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Measuring Job Security

Submitted by the U.S. Bureau of Labor Statistics¹

1. It has been argued that in order to control costs, firms are increasingly seeking more flexibility in their use of labor. Employers have sought this additional flexibility within their own workforces, as well as from sources outside their organization. Internally, they have hired workers on a temporary basis. Externally, they have obtained labor through temporary help businesses or by contracting with firms or individuals to provide specific services. Anecdotal evidence of the trend toward more flexible employment arrangements is fairly extensive; measuring the extent of such employment in the labor force as a whole, however, has been more problematic. Job tenure has been of central focus when analyzing the issue of job security in the United States. In addition, the U.S. Bureau of Labor Statistics recently conducted a supplement to its monthly labor force survey, the Current Population Survey (CPS), to obtain more information on another aspect of this issue--contingent jobs, that is, jobs which are structured to last only a limited period of time.

2. **Two approaches to measuring job tenure.** Time spent with an employer, or job tenure, is a commonly used variable in studies of the labor market that focus on topics such as labor supply, job search, and job turnover. A number of recent studies (Diebold, Neumark, and Polsky 1996; Farber 1994; Swinnerton and Wial 1995) have examined data on job duration from the CPS in order to provide direct empirical evidence of declining job stability in the U.S. economy. Although the results are not completely consistent, these

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studies generally find little, if any, decline in job stability in the last two decades. While certain subgroups of the population, such as those with less education, experienced less job security than in the past, for the most part these analyses indicate no systemic change in the duration of jobs over time.

3. One issue that arises when examining job durations is the quality of the job tenure data in the CPS. Information on how long individuals have worked continuously for their current employer is available in periodic CPS supplements. Yet these job tenure data often are viewed as being relatively crude given that durations are measured in years and the frequency distributions tend to exhibit spikes at years which are multiples of five (5, 10, 15, etc.). Hence, these data may contain substantial recall or rounding errors.

4. Evidence from other U.S. data sources also indicates that data on job tenure are often problematic. In particular, Brown and Light (1992) found that in the Panel Study of Income Dynamics, which interviews the same people over time, responses from tenure questions were often inconsistent with calendar time. For example, in one year an individual might claim to have been working for an employer for three years, but in the subsequent year the same person would claim to have been working with the same employer six years. Inconsistent responses such as these suggest that tenure data are often unreliable, even when collected longitudinally.

5. Another longitudinal data source, the National Longitudinal Survey of Youth (NLSY), collects data in a way so as to minimize recall problems and rounding errors. These data describe a sample of young men and women who were between the ages of 14 and 22 in 1979 and have been interviewed regularly since then. The NLSY collects data in an event history format, in which dates are collected for the beginning and ending of important events. In the case of work, the starting date for a job is recorded and if a person stops work for that employer, the ending date also is recorded. The times in between jobs are then confirmed as gaps for further investigation. For multiple jobholders, information is collected for each job, with beginning and ending dates. Periods of nonwork within a job, such as periods on layoff, or when ill, pregnant, and so forth, also are recorded. By recording the dates of all jobs and all periods of nonwork, the survey provides a complete and continuous employment history for each individual in the sample.

6. Information on other major events also is collected in this manner. The months spent in school are identified, as is the timing of training programs. Also collected are dates of changes in marital status and the birth of children. By linking the dates of all these events, it is thought that individuals are more able to provide accurate responses to their timing.

7. While collecting data in this event history format is still subject to recall and other errors, it is thought that respondents provide more precise measures of time spent in activities such as employment. This methodology may decrease the likelihood of recall error, since respondents can link the dates of events such as the birth of children and marital status changes to changes in employment. Also, the longitudinal nature of the data allows for employment at a particular job to be linked across years, which could

substantially lower the extent of recall problems often associated with job tenure data.

8. In addition, the event history format of the NLSY allows for a number of techniques that may improve data quality. For example, interviewers are provided information about the employer names from the previous interview and use these to see if workers still have the same employer. Timeline calendars are placed in front of respondents so that they may better visualize their periods of work and nonwork. Research on retrospective reports of individual events indicates that intervention techniques that help respondents place events into a personal timeline substantially improve respondent recall (Means and Loftus 1991).

