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The Effect of Unemployment Insurance Eligibility on Employment In Nonstandard Work Arrangements

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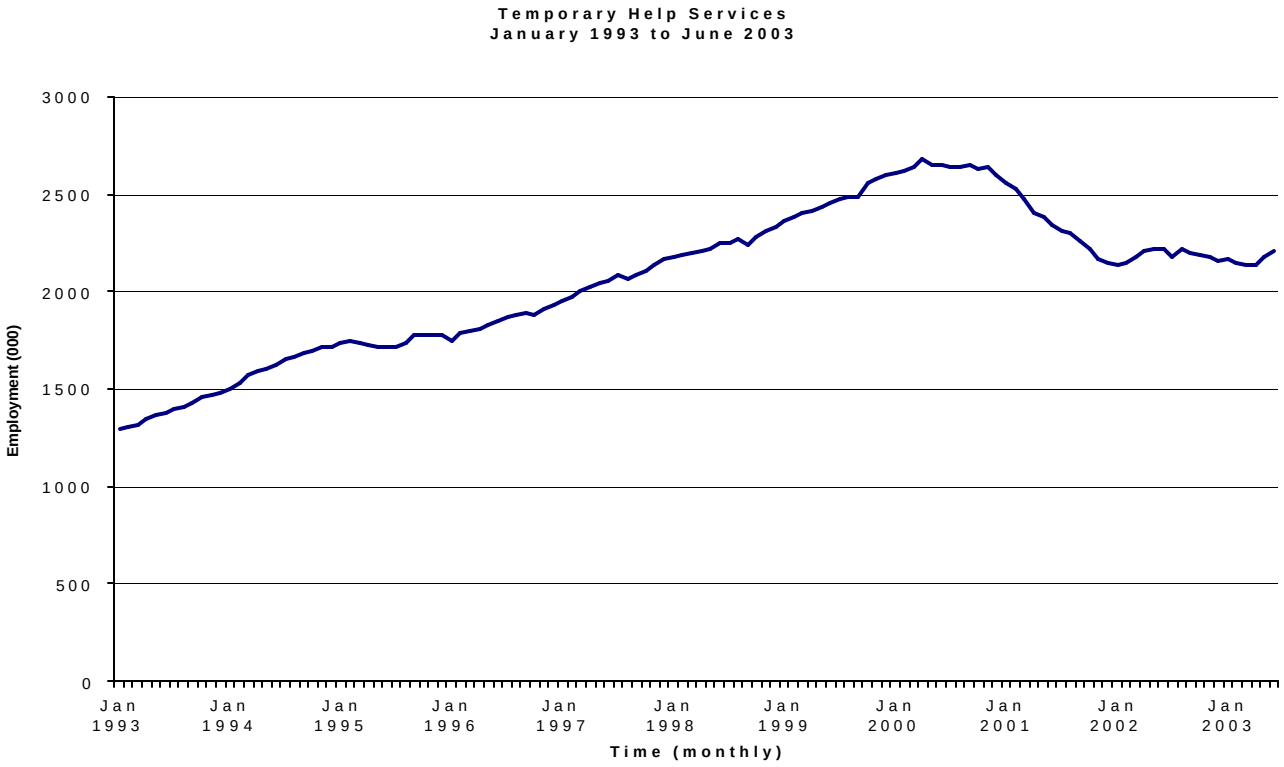
1.1 Introduction

The American workplace is being transformed by the continued growth in nonstandard work arrangements. Driven by a search for flexibility during the 1990s boom, both firms and employees chose nonstandard work in ever increasing numbers. For the firm, flexibility enabled them to cope with ever-changing markets. For employees, flexibility enabled them to better balance work and life. This search for flexibility has resulted in considerable increases in the contingent labor force, as evidenced by the growth in personnel supply services. From January 1993 to April 2000 (the peak) employment in temporary help services[1] rose from 1.3 million to 2.7 million workers (see Figure 1). The twelve-month percentage change in temporary help employment over this time period averaged 10.8 percent. However, from April 2000 through August of 2003, temporary employment fell dramatically, with 452,000 jobs lost, demonstrating the sector's sensitivity to the business cycle.

[1] Personnel Supply Services (1987 SIC code 736) is only one component of 'contingent employment.' Time-series data for on-call workers, day laborers and independent contractors, are not available.



These changes in employment relationships are fundamentally altering the organization of work. Traditionally, industries, occupations, and jobs intersect at the individual level and define the skill set necessary to perform a job (Kalleberg & Berg, 1987). Nonstandard work is creating a group of workers that moves between industries and occupations. This new worker, the so-called "portfolio worker,"[2] according to the American Staffing Agency, gains exposure to a wide variety of situations while developing transferable skills and broadening their employment experience.

From a public policy perspective, workers moving freely between industries and occupations create problems for the provision of social and workplace protections. Social insurance, social welfare, and civil rights protections have become inextricably connected

[2] The "portfolio worker" is the newest term in the lexicon of employment relations that include contingent, non-standard and temporary help. "Portfolio workers" has been coined by the ASA (American Staffing Association previously the National Association of Temporary and Staffing Services- NATSS)

to employment. Thus, altering the employment relationship will likely have a dramatic impact on the formation, implementation, and impact of public policies.

Historically, workplace policies and social insurance have been geared toward "regular" full-time employment. The increasing size of the nonstandard workforce may leave many workers falling between the cracks – ineligible for benefits and unprotected by workplace regulations. Because most labor policies were written at a time when work was not contingent, it remains an open question whether policies created for a less mobile and more homogeneous workforce will serve contingent workers.

