Persistent Wage Effects of Past Labor Market Conditions

Outline

I. Beaudry and DiNardo (1991) – Evidence that past labor market conditions matter for current wages and an interpretation in terms of wage stickiness

II. Hagedorn and Manovskii (2011) – More evidence and an alternative interpretation in terms of persistent effects on match quality

III. Persistent effects of labor market conditions at entry

IV. Taking stock
I. Beaudry and DiNardo (1991)

• An influential paper by Beaudry and DiNardo (1991) investigates whether past labor market conditions have persistent effects on workers’ wages.

• To put the issue as a question: Do past labor market conditions affect a worker’s current wages, once we control for current labor market conditions?
An affirmative answer is often interpreted as wage stickiness of the sort implied by certain insurance–contract theories of the employment relationship, often referred to as “implicit-contract theories”.

These theories postulate risk-neutral employers who extend a form of (limited) wage insurance to workers as part of a long-term employment relationship.

– See Azariadis (1975) and Harris and Holmstrom (1982).
– For the development of similar ideas in a search setting, see Postel-Vinay and Robin (2002) and Cahuc, Postel-Vinay and Robin
BD estimate regressions of the form:
\[
\ln w_{j,t_0,t} = X_{j,t_0,t} \alpha + \gamma_{\text{start}} U_{t_0} + \gamma_c U_t \\
+ \gamma_{\text{min}} \min \{U_{\tau}\}_{\tau=t_0}^t + \eta_j + \nu_{jt},
\]

\(w_{j,t_0,t}\) = time-\(t\) wage for worker \(j\) hired in period \(t_0\)

\(X_{j,t_0,t}\) is a vector of worker and job characteristics,

\(\eta_j\) and \(\nu_{jt}\) are error terms

\(U\) is the unemployment rate

\(\gamma_{\text{start}}\) and \(\gamma_{\text{min}}\) capture the effects of
past market conditions
According to insurance-contract theories, the lowest unemployment rate during a job spell is an important determinant of wages -- if firms insure workers against fluctuations in income over the business cycle, and firms can commit to the contract while workers cannot. Under such contracts with one-sided commitment, firms insulate workers from recessions but must adjust wages upwards when labor markets are tight, i.e., when unemployment rates are low, to deter workers from quitting and taking other jobs.
Beaudry and DiNardo (1991), 5

- BD estimate regressions of this form for men in the PSID from 1976 to 1984 and in two cross sections of the CPS
- Controls in the X vector include, depending on data source, a quadratic in potential experience, a quadratic in job tenure, years of schooling and dummies for industry, region, race, union status, marriage, and SMSA.
Main Results in Beaudry and DiNardo:

• \( \hat{\gamma}_{\text{min}} \approx -2.9 \), large and statistically significant, when all three unemployment rate measures are included in the regression specification.

• The coefficient on starting unemployment is smaller \((-0.6)\) and not statistically significant.

• The coefficient on current unemployment is \(-0.7\) and statistically significant.

• These results are based on the PSID and a specification that includes worker fixed effects.
When BD include only the current unemployment rate, they estimate a semi-elasticity of -1.4, in line with the findings in earlier studies.

Later work by McDonald and Worswick (1999), Grant (2003) and Devereux and Hart (2007) obtain results similar to BD using data for Canada, the US NLS, and Great Britain.

In short, BD-type studies seem to provide strong evidence for a certain form of wage stickiness suggested by insurance-contract views of the employment relationship.
• Other studies that develop interesting evidence on the persistent effects of past labor market conditions include Baker et al. (1994), Guiso et al. (2004), Oyer (2006, 2008), Bowlus and Liu (2007), Kahn (2010), Hagedorn and Manovskii (2010) and Oreopoulos et al. (2012).

• We consider a few of these studies below.
Hagedorn and Manovskii (2010) challenge the standard interpretation of the BD-type evidence. They develop an alternative interpretation based on a theory of on-the-job “search” w/ endogenous evolution of employer-worker match qualities. They construct new theory-motivated measures of past labor market conditions. When they run a horse-race in an expanded version of the BD-type regression, their measures knock out the lagged unemployment measures.
Summary of What HM Do

1. They analyze an on-the-job “search” model with wages that depend only on contemporaneous components of match productivity.

