Measured from establishment-level data on employment gains and losses, job creation and destruction average nearly 8 percent of employment per quarter in the U.S. private sector. Worker flows in the form of establishment-level hires and separations are more than twice as large. These facts summarize the remarkable extent of job and worker flows in U.S. labor markets. They provide powerful motivation for theories of frictional unemployment.

In recent research with several coauthors, I explore the relationship of job flows to worker flows, develop methods to improve the measurement of worker flows, investigate job loss and business volatility trends, and provide new evidence on the determinants of long-term movements in the unemployment rate.

**Job Flows and Worker Flows in the Cross Section**

Data from the Job Openings and Labor Turnover Survey (JOLTS) display a very tight link between job flows and worker flows in the cross section of employers. In Figure 1 we see that hires rise a bit more than one-for-one with establishment-level job creation. Separations rise a bit more than one-for-one with job destruction. Further investigation reveals that layoffs are the main margin of employment adjustment for establishments with high job destruction rates, while both quits and layoffs are important margins at moderate destruction rates. Many studies find, not surprisingly, that layoffs
are much more likely than quits to result in unemployment spells.\textsuperscript{3} Thus, higher rates of job destruction bring higher layoff rates and greater worker flows into unemployment.

**Figure 1 -- The Relationship of Hires and Separations to Establishment Growth**

Source: JOLTS micro data from 2001 to 2006.

**Pitfalls in Measuring Worker Flows from Employer Survey Data**

A striking feature of Figure 1 is the highly nonlinear relationship of hires and separations to employer growth rates. These relations exhibit pronounced kinks at zero, steep slopes moving away from zero in one direction, and mild slopes with an opposite sign in the other direction. Similar patterns hold for quits and layoffs.

These highly nonlinear relations create potential pitfalls in the measurement of worker flows from survey data. To see the issue, observe that aggregate hires, for example, are the weighted sum of hires at establishments with different growth rates, with weights given by the amount of employment at each growth rate. In order to accurately measure aggregate worker flows, it is necessary to combine good estimates for
the type of cross-sectional relations in Figure 1 with an accurate measure of the
(weighed) cross-sectional distribution of employer growth rates.

Using survey data to construct an accurate measure of the growth rate distribution
is challenging for two reasons. First, employer surveys typically capture new
establishments with a considerable lag. Entrants account for a disproportionate share of
hires and, more generally, newer establishments exhibit a much higher incidence of
extreme growth rates. Second, survey response rates are correlated with employer
growth rates in the cross section. More to the point, and borrowing a line from Robert
Hall: the first employee let go from a declining establishment is the person who fills out
government surveys. For both reasons, employer surveys tend to produce growth rate
distributions with too little mass in the tails. Inspecting Figure 1, it is easy to see why
missing tail mass generates a downward bias in worker flow estimates.

My coauthors and I study this issue in the JOLTS program, a leading source of
information about worker flows and job openings for the U.S. economy. We verify that
the growth rate distribution generated by the JOLTS sample has much less tail mass than
that implied by the comprehensive Business Employment Dynamics (BED) database.
We also develop a method to correct the problem. The key idea is to reweight the cross-
sectional distributions of employment growth rates in JOLTS to match the corresponding
distributions in the comprehensive BED.

Our adjusted statistics for hires and separations exceed the published statistics by
about one third. The adjusted layoff rate is more than 60 percent greater than the
published layoff rate. Our adjustments significantly alter time-series properties as well.
Aggregate hires are 50 percent more variable than separations in published JOLTS
statistics, as measured by the variance of quarterly rates, but 20 percent less variable according to our adjusted statistics. Quarterly quit rates are more than twice as variable as layoffs in published statistics but equally variable according to our adjusted statistics.

Secular Declines in Job-Loss Rates before the Great Recession

American workers faced lower risks of job loss in the years leading up to the Great Recession of 2007-9 than ten, twenty, or thirty years earlier. I review some of the evidence for this claim in “The Decline of Job Loss and Why It Matters.” There, my attention centers on “unwelcome” job loss: employer-initiated separations that lead to unemployment, temporary or persistent drops in earnings, and other significant costs for job losers. Since there is no fully satisfactory statistic for the incidence of job loss, I consider several measures and data sources.

New claims for unemployment benefits as well as employment-to-unemployment flows in the Current Population Survey show dramatic declines in the risk of job loss since the 1970s and early 1980s. Job destruction measures from various sources also point to large declines in the risk of job loss, with a generally downward drift since the 1970s. The much-studied Displaced Worker Survey is an outlier in suggesting that essentially the entire long-term decline in the risk of job loss reflects a recovery from the deep recession of the early 1980s. Other measures point to continuing declines in the risk of unwanted job loss long after the early 1980s. All of this evidence pertains to the period before the Great Recession. Whether job loss rates will return to relatively quiescent levels in the near future remains to be seen.
Business Volatility Trends: Privately Held Versus Publicly Traded Firms

Declining rates of job destruction in the decades leading up to the Great Recession appear puzzling when set against evidence that publicly traded firms became more volatile over the same period. My coauthors and I tackle this puzzle using the Longitudinal Business Database (LBD). This comprehensive database contains annual employment observations for all nonfarm establishments and firms in the U.S. private sector. The LBD enables us to extend the study of business volatility to privately held firms and, together with COMPUSTAT data, to distinguish publicly traded from privately held firms.