9. In the next section, recent job tenure data from the NLSY is compared with tenure data from a similar cohort of individuals from the CPS.¹ This comparison provides evidence as to how the tenure data from the two collection techniques differ. It is important to mention that the comparison is made using a relatively young age group, rather than the full age distribution. Consequently, the job durations for this age group are generally shorter and less dispersed than those for all workers.

10. **The tenure distributions.** Table 1 provides information on the distribution of job tenure among 28 to 36 year old workers in 1993 using the CPS and the NLSY.² The percentiles can be computed directly using the NLSY since the data are available in weeks, which provides for a fairly continuous distribution. In contrast, calculating percentiles using the CPS tenure data is more difficult, given that the information is available only in years. The cumulative distribution function for integer data is a step function, and movement along a step will not change the percentile until another step is reached. One solution to this problem is to compute "interpolated" percentiles, which assumes that job tenure is uniformly distributed within each interval. This method essentially involves taking a weighted average of the integer in which the percentile falls and the previous integer.³

11. For the most part, the figures in Table 1 indicate that the two tenure distributions are surprisingly similar. For example, median tenure using the CPS is 3.34, while for the NLSY it is 3.46. It might be expected that the upper tails of the distributions may show the greatest disparities, since recall problems are likely greater for CPS respondents with longer job durations. Yet at the ninetieth percentile, there is little difference between the two distributions, as CPS job tenure is 11.22, while that of the NLSY is 11.13.

12. Also provided in Table 1 are tenure data for subgroups based on gender, race/ethnicity, and education. For most of the subgroups, the two tenure distributions are not as similar as that for the full sample, but in most cases the differences are relatively minor. The largest disparities appear to be among blacks and high school dropouts at the ninetieth percentile, in which the CPS tenure data is about one year higher than that of the NLSY. Hence, there is some evidence that the CPS data may be problematic at longer job durations among these groups.

13. Are the differences in the two tenure distributions sensitive to business cycle fluctuations? Job tenure may vary with changes in the business cycle due to corresponding changes in the composition of the workers. For instance, an economic expansion may lead to more hirings and to a larger sample of relatively inexperienced or lower tenure workers. Conversely, an economic contraction may result in fewer inexperienced workers being employed, and the resulting group of workers may be of greater tenure. Since recall may be more problematic for those with greater tenure, particularly when using the CPS method of collecting tenure data, the differences in CPS and NLSY tenure data may be more severe during economic contractions.

14. In order to examine data at two points in the business cycle, Table 2 provides information on median job tenure in 1988 and 1993 (in 1988 the national unemployment rate was 5.5 percent, whereas in 1993 it was 6.8 percent). In order to examine workers at comparable ages in both years, it is necessary to restrict the NLSY and CPS samples to 28-to 31-year-old workers in each year.⁴ The data indicate that overall job tenure is somewhat lower during economic expansions, as expected. In particular, median job tenure using the CPS was 2.50 in 1988, while it was 2.88 in 1993. Still, in both years, the differences between the CPS and NLS in median tenure are fairly small. The differences among some of the subgroups are often larger than that of the full sample, but it should be noted that the sample sizes in many of these subgroups are relatively small.⁵ Thus, the data in Table 2 appear to reinforce the finding that there are not large differences in the two tenure distributions and that these differences are not particularly sensitive to changes in the business cycle.

15. In summary, despite the differences in the collection methods between the CPS and NLSY tenure data, the differences in the job tenure distributions are very small. There is some evidence that suggests that, among certain subgroups of the population, the CPS may overstate job tenure at longer job durations, or when recall is more problematic. Overall, however, the CPS data appear to provide an adequate approximation of the tenure distribution among young workers.

16. The results suggest that the extent to which tenure information needs to be "precise" depends upon the type of analysis undertaken. Certainly, for some studies, particularly those dealing with job turnover, job tenure data measured in months or weeks, as available in the NLSY, are the most desirable. Yet many of the recent studies based on CPS tenure data that deal with job stability generally compare trends in relatively simple statistics. Consequently, in these recent analyses, the CPS tenure data should provide a satisfactory description of the tenure distribution and of changes in job durations over time.

