On the Consequences of Job Loss

Outline
I. Quit-Layoff Distinction (Brief Summary of Evidence)
II. Interpreting the Quit-Layoff Distinction
III. Evidence on Earnings Losses of Displaced Workers
IV. Evidence on Other Consequences of Job Loss/Job Displacement
V. Relating the Evidence to MP-type Search and Matching Models
VI. Some Directions for Future Research
I. The Quit-Layoff Distinction

- A large body of empirical research investigates the wage, earnings, and employment outcomes associated with quits and layoffs.
- Layoffs involve greater unemployment incidence and longer unemployment spells than quits.
  - Leighton and Mincer (1982) find that laid-off workers are twice as likely as quits to become unemployed in the National Longitudinal Survey of Men.
The Quit-Layoff Distinction, 2

- Mincer (1986) finds that two-thirds of layoffs among white men result in unemployment, as compared to one-third of quits. Conditional on unemployment, mean spell length is nearly twice as long for laid-off workers in Mincer’s study.

- Similarly, CPS data show that monthly escape rates from unemployment are 10-15 percentage points lower for permanent layoffs than for quits. See Figure 6.8 in Davis, Haltiwanger and Schuh (1996) and Figure 4 in Bleakley et al. (1999).

• Layoffs are associated with larger earnings losses than quits, as seen in the chart on the next page.
Using SIPP data on quits and layoffs (worker reports) and LEHD data on quarterly earnings (administrative records), excluding quarters with zero earnings.
Many laid-off workers experience large and persistent earnings losses, apparently as a direct consequence of job loss.

- The evidence on this point is most dramatic and compelling for prime-age workers who lose high-tenure jobs in mass layoff events.

- These job losers experience large, persistent declines in earnings relative to their previous earnings and relative to the earnings of observationally similar workers who are not laid off.
The Quit-Layoff Distinction, 4

– Jacobson, Lalonde and Sullivan (1993) provide one of the best-known studies of this phenomenon. See Couch and Placzek (2010) for an important follow up.

– Stevens (1997) finds that an initial displacement event raises a worker’s incidence of job loss for several years thereafter.

– Similarly, Ruhm (1991) finds that displaced workers experience higher unemployment rates for at least four years after the initial job loss event.

– Topel (1990) presents evidence that earnings losses (relative to pre-displacement levels) are smaller and less persistent for job losers with lower tenure.

– There is much later work on earnings losses
The Quit-Layoff Distinction, 5

Summarizing:

1. Laid-off workers are more likely to become unemployed
2. They have lower exit rates from unemployment
3. They experience less employment stability following an initial displacement event
4. They often experience a large and persistent decline in earnings
5. The loss in earnings is bigger and more persistent for job losers with higher tenure.
6. As documented earlier in the course (and below), the incidence of layoffs fluctuates in a strongly counter-cyclical manner.

In short, laid-off workers experience significantly worse labor market outcomes, and recessions bring many more laid-off workers. More on this topic below.
II. Interpreting the Quit-Layoff Distinction

• There are many competing interpretations for the systematic outcome differences between quits and layoffs.

• One view interprets all separations (and retentions) as efficient outcomes in the sense that they maximize the joint surplus of employer and worker. According to this view, quits and layoffs are mere labels that lack deeper economic significance.
  
  – McLaughlin (1990, 1991) provides a systematic development of this view.
Interpreting the Distinction, 2

• Another view, articulated by Hall and Lazear (1994), stresses two-sided information asymmetries that preclude fully efficient separation outcomes in bilateral employment relationships.

• According to this view, second-best solutions to informational problems lead to real wage rigidity and the excess sensitivity of quits and layoffs to labor demand.
Interpreting the Distinction, 3

- Other interpretations of the quit-layoff distinction stress:
  - Legal and institutional constraints on compensation and separations. Examples include minimum wage laws and collectively-bargained wage floors.
  - Negative effects of wage cuts on employee morale and productivity (Bewley, 1999)
  - Adverse selection effects on quits and workforce quality induced by wage cuts (Weiss, 1990)
  - Insider-outsider conflicts that lead to inefficient wage structures and rigid separation policies (Lindbeck and Snower, 2002).
Many of these other interpretations of the quit-layoff distinction depart, implicitly or explicitly, from a strictly bilateral perspective on compensation, separations and other aspects of the employment relationship.

