sample		Men		Women	
	(1)	(2)	(3)	(4)	(5)	(6)
No. Temporary Jobs (NTJ)	-0.139***	-0.088	-0.230***	-0.313*	-0.065*	0.043
	(0.032)	(0.079)	(0.049)	(0.183)	(0.037)	(0.062)
No. Temporary Jobs^2	0.020	0.017	0.049**	0.044**	-0.003	-0.005
	(0.015)	(0.015)	(0.022)	(0.022)	(0.014)	(0.014)
NTJ*lifetime experience		-0.005		0.019		-0.019*
		(0.012)		(0.028)		(0.011)
NTJ*lifetime experience^2		0.000		-0.001		0.001
		(0.000)		(0.001)		(0.000)
No. Contract/Consulting Jobs (NCJ)	-0.075	0.125	-0.139	0.223	0.134	0.134
	(0.089)	(0.181)	(0.109)	(0.280)	(0.164)	(0.234)
No. Contract/Consulting Jobs^2	0.084	0.090*	0.102*	0.108*	-0.035	-0.007
	(0.053)	(0.053)	(0.058)	(0.059)	(0.109)	(0.114)
NCJ*lifetime experience		-0.041		-0.059		-0.026
		(0.037)		(0.054)		(0.036)
NCJ*lifetime experience^2		0.002		0.002		0.002
		(0.002)		(0.002)		(0.001)
Current lifetime experience	0.053***	0.055***	0.053***	0.053***	0.047***	0.049***
	(0.004)	(0.004)	(0.006)	(0.007)	(0.005)	(0.006)
Current lifetime experience^2	-0.001***	-0.001***	-0.001***	-0.001***	-0.000*	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.378	0.378	0.344	0.344	0.417	0.418
Observations	14,138		7,826		6,312	
Individuals	4,731		2,516		2,215	

Notes: Clustered robust standard errors are given in parentheses. Each specification also includes region, race/ethnicity, marital status, education, part-time status, occupation, industry, firm size, and proxies for ability/aptitude derived from AFQT scores, as well as a measure of worker age. ***,**,* denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 7

Impact of Time in Temporary and Contract Work on Log Wages, Summary Results

Variables	Whole Sample		Men		Women	
	(1)	(2)	(3)	(4)	(5)	(6)
No. Years in Temporary Jobs (YTJ)	-0.097***	-0.081	-0.167***	-0.262**	-0.011	-0.033
	(0.022)	(0.074)	(0.032)	(0.122)	(0.052)	(0.109)
No. Years in Temporary Jobs^2	0.008***	0.008***	0.015***	0.014***	-0.006	-0.005
	(0.002)	(0.003)	(0.003)	(0.004)	(0.019)	(0.019)
YTJ*lifetime experience		-0.002		0.009		0.006
		(0.011)		(0.018)		(0.013)
YTJ*lifetime experience^2		0.000		-0.000		-0.000
		(0.000)		(0.001)		(0.000)
No. Years in Contract/ Consulting Jobs (YCJ)	0.055	-0.002	0.028	0.288*	0.053	-0.179
	(0.034)	(0.096)	(0.036)	(0.156)	(0.071)	(0.144)
No. Years in Contract/ Consulting Jobs^2	-0.011	-0.011	-0.012*	-0.010	0.004	0.007
	(0.009)	(0.009)	(0.007)	(0.007)	(0.022)	(0.019)
YCJ*lifetime experience		0.007		-0.033**		0.029
		(0.013)		(0.020)		(0.020)
YCJ*lifetime experience^2		-0.000		0.001*		-0.001
		(0.000)		(0.001)		(0.001)
Current lifetime experience	0.053***	0.053***	0.054***	0.055***	0.048***	0.046***
	(0.004)	(0.004)	(0.007)	(0.007)	(0.005)	(0.005)
Current lifetime experience^2	-0.001***	-0.001***	-0.001***	-0.001***	-0.000**	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.383	0.383	0.351	0.352	0.416	0.416
Observations	15,949		8,688		7,258	
Individuals	4,811		2,553		2,258	

Notes: Clustered robust standard errors are given in parentheses. Each specification also includes region, race/ethnicity, marital status, education, part-time status, occupation, industry, firm size, and proxies for ability/aptitude derived from AFQT scores, as well as a measure of worker age. ***,**,* denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 8

Propensity Score Matching Estimates Used to Predict Atypical Work
(logistic regression procedure)

