Searching, Recalls, and Tightness: An Interim Report on the COVID Labor Market

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NBER Labor Studies
March 26, 2021
The economy was in free fall in spring, 2020; showed a surprising 2-month rebound but has been middling ever since.
Interim Report on the Recovery

► One year in, want to understand how the recovery is going
► Two key features through the summer:
  1. Flows dominated by layoffs and (likely) recalls
  2. Collapse in aggregate search intensity
Temporary Layoffs Exploded in April

![Graph showing unemployment and hires over time](image-url)
While Job Search Activity (Measured by Google Trends) Plummeted

![Graph showing the decline in job search activity during the COVID-19 recession compared to the Great Recession.](image-url)
One year in, want to understand how the recovery is going

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Unique feature of COVID Recession: negative shocks to both labor demand and labor supply
One year in, want to understand how the recovery is going

Two key features through the summer:
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Unique feature of COVID Recession: negative shocks to both labor demand and labor supply

Paper is aimed at understanding these shocks both theoretically and empirically
Outline

1. Model: the level of tightness matters & has policy prescriptions
   ▶ Search model with shock to labor demand and supply
   ⇒ Job creation’s elasticity to these shocks varies with tightness

2. Measurement: who is searching?
   ▶ Headline numbers dominated by temporary layoffs and recalls
   ▶ Searching unemployment → how the market will function at forming new matches

3. Applications: adjusted tightness and mismatch
Preview of results

- Large “Waiting room” through the summer has mostly emptied
- Markets remained remarkably tight over last year:
  - Collapsed by 50 to 75%, modest recovery
  - Declined to 2016 levels
  - But ≈ 5 million ‘extra’ NILF, ≈ 3 million in Waiting Room
- Did the pandemic induce reallocation towards high-skill/remote workers?
  - So far no: mismatch narrowed
  - Tightness fell everywhere but relatively more in more-educated and historically tighter sub-markets
Model
Supply & demand shocks, \( e \) & \( \rho \), in vacancy creation

Stock of vacancies (\( V \)), employment (\( L \)), matching function \( M \):

\[
V_{t+1} = V_t + v_t - M(e_t(1 - L_t), V_t)
\]

\[
1 - L_{t+1} = 1 - L_t - M(e_t(1 - L_t), V_t) + \delta_t L_t
\]

\( e \) represents aggregate effective search

Tightness is \( \theta = \frac{V}{e(1-L)} \)

The firm chooses new vacancies \( v \), costing \( c(\cdot) \) with carrying cost \( \xi \)

\[
\Pi(V, L) = \max_v \rho \tilde{\pi}(\theta) L - \xi V - c(v) + \frac{1}{1 + r} \Pi(L', V')
\]

\[
V' = (V + v)(1 - q(\theta))
\]

\[
L' = q(\theta)(V + v) + (1 - \delta)L .
\]

Profits depend on exogenous \( \rho \) and endogenous \( \theta \)
Comparative Statics

Relative importance of search effort \((e)\) and profitability \((\rho)\):

\[
\frac{\varepsilon_{ve}}{\varepsilon_{v\rho}} = -\varepsilon_{\pi\theta} \frac{1}{1 - \eta}
\]  

- LHS: Elasticities of vacancies with respect to \(e\) and \(\rho\)
- RHS: Elasticities of profits to tightness and of matching function to vacancies

Tightness affects this:

\[
\frac{\partial \varepsilon_{ve}}{\partial \theta} > 0
\]

- \(\varepsilon_{\pi\theta}\) decreases with \(\theta\) (e.g. wage pressure)

In slack markets (\(\theta\) small), search effort is relatively less important \(\rightarrow\) important to accurately measure tightness
Classifying Worker Flows
Measuring Worker Flows

- Want to better understand:
  - Effective search
  - Temporary layoff/recall dynamics
- *Ex post* classification
  - Follow April separators through May/June, subset through Feb 2021
  - Use these to validate →
- *Ex ante* classification: “Waiting Room”, “Open Market”, “NILF”
  - Does not use info on pre-COVID employment
  - Does not use reemployment info
Subdivide non-employed into three groups:

1. ‘Waiting room’: not at work with link to previous employer
   - Temp. lay-off, not actively searching.
   - Employed, absent from work for other reasons, not paid.

2. ‘Open market’: Search unemployment
   - Search Unemployed
   - Temp. Layoff, active searching.

3. ‘NILF’: Neither waiting nor searching
   - Out of the labor force
   - Today break into ‘want a job’ and ‘don’t want a job’
### FKLW Taxonomy Population Shares in 2020 and 2021

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<td>87530</td>
<td>89172</td>
<td>88320</td>
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</table>
Movement in and out have been fairly stable as of this summer.

**Moves In by Source**

- **Waiting Room**
- **Open Market**

**Moves Out by Destination**

- **Waiting Room**
- **Open Market**

Legend:
- Employed: Blue
- Waiting: Red
- Open: Green
- NILF: Orange
Labor Market Tightness: Pairing with Burning Glass Vacancies
BGT market tightness fell by 50%, but is still at approx. 2016 levels
Burning Glass Beveridge Curve

Overall Unemployment

Open Market Unemployment

Job Openings per Population

Headline Unemployment per Population

Open Market Unemp per Population

2011-2018

2019-2020

Mar 2020-Feb 2021

Forsythe Kahn Lange Wiczer

Labor Market During COVID-19
Conclusions about Tightness

- Steep drop in tightness but to much tighter levels than Great Recession
- Model implications:
  - Profit shifters more important than pre-pandemic
  - Search effort could be relatively more important than during Great Recession
- Caveat: We have not adjusted vacancies for effort
- Caveat: Large reserve of slack as of February 2021
  - 3 million in Waiting Room
  - 5 million ‘extra’ in NILF
  - compared to 9 million in Open Market
  - Note: good reasons for not searching right now!
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- Mismatch?
Mismatch
Tightness in college market converged to non-college market