2. In the model, wages depend only on current labor market conditions and idiosyncratic match-specific productivities. *The endogenous distribution of current match productivities depends on the past evolution of labor market tightness.*

3. HM’s spot-wage search model implies outcomes often interpreted as evidence of real wage stickiness:
   - History dependence: Past LM conditions affect current wages *through* the evolution of the match quality distribution.
   - Wages are more pro-cyclical for newly hired workers.

4. HM find that their spot-wage model fares well in the NLSY and PSID:
   - Expected # of offers during employment cycle and job spell matter for wages, and in the way predicted by theory.
   - Evidence for insurance-contract theories of wage behavior vanishes when controlling for match-quality selection effects.

5. Small search frictions are enough to account for role of past LM conditions on current wages observed in the data.
Broad Messages of HM

1. To understand aggregate wage dynamics, we must model and track the C-S distribution of match qualities.
   - HM tracks this C-S distribution using the (estimated) number of job offers received during (a) the completed current employment cycle and (b) the completed current job spell.

2. Persistent labor market effects of recessions on wage outcomes work through the match quality distribution, not through wage stickiness (there are other potential channels, too), according to HM results.

3. These results suggest that studies focused on (real) wage stickiness are barking up the wrong tree.
   - HM analysis favors spot, not Walrasian, wage setting.
1. Workers receive job offers with a probability that increases in market tightness: \( \text{Pr(offer|booms)} > \text{Pr(offer|recessions)} \).
2. Offers come from time-invariant match quality distribution.
3. Worker accepts an offer whenever the new match is better (higher productivity) than his current one.
4. Workers and employers split the surplus period-by-period. Surplus depends on match quality and market tightness.
5. Exogenous rate at which job blows up and worker becomes unemployed. This even defines the end of an “employment cycle”
6. The expected number of offers received by the worker in (a) the current employment cycle and (b) in the current job spell have predictive power for match quality and, hence, for the current wage conditional on current market conditions.
Job Selection and Wages in HM Model

(1) \[ \log w_t^i = \alpha \log \theta_t + \beta \log \epsilon_t^i, \]

• Since the lowest unemployment rate received during a job spell is negatively correlated with the number of offers received during that spell, it has explanatory power for wages, conditional on current labor market circumstances, thus rationalizing the BD-type findings.

• The same logic applies to the estimated wage effects of unemployment at match formation.
• These conclusions require some restrictions on the evolution of labor market conditions and their relationship to the arrival pace of offers. See Section 3.1 in HM (2010)

• Wages of new hires are more cyclically sensitive than wages of stayers, because workers sample from a larger pool of offers in a boom, and workers with lower match quality (over-represented among recent hires) benefit more from the increased pace of offers in a boom.
Job Selection and Wages, 3

Offer arrival rate = $q_\theta$, increasing in $\theta$

Time $t$ in current job spell

Sum of offers received during current job spell

Sum of offers received in current employment cycle before start of current job spell
Empirical Implementation

- HM measure expected match quality using a proxy for the expected number of offers during a completed job spell. Specifically, they use the sum of labor market tightness outcomes (v/u ratio) during the life of the employment cycle (before start of current job spell) and during the life of the current job spell.

- They use data from the NLS-Y and PSID. The slides below show results for the NLS-Y.
Table 1: Controlling for Match Qualities in Beaudry-DiNardo Regressions. NLSY.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Specification</th>
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<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1. $u$</td>
<td>-3.455</td>
</tr>
<tr>
<td></td>
<td>(0.528)</td>
</tr>
<tr>
<td>2. $u^{min}$</td>
<td>—</td>
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<td>—</td>
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<td>3. $u^{begin}$</td>
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<td></td>
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<td>4. $q^{HM}$</td>
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<td>5. $q^{EH}$</td>
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</table>

Note - Standard errors are in parentheses. All coefficients and standard errors are multiplied by 100.

Sum of tightnesses of during life of current job spell.