The application of old labor-market policies to new work forms raises a myriad of questions about these new employers' legal responsibilities. Are temporary help agencies responsible for making sure these workers are not discriminated against or sexually harassed when they are placed on assignment? If so, how would the agency monitor the situation? Are contingent workers covered under the same OSHA requirements as the host firm's employees? Legal evidence on both of these issues continues to be mixed (Lenz, 1996; Carnevale, Jennings & Eisenmann, 1998). Nevertheless, the implications of these gaps in social policies are startling. Contingent workers may lose many of the social, workplace, and civil-rights protections afforded to their full-time counterparts.

Critics may argue that contingent workers know what they're giving up when they accept the terms of employment. They willingly exchange flexibility or higher wages for the loss of benefits. I believe this is incorrect. Information about the value of these protections is difficult and costly to amass; a level of rational ignorance is more likely to occur with employees finding out too late that they don't have the benefits of other workers.

This raises a fundamental question concerning the growth of contingent employment: Should we extend workplace protections to contingent workers? To begin

to answer this question, I investigated whether contingent workers should be eligible for unemployment insurance (UI). There are compelling reasons to examine unemployment insurance for contingent workers. First, contingent workers are unemployed at nearly twice the rate of regular full-time workers, and they are nearly ten times more likely to leave the labor force. Secondly, the percentage of unemployed workers receiving unemployment insurance benefits has declined, reaching a post WWII low in 1988. However, since 1988, the percentage of unemployed workers has stabilized and increased. The current recipiency rate (the percent of the unemployed receiving UI benefits) is still below that of 1981, despite the aging of the labor force that should have significantly raised the recipiency rate (Abraham and Shimer, 2002). These facts raise important questions about whether contingent workers can qualify for benefits given the current structure of the unemployment insurance system.

By answering the following questions, I hoped to gain insight about the implications of extending unemployment insurance to cover contingent workers. First I tried to determine if a problem existed. Are contingent workers well served by unemployment insurance? Do state-specific eligibility requirements have a disproportionate impact on contingent workers? Do contingent workers alter their behavior once eligible for UI? This paper focuses on the well-documented moral hazard inherent in unemployment insurance. Moral hazard occurs when people change their behavior as a result of having insurance[3]. The effect of unemployment insurance has been to prolong spells of unemployment (Topel, 1993 and Topel & Welch 1983 for a review of the economic literature on the employment effects of unemployment insurance).

[3] Despite the name, moral hazard does not imply that there is anything "immoral" about a change in behavior. This is especially true if a person takes longer to find a job and that lengthy search results in a better job match.

The main question this report answers is whether the effect of unemployment insurance eligibility is different between regular full-time workers and contingent workers. Finally, I draw some conclusions about the likely effects of making unemployment insurance more readily available for workers in non-standard arrangements.

My results are of importance for policy makers concerned with the rise in contingent employment and for policy makers interested in the state of the social safety net writ large. As social insurance programs adopt work-based requirements for eligibility, policy makers will have to secure workplace protections for these workers who have moved out of traditional employment relationships. Understanding how eligibility requirements for unemployment insurance impact labor-market outcomes of contingent workers provides policy makers with a glimpse of how eligibility requirements will impact other types of social insurance programs.

In brief, the findings are:

- Workers in nonstandard arrangements are nearly twice as likely to be unemployed one month later as compared to workers in regular full-time jobs. These same workers are nearly ten times more likely to leave the labor force as regular full-time workers.
- Firms and policy makers are concerned that workers in nonstandard arrangements will take advantage of the system if made eligible for unemployment insurance benefits.
- There is no differential behavioral consequence between workers in nonstandard work arrangements and regular full time workers when it comes to UI eligibility.
- Men in nonstandard work arrangements had the same likelihood of becoming unemployed as a result of UI eligibility as regular full-time workers.
    - This implies that men in nonstandard work arrangements were no more likely to “game” the system than regular full-time workers.

- For women in nonstandard work arrangements, the results were more mixed. In two of the three years analyzed (1997 and 2001), women exhibited smaller impacts of unemployment insurance eligibility than men in similar work arrangements.

- In 1997 and 2001, women in nonstandard work arrangements exhibited smaller likelihoods of becoming unemployed relative to full time workers once they were monetarily eligible for UI benefits.

1.2 The Importance of Unemployment Insurance

Unemployment insurance represents the single largest safety net transfer for men and women in the labor force. As an antipoverty measure, UI reduces poverty among low-income workers by approximately 6.4% for men and 6.0% women. For higher-income workers (those earning above $204 per week in 1984), UI has a much larger anti-poverty effect – a 20% reduction in poverty for men and a 15.7% for women. Since UI payments are largely based on previous earnings, the anti-poverty effects are larger for unemployed workers who previously had higher earnings (Danziger and Gottschalk, 1990:59).

Unemployment insurance has become an increasingly important form of social insurance. As transfer programs in the United States have adopted work requirements and time limited benefits (in particular, the change in AFDC to TANF), unemployment insurance has come to represent the next rung for those climbing out of poverty. Low-income workers unable to meet the eligibility requirements for UI will fall back onto TANF as the labor market and economy cools. This will happen if the types of UI eligibility requirements enacted by policy makers prevent low-income workers from qualifying.