Variables	Contractors/Consultants	Temporary Workers
Individual Characteristics		
Age	-0.003	-0.028**
	(0.020)	(0.013)
Black	0.169	0.317***
	(0.192)	(0.117)
Education	0.101***	-0.004
	(0.027)	(0.019)
Female	0.151	-0.011
	(0.158)	(0.100)
Hispanic	-0.148	-0.398***
	(0.166)	(0.114)
Married	-0.328***	-0.623***
	(0.115)	(0.077)
AFQT Scores		
Coding ability	-0.157**	0.022
	(0.070)	(0.048)
Math ability	-0.017	-0.004
	(0.105)	(0.071)
Practical ability	0.585***	0.023
	(0.118)	(0.081)
Verbal ability	-0.079	0.012
	(0.108)	(0.068)
Job Characteristics		
Employer size (divided by 1,000)	0.000	0.000
	(0.000)	(0.000)
Part-time	0.995***	0.540***
	(0.146)	(0.106)
Regional Location		
North East	0.427**	-0.790***
	(0.186)	(0.141)
South	0.349**	-0.348***
	(0.161)	(0.096)
West	0.519***	0.021
	(0.176)	(0.114)
North Central	[a]	[a]

Industrial Sector

Agriculture	1.042**	0.736**
	(0.502)	(0.305)
Construction and mining	1.549***	0.261
	(0.386)	(0.248)
Manufacturing	0.576	0.601***
	(0.377)	(0.199)
Transportation, communication and utilities	1.053***	-0.098
	(0.393)	(0.244)
Retail and wholesale trade	0.496	0.549***
	(0.381)	(0.201)
Business services	1.839***	0.965***
	(0.369)	(0.216)
Personal services	1.709***	0.682***
	(0.396)	(0.198)
Professional services	0.896**	0.619**
	(0.365)	(0.242)
Public administration	0.973**	0.420*
	(0.398)	(0.224)
Finance, insurance and real estate	a	a

Occupation

Managers	-0.245	-0.220
	(0.199)	(0.167)
Clerical workers	-0.926***	0.478***
	(0.269)	(0.165)
Service workers	-0.522**	0.141
	(0.221)	(0.165)
Operators/Labourers	-0.467**	0.251
	(0.231)	(0.167)
Skilled workers	-0.425*	0.116
	(0.247)	(0.184)
Technical/sales workers	a	a
N	14,138	14,138

Notes: [a] indicates excluded group. ***,**,* denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively.

Figure 1
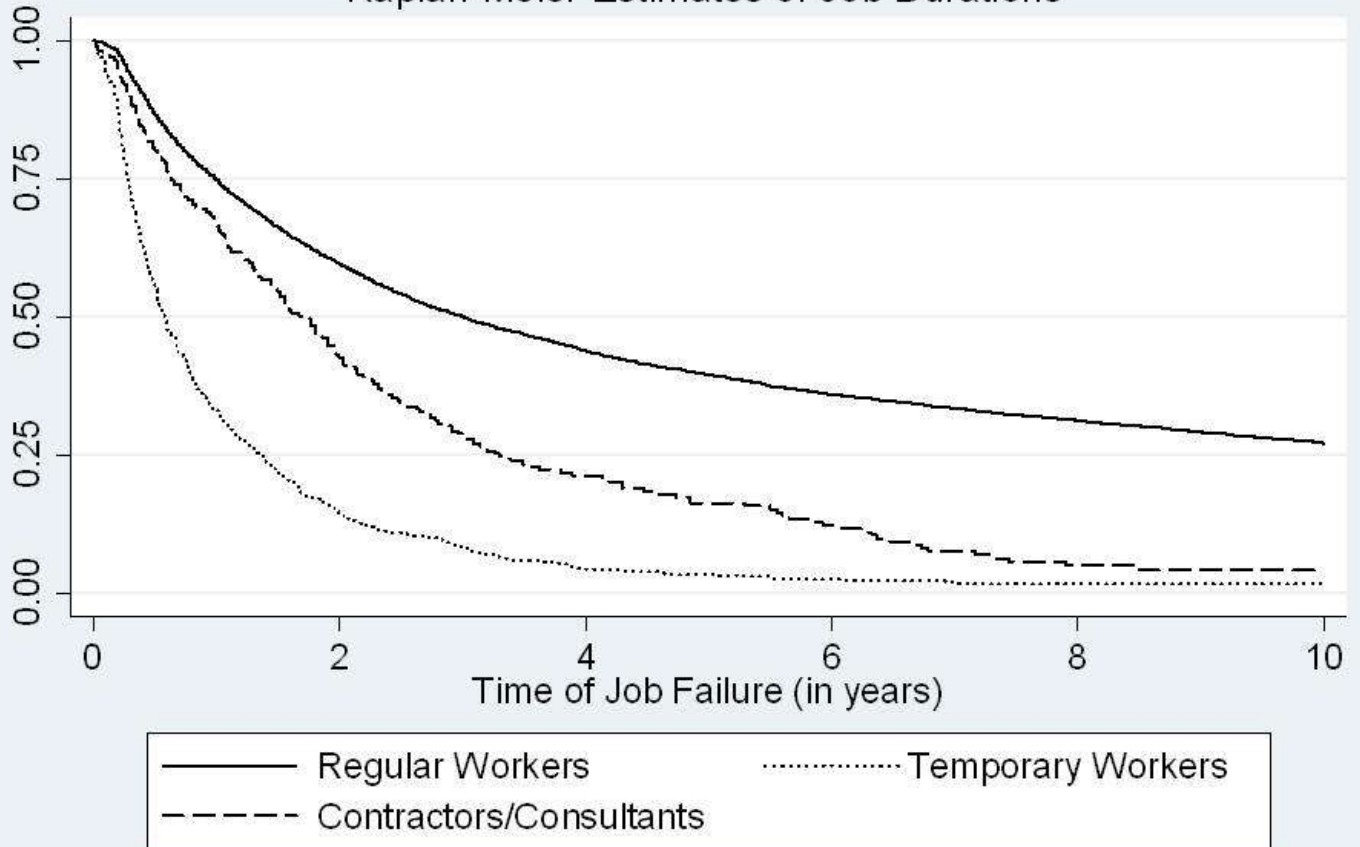Kaplan-Meier Estimates of Job Durations