17. **Measuring contingent employment.** The first special survey to produce estimates of the number of workers in contingent jobs, that is, jobs which are structured to last only a limited period of time, was completed in February 1995. Prior to this survey, the term contingent work had been used to refer to a variety of work arrangements including part-time work, self-employment, employment in the business services industry, and, in fact,

almost any work arrangement that might be considered to differ from the commonly perceived norm of a full-time wage and salary job.

18. Initial results from the survey show that, in February 1995, between 2.7 and 6.0 million workers--a range of 2.2 to 4.9 percent of total employment--were in contingent jobs. This range spans three alternative estimates that were developed to assess the impact of different assumptions about the factors that constitute contingent employment. The narrowest estimate includes only wage and salary workers who had been in their jobs for 1 year or less and expected their jobs to last for an additional year or less. The middle estimate added the self-employed and independent contractors who were in a similar situation. In the third and broadest estimate, the limitation on how long workers had held their jobs and expected to remain in them was dropped for wage and salary workers; thus, this estimate includes almost any worker who believed his or her job was temporary or not expected to continue.

19. Several pieces of information were collected in the supplement from which the existence of a contingent employment arrangement could be discerned. These include: whether the job was temporary or not expected to continue, how long the worker expected to be able to hold the job, and how long the worker had held the job. For workers who had a job with an intermediary, such as a temporary help agency or a contract company, information was collected about their employment at the place they were assigned to work by the intermediary as well as their employment with the intermediary itself.

20. The key factor used to determine if a worker's job fit the conceptual definition of contingent was whether the job was temporary or not expected to continue. The first questions of the supplement were:

1. Some people are in temporary jobs that last only for a limited time or until the completion of a project. Is your job temporary?
2. Provided the economy does not change and your job performance is adequate, can you continue to work for your current employer as long as you wish?

21. Respondents who answered "yes" to the first question, or "no" to the second, were then asked a series of questions to distinguish persons who were in temporary jobs from those who, for personal reasons, were temporarily holding jobs that offered the opportunity of ongoing employment. For example, students holding part-time jobs while in school might view those jobs as temporary, since they may intend to leave them at the end of the school year. The jobs themselves, however, would be filled by other workers once the students leave.

22. Jobs were defined as being short term or temporary if the worker was working only until the completion of a specific project, temporarily replacing another worker, being hired for a fixed time period, filling a seasonal job that is only available during certain times of the year, or if other business conditions dictated that the job was short term. Individuals who expected to work at their current job for a year or less for personal reasons, such as returning to school, retiring, or obtaining another job, were asked if they would continue working at that job were it not for that

personal reason. If the job could not have continued, the worker would be classified as contingent, provided that the other conditions of the definition were met.

23. Workers also were asked how long they expected to stay in their current job and how long they had been with their current employer. The rationale for asking how long an individual expects to remain in his or her current job was that being able to hold a job for a year or more could be taken as evidence of at least an implicit contract for ongoing employment. In other words, the employer's need for the worker's services is not likely to evaporate tomorrow. By the same token, the information on how long a worker has been with the employer shows whether a job has been ongoing. Having remained with an employer for more than a year may be taken as evidence that, at least in the past, there was an explicit or implicit contract for continuing employment.

24. To assess the impact of altering some of the defining factors on the estimated size of the contingent workforce, three measures of contingent employment were developed. Under estimate 1, which is the narrowest, contingent workers are wage and salary workers who indicated that they expected to work in their current job for 1 year or less and who had worked for their current employer for 1 year or less. Self-employed workers, both incorporated and unincorporated, and independent contractors are excluded from the count of contingent workers under estimate 1; the rationale was that people who work for themselves, by definition, have ongoing employment arrangements, although they may face financial risks. Workers employed by temporary help agencies or contract companies firms are not considered contingent if they expect to be able to stay with the firms for more than a year or have been with the firms for that amount of time, even if the places they are assigned to work by the firms change frequently.

