The Heterogeneous Labor Market Impacts of the Covid-19 Pandemic

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This Paper

- Distributional impacts of the Covid-19 pandemic in the United States
- Heterogeneous impacts across:
  1. Occupations
  2. Industries
  3. Demographic groups
  - Individual-level earnings impacts
  - Role of public policy response
The pandemic has exacerbated pre-existing inequalities

1. Individuals in low-earning jobs much more likely to lose employment during the pandemic

2. Partly due to larger impacts of pandemic on employment in low-paying occupations and industries

3. But individuals from disadvantaged groups also more likely to lose employment when compared to others with the same job background

4. Low earners have benefited less from post-April 2020 employment recovery

5. CARES Act provisions were strongly progressive, but recipiency rates among displaced low earners were low
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Data and Aggregate Patterns
Data

Current Population Survey (available through IPUMS):

- Official source for labor market statistics in the U.S.
- Monthly data
- Rotating sampling structure: individuals can be tracked over short panels; we focus on year-on-year flows
- “Although the collection rates were adversely affected by pandemic-related issues, BLS was still able to obtain estimates that met our standards for accuracy and reliability”
- Focus on April 2020: month where the impacts of the pandemic were most acutely felt
- And February 2021: last month where we can look at year-on-year changes that are not affected by pandemic in base period
Adjusted: excludes employed who were absent from work for “other” reasons and were not paid.
Labor Market Flows

Panel B: Outflows from Employment (%)

Panel C: Inflows to Employment (%)

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Empirical Strategy

- Goal: isolate pandemic-related changes from *seasonal* or *annual* patterns (which may be particularly important for certain occupations, industries, or demographic groups)

- Regression approach, using data from January 2015 onwards

- Use data collapsed to the group level (groups may be occupations, industries or demographic categories):

\[ Y_{gt} = \gamma_g D_{m(t)} + \alpha_g D_{y(t)} + \beta_g D_t^C + \epsilon_{gt} \]

- \( D_{m(t)} \): calendar month dummies
- \( D_{y(t)} \): year dummies
- \( D_t^C \): vector of dummies for the Covid-19 pandemic months (March 2020 onwards)
Results: Distributional Impacts of the Pandemic
Employment losses disproportionately concentrated in lower-paying occupations

**Figure**: Impact of the Pandemic across Occupations

**Panel A: Adjusted Employment Rate**
**Figure**: Impact of the Pandemic across Occupations

**Panel B: Hires from Non-Employment**
Figure: Impact of the Pandemic across Occupations

Panel C: Exits to Non-Employment
Figure: Emp Changes across 4-Digit Occ (as a share of total pop)

Panel A: February 2020 to April 2020

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Figure: Emp Changes across 4-Digit Occ (as a share of total pop)
Similar pattern across industries:

**Figure**: Impact of the Pandemic across Industries

**Panel A: Adjusted Employment Rate**
Pattern is not typical for a recession:

**Figure:** Great Recession

**Panel A: Across Occupations**

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Figure: Great Recession

Panel B: Across Industries

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Heterogeneous Impacts across Demographic Groups
## Impacts across Demographic Groups

<table>
<thead>
<tr>
<th></th>
<th>Stocks</th>
<th>Flows</th>
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<tbody>
<tr>
<td></td>
<td>Feb 2020 Emp. Rate</td>
<td>Emp Rate Chg (%)</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>April (2)</td>
</tr>
<tr>
<td>Male</td>
<td>0.65</td>
<td>-0.18***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.00)</td>
</tr>
<tr>
<td>Female</td>
<td>0.54</td>
<td>-0.22***</td>
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<td></td>
<td></td>
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<td>No HS Deg.</td>
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<td>-0.31***</td>
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<tr>
<td></td>
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<td>(0.03)</td>
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<tr>
<td>HS Grad.</td>
<td>0.54</td>
<td>-0.26***</td>
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<tr>
<td></td>
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<td>(0.01)</td>
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<tr>
<td>Some Col.</td>
<td>0.60</td>
<td>-0.23***</td>
</tr>
<tr>
<td></td>
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<td>(0.01)</td>
</tr>
<tr>
<td>Col. Grad.</td>
<td>0.71</td>
<td>-0.12***</td>
</tr>
<tr>
<td></td>
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<td>(0.01)</td>
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</tbody>
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## Differences across Demographic Groups

