“Missing” Workers and “Missing” Jobs
Since the Pandemic

Bart Hobijn\textsuperscript{a}, and Ayşegül Şahin\textsuperscript{b}

\textsuperscript{a}FRB of Chicago \hspace{0.5cm} \textsuperscript{b}University of Texas at Austin, NBER

November 16, 2022
2022 Boston Fed Conference on “Labor Markets During and After the Pandemic”

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the institutions that they are affiliated with, including the the Federal Reserve Bank of Chicago and the Federal Reserve System.
Payroll employment 5+ million jobs below pre-COVID trend

Post-COVID 'Gap' in Nonfarm Payroll Employment

Monthly observations; seasonally adjusted; trend based on pre-COVID growth

Source: Bureau of Labor Statistics and authors' calculations
Payroll employment 5+ million jobs below pre-COVID trend

Post-COVID 'Gap' in Nonfarm Payroll Employment

Monthly observations; seasonally adjusted; trend based on pre-COVID growth

5.8M “missing” jobs: 3.7 percent of payroll employment

Source: Bureau of Labor Statistics and authors' calculations
Unemployment has recovered to its pre-COVID trend.
But there is a drop in participation since COVID
But there is a drop in participation since COVID

Labor force participation rate

Monthly observations; seasonally adjusted; share of civilian noninst. population

3.0M “missing” workers: 1.2 percent of population (CNP)

Source: Bureau of Labor Statistics
“Missing” workers: Labor supply response to COVID

- Many persons permanently dropped out of labor force (retired) in response to health risk posed by pandemic
- COVID resulted in an unexpected shortfall in U.S. labor supply

“Missing” jobs: COVID-induced labor shortage drag on job creation

- Worker shortage has hampered job creation and subdued labor demand
- Shortfall in payroll job creation because of lack of available workers due to pandemic
This is a red herring...
This is a red herring...

... because it does not add up:

3.0M “missing” workers ≠ 5.8M “missing” jobs
Accounting identity that links “Missing” jobs and workers

“Missing” jobs (payroll jobs) related to “Missing” workers (LFPR)

\[
J_t = \left( \frac{J_t}{J_t^H} \right) \left( \frac{J_t^H}{E_t} \right) (1 - u_t) LFPR_t POP_t
\]

- \( J_t^H \) is CPS-based proxy of nonfarm payroll employment.
Rules of thumb about job growth, unemployment, and participation

\[ \Delta \ln J_t \approx \Delta \ln \left( \frac{J_t}{J_t^{H}} \right) + \Delta \ln \left( \frac{J_t^{H}}{E_t} \right) - \frac{\Delta u_t}{d_t} + \Delta \ln LFPR_t + \Delta \ln POP_t \]

Payroll growth

Change in survey difference

Change in scope difference

Unemployment change

Participation change

Population growth

Relates payroll jobs growth to changes in unemployment rate and LFPR...

<table>
<thead>
<tr>
<th>Change in ( u_t ) or ( LFPR_t )</th>
<th>Percent change in Nonfarm payrolls</th>
<th>Change in nonfarm payroll jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1 pct point decrease in the ( unemployment ) rate</td>
<td>0.1 pct increase in nonfarm payrolls</td>
<td>150K more nonfarm payroll jobs</td>
</tr>
<tr>
<td>0.1 pct point increase in the ( participation ) rate</td>
<td>0.16 pct increase in nonfarm payrolls</td>
<td>250K more nonfarm payroll jobs</td>
</tr>
</tbody>
</table>
Split 5.8M “missing” jobs into parts from identity

**Post-COVID 'Gap' in Nonfarm Payroll Employment**

Monthly observations; seasonally adjusted; trend based on pre-COVID growth

- **Nonfarm payrolls**
- **Pre-COVID 'trend'**

Source: Bureau of Labor Statistics and authors' calculations
Split 5.8M “missing” jobs into parts from identity

Dissection of "Missing" payroll jobs
Deviation of number payroll jobs in Oct-22 from pre-COVID trend

Source: Bureau of Labor Statistics and authors' calculations
Unemployment rate did not continue to decline after 2020

Dissection of "Missing" payroll jobs
Deviation of number payroll jobs in Oct-22 from pre-COVID trend

Counterfactual is continued cyclical improvement in labor market

Source: Bureau of Labor Statistics and authors' calculations
But labor market was in mature stage of business cycle in early 2020.
But labor market was in mature stage of business cycle in early 2020.

Unemployment rate

Monthly observations; seasonally adjusted; share of labor force

Counterfactual:
Unemployment rate declined further to 2.3 percent in October 2022.
Decline in unemployment rate from 2020-2022 was not projected.

Source: FOMC, Summary of Economic Projections, December 2019
Decline in unemployment rate from 2020-2022 was not projected

Note the accurate 2019 forecast of the 2022 unemployment rate!

Source: FOMC, Summary of Economic Projections, December 2019
Upward cyclical participation pressures did not continue after 2020.