25. Estimate 2 expands the measure of the contingent work force by including the self-employed--both the incorporated and the unincorporated--and independent contractors who expect to be, and had been, in such employment arrangements for 1 year or less. (The questions asked of the self-employed were different from those asked of wage and salary workers.) In addition, temporary help and contract company workers were classified as contingent under estimate 2 if they had worked and expected to work for the customers to whom they were assigned for 1 year or less. For example, a "temp" secretary who is sent to a different customer each week but has worked for the same temporary help firm for more than 1 year and expects to be able to continue with that firm indefinitely is contingent under estimate 2, but not under estimate 1. In contrast, a "temp" who is assigned to a single client for more than a year and expects to be able to stay with that client for more than a year is not counted as contingent under either estimate.

26. Estimate 3 expands the count of contingency by removing the 1-year requirement on both expected duration of the job and current tenure for wage and salary workers. Thus, the estimate effectively includes all the wage and salary workers who do not expect their employment to last, except for those who, for personal reasons, expect to leave jobs that they would otherwise be able to keep. Thus, a worker who had held a job for 5 years could be considered contingent if he or she now viewed the job as temporary. These

conditions on expected and current tenure were not relaxed for the self-employed and independent contractors, because they were asked a different set of questions from wage and salary workers.

27. Some of the major findings regarding the characteristics of contingent workers were that they tended to be young and were slightly more likely to be women and black. The majority of those in contingent jobs would have preferred more permanent employment arrangements. (See table 3.)

28. The February 1995 survey also produced estimates of the number of workers in several "alternative employment arrangements," including those working as independent contractors and on-call workers, as well as those working through temporary help agencies or contract companies. The survey showed that 8.3 million workers (6.7 percent of the total employed) said they were independent contractors, 2.0 million (1.7 percent) worked "on call," 1.2 million (1.0 percent) worked for temporary help agencies, and 652,000 (0.5 percent) worked for contract firms that provided the worker's services to one customer at that customer's worksite. Contingent employment was defined separately from these four types of employment arrangements, although an individual's employment arrangement could be both "contingent" and fall into one of the alternative employment categories.

29. While the February 1995 supplement provided a great deal of new information about workers in contingent and alternative employment arrangements, repetition of the survey will be necessary to determine whether such employment arrangements are increasing. A repeat of the survey is tentatively scheduled for February 1997.

Endnotes

1. All computations reported here are weighted so that they are nationally representative of the age cohort.
2. Workers are defined as those employed for pay in the week prior to the interview, excluding the unincorporated self-employed.
3. This interpolation procedure is what the Bureau of Labor Statistics uses in published tables of percentiles for integer data. See Farber (1994) for a more detailed discussion of this approach. For those who worked less than one year, the 1993 April CPS supplement does not provide any additional information (such as number of months continuously employed). For those in the "less than one year category," a value of one year was assigned.
4. The NLSY cohort was 23 to 31 years old in 1988 and 28 to 36 years old in 1993. Hence, data on 28 to 31 year olds workers are available in both years. Nevertheless, it is possible that the observed differences in the tenure estimates for the two years could reflect unidentified noncyclical influences.
5. The number of unweighted observations in the smallest subgroups (particularly for Hispanics and high school dropouts) is about one hundred.

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Table 1. Distribution of years of tenure among 28-36 year old workers, 1993