– Collective bargaining is an obvious example.

– Many European countries feature a major role for centralized wage setting in which collectively bargained agreements are extended to much of economy. For a discussion of the Swedish case, see “Centralized Wage-Setting as Industrial Policy,” Davis and Henrekson (Labour Economics, 2005).
• Aside from collective bargaining and legal constraints, employers often rely on wage policies – rather than individually bargained wages – to determine compensation and influence turnover.

• These policies specify wages as a function of seniority, credentials, and position within an organization, and concerns about internal pay structure loom large.
Such “multi-lateral” compensation policies offer greater scope for a meaningful distinction between quits and layoffs than the bilateral perspective that pervades equilibrium search theories.

It is a challenge to incorporate “multi-lateral” aspects of compensation and turnover and departures from bilateral efficiency into equilibrium search models.

In recent years, several researchers have developed equilibrium search models with multiple workers, but most lack a meaningful quit-layoff distinction.
Many recent studies exploit large-scale worker-employer longitudinal data sets to study the impact of job loss/displacement on affected workers (and, in some cases, on family members and communities).

Jacobson, Lalonde & Sullivan (1993) is the first high-quality study to exploit large-scale administrative data to study this issue.
Broadly speaking, there are two empirical approaches to the earnings consequences of job loss events.

• One approach uses household survey responses to identify worker-employer separation events that fit some reasonable conception of unwanted job loss. Most early work uses household survey data.

• Another approach uses longitudinal employer-worker linked administrative records to identify mass-layoff events defined by sharp, large and persistent employer contraction episodes. The empirical investigation then proceeds under the presumption that workers who separate in these mass-layoff events experience an unwanted job loss due to the employer contraction.
Earnings Losses of Displaced Workers, 3

• JLS consider a “mass-layoff” sample of workers with job tenure of six or more years, and who lose jobs during the early and mid 1980s.

• Their sample contains job separators from establishments in Pennsylvania that, within a year of separation, have employment levels at least 30% below their maximum levels in the late 1970s.

• They further require that the employer have at least 50 employees in 1979, and that separators have positive earnings (in Pennsylvania) during each calendar year.
Earnings Losses of Displaced Workers, 4

• JLS find that mean earnings fall by 50% in the quarter of displacement, then recover by roughly half over the following six quarters.

• Five years after displacement, mean earnings remain 25% below pre-displacement levels.
Couch and Placzek (2010) reassess the JLS evidence. They point out that the JLS data cover a period of high unemployment in a heavily industrialized state characterized by disproportionate job losses in manufacturing.

- These features of the JLS sample contribute to higher earnings losses for displaced workers.

CS consider the earnings losses for Connecticut workers who lost jobs in 1998-1999 using a similar methodology to JLS.

- 1998-99 were much better years than the early 1980s, and Connecticut is less industrialized than Pennsylvania
• CS Table 1 summarizes the evidence on the earnings losses of displaced workers from several high-quality studies.
  – The losses found by JLS are on the high side but not out of line with other studies, especially when one considers the nature of the JLS sample.
Recessions and the Costs of Job Loss

Steven J. Davis and Till von Wachter

Brookings Papers on Economic Activity, Fall 2011
Outline

• Incidence of Job Loss and Job Displacement
• Earnings Losses Associated with Displacement
  – Magnitude of Present Value Losses
  – Sensitivity to Conditions at Time of Displacement
  – Selection Bias?
• Response of Worker Anxieties and Perceptions to Contemporaneous Conditions
• Earnings Losses Due to Job Loss in Leading Models of Unemployment Fluctuations
Fig. 1. Job Loss Indicators, Quarterly, % of Employment

1.0
2.0
3.0
4.0
5.0
6.0
7.0


Job Destruction (BED)
Unemployment Inflows (CPS)
Layoffs (JOLTS)

Initial Claims for UI Benefits
(Right Axis)
Job Loss Indicators, Quarterly, % of Employment

- Job Destruction (BED)
- Unemployment Inflows (CPS)
- Layoffs (JOLTS)

