This Time It’s Different: The Role of Women’s Employment in a Pandemic Recession

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“I can’t remember—do I work at home or do I live at work?”
COVID-19 kills more men than women . . .

. . . but pandemic recession has big economic impact on women.

→ Matters for welfare.

→ Matters for policy.

→ Matters for macroeconomic repercussions.
Regular Recessions are “Mancessions”

76% of hours volatility due to men!
This Time It’s Different . . .

. . . for two reasons:

▶ Usual recessions are concentrated in sectors where many men work, such as construction and manufacturing. Not so this time.

▶ People’s ability to work also affected by increased childcare needs during school and daycare closures. Affects women more than men.
Outline

1. Facts from pre-crisis data.

2. Evidence on actual impact so far.

3. Macro model with heterogeneity in gender, marital status, occupation, and childcare needs.

4. Short-run, medium-run, and long-run implications
Expected Effects based on US Pre-Crisis Data

1. Women work less in critical (17%) and in telecommutable (22%) occupations than men (24% and 28%) → making female job loss likely.

2. Even in those 44% of couples where both work full time, mothers do about 60% more childcare
   → unequal division likely to continue as childcare needs increase during crisis.

3. Job flexibility important for distribution of childcare: Men who can telecommute provide 50% more childcare compared to men who cannot. → Great lockdown causes increase in ability to telecommute
   → likely leading to more equal division of childcare in the long run.

4. We estimated that in 9-12% of couples, husband will be primary childcare provider during crisis (as wife works in critical sector and he does not)
   → could lead to changing norms. (like WWII and Daddy Months)
The Actual Impact So Far
Large Gender Gap in Unemployment in the US

Difference btw Rise in Women’s and Men’s Unemployment, US Recessions 1948–2020
Changing Division of Child Care During This Crisis

- U.S.: Daily increase in childcare plus homeschooling hours among parents working from home 4.7 hours for men, 6.1 hours for women (Adams-Prassl et al).

- U.S.: Proportion of shared childcare increased by 11 pp (Carlson et al).

- Netherlands: In 30 percent of couples where only mother is in critical occupation father is now sole childcare provider (Gaudecker et al).
Family Macro Model
(Some) Literature We Build On


- **The Great Lockdown Recession**: Gregory, Menzio, and Wiczer (2020), ...
Overview of Ingredients

- Women and men, singles and couples, childcare needs.
- Labor supply on the extensive margin, part-time work possible.
- Occupations differ by telecommutability.
- Job destruction shocks and unemployment (search model).
- Endogenous accumulation of experience.
- Division of labor partly shaped by social norm.
- Choices: labor supply, childcare, consumption, savings

No infection model!
Setting

Continuum of three types of households: single women, single men, couples.

State variables:

- Assets $a$.
- Human capital $h$.
- Kids $k \in \{0, s, b\}$ (no kids, small kid, big kid).
- Employment $e \in \{E, U\}$ (employed, unemployed).
- Occupation $o \in \{TC, NT\}$ (can telecommute, cannot telecommute).
- Social norm $m \in \{0, 1\}$ (traditional, modern): utility penalty if he does more childcare $\psi(t^m - t^f)$.
- Aggregate state $X$: normal, recession, pandemic, new normal
Evolution of State Variables

- Marital statuses are permanent types

- Children arrive and leave according to probabilities $\pi^g(k'|k)$ for singles and $\Pi(k'|k)$ for couples.

- Employment opportunities arise and vanish according to probabilities $\pi^g(e'|e, X)$ for singles and $\Pi^g(e'|e, X)$ for couples. Offers can be rejected.