	Percentile				
	<u>10th</u>	<u>25th</u>	<u>Median</u>	<u>75th</u>	<u>90th</u>
Total					
CPS	0.04	1.04	3.34	7.00	11.22
NLS	0.37	1.13	3.46	7.03	11.13
Men					
CPS	0.04	1.19	4.00	7.52	11.28
NLS	0.35	1.13	3.62	7.25	11.42
Women					
CPS	0.04	0.97	2.91	6.47	11.17
NLS	0.38	1.13	3.19	6.62	10.83
Whites					
CPS	0.04	1.10	3.60	7.22	11.31
NLS	0.37	1.15	3.54	7.15	11.27
Blacks					
CPS	0.04	0.92	2.91	6.72	11.37
NLS	0.29	0.92	3.08	6.44	10.15
Hispanics					
CPS	0.04	1.00	2.42	5.78	10.01
NLS	0.35	1.19	3.17	6.19	10.57
High school dropout					
CPS	0.03	0.85	2.54	4.87	9.67
NLS	0.17	0.65	1.92	5.56	8.87
High school graduate					
CPS	0.04	1.04	3.73	7.97	12.15
NLS	0.29	1.08	3.46	7.58	12.62
Some college					
CPS	0.04	1.14	3.67	7.61	11.74
NLS	0.44	1.19	3.48	6.94	10.92
College graduate					
CPS	0.04	1.08	3.03	6.12	9.41
NLS	0.60	1.52	3.77	6.88	9.88

NOTE: The race/ethnicity categories are mutually exclusive and exhaustive. The "Hispanic" category includes white and black Hispanics. The "black" category includes only nonHispanic blacks. The "white" category includes all nonblacks and nonHispanics.

Table 2. Median years of tenure among 28 to 31 year olds, in 1988 and 1993

	1988		1993	
	<u>CPS</u>	<u>NLS</u>	<u>CPS</u>	<u>NLS</u>
Total	2.50	2.52	2.87	3.00
Men	2.65	2.69	3.38	3.04
Women	2.37	2.25	2.59	2.97
Whites	2.65	2.62	3.16	3.08
Blacks	2.31	2.13	2.31	2.65
Hispanics	1.66	2.29	1.75	2.73
High school dropout	1.53	1.58	1.93	1.67
High school graduate	2.39	2.83	3.21	2.93
Some college	3.03	2.36	3.27	3.33
College graduate	2.56	2.75	2.61	3.16

Table 3. Employed contingent and noncontingent workers by selected characteristics, February 1995 (In thousands)

Characteristic	Total Employed	Contingent workers			Noncon- tingent workers
		Estimate 1	Estimate 2	Estimate 3	
Total, 16 years and over.....	123,208	2,739	3,422	6,034	117,174
16 to 19 years.....	5,635	456	521	645	4,990
20 to 24 years.....	12,421	685	758	1,196	11,225
25 to 34 years.....	32,138	712	940	1,587	30,551
35 to 44 years.....	34,113	507	678	1,265	32,848
45 to 54 years.....	23,980	225	326	760	23,219
55 to 64 years.....	11,370	103	127	355	11,014
65 years and over.....	3,551	49	73	225	3,326
Men, 16 years and over.....	66,290	1,350	1,689	2,995	63,295
16 to 19 years.....	2,820	197	234	291	2,528
20 to 24 years.....	6,634	329	366	586	6,049
25 to 34 years.....	17,566	354	465	833	16,733
35 to 44 years.....	18,317	274	352	615	17,703
45 to 54 years.....	12,694	91	144	341	12,353
55 to 64 years.....	6,187	72	83	215	5,972
65 years and over.....	2,072	32	44	115	1,957
Women, 16 years and over.....	56,918	1,389	1,733	3,039	53,879
16 to 19 years.....	2,816	259	287	354	2,461
20 to 24 years.....	5,786	356	392	610	5,176
25 to 34 years.....	14,572	358	475	754	13,818
35 to 44 years.....	15,796	233	326	651	15,145
45 to 54 years.....	11,286	134	181	419	10,866
55 to 64 years.....	5,183	32	44	141	5,043
65 years and over.....	1,479	17	29	109	1,370
White.....	105,239	2,192	2,741	4,880	100,359
Black.....	13,108	382	464	804	12,304
Hispanic origin.....	10,441	373	443	682	9,759
Full- or part-time status					
Full-time workers.....	99,240	1,449	1,835	3,444	95,796
Part-time workers.....	23,968	1,290	1,587	2,590	21,378

NOTE: Noncontingent workers are those who do not fall into any estimate of "contingent" workers. Detail for the above race and Hispanic-origin groups will not sum to totals because data for the "other races" group are not presented and Hispanics are included in both the white and black population groups. Detail for other characteristics may not sum to totals due to rounding.