|                | Stocks |               | Flows |               |               |               |               |               |
|----------------|--------|---------------|-------|---------------|---------------|---------------|---------------|
|                | Feb 2020 Emp. Rate | April Emp Rate Chg (%) | Feb. Emp Rate Chg (%) | April Exits | Feb. Exits | April Hires | Feb. Hires |
|                | (1)    | (2)           | (3)   | (4)           | (5)           | (6)           | (7)           |
| 16 to 25       | 0.53   | -0.35***      | -0.10*** | 0.24***       | 0.02          | -0.12***      | -0.06***     |
|                |        | (0.02)        | (0.02) | (0.02)        | (0.02)        | (0.02)        | (0.02)       |
| 26 to 35       | 0.81   | -0.19***      | -0.07*** | 0.16***       | 0.03***       | -0.02***      | -0.01*       |
|                |        | (0.01)        | (0.01) | (0.01)        | (0.01)        | (0.01)        | (0.01)       |
| 36 to 55       | 0.80   | -0.15***      | -0.05*** | 0.14***       | 0.03***       | -0.01**       | -0.01***     |
|                |        | (0.01)        | (0.01) | (0.00)        | (0.00)        | (0.00)        | (0.00)       |
| 56 to 85       | 0.38   | -0.19***      | -0.10*** | 0.16***       | 0.06***       | -0.02***      | -0.02***     |
|                |        | (0.01)        | (0.01) | (0.01)        | (0.01)        | (0.00)        | (0.00)       |
| White          | 0.59   | -0.18***      | -0.06*** | 0.14***       | 0.03***       | -0.02***      | -0.02***     |
|                |        | (0.00)        | (0.00) | (0.00)        | (0.00)        | (0.00)        | (0.00)       |
| Black          | 0.57   | -0.21***      | -0.10*** | 0.17***       | 0.06***       | -0.04**       | -0.04**      |
|                |        | (0.01)        | (0.01) | (0.01)        | (0.01)        | (0.01)        | (0.01)       |
| Hispanic       | 0.63   | -0.25***      | -0.10*** | 0.20***       | 0.06***       | -0.05**       | -0.02*       |
|                |        | (0.01)        | (0.01) | (0.01)        | (0.01)        | (0.01)        | (0.01)       |
| Other          | 0.62   | -0.21***      | -0.06*** | 0.19***       | 0.02*         | -0.03*        | -0.02        |
|                |        | (0.01)        | (0.01) | (0.01)        | (0.01)        | (0.01)        | (0.01)       |
Run individual-level regressions:

\[ Y_{it} = \omega D_{demo(i)} + \beta D_{demo(i)} \times D_{Ct} + \gamma D_{demo(i)} \times D_{mt} + \alpha D_{demo(i)} \times D_{yt} + \rho D_{occ(it)} + \delta D_{Ct} \times D_{occ(it)} + \epsilon_{it} \] (1)

- **\( \beta \)**: differential change in exit rates across demographic groups during pandemic
- Determine extent to which \( \hat{\beta} \) is driven to zero once controls for base period occupation/industry are introduced
- Estimate of \( \beta \) once occupation/industry controls are introduced indicates differential exit rates across demographic groups occurring within job types
Figure: Exits from Employment: Differentials across Demographic Groups with Different Sets of Fixed Effects
Figure: Exits from Employment: Differentials across Demographic Groups with Different Sets of Fixed Effects
Key Takeaways

- Important gaps between demographic groups, even when conditioning on detailed pre-displacement occupation and industry.

- Most of the gaps have narrowed as of February 2021.
  - However, the gap increased in absolute terms for black vs white workers.
  - For both black and Hispanic workers, over 70% of the gap in February is within detailed industry and occupational categories.

  \[\Rightarrow\] Workers from minority groups have benefited much less from the employment recovery, even when compared to workers with the same occupation and industry background.

- Patterns for older workers suggest increased retirement rates.

