Why Did the U.S. Recover So Quickly From the COVID Recession?

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Harvard University

Macroeconomic Policy Seminar
March 8, 2022
UNEMPLOYMENT BY RECOVERY
INTERNATIONAL COMPARISON

Index (2019Q4=100)

Q4 19 | Q2 20 | Q4 20 | Q2 21 | Q4 21
--- | --- | --- | --- | ---
USA | DEU | FRA | ITA | GBR
CAN | AUS | ISR | ESP | PRT
JPN | CHE

Graph showing the index values for different countries over time.
DSGE forecasts

### Forecasts of GDP Growth (Q4/Q4) from Individual Scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenario 1</td>
<td>-4.0</td>
<td>2.6</td>
<td>0.8</td>
<td>1.3</td>
</tr>
<tr>
<td></td>
<td>(-5.4,-2.7)</td>
<td>(0.1,5.0)</td>
<td>(-1.8,3.4)</td>
<td>(-1.3,3.9)</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>-5.2</td>
<td>2.4</td>
<td>1.3</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td>(-7.1,-3.4)</td>
<td>(-0.2,5.0)</td>
<td>(-1.3,3.9)</td>
<td>(-1.1,4.4)</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>-9.9</td>
<td>1.8</td>
<td>1.6</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>(-11.8,-8.1)</td>
<td>(-0.8,4.4)</td>
<td>(-1.1,4.3)</td>
<td>(-0.6,4.7)</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations.

Notes: This table presents forecasts for output growth, core PCE inflation, and the real natural rate of interest under three scenarios, which differ in the projected severity of the COVID-19 pandemic. The numbers outside parentheses are the mean forecasts, and the numbers in parentheses are the 68 percent confidence bands.
OUTLINE

1. Recovery
2. Demand ignores virus
3. Labor market functioning
4. Government support
5. Conclusion
SPENDING AND COVID

Weekly new hospital admissions (thousands)

Real expenditure (Jan-2020=100)


Total PCE Restaurants+ New hospital admissions

7 / 31
SPENDING AND COVID
EATING OUT AND COVID

OpenTable Reservation Index

Weekly new hospital admissions (thousands)

-100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180

Jan 20 Apr 20 Jul 20 Oct 20 Jan 21 Apr 21 Jul 21 Oct 21 Jan 22

OpenTable reservations

New hospital admissions

0 20 40 60 80 100 120 140 160 180

Jan 22
Aside: Labor supply may be more elastic

\[ y = 9.04 - 0.20x \quad (se=0.08) \quad R^2=0.09 \]
OUTLINE

1 Recovery

2 Demand ignores virus

3 Labor market functioning

4 Government support

5 Conclusion
IMPORTANCE OF COMPOSITION OF UNEMPLOYED

Re-employment Hazards

Unemployment Distribution

Source: Chodorow-Reich and Coglianese (2020).
Temporar
y Unemployment
and Labor Market Dynamics
during the COVID-19 Recession

ABSTRACT This paper develops a search-and-matching model that incorporates temporary unemployment and applies the model to study the labor market dynamics of the COVID-19 recession in the United States. We calibrate the model using panel data from the Current Population Survey for 2001–2019, and we find that the model-based job-finding rates match observed job-finding rates during the entire sample period and out of sample up through July 2020. We also find that the Beveridge curve is well behaved and that there is little change in market tightness in 2020 once we use the calibrated model to adjust for changes in the composition of the unemployed. We then use the model to project the path of unemployment over the next eighteen months. Under a range of assumptions about job losses and labor demand, our model predicts a more rapid recovery compared to a model that does not distinguish between temporary and permanent unemployment and compared to professional and academic forecasts. In order to rationalize the professional forecasts of the unemployment rate, some combination of the vacancy rate, the job-separation rate, and the recall rate of workers on temporary layoff must deteriorate substantially in the next several months.
OUTLINE

1 RECOVERY

2 DEMAND IGNORES VIRUS

3 LABOR MARKET FUNCTIONING

4 GOVERNMENT SUPPORT

5 CONCLUSION
Federal budget 2020Q2-2021Q1

Receipts: -0.5p.p.
Purchases: +0.2p.p.
Total net lending: -12.5p.p.

% of potential GDP, change from year ago

Personal taxes
Social contributions
Other receipts
Enhanced UI
Stimulus checks
PPP and EIDL
State and local aid
Provider relief fund
Housing assistance
Other COVID relief
Purchases (C+I)
Other Expenditure
Evaluation Framework

- **Household transfers:**
  1. Provide basic income.
  2. Aggregate demand management.
  3. Fill in missing insurance market for COVID exposure.