Finally, UI represents an opportunity to compare state-to-state differences in UI policy. Because the federal role in UI is limited, states have considerable latitude to

establish their own benefit levels, eligibility criteria, and financing schemes. By taking into consideration the specific policies of each state, I can analyze how eligibility impacts contingent workers' decisions about employment, unemployment, or leaving the labor force.

1.3 Volatility in Nonstandard work

While the jobs held by contingent workers are fleeting, the nonstandard work phenomenon has become a permanent facet of the U.S. labor market. Workers and firms have established new, often explicit, employment conditions such as employment on demand with no expectation of an ongoing relationship. Contingent workers realize when they are hired that their employment may only last for a day, week, or month.

The volatility of contingent employment, its short-term nature, and legal definitions of employer/employee leaves many workers unprotected by public policies. Research on the relationship between public policies and contingent employment is just emerging, but early analyses of workplace protections for contingent workers are not encouraging. Contingent workers are much less likely to be eligible for unemployment insurance and family/medical leave due to eligibility requirements. To the extent that recent policy proposals have sought to link family/medical leave with unemployment insurance, this lack of eligibility for contingent workers is especially troubling. Contingent workers are also considerably less likely to be protected by the Civil Rights Acts of 1964 and 1990, the Americans with Disabilities Act, and the Occupational Safety and Health Act due to contested legal definitions of employee and employer (Carnevale, Jennings and Eisenmann, 1998). Finally, contingent employees are less likely to receive employer provided health benefits, retirement benefits, and employee stock ownership plans (Hudson, 1999).

Although workplace protections for contingent workers are minimal, growth in the nonstandard workforce continues. This growth has been both steady and impressive, raising concerns for the workplace protections of the approximately 10% of the labor force employed in alternative work arrangements, not including those who were employed for part-time hours (see Cohany, Hipple, Nardone, Polivka and Stewart 1998). From 1973 to 2001, the business-services industry (SIC 736) grew from 247,000 to a peak of 2.7 million employees in April of 2000, increasing its representation in the total workforce from .3% to 2.0% (BLS data).

The secular growth in contingent employment has prompted considerable research into the reasons for the increase. Determining whether firms or workers have initiated the move to contingent employment has been the focus of much of this research. To date, growth in the number of people employed as contingent workers has been the most studied aspect of this new labor market. (Abraham, 1988; Pfeffer and Baron, 1988; Golden and Appelbaum, 1992; Harrison and Kelley; 1993, Sakson, Sakson and Hill, 1995; Abraham and Taylor, 1996; Golden 1996; Kharbanda, 1997; Segal and Sullivan, 1997a). I believe that questions about the growth of nonstandard work are best analyzed by examining the underlying mechanisms that make nonstandard work possible rather than focusing on factors driving supply and demand.

Nearly all researchers agree that contingent employment is fast becoming a significant portion of the U.S. labor force. What is often overlooked is the employment volatility associated with contingent employment. This volatility in contingent employment contributes to an economic impact that is much larger than the percent of the labor force they comprise. As Segal and Sullivan (1997b:14) point out, the duration of most contingent jobs is very short, resulting in rapid turnover in jobs employing contingent workers. Focusing exclusively on temporary employment, the authors argue

that “as a consequence, a larger fraction of workers are temps in a period of a year or two than one might guess based on the industry’s approximate two percent share of employment.” Consequently, theoretical formulations should be flexible enough to address both the growth and the volatility in nonstandard work.

1.4 Policy Implications of Nonstandard work

Increasing levels of contingent employment have become possible due to a decline in the firm’s valuation of firm-specific human capital. This means that firm-specific skills and training are less valuable to the firm especially in those areas where skills have been converted from firm-specific to general. However, the reduction in firm-specific returns makes contingent employment more likely; it does not make it necessary. Necessity is borne from the firm’s competitive imperative to minimize costs. The cost differences between regular full-time employees and contingent employees make the shift toward contingency necessary. In a labor market where some groups of workers are offered costly employee protections and others are not, a race to the bottom ensues unless more expensive workers have a sufficient productivity advantage. If taken to a logical conclusion, we have a two-tiered system. Workers with high levels of specific human capital form the core of the labor market and are afforded workplace protections, while those lacking specific human capital work in contingent jobs without the benefit of many workplace protections.

The cost differences between regular full-time employees and contingent workers are due, at least in part, to public policies that treat workers in different ways. Consider the unemployment insurance system. All state UI laws have “some system of experience rating by which individual employers' contribution rates are varied from the standard rate on the bases of their experience with the risk of unemployment." (USDOL, 1996: 2-4).

Firms that lay off more employees will pay higher premiums. Consequently, firms will have an incentive to hire contingent workers in order to reduce their experience rating. If they hire temporary employees, those employees do not increase the host company's experience rating once they are laid-off.

Additional cost savings are possible if the firm can avoid the quasi-fixed costs of job search, benefits, and payroll taxes. Firms that hire temporary and contract employees usually avoid these quasi-fixed costs since they are not the employer of record. This may make temporary employees much more cost effective - especially in cases where the firm only needs these employees for the short term.

Once firms realize a method of avoiding costs associated with public policies in the workplace, the firms have an incentive to exploit that cost difference. Thus we should understand the importance of not covering certain classes of workers. Under these conditions, firms may seek to segment the market into covered and uncovered sectors. If this occurs, there will be an advantage in hiring from the uncovered sector. This research seeks to determine if there is a reason for not providing contingent workers unemployment insurance. If firm-specific human capital has made contingent employment feasible, and cost differences between covered and uncovered workers makes employing contingent workers imperative, then what is the effect of extending workplace policies so that coverage is universal?