Sum of market tightnesses from start of current employment cycle to start of current job spell.
Table 3: Controlling for Match Qualities in Beaudry-DiNardo Regressions. NLSY. Adding controls for endogenous separations into unemployment.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<tbody>
<tr>
<td>$u$</td>
<td>-3.511</td>
<td>-2.611</td>
<td>-1.804</td>
<td>-2.408</td>
<td>-2.884</td>
<td>-2.439</td>
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<tr>
<td></td>
<td>(0.495)</td>
<td>(0.449)</td>
<td>(0.790)</td>
<td>(0.702)</td>
<td>(0.598)</td>
<td>(0.499)</td>
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<tr>
<td>$u^{min}$</td>
<td></td>
<td></td>
<td>-2.439</td>
<td>-0.319</td>
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<td></td>
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<td></td>
<td>(0.781)</td>
<td>(0.731)</td>
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<tr>
<td>$u^{begin}$</td>
<td></td>
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<td>-1.039</td>
<td>-0.349</td>
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<td>(0.399)</td>
<td>(0.389)</td>
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<td>$q^{HM}$</td>
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<td>$q^{EH}$</td>
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<td>$\Sigma^{max}$</td>
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</tbody>
</table>

Highest values of Productivity cutoff before and during current job spell

Note - Standard errors are in parentheses. All coefficients and standard errors (except those on $\sigma^{max}$ and $\Sigma^{max}$) are multiplied by 100.
1. Initial productivity = only aspect of match quality.
   – No separations due to learning about match quality, learning your type, career-path concerns, ...
2. Workers behave passively in offer generation process
   – They cannot raise offer arrival rate when match is bad
3. HM do not model the offer-generation process by firms.
   – Distribution F(.) of match productivity draws is fixed over time
     – i.e., invariant to the business cycle
4. HM ignore the employer’s opportunity cost of filling a job.
   – What implicit assumptions make this opportunity cost irrelevant?
5. Is tightness ratio a sufficient condition for LM conditions?
6. How much role for more tailored measures of current and past LM conditions? Is this important?
Issues Related to HM Empirical Work

1. Little scope for insurance in high-turnover jobs
   – Worker turnover = 26% of employment per month in top quintile (Davis, Faberman and Haltiwanger, 2012)
   – Could use CPS data on job tenures to sort between high- and low-turnover occupations and industries
   – Could use JOLTS data to sort between high- and low-turnover industries.
   – Do HM results hold up if sample is restricted to industries or occupations for which insurance-contract theories are plausible?

2. Job switching due to learning your type, learning about match quality, and career-path development are relatively intense among younger workers
   – One approach: Restrict sample to workers who are 30+ years of age

3. Weight by persons, employment cycles or job spells?

4. Higher moments of wage and wage change distributions: The theory has implications for these – are they consistent with the data?

5. Do tests have power against other plausible forms and sources of wage rigidity?
III. Persistent Effects of Labor Market Conditions at Entry

• Several studies investigate how conditions at the time of labor market entry (e.g., year of college graduation) affect compensation and other labor market outcomes years later.

• Kahn (2010) uses the NLSY to investigate effects of labor market conditions at college graduation on wages over next 17 years for U.S. white males.
  – Proxy labor market entry conditions using national and state unemployment rates in college graduation year
  – Instrument by year of birth and state of residence at an early age
Employment is restricted to non-enrolled persons while all other drop wage values that are less than $1 or greater than $1000 per hour.

Youth (NLSY79).

3. Data and methods

If disparities in human capital early training have positive effects on future wages (e.g.,

A rare group.

Starting from a sample of graduating in a bad economy will be. If disparities in human capital either through

The most recent data available is from the 2006 survey. In this paper because the business-cycle shocks should be visible to employers. Thus

exogenous source of variation in starting wages. This model does not apply to the exogenously being forced to take a lower wage (due to business-cycle shocks) could

is imperfect and employers take a worker's current wage as a signal of ability then

Table 1

Sample sizes of college graduation cohorts.