Figure 2
*Predicted Log Wage by Experience Level and Early Employment Patterns, Using the
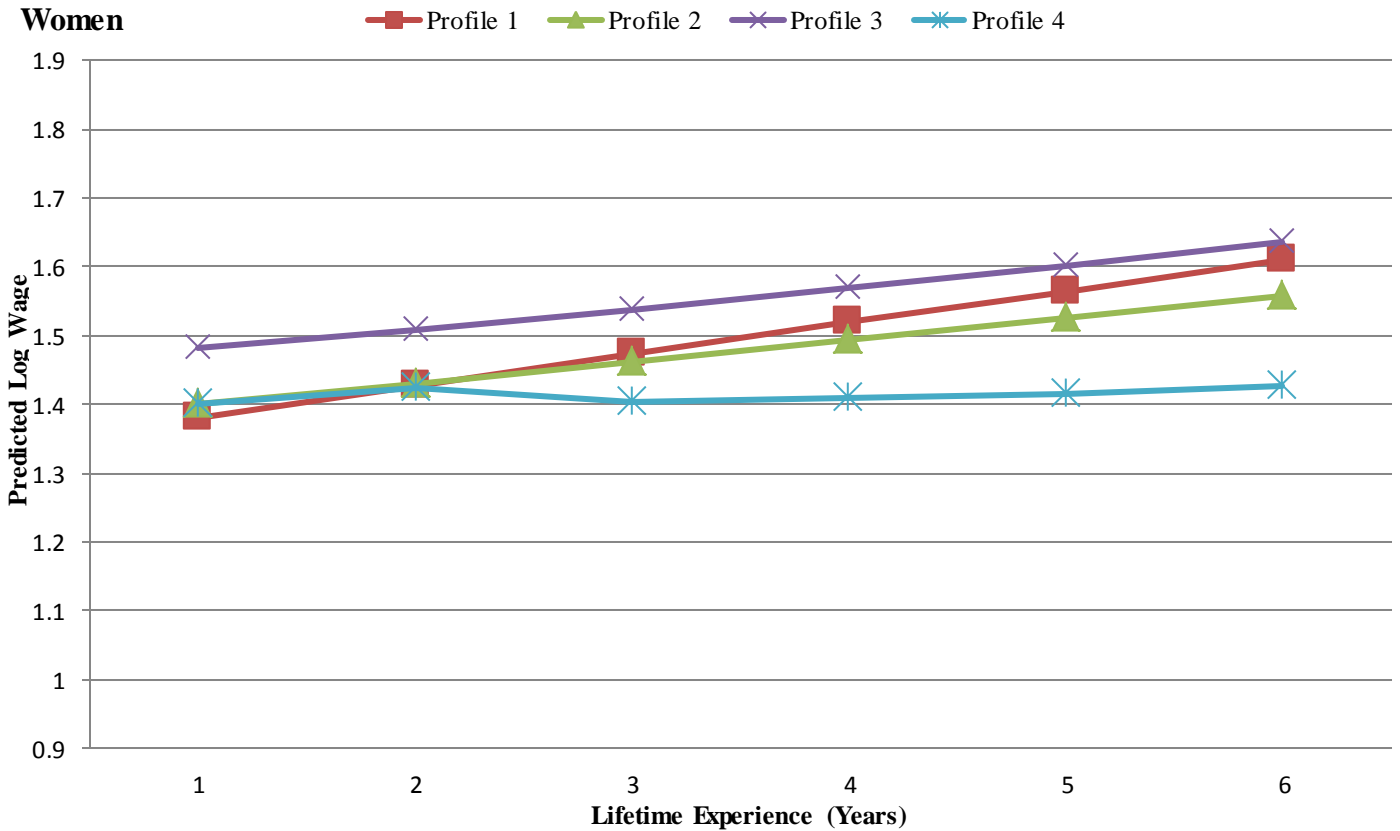