Initial Claims for UI Benefits
~5 million per quarter

~9 million per quarter
Defining Job Displacements in SSA Data

1. A worker **separates** in year y if he has earnings with the employer in y-1 but not in y.

2. A worker is **displaced** in year y if:
   - He separates from his (main) employer in y
   - 3+ years of tenure with employer as of y-1, and
   - Employer experiences a mass-layoff event in y

2. Employer criteria for a **mass-layoff** event in y:
   - 50+ employees in y-2
   - Employment contracts by 30-99% from y-2 to y
   - Employment in y-2 < 130% of employment in y-3
   - Employment in y+1 < 90% of employment in y-2
Fig. 2. Annual Job Displacement Rates, Percent

Men, 50 and younger, 3+ Years of Prior Job Tenure

Using a 1\% R.S. of men with a valid SSA \#, then applying age, tenure, firm size & industry criteria

Job Destruction At Firms with 50+ Employees (left axis)
Fig. 2. Annual Job Displacement Rates, Percent

31-36% of men in our SSA data satisfy the age, job tenure and firm size criteria.

20% cumulative displacement from 1980 to 1985 ~ 2.7 million men
The CPS Displaced Worker Supplement uses a less restrictive concept of displacement. It reports 6.9 million persons with 3+ years of prior job tenure were displaced from 2007 to 2009, and another 8.5 million with less tenure were displaced.
Fig. 3. Annual Displacement Rates by Tenure, Men 50 or Younger at Firms w/50+ Employees
Fig. 3. Annual Displacement Rates by Age, Men w/3+ Years Tenure at Firms w/50+ Employees
Estimating the Dynamic Pattern of Annual Earnings Losses for Workers Displaced in Displacement Year $y$}

Level of real earnings on main job for $i$ in year $t$

$$e_{it}^y = \alpha_i^y + \gamma_t^y + e_i^y \lambda_t^y + \beta^y X_{it} + \sum_{k=-6}^{20} \delta_k^y D_{it}^k + u_{it}^y$$

For workers displaced in $y$, $y+1$ or $y+2$, dummies turn on $k$ years after displacement.

Quartic in Age

Allowing for differential earnings trends

Fit to 1974-2008 longitudinal earnings data separately for each displacement year from 1980 to 2005.

Event

Job displacement in $y$, $y+1$, $y+2$

Control Group

Workers not separating from employers in $y$, $y+1$, $y+2$ (same age, tenure and 50+ requirements)

Identification

Evolution of control group earnings is a valid counterfactual for earnings of displaced workers in the absence of job displacement, conditional on controls
We construct these plots by averaging the estimation results over displacement years from 1980 to 2005.
Fig. 4C. Average Annual Earnings Losses Before and After Job Displacement Relative to Control Group Earnings, Fraction of Pre-Displacement Annual Earnings, Men 50 or Younger with At Least 3 Years of Job Tenure
Fig. 5. Annual Earnings Losses in the Third Year of Job Displacement, Men 50 or Younger with at Least 3 Years of Job Tenure Prior to Displacement
Is It Selection Bias?

• Workers displaced from employers with >80% contraction experience similar earnings losses
  – Argues against within-firm selection

• Losses are smaller when controlling for firm-year effects, but they remain large and persistent.
  – Argues against between-firm selection

• Selection does not explain larger losses for workers displaced in worse times, when negative selection effects are likely weaker.

• See von Wachter, Manchester and Song (2009) for more on selection.
Constructing Estimates of Present Value Earnings Losses

The estimated average annualized log earnings loss between years 6-10 and 11-15, estimated using data for all available displacement years.

\[
PDV_{loss}^R = \sum_{s=1}^{10} \frac{1}{\delta_s^R} \frac{1}{(1 + r)^{s-1}} + \sum_{s=11}^{20} \frac{1 - \bar{\lambda}}{(1 + r)^{s-10}}
\]

- Estimated earnings loss in year \(s\) from displacement, using average of estimated loss in all or selected displacement years.
- 5% annual discount rate
- Estimated earnings loss in year 10 from displacement.
- Average annual decay rate of losses in years 11 to 20 after displacement.
Table 1.
Magnitude of PV Earnings Loss at Job Displacement in Mass Layoffs from 1980-2005: Men, 50 or Younger with 3+ Years of Prior Job Tenure