- **Business aid:**
  1. Fill in for imperfect credit markets.
  2. Bankruptcy/labor market/aggregate demand externalities.
PER CAPITA DISPOSABLE PERSONAL INCOME 2008-2011

Change from 2007 (constant 2012 dollars)

DPI
Other benefits
AFDC/TANF
SNAP
UI
Medicaid
Soc. Sec./Medicare
Taxes
Employee comp.
Other market inc.

Pre-tax/transfers income
PER CAPITA DISPOSABLE PERSONAL INCOME 2008-2011

Change from 2007 (constant 2012 dollars)

-3,000 -2,000 -1,000 0 1,000 2,000 3,000

2008 2009 2010 2011

DPI Other benefits AFDC/TANF SNAP UI Medicaid Soc. Sec./Medicare Taxes Employee comp. Other market inc.

Taxes and transfers
PER CAPITA DISPOSABLE PERSONAL INCOME 2008-2011

Change from 2007 (constant 2012 dollars)

Taxes and transfers

Pre-tax/transfers income

2008 2009 2010 2011

DPI Other benefits AFDC/TANF SNAP UI Medicaid Soc. Sec./Medicare Taxes Employee comp. Other market inc.
## Per Capita Disposable Personal Income 2020-2021

The chart shows the change in per capita disposable personal income (DPI) from 2019Q4 to 2020Q4 and 2021Q4, with various components contributing to the changes:

- **DPI**: Total disposable personal income.
- **Other**: Miscellaneous income not categorized.
- **Enhanced UI**: Unemployment insurance benefits.
- **Child Tax Credit**: Government-provided tax credits.
- **Econ. Impact Paym.**: Economic impact payments.
- **Taxes**: Taxes paid.
- **Employee comp.**: Employee compensation.
- **Other market inc.**: Income from other markets.

### Change from 2019Q4 (constant 2019 dollars)

<table>
<thead>
<tr>
<th>Quarter</th>
<th>DPI</th>
<th>Other</th>
<th>Enhanced UI</th>
<th>Child Tax Credit</th>
<th>Econ. Impact Paym.</th>
<th>Taxes</th>
<th>Employee comp.</th>
<th>Other market inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 2020</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Q2 2020</td>
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<tr>
<td>Q3 2020</td>
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<tr>
<td>Q4 2020</td>
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<tr>
<td>Q1 2021</td>
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<td>Q2 2021</td>
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<tr>
<td>Q3 2021</td>
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<tr>
<td>Q4 2021</td>
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<td></td>
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<td></td>
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</table>
### Stimulus Payments: Evidence

<table>
<thead>
<tr>
<th>Paper</th>
<th>Data</th>
<th>Round</th>
<th>Consumption measure</th>
<th>Horizon</th>
<th>MPC</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunity Insights</td>
<td>Daily national consumer spending aggregated at ZIP level that captures almost 10% of credit and debit card spending in the US.</td>
<td>1</td>
<td>All consumption</td>
<td>2 weeks</td>
<td>Bottom Income Quartile Zip: 25.15% Top Income Quartile Zip: 8.45%</td>
<td>[11.1, 39.2]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Zip income &lt; 46K: 7.9% Zip income &gt; 78K: 0.2%</td>
<td>[1.0, 16.0]</td>
</tr>
<tr>
<td>Baker et. al (2020)</td>
<td>Anonymized transaction-level data from SaverLife, a financial app. The sample consists of 38,379 individuals whose average annual income is $36,000.</td>
<td>1</td>
<td>All consumption</td>
<td>3 weeks</td>
<td>26.6%</td>
<td>[20.4, 32.8]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Zip income &lt; 46K: 7.9% Zip income &gt; 78K: 0.2%</td>
<td>NP&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Karger and Rajan (2021)</td>
<td>Anonymized individual level data that comes from Facteus, a company that aggregates transactional data from dozens of banks. Full sample consists of 30,402 consumers.</td>
<td>1</td>
<td>All consumption</td>
<td>2 weeks</td>
<td>46%</td>
<td>NP&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$600 recipients: 39% $2400 recipients: 47%</td>
<td>NP&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Parker, Schild, and Ernhard (2021)</td>
<td>Consumer Expenditure Survey, a household survey run by the BLS. Sample size used in the paper equals 5,314 consumers.</td>
<td>1</td>
<td>All consumption</td>
<td></td>
<td>8.1%</td>
<td>[−6.5, 22.8]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Non durables</td>
<td>10.0%</td>
</tr>
<tr>
<td>Misra, Singh, and Zhang (2021)</td>
<td>Daily zip level transactions aggregated by Facteus.</td>
<td>1</td>
<td>All Cons. except banking All spending</td>
<td></td>
<td>29% 51%</td>
<td>NP&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Coibion, Gorodnichenko, and Weber (2021)</td>
<td>Survey implemented to 11,793 individuals.</td>
<td>1</td>
<td>All spending</td>
<td></td>
<td>42%</td>
<td>NP&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup> Standard errors not provided
ENHANCED AND EXTENDED UI: evidence