- Occupation types change according to $\pi(o'|o, X)$

- Social norms change according to $\Pi(m'|m, X)$

- Human capital accumulates and depreciates stochastically as a function of labor supply.
The Decision Problem for Unemployed Singles

\[
\nu^g_U(a, h, k, o, X) = \max_{a', c, l, t} \left\{ u^g(c, l) + \omega \beta E [\tilde{v}^g_e(a', h', k', o', X')] \right\}.
\]

\[c + a' = zw^g h + (1 + r)a,\]
\[t = \gamma(k, X),\]
\[l + t = T.\]

Childcare needs: \( \gamma(s, X) > \gamma(b, X) > \gamma(0, X) = 0.\)
The Decision Problem for Employed Singles

\[ v^g_E(a, h, k, o, X) = \max_{a', c, l, n, t} \left\{ u^g(c, l) + \omega \beta E [\tilde{v}^g_{e'}(a', h', k', o', X')] \right\} . \]

subject to:

\[ c + a' = w^g h n^\theta + (1 + r)a, \]

\[ t + \phi(k) n I(o = TC) \geq \gamma(k, X), \]

\[ l + n + t = T. \]
Decision Problem for Singles at Start of Period

Job offer:

$$\tilde{v}_E^g(a, h, k, o, X) = \max \{ v_E^g(a, h, k, o, X), v_U^g(a, h, k, o, X) \}.$$

Without a job offer there is no choice to be made, so we have:

$$\tilde{v}_U^g(a, h, k, o, X) = v_U^g(a, h, k, o, X).$$
Decision Problem for Dual-Earner Couples

\[
V_{EE}(a, h^f, h^m, k, o^f, o^m, m, X) = \max \{ \lambda u^f(c^f, l^f) + (1 - \lambda)u^m(c^m, l^m) \\
- (1 - m)\psi(t^m - t^f) + \omega\beta E \left[ \tilde{V}_{(e^f)'(e^m)'}(a', (h^f)'(h^m)', k', (o^f)'(o^m)', m', X') \right] \}
\]

subject to:

\[
c^f + c^m + a' = w^f h^f(n^f) + w^m h^m(n^m) + (1 + r)a,
\]
\[
t^f + t^m + \phi(k) \left( n^f l(o^f = TC) + n^m l(o^m = TC) \right) = \gamma(k, X),
\]
\[
l^f + n^f + t^f = T,
\]
\[
l^m + n^m + t^m = T.
\]
Couples’ Problem at Start of Period

Both have job offer:

\[
\tilde{V}_{EE}(a, h^f, h^m, k, o^f, o^m, m, X) = \max \{ V_{EE}(a, h^f, h^m, k, o^f, o^m, m, X), V_{EU}(a, h^f, h^m, k, o^f, o^m, m, X), V_{UE}(a, h^f, h^m, k, o^f, o^m, m, X), V_{UU}(a, h^f, h^m, k, o^f, o^m, m, X) \}.
\]

...and so on.
Choose initial parameters to match:

- Observed gender wage gap
- Division of childcare among dual earner couples
- Labor supply of married women
- Labor market flows in normal times
- Estimates of returns to experience and skill loss in unemployment.
Recessions in the Model

Regular recession (6 quarters):

1. Large change in men’s job destruction & finding rates, half as large for women

Pandemic recession (6 quarters):

1. Large change in men’s job destruction & finding rates, equally large for women
2. Childcare needs ↑ from 13.7 hrs/wk to 42 hrs/wk (small kids), 4.2 to 26 (big kids)
3. Permanent shift in telecommuting fraction from 11% to 30% (”New Normal”)
4. Permanent shift in fraction of modern couples from 70% to 85% (”New Normal”)
Short-Run Effects
Decline in Labor Income, Pandemic vs. Regular Recession

The graph shows the log deviation in total labor earnings over time, comparing a regular recession (dashed blue line) and a pandemic recession (solid red line). During the early quarters, the pandemic recession shows a sharper decline compared to the regular recession, indicating a more severe impact on labor income during the pandemic.
Women’s vs. Men’s Labor Supply, Pandemic vs. Regular Recession

![Graph showing the ratio of hours worked by women to men during a pandemic recession compared to a regular recession. The graph indicates a significant drop and recovery during the pandemic period.](image-url)
Single Parents’ Labor Supply Falls Dramatically

Without kids

With kids

Weekly hours worked

Quarters

Regular rec.

Pandemic rec.