1.5 Methodology

I answered this question by estimating a two-period model of labor force transition using a nationally representative data set as well as state-level UI policies (see data section and appendix for details about the February and March Current Population Surveys). I compared the transition probabilities, estimated from a 12-outcome

multinomial logit, for those moving from nonstandard employment to unemployment, with the probabilities of moving from a regular full-time job to unemployment.

In particular, I focused on the impact of unemployment insurance eligibility on the likelihood of making that transition. This variable is calculated by the author using state-level unemployment insurance policy rules. These rules can be found in the State Comparison of UI Laws (1998, 2000, 2002). Additionally, I determined potential benefits available to a worker based on state-level formulae and individual earnings. Models are estimated separately for each year and the estimates for moving from nonstandard to unemployed and full-time to unemployed are available in Appendix 2.

1.6 Data

The measurement of contingent and nonstandard employment presents several problems for analysts interested in nonstandard work. Simply counting contingent employment differs based on who is asked the question: individuals or firms. Business and establishment surveys, in particular the *Current Employment Survey (CES)*, tend to provide larger estimates of the contingent labor force. This is partly because they count all types of contingent employment: temporary help, independent contractors, and leased employees (Segal and Sullivan, 1997:119). The potential overcount is exacerbated by the fact that many contingent workers register at multiple placement agencies -- resulting in a double or even treble count of some employees.

Household surveys, in particular the *Current Population Survey (CPS)*, classify workers by Standard Industrial Classifications (SIC) and use these classifications to estimate the number of workers in each industry. The most common SIC code used to classify and estimate the number of contingent workers is personnel supply services (SIC-731). Estimates from this measure typically provide smaller counts than the CES.

This is because this industrial classification only measures what we commonly refer to as "temp" workers. Additionally, this classification may undercount even these workers who may provide their host employer's industrial classification rather than their administrative employer, *i.e.*,the temp agency.

Recognizing the problems in both the establishment and household-level surveys, the Bureau of Labor Statistics developed a supplemental questionnaire focusing exclusively on the nature of the employment relationship. The supplementary questionnaire, known as the *Contingent Work Survey (CWS)* can identify both contingent workers as defined by Polivka and Nardone (1989) and nonstandard workers, those employed as temp help, on-call, independent contractor, contract, and parttime. The CWS was administered in February 1995, 1997, 1999, and 2001. The CWS is a household-level survey specifically designed to eliminate the undercount mentioned previously. These February questionnaires supplement the basic CPS. The CPS surveys approximately 60,000 (56, 873 in March 1995) households each month. The purpose of the survey is to develop a nationally representative sample of household, family, and individual labor supply. These data represent the source of the official government statistics on employment and unemployment.

Each March another supplemental questionnaire known as the Annual Demographic File (ADF), is appended to the basic CPS. This supplement is the pre-eminent data source for up-to-date measures of asset income and government transfer income, as well as a whole host of demographic factors. Most importantly for the purposes of this research, the March supplement asks retrospective questions about the previous calendar year's labor supply and work history. For example, the March 1995 supplement asks respondents about their labor force activities for the 1994 calendar year.

In this analysis I used both the February and March data from 1995, 1997, 1999, 2001 to estimate the employment probabilities for contingent, nonstandard and regular full-time workers.

The unique structure of the CPS allows researchers to match individual-level observations from various months in the sample. This method is used infrequently; the potential pitfalls are discussed by Welch (1993). I matched individual observations across months of the sample to create a two-month panel data set.

Once the February and March 1995 data sets are merged, state-level data is appended to produce a final data set. The state-level data are culled from the Department of Labor's "Comparison of State Unemployment Insurance Laws" (1996-2001). From January 1996 onward, the *UI Comparison* should be published semi-annually. Prior to 1996, the last publication date was 1993. Using the comparisons provides the most up-to-date information about the state-level UI statutes.

The UI Comparison examines all facets of state UI legislation: coverage, taxation, benefits, eligibility, administration, and the combined UI-disability and UI-training components of the law. I made considerable use of both the state-level formulae for determining benefits and eligibility requirements established by each state. For example, I examined each state's requirements regarding eligibility. Often these requirements are quite complex and multifaceted.

UI eligibility consists of two components: initial and continuing eligibility. Initial eligibility is based on statutory levels of hours worked, earnings, and the distribution of earnings throughout the year. I included state-specific measures for each of these initial eligibility requirements in the data set.

The UI Comparison also provides information on the benefits that each worker can expect to receive if they become unemployed. Typically each state's benefit formula

is based on an income replacement fraction. These replacement rates vary considerably from state to state, in part because some states calculate benefits based on annual earnings while other states use average weekly earnings. Additionally, states limit the benefits that an unemployed worker can collect regardless of weekly earnings. These maximums vary tremendously, from a low of $190 per week in Mississippi and Alabama to $477 in Massachusetts.

The final data set analyzed in this paper is comprised of an individually matched sample covering February and March 1995. Approximately 65,000 observations are matched in each year from February to March. Additionally, state-level measures of unemployment insurance policy are merged into the data set by state. This matched and merged data set comprises a nationally representative sample. Finally, these data are the best data available to examine the effect of unemployment eligibility on contingent employment outcomes. The data appendix includes a discussion of the method used to match the data across years.

