RECALL BIAS AMONG DISPLACED WORKERS

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Abstract

I analyze a survey that mimics the Displaced Workers Supplement (DWS) of the CPS. Laid off workers accurately recall several features of lost jobs. However, workers provide ambiguous explanations for job loss and, on average, slightly overstate pre-layoff earnings.

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The Displaced Worker Supplement (DWS) of the Current Population Survey (CPS) has been a source of numerous influential studies on the effects of displacement on future earnings.\(^1\) Kletzer (1998) notes that the DWS has been called an “industry standard,” but warns that “People are asked to recall their job history over the past three years, which raises the likelihood of errors in recall.” In this paper, using a unique survey of individuals laid off by a single company, and combining this with personnel records from that firm, I estimate the importance of this recall error for 171 workers.\(^2\)

I show that displaced workers report the reason for job loss quite accurately. However, the DWS provides ambiguous choices for why workers lost their jobs and this ambiguity could introduce measurement error into research that uses the distinction between plant closures and more selective layoffs. I also show that most respondents overstate their pre-layoff wages. On average, employees remember their lost jobs as paying $1,317 more per year than they actually did. Overall, the results suggest DWS recall error is not dramatic, but some caution should be used when analyzing recalled wage data and stated reasons for job loss.

**Data**

I study individuals who worked at a large financial services institution (“the firm”) in the 1990’s and were affected by four “reductions in force” in scattered geographic regions.\(^3\) The firm provided detailed personnel information for each employee. I assume that these data are accurate

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\(^3\) See Oyer (2002) for an analysis of the labor market consequences of these layoffs.
because they come from the sources the firm used to generate paychecks. Also, with the assistance of the University of Illinois Survey Research Laboratory (SRL), I conducted a phone interview of the laid off workers. The survey was based on the DWS, with most questions replicated verbatim from the Census Bureau’s survey.

While the SRL survey is largely comparable to the DWS, the respondents differ from typical DWS respondents in that they are largely female (84%) and their job loss was, naturally, limited to the financial services industry. The age distribution of the SRL and DWS samples are reasonably comparable. It seems unlikely that the differences between the two samples would lead to any bias in the following analysis. However, as with any study of a single firm, the results that follow do not necessarily generalize. The four reductions in force took place between 1992 and 1999. The survey was conducted in three waves – late 1998, early 1999, and early 2000. Some respondents had a longer period between job loss and the survey date than the DWS would allow, but the results that follow are not sensitive to excluding these longer recall respondents.

Results

Reason for Layoff

One of the SRL survey questions asked, “Which of the following reasons best describes why you left your former job at [the firm]? Did…

1) The company close or move
2) Was there insufficient work, or
3) Was your position or shift abolished?
4) Other, please specify”
The DWS asks “Which of these specific reasons describes why you are no longer working at that job?” and provides choices 1-3 above, as well as “seasonal job completed”, “self-operated business failed”, and “some other reason.” I only consider the respondents that chose options 1, 2, or 3, because the DWS does not continue to survey those with other responses.

One of the four reductions in force, which included 38 of the SRL survey respondents, involved the firm closing an entire location and relocating it across the country. Every one of these 38 people correctly answered that the company closed or moved.

In two of the four reductions in force, departments within a large facility had their responsibilities moved to another location where they were handled by other firm employees. However, the firm continues to have a large presence at both sites and the affected employees represented under 15% of the workforce at each site. Thus, it is ambiguous whether the “correct” answer for these individuals was that the company moved or the position was abolished. This ambiguity is reflected in the fact that, of the 104 respondents at these two sites, 61 said their position was abolished, one said there was insufficient work, and 42 said the company moved or closed.

In general, respondents were very accurate in identifying the reason their job was lost. However, the DWS choices leave some ambiguity. In particular, DWS estimates may overstate the true importance of “plant closures” given that many people at this firm gave this answer though the site they worked at was growing significantly at the time they lost their jobs. This ambiguity could introduce measurement error into studies that use the DWS distinction between plant closures and other types of displacement (see, for example, Gibbons and Katz, 1991.)
Dates of Employment

One of the SRL survey questions asked, “In what year did you last work at that job?” which quotes the DWS question verbatim. The SRL respondents were extremely accurate on this question with 84% identifying the correct year. Only 4 out of 171 were off by more than one year.

Reported pre-layoff tenure has been an important variable in several studies (See Kletzer, 1989, for example.) The SRL survey asked “How long had you worked for [the firm] when that job ended?” This question, as well as the time unit options for reporting an answer, are identical to a DWS question. There is no significant difference between average reported tenure and average actual tenure at the time of layoff. Though there is no bias in reported tenure, there is some minor measurement error.4 Average tenure at the time of job loss was approximately nine years. The median error in reported tenure is under six months. Over 75% of respondents reported their tenure within one year of the actual level. The standard deviation of actual tenure is over five years and measurement error averages about a half year, so the vast majority of the variation in measured tenure in this sample is coming from actual variation in tenure rather than from measurement error.

Wages

Following the DWS, the SRL asked survey participants to report their earnings at the firm before taxes and other deductions and excluding overtime pay and commissions. Again following the DWS, the SRL survey asked about number of hours worked only if the respondent reported their hourly earnings.