We first use LBD employment data to confirm that business-level volatility trended upward for publicly traded firms, rising more than 50 percent from 1978 to 2001. Our central finding, however, is a large secular decline in the cross-sectional dispersion of business growth rates and in the average magnitude of business volatility. This result holds whether we define “businesses” in terms of firms or establishments. Using the same measure as in previous research, the employment-weighted mean volatility of firm growth rates fell by more than 40 percent from 1982 to 2001.

Resolution of the puzzle turns on a remarkable finding: the large upward trend in volatility among publicly traded firms is overwhelmed by a large downward trend in volatility among privately held firms. It turns out that widespread perceptions of deteriorations in employment stability placed too much weight on developments at publicly traded firms. Privately held firms, hitherto little studied in this context,
for more than two-thirds of U.S. private-sector employment, and they dominate the overall volatility trends.

Digging deeper, we find that two basic patterns hold across major industry groups. First, the volatility and dispersion of business growth rates are much greater among privately held firms. As of 1978, the average standard deviation of firm-level employment growth rates is 3.7 times larger for privately held than for publicly traded firms. This volatility ratio ranges from 2.3 in Services to 6.3 in Transportation and Public Utilities. Second, volatility and dispersion decline sharply among privately held businesses in the period covered by the LBD, and they rise sharply among publicly traded firms. The overall private-public volatility ratio falls to 1.6 by 2001, and it drops sharply from 1978 to 2001 in every major industry group. In other words, there was a pronounced “volatility convergence” between privately held and publicly traded firms.

Employment shifts toward older businesses account for more than a quarter of the volatility decline among privately held firms. The story for publicly traded firms is very different. There was a large influx of newly listed firms after 1979, with about 10 percent of listed firms new each year from 1980 to 2001. Newly listed firms are much more volatile than seasoned listings. Moreover, firms newly listed in the 1980s and 1990s exhibit greater volatility on an age-adjusted basis than earlier cohorts.

These observations point to a major evolution in the economic selection process governing entry into the set of publicly traded firms. Indeed, we find that simple cohort dummies for the year of first listing account for 67 percent of the volatility rise among publicly traded firms from 1978 to 2001. Other researchers find that later cohorts of
publicly traded firms are riskier in terms of equity return variability, profit variability, time from IPO to profitability, and business age at time of first listing.\textsuperscript{10}

**Implications for Unemployment**

In the canonical equilibrium model of search and matching in the labor market, less job destruction means fewer job-losing workers, smaller unemployment inflows, and lower unemployment rates.\textsuperscript{11} It is natural to ask – motivated by the trend declines in business volatility and job destruction – whether this simple mechanism played a significant role in the downward drift of U.S. unemployment rates after the early 1980s.

To address this question, my coauthors and I investigate the low-frequency relationship of unemployment inflows to job destruction and business variability measures.\textsuperscript{12} At the aggregate level, the secular decline in these measures roughly coincides with a marked decline in the magnitude of unemployment flows. Inflows, for example, fell from 4 percent of employment per month in the early 1980s to about 2 percent per month by the mid-1990s, and they remained low until the Great Recession.

While suggestive, this aggregate relationship is confounded by other factors that affect the evolution of unemployment flows, including the aging of the workforce.\textsuperscript{13} Thus, we turn to industry-specific movements in unemployment flows and their relationship to industry-specific movements in business variability and job destruction. Unlike previous research on unemployment flows, ours focuses on low-frequency relationships and interprets the evidence in light of steady-state properties of a frictional unemployment model.
The industry-level data provide strong evidence that job destruction and business variability measures can explain large changes in the incidence of unemployment. For example, we estimate that a decline of 100 basis points in an industry’s quarterly job destruction rate lowers its monthly unemployment inflow rate by 28 basis points with a standard error of 4 basis points. This estimate reflects a specification that controls for industry and time fixed effects. Ignoring time aggregation, the estimate indicates that the response of unemployment inflows over one quarter is 84 percent (three months times 28 basis points per month), as large as the movement in the number of jobs destroyed.

To put this result in perspective, the quarterly job destruction rate for the private sector fell 174 basis points from 1990 to 2005. Multiplying this fall by its estimated effect in the industry-level analysis yields a decline of 48 basis points in the unemployment inflow rate. This response amounts to 55 percent of the drop in the unemployment inflow rate from 1990 to 2005 and 22 percent of its average value. Analogous estimates and calculations based on a different data source imply that falling job destruction rates account for 28 percent of the larger drop in unemployment inflow rates from 1982 to 2005. In short, secular declines in job destruction rates were a major factor behind the long-term drop in unemployment inflows.

What do these results say about the determinants of long-term movements in the rate of unemployment? The average unemployment rate fell by 43 log points from the period 1976-1985 to 1996-2005. Simple accounting shows that this decline is almost entirely attributable to a drop in the inflow rate. This accounting result, when combined with our estimates, implies that the secular fall in job destruction explains about a quarter to one half of the long-term decline in the aggregate unemployment rate. In terms of the
canonical equilibrium model of search and matching, this result is consistent with a significant downward trend in the intensity of idiosyncratic labor demand shocks in the quarter century before the Great Recession.

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3 See the discussion on pages 7-8 of Davis, Faberman, and Haltiwanger (2006).