1.7 Summary of Findings

The most important finding is that unemployment insurance eligibility has a statistically significant effect on labor force transitions from employment into unemployment. This implies that UI eligibility increases a worker's probability of becoming unemployed. I argue that this is a measure of the moral hazard associated with unemployment insurance.

In addition to the existence of moral hazard, two related results are noteworthy: 1) *contingent workers exhibit no more moral hazard than do their full-time counterparts;* and 2) men are more likely than women to exhibit moral hazard. These findings are especially interesting. Since contingent workers are thought of as nominally attached to

the labor force, demonstrating that they exhibit no more moral hazard than regular full-time workers raises the legitimate concern of extending unemployment insurance protections to these workers. The second finding is interesting since women have historically received UI at significantly lower rates than men.

1.8 Empirical Results

The results that we are most interested in are the effects of unemployment insurance eligibility on labor-market transitions. In this analysis, we consider the effect of UI eligibility on the transition of workers in nonstandard or contingent employment in February to unemployed status in March. We then compare this effect to that of workers who transition from regular full-time employment to unemployment.

To make the argument that extending unemployment insurance benefits to contingent workers is a reasonable policy, we should find that the effects of UI eligibility would be similar for the two groups. If we find that UI eligibility raises the likelihood of becoming unemployed more for workers in nonstandard employment relative to full-time workers, we will have to conclude that nonstandard workers exhibit higher levels of moral hazard.

Below we show the effects of eligibility on becoming unemployed for men and women. The parameter estimates and complete model specification are available in Appendix 2. Table 1 below shows that the effect of UI eligibility is similar for both workers in nonstandard employment and workers in regular full-time jobs by sex. On average, workers in nonstandard employment are about 20% less likely to be monetarily eligible for UI benefits. Women and men, while similar in their eligibility status, show

some small differences with women consistently less likely to be monetarily eligible for unemployment insurance benefits.

Table 1
Percent Eligible for Unemployment Insurance Benefits by Worker Type and Sex, 1997, 1999, 2001

	Year	Contingent	Non-contingent	
All				
	1997	73.1%	91.4%	18.3%
	1999	72.0%	90.6%	18.6%
	2001	75.0%	91.1%	16.1%
Men				
	1997	73.4%	91.9%	18.5%
	1999	72.4%	91.6%	19.2%
	2001	75.5%	91.9%	16.4%
Women				
	1997	72.4%	91.0%	18.6%
	1999	71.1%	89.8%	18.7%
	2001	74.1%	90.5%	16.4%

The results we are most interested in examine the relationship between unemployment insurance eligibility and the likelihood of becoming unemployed. Previous research on unemployment insurance found that there is a link between unemployment insurance benefit availability and weeks spent unemployed. This "moral hazard" is also evident in the likelihood of becoming unemployed. Tables 2 – 4 illustrate the effects of workers moving from ineligible to eligible status, based on parameter estimates[4] found in Appendix 2. Most of the female estimates are measured imprecisely.

[4] Note that UI eligibility is endogenous. To correct for this I have predicted eligibility using a two-stage estimator; consequently the variance of the two-stage estimates is likely to be large.

Table 2
Predicted Probability: Marginal Effect of ELIGIBLE (preferred specification), 1997

Transition Type	Set Eligibility Status for Entire Sample		Predicted Probability Women	Predicted Probability Men
Contingent ? Unemployed	Not Eligible	(ELIGIBLE=0)	0.0177	0.0013
	Eligible	(ELIGIBLE=1)	0.0008	0.0054
	Effect of Changing Eligibility Status		**-0.0168**	**0.0040**
Non-contingent ? Unemployed	Not Eligible	(ELIGIBLE=0)	0.0003	0.0021
	Eligible	(ELIGIBLE=1)	0.0096	0.0090
	Effect of Changing Eligibility Status		**0.0093**	**0.0069**

Table 3
Predicted Probability: Marginal Effect of ELIGIBLE (preferred specification), 1999

Transition Type	Set Eligibility Status for Entire Sample		Predicted Probability Women	Predicted Probability Men
Contingent ? Unemployed	Not Eligible	(ELIGIBLE=0)	0.0002	0.0022
	Eligible	(ELIGIBLE=1)	0.0186	0.0036
	Effect of Changing Eligibility Status		**0.0184**	**0.0013**
Non-contingent ? Unemployed	Not Eligible	(ELIGIBLE=0)	0.0007	0.0016
	Eligible	(ELIGIBLE=1)	0.0068	0.0074
	Effect of Changing Eligibility Status		**0.0061**	**0.0058**

Table 4
Predicted Probability: Marginal Effect of ELIGIBLE (prefered specification), 2001

Transition Type	Set Eligibility Status for Entire Sample		Predicted Probability Women	Predicted Probability Men
Contingent ? Unemployed	Not Eligible	(ELIGIBLE=0)	0.0016	0.0004
	Eligible	(ELIGIBLE=1)	0.0029	0.0079
	Effect of Changing Eligibility Status		**0.0013**	**0.0075**
Non-contingent ? Unemployed	Not Eligible	(ELIGIBLE=0)	0.0021	0.0005
	Eligible	(ELIGIBLE=1)	0.0044	0.0184
	Effect of Changing Eligibility Status		**0.0023**	**0.0180**

The effect of unemployment insurance eligibility on women workers in nonstandard employment is somewhat indeterminate across the surveys. In 1997, women who were monetarily eligible for unemployment insurance benefits were *less* likely to become unemployed. The coefficient estimate on eligibility for female workers in nonstandard arrangements was imprecisely measured. In 1999, women workers in nonstandard arrangements showed a large and statistically significant increase in their likelihood of becoming unemployed once eligible for unemployment insurance benefits. In 2001, these women showed no effect. In all, the estimates for women do not appear particularly stable and are not statistically significant in most specifications.