<table>
<thead>
<tr>
<th>Fraction of Years Covered by Row Category</th>
<th>Multiple of Pre-Displacement Annual Earnings</th>
<th>Present Discounted Value (PDV) of Average Loss at Job Displacement</th>
<th>Ratio of PDV of Loss and PDV of Counterfactual Earnings in Absence of Displacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average All Years</td>
<td>-</td>
<td>-77,557</td>
<td>-1.71</td>
</tr>
<tr>
<td>Avg. in NBER Expansion Years</td>
<td>0.88</td>
<td>-72,487</td>
<td>-1.59</td>
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<tr>
<td>Avg. in NBER Recession Years</td>
<td>0.12</td>
<td>-109,567</td>
<td>-2.50</td>
</tr>
<tr>
<td>Average in Years with:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UR&lt; 5%</td>
<td>0.23</td>
<td>-50,953</td>
<td>-1.06</td>
</tr>
<tr>
<td>5%&lt;=UR&lt;6%</td>
<td>0.35</td>
<td>-71,460</td>
<td>-1.56</td>
</tr>
<tr>
<td>6%&lt;=UR&lt;7%</td>
<td>0.13</td>
<td>-71,006</td>
<td>-1.58</td>
</tr>
<tr>
<td>7%&lt;=UR&lt;8%</td>
<td>0.21</td>
<td>-89,792</td>
<td>-2.07</td>
</tr>
<tr>
<td>UR&gt;=8%</td>
<td>0.08</td>
<td>-121,982</td>
<td>-2.82</td>
</tr>
</tbody>
</table>
Fig. 6. PV Earnings Losses over 20 Years from Displacement, Men 50 or Younger with 3+ Years of Prior Job Tenure
Table 2. 
Magnitude of PV Earnings Loss at Job Displacement in Mass Layoffs from 1980-2005: Men, 50 or Younger with 6+ Years of Prior Job Tenure and Women, 50 or Younger with 3+ Years of Tenure

<table>
<thead>
<tr>
<th>Sub-Group</th>
<th>Present Discounted Value (PDV) of Average Loss at Job Displacement</th>
<th>Multiple of Pre-Displacement Annual Earnings</th>
<th>Ratio of PDV of Loss and PDV of Counterfactual Earnings in Absence of Displacement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dollar Value</td>
<td></td>
<td></td>
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<tr>
<td>Men with 6 or More Years of Job Tenure</td>
<td>-106,900</td>
<td>-2.0</td>
<td>-12.9</td>
</tr>
<tr>
<td>Displacement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg. in NBER Expansion Years</td>
<td>-100,543</td>
<td>-1.8</td>
<td>-11.9</td>
</tr>
<tr>
<td>Avg. in NBER Recession Years</td>
<td>-148,400</td>
<td>-3.0</td>
<td>-20.0</td>
</tr>
<tr>
<td>Women with 3 or More Years of Job</td>
<td>-38,033</td>
<td>-1.5</td>
<td>-10.9</td>
</tr>
<tr>
<td>Tenure at Displacement</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Avg. in NBER Expansion Years</td>
<td>-33,164</td>
<td>-1.3</td>
<td>-9.5</td>
</tr>
<tr>
<td>Avg. in NBER Recession Years</td>
<td>-68,782</td>
<td>-3.3</td>
<td>-20.6</td>
</tr>
</tbody>
</table>
Integrating Survey & Administrative Data

In “Reconsidering the Consequences of Worker Displacement: Firm versus Worker Perspective,” Flaaen, Shapiro and Sorkin (2017) neatly combine survey-based information from the SIPP on the reason for worker separation with LEHD data (derived from administrative records) on employer growth rates and mass-layoff events. Like other studies based on administrative records, they use high-quality data on individual earnings tracked longitudinally over many periods.
They sort mass-layoff (ML) separators into *distress*, *quit*, and *other* classifications based on SIPP responses to questions on the reason for separation. In their first main result, they show that the post-separation earnings trajectories of ML separators differ radically depending on the worker-supplied reason for the separation. In other words, when faced or hit by a mass-layoff event, workers differ greatly in their capacity to adjust, and in a manner that is partly captured by a simple three-way survey-based classification.
The paper’s most important and novel contribution is to develop and implement a method for identifying a latent ML earnings loss trajectory for each type of separator (distress, quit, and other) and for ML separators on average. The latent earnings loss trajectory accounts for the big fact that distress, quit, and other separations occur regularly, and not just because certain employers contract. To address this issue, the authors look to separation rates and earnings loss trajectories at relatively stable firms. That, plus worker and period controls, gives them a sensible counterfactual, which they use to identify and isolate the contraction-induced effects on separation rates and earnings trajectories in ML events.
Somewhat surprisingly, the latent earnings loss trajectory for the average ML separator identified in this manner is very similar to the comparatively naïve earnings loss trajectory yielded by the standard approach to administrative records data. The paper contains other results as well. They are well summarized in the introduction.
IV. Evidence on Other Consequences of Job Loss/Job Displacement