<table>
<thead>
<tr>
<th>Year college graduation</th>
<th>Frequency</th>
<th>National UE rate(^a)</th>
<th>National UE rate group</th>
<th>State UE rate(^b) (mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>19</td>
<td>5.8</td>
<td>Low</td>
<td>5.72</td>
</tr>
<tr>
<td>1980</td>
<td>44</td>
<td>7.1</td>
<td>Medium</td>
<td>7.04</td>
</tr>
<tr>
<td>1981</td>
<td>58</td>
<td>7.6</td>
<td>High</td>
<td>7.98</td>
</tr>
<tr>
<td>1982</td>
<td>64</td>
<td>9.7</td>
<td>High</td>
<td>10.00</td>
</tr>
<tr>
<td>1983</td>
<td>66</td>
<td>9.6</td>
<td>High</td>
<td>10.02</td>
</tr>
<tr>
<td>1984</td>
<td>56</td>
<td>7.5</td>
<td>Medium</td>
<td>7.53</td>
</tr>
<tr>
<td>1985</td>
<td>60</td>
<td>7.2</td>
<td>Medium</td>
<td>7.08</td>
</tr>
<tr>
<td>1986</td>
<td>73</td>
<td>7.0</td>
<td>Low</td>
<td>7.13</td>
</tr>
<tr>
<td>1987</td>
<td>43</td>
<td>6.2</td>
<td>Low</td>
<td>6.63</td>
</tr>
<tr>
<td>1988</td>
<td>18</td>
<td>5.5</td>
<td>Low</td>
<td>5.32</td>
</tr>
<tr>
<td>1989</td>
<td>12</td>
<td>5.3</td>
<td>Low</td>
<td>5.35</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>513</strong></td>
<td><strong>mean = 7.62</strong></td>
<td></td>
<td><strong>Mean = 7.78</strong></td>
</tr>
</tbody>
</table>

NLSY79 white males with at least a BA/BS.

Notes: Sample is restricted to the cross-section, white-male sample who graduated from college between 1979 and 1989 and have valid AFQT score and state unemployment rate.
Kahn (2010), 3

$i$ indexes the individual, $t$ indexes time

\[ dep\, var_{it} = \alpha_0 + \lambda_1 \text{college}_i + \lambda_2 \text{college} \times \text{Exp}_{it} + \alpha \text{AFQT}_i \]

\[ + \gamma' Y_t + \beta \text{State}_{it}^{ue} + \delta_1 \text{Exp}_{it} + \delta_2 \text{Exp}^2_{it} + u_{it} \]

Controlling for contemporaneous labor market conditions at the time corresponding to the dependent variable.

When using the state unemployment rate that prevailed in the year the individual graduated from college, the regression specification also includes fixed effects for year of college graduation and state of college graduation.
The impact of unemployment rate group category on the probability of college graduation, it is worth examining whether the enrollment national groups were more likely to be enrolled in school one year after a quadratic in age. Standard errors are clustered by birth cohort.

The mean unemployment rate in the high state group is approximately 10 and the mean wage loss of 0.062 log points (in response to a 1 percentage point increase in the unemployment rate). This elasticity is exactly in line with the wage curve literature (see Delong et al. (2003)).

Larger cohorts may fare worse in the labor market because of excess labor supply or larger cohort size; this hypothesis has been of interest to labor economists since S. saw increasing returns to skills in the 1980s which led to increased educational attainment. The analysis using national unemployment rates does yield important in magnitude (the base rate of attaining a further degree is 25% and the average number of years enrolled post-college is 1.5). The average a third of a year more schooling, both relative to the low group.

Table 4
Log wage regression results.

<table>
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<tr>
<th></th>
<th>National</th>
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<th>State</th>
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<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>OLS[b]</td>
<td>IV[c]</td>
<td>OLS[b]</td>
<td>IV[c]</td>
</tr>
<tr>
<td>A: Regression coefficients</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College UE rate</td>
<td>−0.062*</td>
<td>−0.070**</td>
<td>−0.02</td>
<td>−0.091*</td>
</tr>
<tr>
<td></td>
<td>[0.021]</td>
<td>[0.014]</td>
<td>[0.018]</td>
<td>[0.043]</td>
</tr>
<tr>
<td>College* exp</td>
<td>0</td>
<td>0.004</td>
<td>0</td>
<td>0</td>
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<td></td>
<td>[0.002]</td>
<td>[0.002]</td>
<td>[0.001]</td>
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<tr>
<td>B: Fitted effects for selected years of experience</td>
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<tr>
<td>Years after college</td>
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<tr>
<td>1</td>
<td>−0.059</td>
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<td>[0.020]*</td>
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<td>[0.058]*</td>
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<td>5</td>
<td>−0.050</td>
<td>−0.050</td>
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<td>[0.014]**</td>
<td>[0.020]*</td>
<td>[0.016]</td>
<td>[0.053]*</td>
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<td>10</td>
<td>−0.038</td>
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<td>[0.012]+</td>
<td>[0.040]</td>
<td>[0.019]</td>
<td>[0.045]*</td>
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<td>Observations</td>
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<td>5129</td>
<td>5129</td>
<td>5129</td>
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<tr>
<td>R-squared</td>
<td>0.16</td>
<td>0.16</td>
<td>0.2</td>
<td>0.14</td>
</tr>
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</table>

Wage measure = hourly rate of pay on the main job, expressed in 1980 Dollars using the Consumer Price Index.
Oreopolous, von Wachter and Heisz (2012)

• Oreopolous et al. (2012) take a similar approach to persistent effects of labor market conditions at college graduation using longitudinal employer-employee data for Canadian men.