The results for men show a considerably different picture. In general, men who worked in nonstandard arrangements are more likely to become unemployed as a result of unemployment insurance eligibility. However, men who worked in full-time jobs are *more* likely than their nonstandard counterparts to become unemployed as a result of UI eligibility. In 1997, men in nonstandard jobs were 38% more likely to become unemployed as a result of UI eligibility, while men in full-time jobs were 77% more likely to become unemployed as a result of UI eligibility. Similar results hold for 1999 and 2001.

It is worth noting that for men, each year the difference between nonstandard and full-time workers increases. This implies that as the labor market improved from 1997 to 2001, the differential effect between the two worker types increased. This may mean that the availability of nonstandard work reduced the differential effect between the two groups. Consequently, these results may not be as appropriate during an economic recession.

Overall, Tables 2-4 indicate that for men, regular full-time workers are more likely to exhibit adverse effects due to UI eligibility. The results for women are more mixed but in general support a similar story.

1.9 Conclusion

Overall, this research finds that contingent workers exhibit effects from unemployment insurance eligibility similar to those exhibited by regular full-time workers. That is, while the increased impact of unemployment insurance on the likelihood of becoming unemployed is well documented in the literature, workers in full-time as well as those in nonstandard employment exhibit the same ill effects.

The purpose of this research was to determine the feasibility of extending unemployment insurance benefits to workers in nonstandard work arrangements. In general, I find that the increased likelihood of becoming unemployed once a worker is eligible for UI benefits is similar across the two groups. Consequently, extending benefits to these workers is not likely to be disproportionately[5] costly. While the moral hazard effects across the two groups are similar, their experiences with unemployment are not. Workers in nonstandard arrangements are more likely to be unemployed and unemployment insurance benefits may prove to be more important for them than for other types of workers. This research finds that the provision of unemployment insurance coverage will not raise unemployment levels among nonstandard workers. Since the unemployment levels are considerably higher among nonstandard workers, it is likely to be more costly to provide them coverage.

[5] Care should be taken in interpreting this result. The costs of extending unemployment insurance are not disproportionate in that the provision of insurance has the same impact for both contingent and regular full-time workers. However, the total cost of extending benefits would likely increase since contingent workers experience higher rates of unemployment; in essence this is the difference between marginal and total costs.

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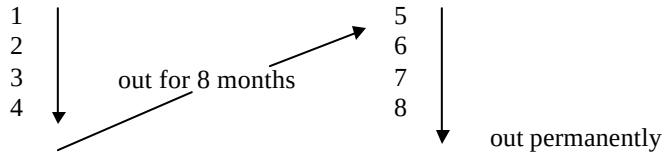
Data Appendix 1

In CPS each month, one-eighth of the sample is new. Each new survey group is interviewed for four months. Each time the group is surveyed, it is assigned a sequentially higher number (called the month-in-rotation). After four months, the respondents leave the survey for eight months. After eight months, the group is surveyed again for four months. This gives rise to a 4-8-4 series of rotations; four months in sample, eight months out of sample, four months back in sample.

To understand better how researchers can match individual observations across rotation groups, consider a one-month match: at any point in time, say t_1, there are 8 rotation groups being surveyed. At the end of t_1 rotation group 4 and 8 leave the sample. Rotation group 4 leaves for eight months and rotation group 8 leaves permanently. This leaves three-fourths of the sample to be surveyed in the following month. Thus, a two month matched panel consists of a theoretical maximum of three-fourths of the survey.

Figure A.1



Year-to-year matches are also possible. Consider that rotation groups 5-8 in March of 1996 were actually in rotation groups 1-4 in March of 1995 (due to the eight month hiatus). This means that annual matches are possible, but that only one-half of the sample can be matched from year to year.

Of course, we never match the full amount largely because of individuals' mobility. The CPS is based on a random sample of households; if a family or individual

moves out of the house (perhaps due to maturation or family dissolution) individual records cannot be matched. With high rates of mobility in the United States, this poses a significant problem. Fortunately, matching across shorter time periods (month-to-month as opposed to year-to-year) results in fewer match problems.

A second potential problem in matching CPS data arises from the fact that there is no unique individual identifier for each person in the sample; the CPS provides only a unique household identifier. This means that we cannot be 100% certain that we are matching the same individual from month to month. Once the researcher matches households across months he must use demographic characteristics to determine if the individual within a household is the same. It should be clear that the best demographic characteristics to use are those that do not change from period to period, as opposed to for example, age.

In this research, I used several match criteria. First, I made sure that each observation is from the correct rotation group and then I matched on household identifier, state, race, sex and education. While education does change over time, it is highly unlikely that a person will increase their educational attainment in a one-month period from February to March. After matching the data, I eliminated from the sample those who aged more than one year (in a one month period) and those whose age declined. All observations that failed to match (that is, observations with data from a single month) were deleted.

The quality of the CPS match in this research is quite high. The potential matches (seventy-five percent of the full sample) equal 73,788 observations in February and 73,850 observations in March of 1995. The final data set matched 69,979 observations.