Quarters
Labor Supply of Fathers and Mothers in Married Couple Households
Spousal Insurance: Pre-Recession Part Time Wives’ Labor Supply
Modern vs. Traditional Couples: Mothers’ Labor Supply

Modern

Weekly hours worked

Traditional

Quarters

Regular rec. Pandemic rec.

Quarters
Importance of Ability to Telecommute: Married Mothers

Telecommuters vs. Non-telecommuters

- Regular rec.
- Pandemic rec.

Quarters

0  5  10  15  20  25  30  35  40

0  5  10  15  20  25  30  35  40
Marginal Propensities to Consume are Higher in Pandemic: Couples
Medium-Run Effects on Gender Equality
Gender Wage Gap, Pandemic vs. Regular Recession

![Graph showing the gender wage gap during regular recession vs. pandemic recession over quarters. The graph indicates a significant rise and fall in wages conditional on working, women/men, during the pandemic recession compared to a regular recession.](image)
Human Capital Gap, Pandemic vs. Regular Recession

![Graph showing the ratio of average human capital between women and men during regular recession and pandemic recession over quarters. The graph indicates a sharper decline in the pandemic recession compared to the regular recession.]
Rise in Share of Couples Where Husband Does More Childcare
Long-Run Effects on Gender Equality and Policy Counterfactuals
Long Run Labor Supply: Married Men vs. Married Women

![Graph showing the ratio of hours worked by married women to married men over years. The graph compares regular recession and pandemic recession scenarios.](image-url)
Long Run Gender Wage Gap

![Graph showing the long run gender wage gap with two lines representing regular recession and pandemic recession. The graph plots the ratio of wages of women to men over years, with the pandemic recession line generally lower than the regular recession line.](image-url)
Equal Role for Social Norm and Telecommuting in Gender Wage Gap
Policy Counterfactuals: School Reopenings: Labor Income

The graph shows the log deviation in total labor earnings over quarters for different scenarios:

- **Regular recession**
- **Pandemic recession**
- **Pandemic + reopen for both**
- **Pandemic + reopen for small**
- **Pandemic + reopen for big**

The x-axis represents the quarters, and the y-axis shows the log deviation in total labor earnings.
Policy Counterfactuals: Gender Wage Gap

The diagram illustrates the wages conditional on working for men and women across different scenarios over time. The x-axis represents quarters, and the y-axis shows the wages. The scenarios include:

- Regular recession
- Pandemic recession
- Pandemic + reopen for both
- Pandemic + reopen for small
- Pandemic + reopen for big
Economically, impact on women and childcare needs is biggest distinction between pandemic and regular recession.

- Labor income declines ~4x more in pandemic recession than regular recession
- Fiscal policy more effective because of elevated MPCs
- Gender wage gap rises ~5pp and takes 20 years to recover
- Increase in share of households with father as primary caregiver from 24% to 30%
- Reopening schools highly effective in speeding recovery, reducing gender wage gap
Extra Slides
### Externally Calibrated Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\omega$</td>
<td>0.99</td>
<td>Expected retirement at age 60</td>
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<tr>
<td>$\beta$</td>
<td>0.98</td>
<td>Discount factor</td>
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<tr>
<td>$r$</td>
<td>0.02</td>
<td>Interest rate</td>
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<tr>
<td>$\gamma(s, N)$</td>
<td>0.34</td>
<td>Small kids require 13.7 hours of childcare per week</td>
</tr>
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<td>$\gamma(b, N)$</td>
<td>0.11</td>
<td>Big kids require 4.2 hours of childcare per week</td>
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<tr>
<td>$\eta$</td>
<td>0.03</td>
<td>Return to labor market experience</td>
</tr>
<tr>
<td>$\delta$</td>
<td>0.06</td>
<td>Skill depreciation in unemployment</td>
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### Internally Calibrated Parameters