• The few studies that estimate the effects of job loss or unemployment on consumption typically find sizable near-term declines in consumption expenditures (and lack evidence on long-term consumption responses). See Gruber (1997) and Stephens (2004), for example.

• Baker (2014), a recent Stanford PhD now at Northwestern, finds that spending responses to household income shocks (driven by shocks to their employers) rise with HH indebtedness.
Baker exploits a new, very rich dataset that contains detailed information on spending, incomes and balance sheets for millions of American households.

- See Stevens (2007), VSM (2011) and Jarosch (2014) for evidence that job displacement brings lower job stability, greater earnings instability, and recurring spells of joblessness.
Other Consequences, 3

• Other studies find evidence that displaced workers suffer short- and long-term declines in health, a higher incidence of stress-related ailments (e.g., heart attacks), and higher mortality rates. See Burgard, Brand and House (2007), Sullivan and von Wachter (2010) and Black et al. (2012).

• Black et al. (2012) find evidence that much of the negative health effects associated with job loss are driven by increased smoking. See Black et al. (2012) for additional references to the literature on the relationship of job loss to health outcomes.
• Several studies point to negative long-term effects of layoffs on the children and spouses of job losers, e.g., Oreopoulos, Page and Stevens, 2008 and Wrightman (2009).

• Banzhaf (2013) investigates how the effect of job loss on divorce depends on the earnings potential of both spouses.

• Not surprisingly, job loss and unemployment lead to reductions in happiness & life satisfaction (Frey & Stutzer, 2002).
Worker Anxieties about Job Loss and other Labor Market Prospects

• Perceptions about job loss and the difficulty of job finding track actual unemployment rates

• Worker anxieties about job loss, hours cuts, wage and benefit cuts rose sharply after the 2008 financial crises and remain very high

• These high anxiety levels likely produce important stresses and psychological costs for a large segment of the population.
Fig. 8. Perceived Likelihood of Job Loss in Next 12 Months, All Available Years in the General Social Survey, 1977 to 2010

Unemployment rate data from the CPS, perceptions data from the GSS.
Fig. 9. Perceived Likelihood of Job Finding, All Available Years in the General Social Survey, 1977 to 2010

Unemployment rate data from the CPS, perceptions data from the GSS.
Figure 10. Perceived Ability to Find a Quality Job, March 2002 to June 2011, Gallup Polling
Based on polling from 5-8 September 2013.
Thinking about the job situation in the city or area where you live today, would you say that it is now a good time or a bad time to find a job?

Percentage of adults saying "good time" and "bad time"

<table>
<thead>
<tr>
<th>Country</th>
<th>Good time</th>
<th>Bad time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greece</td>
<td>1</td>
<td>98</td>
</tr>
<tr>
<td>Italy</td>
<td>3</td>
<td>95</td>
</tr>
<tr>
<td>Spain</td>
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<td>94</td>
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<td>Ireland</td>
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<td>Portugal</td>
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<td>Czech Republic</td>
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<td>Estonia</td>
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<td>Germany</td>
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Source: [www.gallup.com/poll/158918/jobs-outlook-dismal-across.aspx](http://www.gallup.com/poll/158918/jobs-outlook-dismal-across.aspx)
Table 3. Worker Anxiety Rose Sharply in the Wake of the 2008 Financial Crisis and Remained High