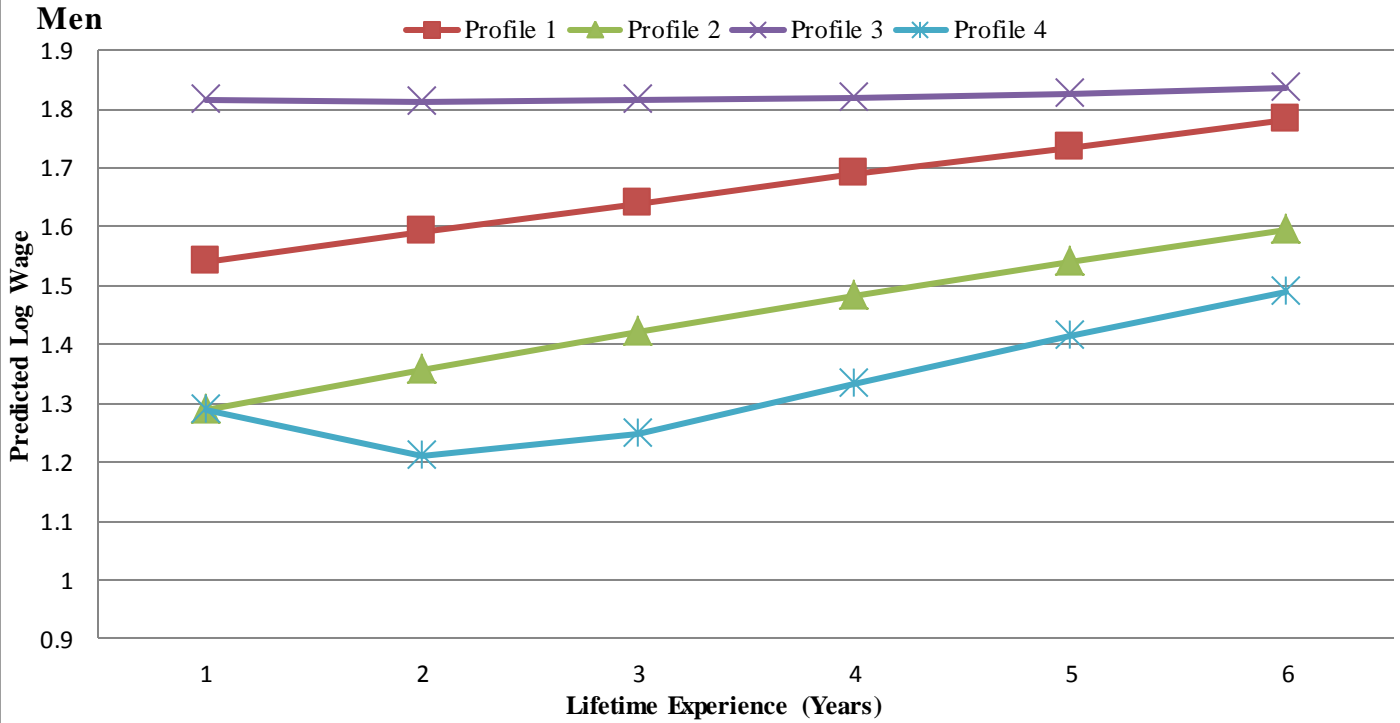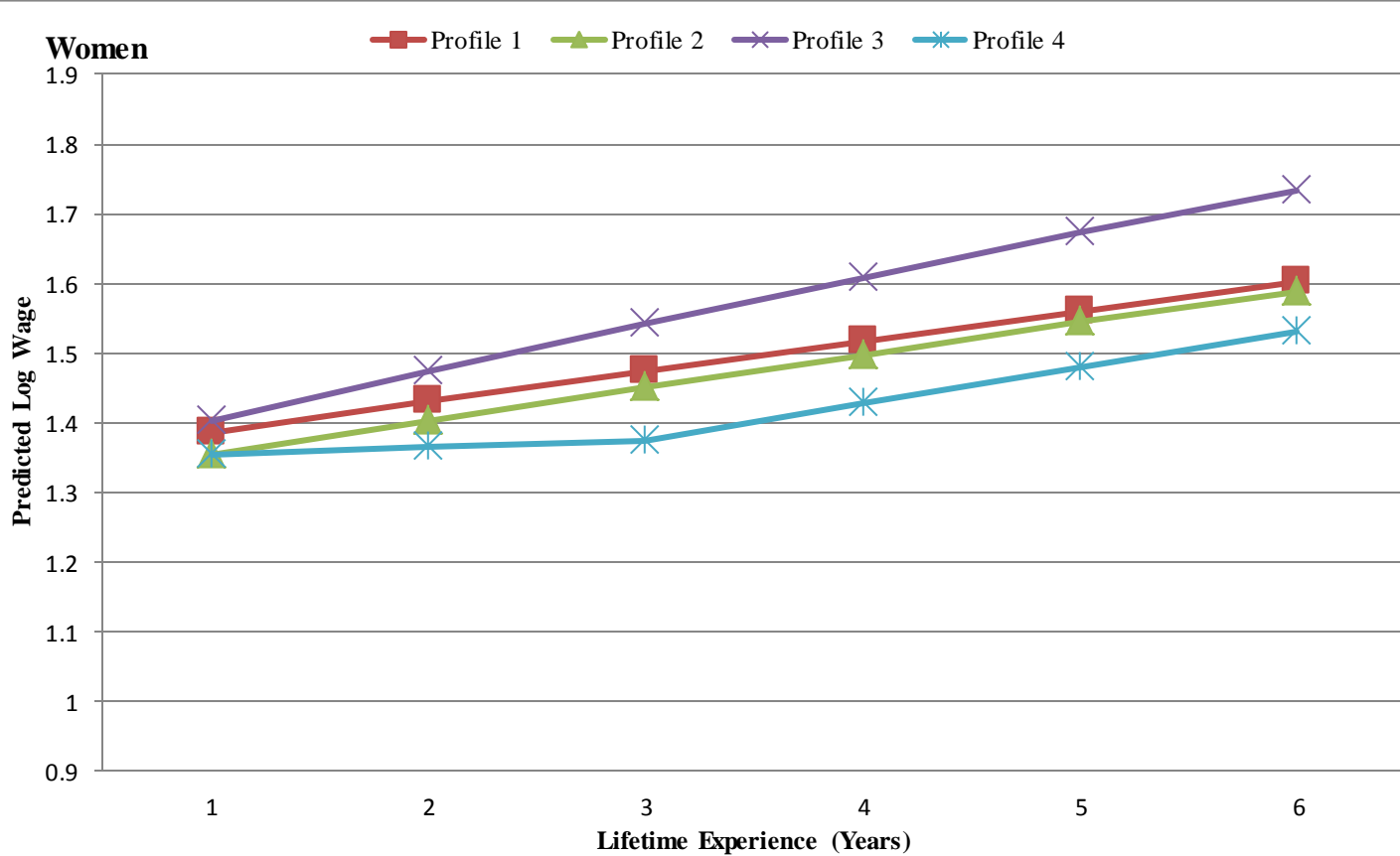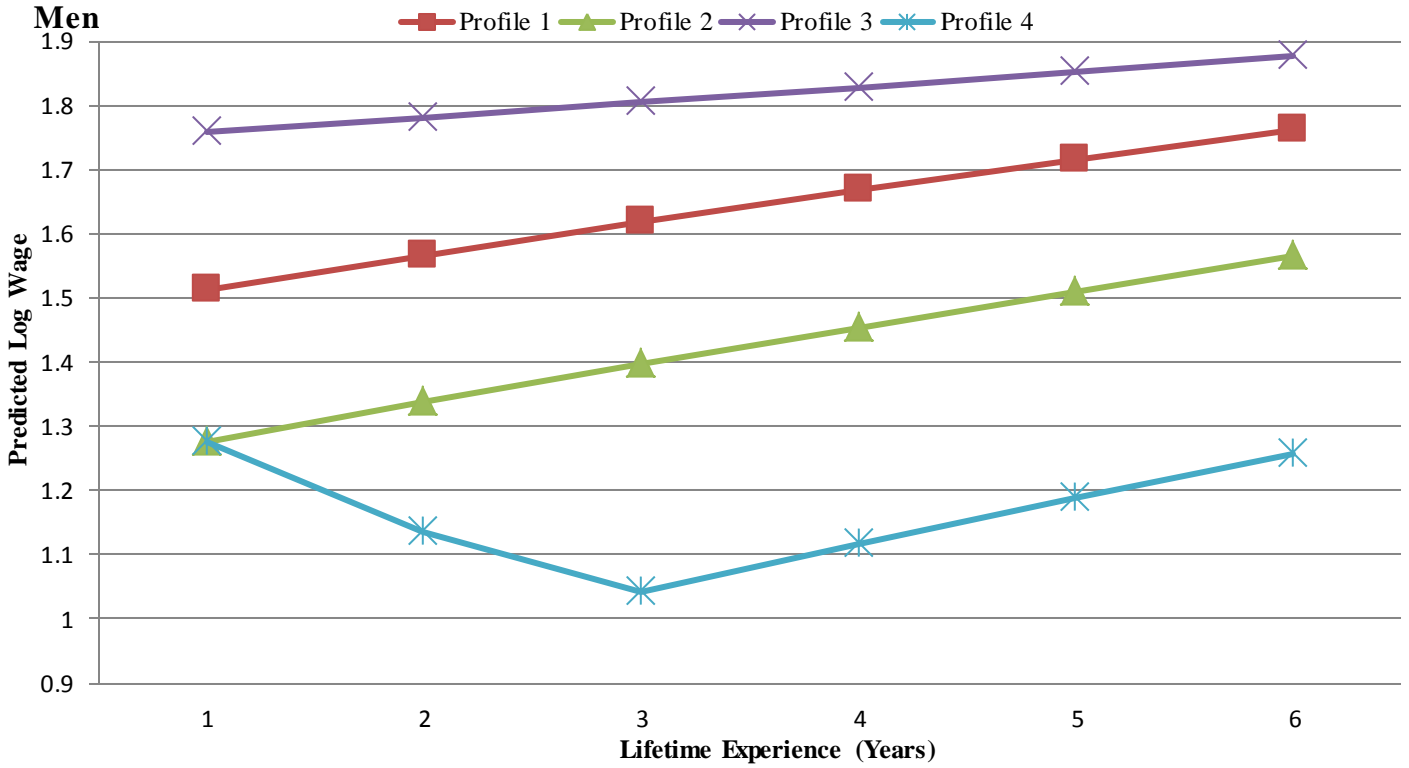Number of Atypical Jobs Held Specification*