<table>
<thead>
<tr>
<th>Description</th>
<th>Parameter</th>
<th>Value</th>
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<tbody>
<tr>
<td>Exogenous gender wage gap</td>
<td>$w^f$</td>
<td>0.91</td>
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<tr>
<td>Wife’s bargaining power in married couples</td>
<td>$\lambda$</td>
<td>0.40</td>
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<tr>
<td>Diminishing returns to market work</td>
<td>$\theta$</td>
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<tr>
<td>Women’s leisure preference</td>
<td>$\alpha^f$</td>
<td>0.64</td>
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<tr>
<td>Men’s leisure preference</td>
<td>$\alpha^m$</td>
<td>0.43</td>
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<tr>
<td>Telecommuters’ childcare bonus for small children</td>
<td>$\phi(s)$</td>
<td>0.07</td>
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<tr>
<td>Telecommuters’ childcare bonus for big children</td>
<td>$\phi(b)$</td>
<td>0.14</td>
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<tr>
<td>Job offer probability for employed women</td>
<td>$\pi^f(E</td>
<td>E, N)$</td>
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<tr>
<td>Job offer probability for non-employed women</td>
<td>$\pi^f(E</td>
<td>U, N)$</td>
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<tr>
<td>Job offer probability for employed men</td>
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<td>E, N)$</td>
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<tr>
<td>Job offer probability for non-employed men</td>
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<td>U, N)$</td>
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<tr>
<td>Utility cost of violating social norms</td>
<td>$\psi$</td>
<td>0.23</td>
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<td>Model Fit</td>
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<td>Model</td>
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<tr>
<td>Gender wage gap</td>
<td>0.81</td>
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<tr>
<td>Childcare division, full-time couples, men-to-women</td>
<td>0.65</td>
<td>0.66</td>
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<tr>
<td>Men who telecommute do 50% more childcare</td>
<td>1.50</td>
<td>1.48</td>
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<tr>
<td>Relative labor supply, men-to-women</td>
<td>1.19</td>
<td>1.17</td>
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<td>Labor supply of married women without kids</td>
<td>0.72</td>
<td>0.73</td>
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<td>Labor supply of married women with small kids</td>
<td>0.56</td>
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<td>Labor supply of married women with big kids</td>
<td>0.64</td>
<td>0.70</td>
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<tr>
<td>Share of married mothers not employed</td>
<td>0.30</td>
<td>0.26</td>
</tr>
<tr>
<td>Share of married mothers working part-time</td>
<td>0.18</td>
<td>0.19</td>
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<tr>
<td>Share of married mothers working full-time</td>
<td>0.52</td>
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<tr>
<td>Women’s Labor Market Flows: E-to-E</td>
<td>0.91</td>
<td>0.92</td>
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<td>Women’s Labor Market Flows: U-to-U</td>
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<tr>
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<td>0.93</td>
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<tr>
<td>Men’s Labor Market Flows: U-to-U</td>
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## Non-Targeted Moments

<table>
<thead>
<tr>
<th>Composition of single fathers by employment state:</th>
<th>Data</th>
<th>Model</th>
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<tbody>
<tr>
<td>not employed</td>
<td>0.16</td>
<td>0.15</td>
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<tr>
<td>part-time</td>
<td>0.07</td>
<td>0.08</td>
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<tr>
<td>full-time</td>
<td>0.77</td>
<td>0.77</td>
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<tr>
<td>not employed</td>
<td>0.07</td>
<td>0.19</td>
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<tr>
<td>part-time</td>
<td>0.04</td>
<td>0.05</td>
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<tr>
<td>full-time</td>
<td>0.89</td>
<td>0.75</td>
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<table>
<thead>
<tr>
<th>Composition of single mothers by employment state:</th>
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<th>Model</th>
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<tbody>
<tr>
<td>not employed</td>
<td>0.24</td>
<td>0.15</td>
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<tr>
<td>part-time</td>
<td>0.17</td>
<td>0.37</td>
</tr>
<tr>
<td>full-time</td>
<td>0.59</td>
<td>0.48</td>
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<table>
<thead>
<tr>
<th>Share of full-time dual earner couples by kids’ age:</th>
<th>Data</th>
<th>Model</th>
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<tbody>
<tr>
<td>no kids</td>
<td>0.61</td>
<td>0.53</td>
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<tr>
<td>small kids</td>
<td>0.43</td>
<td>0.21</td>
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<tr>
<td>big kids</td>
<td>0.49</td>
<td>0.47</td>
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