<table>
<thead>
<tr>
<th></th>
<th>Hours Cut</th>
<th>Wage Cut</th>
<th>Benefit Cut</th>
<th>Lay Off</th>
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<tbody>
<tr>
<td>August 1997</td>
<td>15</td>
<td>17</td>
<td>34</td>
<td>20</td>
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<td>August 2003</td>
<td>15</td>
<td>17</td>
<td>31</td>
<td>19</td>
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<td>August 2004</td>
<td>14</td>
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<td>20</td>
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<tr>
<td>August 2005</td>
<td>13</td>
<td>14</td>
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<td>August 2006</td>
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<td>August 2007</td>
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<td>August 2008</td>
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<td>August 2009</td>
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<td>August 2010</td>
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<tr>
<td>August 2011</td>
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<td>August 2012</td>
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<td>40</td>
<td>28</td>
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<tr>
<td>August 2013</td>
<td>25</td>
<td>29</td>
<td>43</td>
<td>31</td>
</tr>
</tbody>
</table>

V. Relating the Evidence to MP-type Search and Matching Models
Basic MP Model of Frictional Unemployment

- Homogenous jobs, workers and matches
- Filled jobs/matches blow up at constant rate
- Aggregate productivity, common to all jobs, is exogenous and stochastic
- Hires = M(Unemployed, Vacancies), CRS
- Wage determination: Nash or BRW
- Free entry of employers/vacancies
- The only nontrivial decision in the model is how many vacancies employers create.

\[ q(\theta_i)(P_i - W_i) = c. \]
Table 4. PV Income and Earnings Losses Due to Job Loss in the Basic MP Model

<table>
<thead>
<tr>
<th>Model Version</th>
<th>MP-Nash</th>
<th>MP-Nash</th>
<th>MP-CB</th>
<th>MP-Nash</th>
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<tbody>
<tr>
<td>Calibration</td>
<td>Standard</td>
<td>Hagedorn-Manovskii</td>
<td>Hall-Milgrom</td>
<td>Hall-Milgrom</td>
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<tr>
<td><strong>A. Range of Mean Losses Over Five Aggregate States</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PV Income Losses, Percent of Employment Asset Value</td>
<td>0.20 - 0.22</td>
<td>0.044 - 0.047</td>
<td>0.20 - 0.23</td>
<td></td>
</tr>
<tr>
<td>PV Earnings Losses, Percent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>B. All Aggregate Paths</strong></th>
<th><strong>Realized Outcomes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Unemployment Rate</td>
<td>0.066</td>
</tr>
<tr>
<td>Monthly Job-Finding Rate</td>
<td>0.43</td>
</tr>
<tr>
<td>Mean PV Losses</td>
<td>0.23</td>
</tr>
<tr>
<td>10\textsuperscript{th}/90\textsuperscript{th} percentile losses</td>
<td>-0.55 / 1.07</td>
</tr>
</tbody>
</table>

All calibrations follow Hall and Milgrom (AER, 2008).
MP Model of Burgess and Turon (2010)

- Start with Mortensen and Pissarides (1994)
- Add costly search on the job and other changes

The Model Yields:
- Worker flows apart from job flows
- Heterogeneity in productivity and wages
- A job ladder
- Job loss spikes due to negative aggregate shocks

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Idiosyncratic Productivity Thresholds for Job Destruction, Replacement Hiring and Search on the Job
Figure B1. Wage Function and Density of Filled Jobs in the Model of Burgess and Turon for the Table 5 Calibration
Table 5. PV Earnings Losses Due to Job Loss in Model of Burgess and Turon (2010), MP(1994) with Search on the Job

<table>
<thead>
<tr>
<th>Aggregate State</th>
<th>Good</th>
<th>Middle</th>
<th>Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>0.39</td>
<td>0.35</td>
<td>0.32</td>
</tr>
<tr>
<td>Earnings</td>
<td>2.44</td>
<td>2.54</td>
<td>2.71</td>
</tr>
</tbody>
</table>

Note: We calibrate the model to match U.S. job-finding rates. Burgess and Turon calibrate their model to match features of the British economy from 1964 to 1999. Using their calibration, which entails much lower job-finding rates for unemployed workers, the Mean PV earnings losses range from 4.4% to 5%.
Table 5, Continued