Figure 3
Predicted Log Wages by Experience Level and Early Employment Patterns Using the Years in Atypical Work Specification

Appendix. U.S. Atypical Worker Studies					
Study	Dataset	Time Period	Focus	Methodology	Findings
Andersson, Holzer, and Lane (2009).[a]	Longitudinal Employer-Household Dynamics Program Data for California, Florida, Illinois, Maryland and North Carolina.	1993 - 2001; Evaluated job type held in base period (1993-95) and earnings in subsequent three year periods: 1996-98, 1999-2001.	Primary focus is on low income workers (those earning $12,000 or less in base year).	OLS regressions were used, controls include holding temporary help supply employment, and firm- and person-fixed effects.	Those who were temps and turned permanent for the next two periods seemed to have benefited from initial temp job. Benefit diminishes over time, but is still significant in the second time period. Results are sensitive to specification.
Autor and Houseman (2006).[b]	Quasi-experimental Work First data from Detroit, Michigan.	1993 – 2003.	Former welfare recipients and their employment/wage histories based upon random assignment by a third-party contractor to temporary, direct-hire, and no job placement.	Instrumental variables approach using contractor as instrument for agency temporary employment. Evaluated effect of agency temporary employment on probability of escaping poverty and likelihood of welfare case closing due to sufficient earnings.	In the short-run, earnings outcomes of agency temporaries higher than those receiving no job placement, but varies little from those receiving direct-hire placements. Over one to two year period, the benefit dissipates relative to no placement for the marginal workers.
Hamersma and Heinrich (2008).	Wisconsin UI Administrative data matched to both Work Opportunity Tax Credit (WOTC)/Welfare to Work program database and Client Assistance for Reemployment and Economic Support data.	Focused on those taking WOTC or THS job in 1999 – 2001.	Compared wage/employment effects of WOTC recipients employed in temporary employment versus non-temporary employment. Sample was limited to those aged 18 – 25 years who either received food stamps or were former welfare recipients.	Propensity score matching estimation; evaluated total earnings at job and quarters employed.	No significant difference in either total earnings or average quarterly earnings between WOTC recipients employed by a temporary help service and those employed by an end user.
Heinrich, Mueser, and Troske (2005).	Missouri and North Carolina Temporary Assistance for Needy Families (TANF) administrative data.	Data from Missouri spans 1993 to 1997; North Carolina data is limited to 1997.	Focus was on welfare recipients and the employment outcomes experienced by those holding temporary employment against those with no jobs, non-temporary employment or holding multiple jobs.	OLS regressions after correcting for selection into temporary employment.	Welfare recipients employed in temporary employment fare poorly relative to non-temporary employment. This negative effect diminishes over time as temporary workers subsequently move into other employment types.