- Additional result not shown here: Heterogeneous geographical impacts (e.g. due to state-level lockdown policies) cannot explain the (residual) gaps between demographic groups.
Individual-Level Earnings Changes

Results from the paper: “Impacts of the Covid-19 Pandemic and the CARES Act on Earnings and Inequality”
Earnings Changes

- **Focus directly on individual earnings, rather than employment outcomes**
  - Observed for a given individual at two points in time, one year apart
    - Usual weekly earnings at the current job, before deductions
    - For workers paid by the hour, use hourly wage rate multiplied by their actual hours worked at their main job during the reference week
    - Top-coded earnings multiplied by a factor of 1.4 (Lemieux, 2006); lowest 1% of earnings are winsorized
  - Classify individuals into ventiles (bins containing 5% of workers)
    - Due to noisiness at the tails, group top and bottom two ventiles
  - Similar empirical strategy to isolate impact of the pandemic from seasonal/annual patterns
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Panel A: Average Real Weekly Earnings per Worker

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Panel B: Average Real Weekly Earnings per Adult

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Cortes & Forsythe (York & UIUC)
Panel A: Year-on-Year Changes in Real Weekly Earnings
Panel B: Pandemic Impact on Real Weekly Earnings

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Impacts along the Earnings Distribution

Panel A: Impact of the Pandemic on Labor Earnings Growth Rates (%)

Early Period (Apr–Jul)

Later Period (Aug–Feb)
Panel B: Impact on Probability of Remaining Employed (Extensive Margin)

Early Period (Apr–Jul)

Later Period (Aug–Feb)
Panel C: Impact on Earnings Conditional on Remaining Employed (Intensive Margin)

Early Period (Apr–Jul)
Later Period (Aug–Feb)

⇒ Pandemic disproportionately impacts low earners; earnings impacts driven by job loss, not by earnings changes on the job.
Public Policy Response
Determining Eligibility

Eligibility pre-pandemic:

1. Employed one year prior
2. Currently involuntarily unemployed or had a temporary job end
3. Duration of unemployment less than 26 weeks

From April 2020 onwards, also count as eligible if:

- Not employed in the current period but employed at any point in the last three months
- Unemployed with spell starting on or after March 1, 2020
- Currently classified as out of the labor force, but classified as unemployed in a previous month and would have qualified given above criteria
Simulating Benefits

1. Standard UI Benefits
   - Build on UI simulator of Ganong et al. (2020)
   - Based on state of residence, pre-displacement earnings and (imputed) weeks worked per quarter
   - Self-employed not eligible

2. Pandemic Unemployment Assistance (PUA)
   - For those deemed potentially eligible, but whose earnings are too low for standard UI
   - For the self-employed

3. Additional top-ups
   - April through July 2020: $600 per week
   - August 2020: $300 per week
   - January and February 2021: $300 per week
Recipiency

Benchmark our estimates to data from the Department of Labor and the Bureau of Economic Analysis

- **3%** of individuals eligible for standard UI do not receive benefits
- **45%** of individuals eligible for PUA do not receive benefits
Results: Earnings Changes after Factoring in Benefits

Panel A: PUC Period (April through July 2020)

Wages + Standard UI

+ PUA + PUC

+ PUA + PUC (Adj. for Recipiency)
Results: Earnings Changes after Factoring in Benefits

Panel B: LWA Period (August 2020)

Wages + Standard UI

+PUA + LWA

+PUA + LWA (Adj. for Recipiency)
Results: Earnings Changes after Factoring in Benefits

Panel C: No Top-Up (September through December 2020)
Results: Earnings Changes after Factoring in Benefits

Panel D: ARP Period (January through February 2021)

- Wages + Standard UI
- +PUA + ARP
- +PUA + ARP (Adj. for Recipiency)
Results: Eligibility

Panel A: PUC Period (April through July 2020)
Results: Share of Total Benefits Received by Each Ventile

Panel A: Early Pandemic (April-July 2020)

All Eligible

Estimated Recipients
Results: Share of Total Benefits Received by Each Ventile

Panel B: Late Pandemic (August-February 2021)

All Eligible

Estimated Recipients
Conclusions
Conclusions

- The pandemic has exacerbated pre-existing inequalities
- Low-earning individuals were, by a large margin, disproportionately likely to lose their jobs during the pandemic
- Not only because of their higher exposure due to their occupation/industry affiliation, but also when compared to others in the same detailed occupation, industry and geography
- Minority workers have benefited less from the employment recovery between April 2020 and February 2021
- CARES Act provisions were strongly progressive (especially during $600 top-up period), but this was offset to a large extent by low recipiency rates among displaced low earners
Thank You!