<table>
<thead>
<tr>
<th>Aggregate State Transition</th>
<th>Good $\rightarrow$ Middle</th>
<th>Middle $\rightarrow$ Bad</th>
<th>Good $\rightarrow$ Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Present Value Earnings Losses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Mean Loss Due to Idiosyncratic Shocks that Result in Job Loss, Comparison to Own Past</td>
<td>2.85</td>
<td>3.08</td>
<td>3.26</td>
</tr>
<tr>
<td>J. Mean Loss Due to Aggregate Shock that Results in Job Loss, Comparison to Own Past</td>
<td>2.15</td>
<td>2.57</td>
<td>2.57</td>
</tr>
<tr>
<td>K. Inflow-Weighted Average of Rows I and J</td>
<td>2.81</td>
<td>3.05</td>
<td>3.19</td>
</tr>
<tr>
<td>L. Mean Loss Due to Idiosyncratic Shocks that Result in Job Loss, Comparison to Control Group</td>
<td>2.54</td>
<td>2.71</td>
<td>2.71</td>
</tr>
<tr>
<td>M. Mean Loss Due to Aggregate Shock that Results in Job Loss, Comparison to Control Group</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>N. Inflow-Weighted Average of Rows L and M</td>
<td>2.39</td>
<td>2.55</td>
<td>2.42</td>
</tr>
</tbody>
</table>
Summary

1. Job displacement brings large PV earnings losses

<table>
<thead>
<tr>
<th>Unemployment Rate in Displacement Year</th>
<th>Mean PV Losses as Multiple of Pre-Displacement Earnings (Men)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 6%</td>
<td>1.4 Years</td>
</tr>
<tr>
<td>More than 8%</td>
<td>2.8 Years</td>
</tr>
<tr>
<td>Full Sample, 1980-2005</td>
<td>1.7 Years</td>
</tr>
</tbody>
</table>

2. Incidence of job loss & displacement rises in recessions and slumps, especially severe ones

3. Job displacement leads to many other negative consequences for workers and their families

4. Job loss is a rather inconsequential event in leading models of unemployment fluctuations
   – Off-the-shelf MP models do not account for magnitude of PV losses, or the sensitivity to conditions at the time of displacement
   – They miss why workers and policymakers are so concerned about job loss, recessions and unemployment
VI. Recent Work on Models Designed to Explain the Earnings Losses of Displaced Workers
A Model of Jarosch (2015)

- A model of individual earnings, wage and employment dynamics with search frictions and an exogenous distribution of jobs on offer
- Workers search while employed and unemployed
- Individuals accumulate general human capital while working, and human capital depreciates when not working
- Workers and firms bargain over wages, with threat point defined by Max{value of unemployment, value of best offer since last jobless spell}.
  - Re-bargaining only when a credible threat is in hand
  - Follows the sequential auction process of Postel-Vinay and Robin (2002) and Cahuc et al. (2006)
- **Key model innovation**: Jobs differ with respect to productivity and job security (i.e., expected time till exogenous job destruction)
Fitting and Evaluating the Model

Jarosch fits his model by SMM to German data on:

• E-E rates and the unemployment rate
• Incidence of secondary job loss
• Wage growth with tenure on a given job
• Wage changes between jobs and between unemployment spells
• Moments of the cross-sectional wage distribution

He allows a flexible specification for the joint distribution of offers over productivity and job security.

The fitted model largely accounts for the magnitude and persistence of earnings losses in the wake of job displacement in the German data. These losses are similar to the ones seen in U.S. data.
Job Loss Effects in German Data, Jarosch (2015)

Analysis of a 2% r.s. of German workers who held private sector jobs, 1974 to 2010, using treatment and control group definitions and regression specifications that parallel Davis and von Wachter (2011).

**Figure:** Wages, Earnings, (Employment,) Separation Risk

The magnitude and persistence of earnings losses in the wake of job displacement in the German data are very similar to the U.S. data. The German data also allow for a clean distinction between (daily) wages and earnings.
Effects of Job Displacement on Workers: Model Compared to Data

Earnings

Wages
Effects of Job Displacement on Workers: Model Compared to Data

**Employment Rate**

**Separation Risk**
How the Model Works, 1

A Job Ladder with “Slippery” Lower Rungs

Because the unemployed are not choosy when encountering a job opportunity, they are more willing to accept jobs that offer low job security (and low productivity). To a lesser extent, the same is true in expectation for recently re-employed workers. Eventually, workers move into jobs with high productivity and high job security, unless they are hit again by a job loss event.