Heinrich, Mueser, and Troske (2009).	Unemployment Insurance data from Missouri.	1997 and 2001.	Job losers in 1997/2001 or received retraining/alternative employment.	Difference-in-difference estimation, compares earnings in first quarter against those observed eight quarters later. Compares wage differences for those initially holding no job, a temporary help services job, and those in other industries.	Results are similar for good economic periods (1997 entrants) as for bad economic periods (2001 entrants). Those initially holding a temporary help service position, while starting out with significantly lower earnings relative to other jobs, experience faster wage growth over eight quarters thereby partly catching up to other employment types.
Lane, Mikelson, Sharkey, and Wissoker (2003).	Wage analyses were conducted using the Survey of Income and Program Participation. (CPS for employment outcomes.)	1990 – 1993.	Focus was on workers estimated to be at risk of welfare recipiency.	Propensity score matching estimates of the effect temporary employment has on wages. The estimates are conditioned on initial labour market state and employment status observed one month later.	Key finding is that those who moved from traditional employment into either temporary employment or unemployment fared better, one year later, if they chose the first option. However, those at-risk workers, entering a temporary job from unemployment earned lower wages one year later relative to those who initially secured a traditional job.
Segal and Sullivan (1998).	Administrative files from the Washington State UI system	1984 to 1994.	Primary focus was to estimate the wage differentials associated with temporary work against non-temporary work. The effect of temp work 8 quarters prior/after spell of such employment was evaluated.	OLS regressions. Fixed effects were included to control for unobserved heterogeneity as well as to address a lack of data on demographic and occupational characteristics.	Negative wage differentials were found to be associated with employment in temporary help services industry. Wages prior/after temporary employment spell were lower than what would otherwise have been observed for workers who never entered temporary employment.