Dissection of "Missing" payroll jobs
Deviation of number payroll jobs in Oct-22 from pre-COVID trend

Counterfactual is continued cyclical tailwinds on job creation from labor force participation

Source: Bureau of Labor Statistics and authors' calculations
Large disagreement about trend and cycle in participation rate

![Labor Force Participation Rate, Actual and Trend Estimates](image)

**Note:** Vintage of forecast is indicated by dot. Actual is seasonally adjusted monthly observations. Trend estimates in bottom panel by source:

Flow Origins of Participation: Oct 2022
Monthly observations; seasonally adjusted

Key Intuition: When someone moves from U to E, they are more likely to remain in the labor force going forward. This simple mechanism (the participation cycle) is the source of procyclicality of participation, not labor force entry and exit.
Participation cycle driven by job-loss and job-finding

Trough to trough LFPR changes decomposed

Monthly observations; seasonally adjusted; cumulative change since unemployment trough; Total

Source: BLS, CPS, and authors' calculations

Strong tailwinds for job creation from cyclical recovery of the participation rate in pre-COVID periods

Participation cycle on Oct-22 almost back to where it was in Feb-20 (0.2 pct pts below)

Update of Hobijn and Sahin (2021)
Participation cycle driven by job-loss and job-finding

Trough to trough LFPR changes decomposed
Monthly observations; seasonally adjusted; cumulative change since unemployment trough; Total

Strong tailwinds for job creation from cyclical recovery of the participation rate in pre-COVID periods

Source: BLS, CPS, and authors' calculations

Update of Hobijn and Şahin (2021)
Participation cycle driven by job-loss and job-finding

**Trough to trough LFPR changes decomposed**

Monthly observations; seasonally adjusted; cumulative change since unemployment trough; Total

Participation cycle on Oct-22 almost back to where it was in Feb-20 (0.2 pct pts below)

Source: BLS, CPS, and authors' calculations

Update of Hobijn and Şahin (2021)
These jobs are not “missing” at all!

Dissection of "Missing" payroll jobs
Deviation of number payroll jobs in Oct-22 from pre-COVID trend

The result of misguided counterfactual assumption of continued similar pace of recovery in 2020-2022 compared to 2015-2020.

Source: Bureau of Labor Statistics and authors' calculations
Unemployment now slightly higher than right before the pandemic

Dissection of "Missing" payroll jobs
Deviation of number payroll jobs in Oct-22 from pre-COVID trend

Unemployment rate in Oct-22 0.2 pct pts higher than in Feb-20: 300K nonfarm payroll jobs

Source: Bureau of Labor Statistics and authors' calculations
Participation cycle slightly lower now than in February 2020

Dissection of "Missing" payroll jobs
Deviation of number payroll jobs in Oct-22 from pre-COVID trend

Participation cycle in Oct-22 0.2 pct pts lower than in Feb-20: 500K nonfarm payroll jobs

Source: Bureau of Labor Statistics and authors' calculations
Cyclical shortfall compared to February 2020: 800K jobs

Dissection of "Missing" payroll jobs
Deviation of number payroll jobs in Oct-22 from pre-COVID trend

Source: Bureau of Labor Statistics and authors' calculations
About 800 thousand “missing” jobs linked to “missing” workers

Dissection of "Missing" payroll jobs

Deviation of number payroll jobs in Oct-22 from pre-COVID trend

Source: Bureau of Labor Statistics and authors' calculations
Drop in participation since COVID split up...

**Labor force participation rate**  
Monthly observations; seasonally adjusted; share of civilian noninst. population

Source: Bureau of Labor Statistics

Importance of taking into account pre-COVID long-run trend echoes Cooper *et al.* (2021)
1.2 pct pt decline in LFPR = 0.2 pct pt participation cycle + 0.7 pct pt continuation of pre-COVID long-run trend + 0.3 pct pt acceleration of long-run trend

Importance of taking into account pre-COVID long-run trend echoes Cooper et al. (2021)
Slowdown in population growth drag of 250 thousand jobs

Dissection of "Missing" payroll jobs
Deviation of number payroll jobs in Oct-22 from pre-COVID trend

Source: Bureau of Labor Statistics and authors' calculations
Slowdown in trend labor supply since start of the pandemic

Dissection of "Missing" payroll jobs
Deviation of number payroll jobs in Oct-22 from pre-COVID trend

Some of this slowdown was already projected before COVID

(Dubina et al., 2019)

Source: Bureau of Labor Statistics and authors' calculations
Slow growth of labor supply translates into slow job growth

Trend payroll job growth is about 65K jobs a month

- Latest BLS projections is labor force growth of 0.5 percent annually over coming decade
- Implies 0.5 percent trend payroll job growth: About 65K jobs a month

Mature state of cycle implies substantial slowdown in job growth

- Even in the absence of monetary and fiscal tightening one should expect substantial slowdown in job creation
- Caution! Don’t attribute all of slowdown in job creation to policy. Unemployment rate and participation cycles are better gauges of policy impact on labor market.
On the one hand:
U.S. labor market aggregates recovered quickly back to pre-COVID levels relative to trend

- A testament to the resilience of the U.S. economy
- Little evidence of a long-run impact of COVID on path of aggregates

On the other hand:
What is restraining U.S. job creation is long-run trend factors

- Trend growth of labor supply in coming decade very low
- We have a vaccine (and cure) for COVID, but have not found a way to reverse aging


Payroll and total employment from the different surveys

Three employment concepts

Monthly observations; seasonally adjusted; millions of jobs (CES) or persons (CPS)

Source: Bureau of Labor Statistics
Labor Force Entry and Exit as a Share of the Population

Monthly observations; seasonally adjusted; percent of population; Total

Source: Bureau of Labor Statistics, CPS, and authors' calculations

Source: BLS