4 Duncan and Hill (1985) found similarly high accuracy in reported tenure of current jobs.
Throughout this section, I analyze the “annual wage error” in pre-layoff wages. I define annual wage error as the respondent’s reported pre-layoff annual earnings minus actual pre-layoff annual earnings and log annual wage error as log reported pre-layoff annual earnings minus log of actual pre-layoff annual earnings. I also look at hourly wage error and absolute hourly wage error (in level and logs). Table 1 summarizes the actual pre-layoff wages of the SRL respondents, as well as several measures of the recall accuracy.

Figure 1 captures the main findings on wage recall graphically. First, most people remember their pre-layoff wages fairly accurately. Second, more respondents over-report pre-layoff wages than underreport. Finally, among that small group of respondents that misreport their wages by a large amount (for example, about 10% of respondents misreport by at least $5,000), a substantial majority overstate pre-layoff wages.

The average annual wage error in Table 1 implies that the average SRL respondent reported pre-layoff wages $1,317 greater than the actual level, which is statistically different from zero at the 99% confidence level. That is, the average respondent remembered the job as paying about 5% more than it actually did. This number is partially driven by the fact, discussed above and seen in Figure 1, that the large errors tend to be overestimates. The median respondent overstated his/her pre-layoff wages by $358 per year, or about 1.5% of the median wage. Of the 171 respondents, 63 understated pre-layoff wages, 9 were exactly accurate, and 99

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5 I assumed people who report their wages in other than hourly units work forty hours per week in converting to both reported and actual hourly wage. Therefore, hourly wage error and annual wage error will be the same proportion of actual wages for all but the sixty-nine respondents who reported wages by the hour.

6 This also rules out the possibility that the average overstatement of earnings is driven by a tendency to round up. The median wage error among those who reported their annual wages and who were within $1,000 of the correct amount is exactly zero and the average is insignificant.
overstated what they earned before being laid off. The results are similar for hourly wage error. Most of the overestimate in wages is the result of overestimating the actual wage rate, rather than mistakes in remembering hours.

The magnitude of wage error among SRL respondents is similar to measurement error in previous year wages found by Duncan and Hill (1985) and somewhat higher than what Bound and Krueger (1991) found for the current job in the CPS. Though the wage measurement error detailed in Table 1 is not trivial, it is a small portion of the wage variation in this sample.

I cannot offer a definitive explanation of the tendency to overstate wages. In unreported regressions, I attempted to determine what factors are related to pre-layoff wage report accuracy. The only relationships I found were that those who chose to report an annual wage were more accurate than those who reported an hourly wage and some very limited support for the importance of “salience” (see Mathiowetz and Duncan, 1988) in that those who went through a long period of unemployment remember their lost job more favorably than others. Some highly speculative causes of overstatement include that people glorify the jobs they lost, that they magnify the pain of job loss by making their lost job seem better than it was, and that they tend to think (at least partially) in real, rather than nominal, terms. But, because there is no evidence to believe that people overstate current wages, if they overstate pre-layoff wages, then traditional DWS-based estimates of the effects of displacement might overstate earnings losses.

**Conclusion**

Though this paper has provided new evidence on the reliability of the DWS, a complete audit of the DWS would require further research. Such research is likely to be expensive, however, as an ideal audit would determine the amount of measurement error in both stated pre-
layoff wages and stated current wages. This would require the cooperation of multiple employers, especially if researchers wanted to insure any results could be generalized to all displaced workers.
References


Fallick, B.C., A review of the recent empirical literature on displaced workers, Industrial and Labor Relations Review 100, 1996, 5-16.


### Table 1

**Accuracy In Reporting Wages**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>Maximum</th>
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</thead>
<tbody>
<tr>
<td>Pre-Layoff Wage</td>
<td>$26,298</td>
<td>$22,839</td>
<td>$14,874</td>
<td>$103,100</td>
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<td>Annual Wage Error</td>
<td>1,317</td>
<td>358</td>
<td>4,048</td>
<td>31,000</td>
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<tr>
<td>-- Absolute</td>
<td>2,269</td>
<td>1,200</td>
<td>3,594</td>
<td>31,000</td>
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<tr>
<td>Log Annual Error</td>
<td>0.051</td>
<td>0.013</td>
<td>0.144</td>
<td>0.660</td>
</tr>
<tr>
<td>-- Absolute</td>
<td>0.096</td>
<td>0.054</td>
<td>0.118</td>
<td>0.660</td>
</tr>
<tr>
<td>Hourly Wage Error</td>
<td>0.525</td>
<td>0.038</td>
<td>2.019</td>
<td>14.904</td>
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<tr>
<td>-- Absolute</td>
<td>1.110</td>
<td>0.567</td>
<td>1.768</td>
<td>14.904</td>
</tr>
</tbody>
</table>

“Error” = (Reported Pre-Layoff Wage) – (Actual Pre-Layoff Wage)

“Log Error” = ln(Reported Pre-Layoff Wage) – ln(Actual Pre-Layoff Wage)

“Log Absolute Error” = Absolute Value of Log Error
Figure 1

Error in Reporting Pre-Layoff Wages