Notes: [a]See also Andersson, Holzer, and Lane (2005).

[b]See also Autor and Houseman (2010).

Table A.1

Employment Duration and Transition Rates, by Gender

(a) Employment Duration, by Work Arrangement

	Men				Women		
	Contractors/ Consultants	Regular Workers	Temporary Workers		Contractors/ Consultants	Regular Workers	Temporary Workers
Average, in years (standard deviation)	2.35 (2.34)	4.73 (5.12)	1.16 (1.69)		2.44 (2.37)	4.57 (4.87)	1.04 (1.47)
Median, in years	1.55	2.68	0.58		1.78	2.78	0.56
N	139	5,959	361		88	5,776	420

(b) Transition Rates, by Work Arrangement

	Men				Women		
	Contractors/ Consultants	Regular Workers	Temporary Workers		Contractors/ Consultants	Regular Workers	Temporary Workers
Contractors/Consultants	72 (52.94%)	60 (44.12%)	4 (2.94%)		44 (50.57%)	39 (44.83%)	4 (4.60%)
Regular Workers	57 (0.96%)	5,724 (96.40%)	157 (2.64%)		31 (0.54%)	5,571 (96.62%)	164 (2.84%)
Temporary Workers	4 (1.12%)	185 (51.68%)	169 (47.21%)		4 (0.96%)	190 (45.67%)	222 (53.37%)
N	133 (2.07%)	5,969 (92.80%)	330 (5.13%)		79 (1.26%)	5,800 (92.52%)	390 (6.22%)

Source: NLSY79, 1992 (1993) − 1998 waves.