![Market Tightness Chart](image-url)

Date

- Jan 2015
- Jan 2016
- Jan 2017
- Jan 2018
- Jan 2019
- Jan 2020
- Jan 2021

Tightness

- Non-college
- College
Decomposing the Decline in College Requirements

- Convergence in tightness driven by both postings and unemployed
- Regress indicator for whether the ad requires a college degree on dummies for the timing of the posting and a series of controls
- Find U-shaped pattern in share requiring college (vs. pre-pandemic):
  - March-May 2020: \(\approx 12\%\) decline
  - June-October 2020: \(\approx 23\%\) decline
  - November-February 2021: \(\approx 11\%\) decline
- Mainly about occupation composition
  - \(\approx 20\%\) due to sectoral shifts
  - \(\approx 20\%\) due to shifts to firms that historically have lower ed. requirements
  - Bulk of decrease: due to occupational mix *within* firms
- Tightness converged across occupations \(\rightarrow\) declining mismatch
Tightness converged across occupational groups

Forsythe Kahn Lange Wiczer Labor Market During COVID-19
Mismatch Index Fell in 2020 then Rebounded to Feb 2020 Levels, Driven by Professional Occupations

Forsythe Kahn Lange Wiczer Labor Market During COVID-19
Conclusions about Mismatch

- Despite massive disparities across groups in pandemic job loss, exposure to virus, and ability to work remotely, so far do not see an increase in mismatch
  - Across education, occupations, and industries: tightness converged between groups
- Crisis is ongoing, pattern may yet change
  - Last couple months: a hint of divergence?
  - Similar pattern in Great Recession of early convergence, but then high-skill took off
Positive Signals for Accelerating Recovery: Job Postings Taking-off Across Groups

CPS Employment

BG Postings

Customer
Retail-E
WFH
Non WFH
Conclusions
Conclusions

- Two overlapping processes:
  1. Massive movement from employment to temp layoff and back again via (likely) recall (e.g. Waiting Room)
  2. Slower moving growth in the Open Market: individuals who are searching for new matches. Now 3x size of Waiting Room.

- Recovery hinges on...
  1. Controlling the virus
  2. Formation of new matches, which depends on effective tightness
Conclusions

▶ Showed effective tightness lower than pre-pandemic but higher than Great Recession period
▶ Despite depressed aggregate search, model shows us that this has a smaller impact on vacancy posting compared with pre-pandemic
▶ Tightness fell across occupations, industries, and educational groups, but especially for 'higher-skill' groups → fall in mismatch
▶ Since December, encouraging movements in BG job postings
Extra Slides
Where did April Job Separators Go?

<table>
<thead>
<tr>
<th>Category</th>
<th>Share of Non-Employed</th>
<th>Hire Rate</th>
<th>Inferred Recall Rate</th>
</tr>
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<tbody>
<tr>
<td><strong>Pandemic: Status in April 2020</strong></td>
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<tr>
<td>Employed Absent</td>
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<tr>
<td>Temp, No Search</td>
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<td>Temp, Search</td>
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<td>Unemp. Search</td>
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<td>NILF, Want Job, No Search</td>
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<td>NILF, Want Job, Search</td>
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<td>NILF, Retired/Disabled</td>
<td>0.07</td>
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<td>0.64</td>
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<td><strong>Pre-Pandemic: Status in April 2015-2019</strong></td>
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<td>Employed Absent</td>
<td>0.05</td>
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<td>0.25</td>
<td>0.66</td>
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Market Tightness using JOLTS Vacancies
The Beveridge Curve using JOLTS Vacancies

Overall Unemployment

Open Market Unemployment

Job Openings per Population

Headline Unemployment per Population

Overall Unemployment

Open Market Unemployment

2000-2007

2008-2010

2011-2018

2019-2020

Mar-Sep 2020
Tightness by Industry, Burning Glass vs. Jolts

BGT Tightness

JOLTS Tightness

- Construction
- Trade
- Ed./Health/Social
- Manufacturing
- Info/FIRE/Mgmt
- Services
Share of Open Market Hired by Education
Share of Open Market Hired by Occupation

Hire Rate As a Percent of Feb 2020

Jan 2020
Jun 2020
Nov 2020
Apr 2021

Professional
Sales/Admin/Social Services
Food Prep/Retail/Personal Care
Blue Collar
Share of vacancies requiring college decreased, while share of unemployed with college increased, now reversing.
## Occupation and sector-level variation

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Share of ads with college+ requirement</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
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<tr>
<td>early COVID (Mar-May)</td>
<td>-0.0280***</td>
<td>-0.0383***</td>
<td>-0.0353***</td>
<td>-0.0259***</td>
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<tr>
<td>COVID recovery (Jun-Oct)</td>
<td>-0.0626***</td>
<td>-0.0705***</td>
<td>-0.0546***</td>
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<td>late COVID (Nov-Feb)</td>
<td>-0.0371***</td>
<td>-0.0505***</td>
<td>-0.0400***</td>
<td>-0.0195***</td>
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Within Firm Variation: Still most of the decline

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<td></td>
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<td>(0.00966)</td>
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HWOL: Tightness by Occupation