This represents a 94.8% match rate. The fact that there are more observations in March than February indicates that in-migration (births and moving into a survey household) exceeded out-migration (deaths and leaving a survey household). This effect was miniscule and represents less than one-tenth of one percent (62 people). Match rates were similar in the 1997, 1999, and 2001 data.

Appendix 2

Table A.1
Preferred Specification: Multinomial Logit Estimates, 1997

	Contingent ? Women	Unemployed Men	Non-contingent ? Women	Unemployed Men
Eligible (predicted)	**-2.4736**	**2.3036**	**4.3160**	**2.6144**
	(2.1189)	(1.8967)	(2.0133)	(1.6252)
UI Benefit Allowance	**-0.0014**	**0.0015**	**0.0013**	**0.0035**
	(0.0024)	(0.0016)	(0.0014)	(0.0010)
Received UI Income (LY)	**1.5309**	**1.0233**	**0.4589**	**0.7524**
	(0.6312)	(0.3804)	(0.5499)	(0.2971)
Job Tenure	**-0.0007**	**-0.0014**	**-0.0024**	**-0.0005**
	(0.0006)	(0.0007)	(0.0007)	(0.0003)
Number of Employers (LY)	**0.1785**	**0.2107**	**0.1241**	**0.0822**
	(0.1660)	(0.1411)	(0.1552)	(0.1172)
Age	**0.2153**	**0.0216**	**-0.0059**	**0.1337**
	(0.1044)	(0.1051)	(0.0953)	(0.0855)
Age-squared	**-0.0027**	**-0.0001**	**0.0004**	**-0.0014**
	(0.0014)	(0.0014)	(0.0013)	(0.0011)
Less Than High School	**0.0178**	**1.0910**	**0.9335**	**0.5860**
	(0.6196)	(0.4170)	(0.5665)	(0.3075)
Some College	**0.6829**	**-0.2474**	**-0.4515**	**-0.7196**
	(0.3061)	(0.3149)	(0.2544)	(0.2070)
College Graduate	**0.1364**	**-0.5015**	**-1.0723**	**-1.1747**
	(0.5031)	(0.4236)	(0.3848)	(0.2844)
Urban	**0.0393**	**0.0491**	**0.4775**	**-0.1845**
	(0.3153)	(0.2675)	(0.2414)	(0.2117)
Black	**0.7367**	**0.1124**	**-0.5093**	**-0.8038**
	(0.4245)	(0.5386)	(0.6040)	(0.6017)
Urban*Black	**-0.5206**	**0.3002**	**0.7863**	**1.6982**
	(0.6972)	(0.7580)	(0.7543)	(0.7102)
Married	**-0.8470**	**-0.6739**	**-0.4936**	**-0.3076**
	(0.3134)	(0.3396)	(0.2604)	(0.2374)
Children Under 6 years old	**-0.2259**	**0.5399**	**0.5096**	**0.3872**
	(0.3720)	(0.2983)	(0.3655)	(0.2176)
Health Insurance	**-0.9947**	**-0.5331**	**0.6751**	**0.1103**
	(0.4142)	(0.2899)	(0.2290)	(0.1766)
Family Income	**-0.0040**	**-0.0036**	**-0.0031**	**0.0003**
	(0.0038)	(0.0035)	(0.0035)	(0.0023)
Ln(wage)	**-0.3568**	**-0.0354**	**-0.1960**	**-0.2820**
	(0.1349)	(0.1266)	(0.1469)	(0.0922)
Hours Worked (LY)	**-0.0002**	**-0.0004**	**0.0005**	**0.0003**
	(0.0002)	(0.0002)	(0.0002)	(0.0001)
Constant	**-5.1972**	**-5.0748**	**-7.3206**	**-7.2280**
	(0.9225)	(0.8660)	(0.9905)	(0.7263)

(standard errors in parenthesis, N = 28,598 (men); 31,869 (women))