• They have better and more data, which allows them to develop a richer body of evidence, and to make some progress on the mechanisms whereby temporary labor market conditions have persistent earnings effects.
Abstract

This paper analyzes the magnitude and sources of long-term earnings declines associated with graduating from college during a recession. Using a large longitudinal university-employer-employee data set we find that the cost of recessions for new graduates is substantial and unequal. Unlucky graduates suffer persistent earnings declines lasting ten years. They start to work for lower-paying employers, then partly recover through a gradual process of mobility toward better firms. We document that more advantaged graduates suffer less from graduating in recessions because they switch to better firms quickly, while earnings of less advantaged graduates can be permanently affected by cyclical downgrading.
Cell-level regression specification: Cohort $c$, Region $r$, calendar year $t$

Cell mean of log annual earnings

$$\bar{y}_{crt} = \alpha + \beta \cdot UR_{cr0} + \phi_t + \theta_r + \gamma_e + \chi_c + u$$

Fixed effects for calendar year, first region of residence, potential experience, and graduation cohort

Coefficients on unemployment rate interacted with potential experience -- one coefficient for each potential experience level (not the clearest notation)

Unemployment Rate for cohort $c$ in region $r$ at time of graduation.

Given this set of fixed effects, the beta_e coefficients capture changes in experience profiles of earnings in response to region-cohort-specific variation in unemployment rates at the time of graduation.
“Dynamic Effects. Since the current state of regional labor markets continues to influence earnings of more experienced workers as well (see, for example, Blanchflower and Oswald, 1994), our basic estimate of the effect of the first unemployment rate exposure yield[s] the long-term effect of the first unemployment rate plus the weighted sum of the effect of unemployment rates a worker faced during his career. This is a parameter of interest that captures the average change in earnings from graduating in a recession, given the regular evolution of the regional unemployment rate faced afterwards.

We [are] also interested in isolating the effect of labor market conditions at entry net of subsequent effects on earnings from exposure to a possibly prolonged recession.” Oreopolous et al. (2012) also explore this issue.
“Canadian Administrative Data. Our results are based on a unique match between three large administrative data sets collected and compiled within Statistics Canada (this match is described in detail in the Supplementary Appendix). The data combined administrative information on about 70 percent of Canadian university students and graduates from 1976 to 1995 with longitudinal individual income tax records and firms’ payroll information covering the years 1982 to 1999. The data contains exceptional information about individual students’ courses of study (such as type of degree, major and date of graduation), as well as detailed career information (e.g., annual earnings, province of residence and receipt of unemployment benefits) and information about employers.
To analyze the role of employer characteristics, we exploited the panel nature of our firm data and calculated average firm size, average median wage and total payroll at the firm level, with year fixed effects taken out. All firm characteristics in our empirical analysis referred to *permanent* attributes so that these characteristics remained unchanged across the worker panel (i.e., an individual’s firm characteristics could change only if he moved to a different employer.”
Figure 1A: Mature and Entry Level Earnings and Experience Profiles by Graduation Year

Notes: The figure plots average log annual earnings profiles by year of degree completion for our baseline sample (all males in our administrative data that began a full-time undergraduate program at a post-secondary school institution in Canada between the ages of 17 and 20 from 1976 to 1995). See text and data appendix for more details.
Figure 1B: Earnings By Experience Year For Cohorts Entering Labor Market 1978 to 1993

Notes: The figure is constructed by first regressing log earnings from the baseline sample on fixed effects for year of college completion. The figure plots the average residuals from this regression for different years of experience. The figure also shows the national 15 to 24 year-old unemployment rate matched to the year of college completion (these values are from Statistics Canada). See text for more details.
This figure shows the estimated Beta_e coefficient vector in the main regression specification.

Estimated responses are to a unit percentage-point increase in the cohort-region-specific unemployment rate in year of graduation.
Figure 3: Effect of Unemployment Rate at Time of Graduation on Earnings Controlling for Dynamic Effects of Further Unemployment Shocks (by Experience Groups)

Estimated effect of an unemployment shock at 2-3 rather than 0-1.