These dynamics result in a job ladder that is more “slippery” on its lower rungs, so that an initial layoff event raises the likelihood of secondary job loss after re-employment. This key mechanism prolongs the recovery path of earnings following an initial displacement event.
Two Other Model Features Amplify the Wage and Earnings Effects of Job Loss

1. Individuals accumulate general human capital while working, and their human capital depreciates when out of work. Shortfalls in human capital due to initial and secondary unemployment spells pull down wages in a persistent manner (in expectation) after a job displacement event.

2. The sequential auction process yields worker “negotiation rents” that tend to rise with time since last jobless spell. Even when a worker stays on his current job, an attractive outside offer lets him negotiate a larger share of the rents. Thus, wages rise with time since last jobless spell because the worker has had more time to find a high-productivity job and because past offers enable him to obtain a larger share of current match surplus.
VI. Directions for Research

- Put human capital and job ladders into DMP models
  - Learning about match quality (Jovanovic, 1979) – a type of human capital and one source of a job ladder. See Krolikowski (2017) for a model of this sort that aims to explain the earnings losses associated with worker displacement.
Directions for Research, 2

– Learning by doing on the job + HC depreciation when not working. Jarosch (2015) has elements of HC accumulation and depreciation as well
  • Ljungqvist and Sargent (1998) consider a model with these features, but not in a DMP setting.

– Costly investments in job-specific training (Becker, 1962)

– For a model with human capital, occupational sorting by skill and endogenously determined, and time-varying, hiring standards, see Huckfeldt (2016).
Directions for Research, 3

• Account for (other sources of) worker rents in theoretical models and empirical studies of the earnings losses associated with job loss
  – Pay equity and fairness norms (Akerlof and Yellen, 1982)
  – High pay to deter shirking (Bulow and Summers, 1986)
  – Appropriation of quasi-rents on capital (Grout, 1986)
  – Worker sharing of product market rents (Brown & Medoff, 1989)
  – Downward stickiness due to contracting and one-sided commitment by firms (Beaudry and DiNardo, 1992)
  • See Schmieder and von Wachter (2010) for evidence that wage stickiness of this form is a feature of U.S. labor markets, and that it helps explain which workers get displaced.
Directions for Research, 4

• To what extent does the loss of imputed rents account for the estimated PV earnings losses associated with job displacement?
  – Use estimated rent component of industry, employer size, and union wage effects

• Why don’t wages fall (more) at firms that undergo mass layoffs?
  – There is astoundingly little work on this question, given the size of the apparent earnings losses associated with mass layoff events.
Directions for Research, 5

• Turning the displaced worker literature upside-down: What’s the impact on PV earnings of (early) attachment to a firm that experiences rapid, sustained growth?

• How do (anticipated) job displacement events affect savings and portfolio allocation behavior?

  – See Gallen (2013) and Basten et al. (2013) for two recent efforts to tackle this question.
• Incorporating lessons from research on graduating in a recession
  – Workers who enter the labor market when conditions are slack suffer persistent negative effects on future earnings (Kahn, 2010)
  – Lasting declines in employer quality and lasting effects of low starting wages on wage growth within firms (Oreopolous, von Wachter and Heisz, 2013)
  – These results suggest that weak conditions at the time of labor market entry (or displacement) slow the accumulation of rents and specific human capital for many years thereafter.
  – Huckfeldt (2016) is relevant here.
Directions for Research, 7

• Who recovers from displacement events? How much explanatory power from “standard” measures of skills, education and cognitive ability?
  – Do personality traits matter and, if so, how much?
    • Resilience, optimism, perseverance, sociability, organizational skills and practices, propensity to plan, attitudes, etc.

• How do perceptions of labor market conditions affect behavior by individuals and employers?
References 1


• Basten, Christoph, Andreas Fagereng and Kjetil Telle, 2013. “Saving and Portfolio Allocation Before and After Job Loss,” working paper.


References 2


• Flaaen, Aaron, Matthew D. Shapiro and Isaac Sorkin, 2017. “Reconsidering the Consequences of Worker Displacements: Survey versus Administrative Measurements,” working paper.


References 3


• Jung, Philip and Moritz Kuhn, 2017. “Earnings Losses and Labor Mobility over the Life-Cycle.”


References 4


References 5