Table A.2
Preferred Specification: Multinomial Logit Estimates, 1999

	Contingent ? Women	Unemployed Men	Non-contingent ? Women	Unemployed Men
Eligible (predicted)	**5.4295**	**1.3673**	**3.2909**	**2.5341**
	(2.1817)	(1.8946)	(2.0733)	(1.6635)
UI Benefit Allowance	**-0.0001**	**0.0016**	**0.0023**	**0.0020**
	(0.0016)	(0.0015)	(0.0013)	(0.0010)
Received UI Income (LY)	**-0.4128**	**1.4875**	**0.9219**	**1.0219**
	(0.6271)	(0.4663)	(0.5113)	(0.3711)
Job Tenure	**-0.0009**	**-0.0010**	**-0.0009**	**-0.0004**
	(0.0005)	(0.0006)	(0.0005)	(0.0003)
Number of Employers (LY)	**0.5758**	**0.1208**	**0.0644**	**-0.2238**
	(0.1443)	(0.1485)	(0.1656)	(0.1408)
Age	**-0.1639**	**0.0261**	**-0.0877**	**0.0536**
	(0.1049)	(0.0960)	(0.1012)	(0.0813)
Age-squared	**0.0024**	**-0.0002**	**0.0012**	**-0.0007**
	(0.0014)	(0.0013)	(0.0014)	(0.0011)
Less Than High School	**1.6003**	**0.2192**	**0.7640**	**0.2719**
	(0.5597)	(0.4186)	(0.5236)	(0.3337)
Some College	**-0.1606**	**-0.3540**	**-0.5876**	**-0.4787**
	(0.3097)	(0.2802)	(0.2795)	(0.2166)
College Graduate	**-0.5234**	**-2.9519**	**-0.6278**	**-0.9890**
	(0.4244)	(1.0296)	(0.3695)	(0.3009)
Urban	**-0.0471**	**-0.2401**	**0.0860**	**0.0986**
	(0.3031)	(0.3096)	(0.2862)	(0.2181)
Black	**0.2031**	**0.7401**	**0.1634**	**0.6836**
	(0.4825)	(0.4044)	(0.4787)	(0.3608)
Urban*Black	**-0.3495**	**-0.8337**	**0.5654**	**-0.3400**
	(0.8034)	(0.7700)	(0.6411)	(0.5721)
Married	**-0.4431**	**-0.8635**	**-0.1789**	**-0.0327**
	(0.3263)	(0.3403)	(0.2869)	(0.2503)
Children Under 6 years old	**0.5135**	**0.0537**	**0.7184**	**0.0186**
	(0.4015)	(0.3459)	(0.3473)	(0.2417)
Health Insurance	**-0.1366**	**-0.2399**	**0.2754**	**0.0281**
	(0.3008)	(0.2781)	(0.2417)	(0.1933)
Family Income	**-0.0004**	**-0.0070**	**-0.0027**	**-0.0079**
	(0.0024)	(0.0040)	(0.0029)	(0.0034)
Ln(wage)	**-0.1958**	**-0.2532**	**-0.2511**	**0.0397**
	(0.1303)	(0.1310)	(0.1367)	(0.1128)
Hours Worked (LY)	**-0.0001**	**-0.0001**	**0.0006**	**0.0005**
	(0.0002)	(0.0002)	(0.0002)	(0.0001)
Constant	**-5.4154**	**-3.7591**	**-5.2656**	**-5.8140**
	(0.8724)	(0.8480)	(0.8965)	(0.7894)

(standard errors in parenthesis, N = 28,806 (men); 31,600 (women))

Table A.3
Prefererd Specification: Multinomial Logit Estimates, 2001

	Contingent ? Women	Unemployed Men	Non-contingent ? Women	Unemployed Men
Eligible (predicted)	**1.0751**	**3.4680**	**1.3158**	**4.3084**
	(2.2870)	(2.5331)	(1.8366)	(1.8582)
UI Benefit Allowance	**-0.0029**	**0.0019**	**0.0007**	**0.0021**
	(0.0021)	(0.0015)	(0.0013)	(0.0009)
Received UI Income (LY)	**0.5910**	**0.6853**	**0.9385**	**0.3816**
	(0.7158)	(0.5236)	(0.5177)	(0.3854)
Job Tenure	**-0.0016**	**-0.0001**	**-0.0023**	**-0.0007**
	(0.0008)	(0.0004)	(0.0007)	(0.0003)
Number of Employers (LY)	**0.3752**	**0.2950**	**-0.2777**	**0.0059**
	(0.1697)	(0.1584)	(0.1763)	(0.1295)
Age	**0.0489**	**0.0218**	**0.0445**	**-0.0800**
	(0.1175)	(0.1257)	(0.0932)	(0.0882)
Age-squared	**-0.0006**	**0.0000**	**-0.0007**	**0.0011**
	(0.0016)	(0.0017)	(0.0013)	(0.0012)
Less Than High School	**0.9714**	**0.5455**	**1.1099**	**0.6763**
	(0.5921)	(0.4768)	(0.4718)	(0.3285)
Some College	**-0.5471**	**-0.6020**	**-0.3827**	**-0.6158**
	(0.3559)	(0.3144)	(0.2771)	(0.2106)
College Graduate	**-0.8804**	**-1.4151**	**-0.4955**	**-1.1662**
	(0.5493)	(0.4918)	(0.3644)	(0.2895)
Urban	**-0.2178**	**0.1149**	**0.5355**	**-0.2524**
	(0.3685)	(0.3029)	(0.2438)	(0.2311)
Black	**0.0242**	**-0.0703**	**0.6003**	**0.6316**
	(0.6136)	(0.6203)	(0.3955)	(0.3264)
Urban*Black	**0.7243**	**0.8298**	**-0.3623**	**0.6197**
	(0.8421)	(0.7884)	(0.5594)	(0.4805)
Married	**-0.1796**	**-0.3638**	**0.0935**	**-0.0611**
	(0.3752)	(0.3767)	(0.2898)	(0.2528)
Children Under 6 years old	**-0.1658**	**-0.6639**	**-0.3177**	**-0.1286**
	(0.4251)	(0.4389)	(0.3504)	(0.2351)
Health Insurance	**-0.1595**	**-0.3585**	**0.6877**	**0.3987**
	(0.3600)	(0.3000)	(0.2327)	(0.1834)
Family Income	**-0.0035**	**-0.0003**	**-0.0181**	**-0.0060**
	(0.0034)	(0.0028)	(0.0049)	(0.0029)
Ln(wage)	**-0.2458**	**-0.2338**	**-0.1170**	**-0.1440**
	(0.1493)	(0.1376)	(0.1397)	(0.1109)
Hours Worked (LY)	**0.0001**	**-0.0005**	**0.0005**	**0.0006**
	(0.0002)	(0.0002)	(0.0002)	(0.0001)
Constant	**-5.0676**	**-5.6442**	**-5.0684**	**-5.1600**
	(0.9852)	(0.9049)	(0.8895)	(0.7053)

(standard errors in parenthesis, N = 28,058 (men); 30,323 (women))