Table A.2

Test of Covariate Imbalance

	Temporary Worker Status					Contractors/Consultants Status				
	Treated	Control	Percentage Bias	$|t|$	p>$|t|$	Treated	Control	Percentage Bias	$|t|$	p>$|t|$
Individual Characteristics										
Age	33.32	33.32	0.0	0.00	1.00	33.50	33.030	7.0	0.93	0.35
Black	0.41	0.43	-5.1	0.96	0.43	0.25	0.25	0.0	0.00	1.00
Education	13.05	12.96	3.8	0.79	0.43	13.94	13.90	1.7	0.22	0.83
Female	0.49	0.50	-1.7	0.35	0.73	0.39	0.39	0.6	0.08	0.94
Hispanic	0.40	0.37	5.0	1.03	0.31	0.58	0.59	-2.3	0.31	0.76
Married	0.41	0.43	-2.3	0.45	0.65	0.53	0.56	-5.8	0.76	0.45
AFQT Scores										
Coding ability	-0.06	-0.10	3.8	0.78	0.44	-0.03	-0.08	4.9	0.63	0.53
Practical ability	-0.10	-0.14	4.4	0.90	0.37	0.39	0.45	-6.3	0.80	0.42
Math ability	-0.07	-0.13	6.7	1.39	0.16	0.24	0.25	-1.0	0.13	0.90
Verbal ability	-0.09	-0.12	3.2	0.64	0.52	0.24	0.28	-3.8	0.51	0.61
Job Characteristics										
Employer size (divided By 1,000)	1.19	0.88	3.9	0.83	0.41	1.16	1.02	1.7	0.22	0.82
Part-time	0.17	0.016	3.6	0.67	0.50	0.22	0.25	-7.1	0.81	0.42
Regional Location										
North East	0.09	0.10	-4.1	0.93	0.35	0.17	0.16	3.1	0.41	0.68
North Central	0.28	0.28	-0.6	0.11	0.91	0.19	0.20	-2.8	0.38	0.70

South	0.40	0.40	0.5	0.10	0.92	0.39	0.37	3.0	0.39	0.70
West	0.23	0.21	3.4	0.66	0.51	0.26	0.27	-3.5	0.43	0.67
Industrial Sector										
Agriculture	0.02	0.02	0.0	0.00	1.00	0.02	0.04	-11.8	1.30	0.19
Construction and mining	0.05	0.06	-1.0	0.22	0.83	0.13	0.11	5.7	0.70	0.49
Manufacturing	0.20	0.23	-5.9	-1.15	0.25	0.12	0.12	0.0	0.00	1.00
Transportation, communication and utilities	0.05	0.04	4.5	1.11	0.27	0.08	0.09	-2.1	0.27	0.78
Retail and wholesale trade	0.18	0.17	2.0	0.39	0.69	0.10	0.09	5.1	0.78	0.44
Finance, insurance and real estate	0.04	0.04	0.5	0.12	0.90	0.03	0.04	-5.4	0.87	0.39
Business services	0.10	0.10	0.5	0.08	0.93	0.15	0.17	-6.6	0.72	0.47
Personal services	0.06	0.05	4.0	0.79	0.43	0.09	0.07	8.3	1.00	0.32
Professional services	0.21	0.21	0.0	0.00	1.00	0.20	0.21	-2.2	0.28	0.78
Public administration	0.08	0.08	-1.3	0.27	0.79	0.08	0.07	3.1	0.44	0.66
Occupation										
Managers	0.17	0.16	2.7	0.60	0.55	0.35	0.32	6.9	0.89	0.38
Technical/sales workers	0.07	0.07	0.5	0.10	0.92	0.11	0.07	11.9	1.60	0.11
Clerical workers	0.21	0.20	2.6	0.50	0.62	0.07	0.10	-9.2	1.35	0.18
Service workers	0.24	0.27	-6.0	1.15	0.25	0.20	0.22	-4.6	0.56	0.58
Operators/labourers	0.20	0.21	-1.6	0.31	0.76	0.15	0.17	-7.1	0.93	0.35
Skilled workers	0.11	0.10	2.7	0.57	0.57	0.12	0.11	1.8	0.24	0.81