Adjusting Q1 2020 Labor Productivity for COVID-19 Related Job Losses

Jay Stewart
Senior Research Economist
BLS/OPT/DPRPD
FESAC
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Outline

- Background and usual procedures
- Adjustments to preliminary estimate (5/7/20)
- Adjustments to revised estimate (6/4/20)
Background on Labor Productivity

- Labor Productivity = \( \frac{Output \ (BEA)}{Hours \ Worked \ (BLS)} \)

- Hours estimated by combining data from:
  - CES (W&S employment & PW hours)
  - CPS (self-employed & non-supervisory)
  - NCS (hours-worked-to-hours-paid ratio)

- Assume hours from surveys are representative of entire month
COVID-19-Related Job Loss

- The decrease in employment starting in the 3rd week of March was not reflected in the CES.

- If we ignored these job losses, we would:
  - Understate the decline in total hours worked
  - Overstate the decline in productivity

- Adjustments require high-frequency data – weekly UI claims data.
BLS’s Approach

- Estimate March W&S employment week by week using CES data and data on UI claims
- Initial vs. change in continued claims (initial)
- Issues with initial UI claims data
  - Difficulties in filing claims
  - Claims for reduced hours (assumed not an issue)
  - People finding jobs (assumed not an issue)
  - Seasonal adjustment (we used NSA claims)
  - Industry detail (OEUS tabulations)
Adjustments to Prelim Q1

- No adjustments to AWH of W&S workers
- No adjustments to self-employed hours
- Week 1: Feb. CES employment plus trend growth in employment
- Week 2: Unadjusted CES employment
Adjustments to Prelim Q1 (cont.)

- Week 3: Week 2 employment minus initial UI claims for week ending March 21
- Week 4: Week 3 employment minus initial UI claims for week ending March 28
- Week “5” (March 29-31): Week 4 employment minus a fraction of initial UI claims for week ending April 4
## Adjusted W&S Employment

<table>
<thead>
<tr>
<th></th>
<th>March CES (Private)</th>
<th>2020 Q1 Preliminary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td></td>
<td>129,817</td>
</tr>
<tr>
<td>Week 2</td>
<td>129,025</td>
<td>129,025</td>
</tr>
<tr>
<td>Week 3</td>
<td></td>
<td>126,930</td>
</tr>
<tr>
<td>Week 4*</td>
<td></td>
<td>118,756</td>
</tr>
<tr>
<td>Average Employment</td>
<td>129,025</td>
<td>126,132</td>
</tr>
</tbody>
</table>

* Week 4 includes part of week "5".
Impact on 2020q1 Productivity Growth

Annual average percent change from previous quarter

Unadjusted

Adjusted Preliminary

- Output
- Hours
- Productivity
New Information for Revised Q1

- Revised distribution of initial UI claims
  - Separate distributions for weeks 3, 4, and “5”

- CES and CPS data for April allowed for interpolation
  - CES modified the birth-death model to better account for job losses due to closings
Adjustments to Revised Q1

- Same basic approach for W&S employment, except:
  -Benchmarked UI claims to the March-to-April decline in CES employment
  -Revised distribution of UI claims across industries

- Interpolated hours between March and April estimates:
  -Total hours of self-employed
  -AWH of W&S workers
## Adjusted W&S Employment

<table>
<thead>
<tr>
<th>Week</th>
<th>March CES</th>
<th>2020 Q1 Prelim</th>
<th>March CES Rev</th>
<th>2020 Q1 Revised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>129,817</td>
<td></td>
<td></td>
<td>129,812</td>
</tr>
<tr>
<td>Week 2</td>
<td>129,025</td>
<td>129,025</td>
<td>128,865</td>
<td>128,865</td>
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<tr>
<td>Week 3</td>
<td>126,930</td>
<td></td>
<td></td>
<td>125,968</td>
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<tr>
<td>Week 4*</td>
<td>118,756</td>
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<td>119,976</td>
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<tr>
<td>Week &quot;5&quot;#</td>
<td>117,340</td>
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<td></td>
<td>117,340</td>
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<tr>
<td>Average</td>
<td>129,025</td>
<td>126,132</td>
<td>128,865</td>
<td>125,302</td>
</tr>
</tbody>
</table>

* Weeks 4 and "5" were combined for the preliminary estimate.

# Week "5" received 3/7 weight.
Impact on 2020q1 Productivity Growth

Annual average percent change from previous quarter

Unadjusted | Adjusted Preliminary | Revised
--- | --- | ---
Output | Hours | Productivity

-7.0% | -4.0% | -3.0%
-6.0% | -4.0% | -3.0%
-5.0% | -3.0% | -2.0%
-4.0% | -2.0% | -1.0%
-3.0% | -1.0% | 0.0%
-2.0% | -0.0% | 1.0%
-1.0% | 0.0% | 2.0%
Contact Information

Jay Stewart
Senior Research Economist
DPRPD/OPT
bls.gov/dpr/authors/stewart.htm
202-691-7376
Stewart.Jay@bls.gov