Notes: This figure shows estimates from regressing log annual earnings on the average of regional unemployment rates (UR) in experience years 0 and 1 at the end of college completion interacted with experience dummies, controlling for effects for cohort of graduation, experience (years since graduation), and region of first residence ("Group 01 (No History)"). The remaining lines show estimates from Equation 2 in the text that control for the dynamic effect of unemployment rates encountered at higher experience years. Since we only observe full labor market histories for cohorts graduating in 1982 onwards, this figure is restricted to this set of cohorts. In addition, the figure shows our main estimates comparable to those in Figure 2 ("Baseline") for this sample.
• A 5-percentage-point increase in unemployment – roughly a shift from boom to recession – lowers annual earnings by about 9 percent in the first year after college, by 4 percent five years out, and by about 2 percent nine years out.

• Thus, “Graduating during a recession leads to significantly lower earnings at the beginning of an individual’s career, but the gap converges to zero within ten years after graduation.”

• These estimated responses mainly reflect effects of unemployment shocks in the year of market entry, not their covariance with later conditions.
Figure 4: Estimated Effects by Predicted Earnings Based on College and Major

Panel A: Log Real Annual Earnings

- Years Since Graduation
- Log Real Earnings

- Top
- Middle
- Bottom
Figure 5: PDV Losses over First 10 Years Since Graduation, 5% Discount Rate

Predicted Log Annual Earnings based on college attended, program, and years of study.

Size of shock used to generate these PDV estimates?
Much of the Impact of Adverse Labor Market Conditions at Entry Works Through Firm “Quality” of Jobs

Panel C: Average Firm 'Quality', Graduates Only

- Average Log Payroll
- Average Log Firm Size
- Average Median Wage
Panel C: Average Firm 'Quality'

- **Top**
- **Middle**
- **Bottom**

Average Log Payroll vs. Years Since Graduation

Y-axis: Average Log Payroll
X-axis: Years Since Graduation
Figure 6: The Role of Labor Market Conditions and Firm Characteristics in Explaining Persistence in the Effect of Unemployment Rates in the Year of College Graduation on Annual Earnings
IV. Taking Stock

1. There is abundant evidence that real wages depend on past labor market conditions (after controlling for current labor market conditions).

2. Labor market conditions when a worker enters the market seem to have especially large and persistent effects on real wages.
   - Oreopolous et al. (2012) find that much of the wage effects of adverse labor market conditions at entry works through the firm “quality” of jobs obtained.
   - Reallocation of workers to jobs at higher-quality of firms accounts for much of the later wage catch up.
   - Less skilled workers are more vulnerable to long-term negative effects of adverse entry conditions.
3. Two broad interpretations of this evidence:

- Real wages are sticky in the sense that they depend directly on the history of past labor market conditions.
- Real wages are flexible, depending only on current labor market conditions and match surplus, but the evolution of past conditions affects the current match quality distribution, job quality distribution, and the past accumulation of general and specific human capital.

• In turn, match quality, job quality and other forms of accumulated human capital affect surplus and wages.
There is much scope for additional research to sort out the relative merits of these broad views and to quantify the specific mechanisms at work. Examples:

- Beaudry-DiNardo vs. Hagedorn-Manovskii: Strong need for a study that considers large numbers of high-frequency observations on employment relationships of individuals + wage outcomes over a reasonably large sample period that contains much national and/or local time variation in labor market tightness. Somebody will write this paper in the next 5 years – or maybe multiple somebodies will write multiple papers on this issue.

- How to characterize and measure current and past labor market conditions? See Oreopolous et al. (2012)

- Do both aggregate and “local” (regional, industry, occupation, skill, etc.) labor market conditions matter?
The scope for insurance-contract theories seems to differ widely across industries, occupations and employers. How should we account for these differences in testing insurance-contract theories?

How does collective bargaining fit here?

Enrich theory to include other motives for job mobility: Job switching due to learning your type, learning about match quality, and career-path development.

5. Kahn (2010), Oreopolous et al. (2012) and similar studies suggest that weak conditions at the time of labor market entry slow the accumulation of rents and specific capital for many years thereafter. A similar process may underlie the Davis and von Wachter (2011) finding of systematically larger PDV earnings losses for job displacements that occur in recessions.
References 1


References 3