- $600 flat increase to all weekly benefit amounts, April-July 2020.
- $300 flat increase September 2020- with interruptions.
- Expanded eligibility.
- Maximum duration extensions.
- Following from Ganong et al., “Spending and Job Search Impacts of Expanded Unemployment Benefits.”
Notes: This figure compares the median income and spending of unemployed and employed households during the pandemic using JPMCI data. The blue line shows the income and spending of households where a worker begins unemployment benefit receipt at the start of April and continues receipt through at least the end of August. The purple line shows the same series for a set of employed households who are matched on 2019 income levels as well as date of receipt of Economic Impact Payment. See Section 4.1 for details.
Figure 4: Impact of Expiration of the $600 Supplement on Spending

Weekly unemployment insurance benefit

Spending (card and cash)

Difference from first week of July

Notes: This figure measures the causal impact of the expiration on the $600 supplement on spending. The benefit amount declines over two weeks in August (rather than one week) because some states pay benefits once every two weeks and therefore paid out one week's supplement during the first week of August. The benefit amount rises in September because states begin to pay the temporary $300 supplement. The control group is employed workers who are matched on 2019 income levels as well as date of receipt of Economic Impact Payment. The dependent variables are mean benefits and mean spending, measured as a change relative to the first week of July. See Section 4.2.2 for details.
### Table 1: Unemployment Spells During the Pandemic

<table>
<thead>
<tr>
<th>Month</th>
<th>Average active spells</th>
<th>Number of spell starts</th>
<th>Number of spell exits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jan</td>
<td>28,500</td>
<td>13,125</td>
</tr>
<tr>
<td></td>
<td>Feb</td>
<td>28,500</td>
<td>11,053</td>
</tr>
<tr>
<td></td>
<td>Mar</td>
<td>36,948</td>
<td>28,392</td>
</tr>
<tr>
<td></td>
<td>Apr</td>
<td>185,668</td>
<td>207,827</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>286,507</td>
<td>141,156</td>
</tr>
<tr>
<td></td>
<td>Jun</td>
<td>282,776</td>
<td>76,695</td>
</tr>
<tr>
<td></td>
<td>Jul</td>
<td>273,431</td>
<td>62,801</td>
</tr>
<tr>
<td></td>
<td>Aug</td>
<td>243,203</td>
<td>43,809</td>
</tr>
<tr>
<td></td>
<td>Sep</td>
<td>217,316</td>
<td>38,823</td>
</tr>
<tr>
<td></td>
<td>Oct</td>
<td>201,794</td>
<td>37,432</td>
</tr>
</tbody>
</table>

Notes: This table shows the number of unemployment spells in our data. The number of active spells is the monthly average, while the spell exits and starts are the sums for each month. Continuously unemployed are uninterrupted spells since April or May. The share of repeated unemployed workers is calculated since the beginning of the pandemic in April. Exit to recalls are workers returning to their previous employer.

### Table 2: Marginal Propensity to Consume out of Unemployment Benefits

<table>
<thead>
<tr>
<th>Research Design</th>
<th>Total Spending MPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waiting for benefits</td>
<td>0.43 (0.03)</td>
</tr>
<tr>
<td>Expiration of $600</td>
<td>0.29 (0.01)</td>
</tr>
<tr>
<td>$300 supplement</td>
<td>0.42 (0.03)</td>
</tr>
</tbody>
</table>

Notes: This table shows estimated one-month total spending MPCs for three different unemployment benefit changes using the diff-in-diff research designs discussed in more detail in Section 4.2. The waiting for benefits design compares unemployed households receiving benefits to those who face benefit delays in March and May, the expiration design compares unemployed households to a sample of employed households who have income similar to the pre-separation income of the unemployed in July and August and the $300 supplement design compares unemployed in states that get $300 LWA payments early vs. late. Standard errors are clustered by state.
(a) Exit Rate

Weekly exit rate from unemployment benefits

- Back-of-the-envelope: no jump in exit rate $\Rightarrow$ 7% more UI recipients in mid-August = 3.3% of newly unemployed over March-July.

- Order-of-magnitude smaller than previous micro estimates.
AID TO BUSINESSES: MAJOR PROGRAMS

<table>
<thead>
<tr>
<th>(Billions of dollars)</th>
<th>Authorized</th>
<th>Utilized</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2020Q2-2021Q1</td>
<td>2021Q2-2021Q3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Federal Subsidies</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SBA Programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paycheck Protection Program</td>
<td>814</td>
<td>457</td>
</tr>
<tr>
<td>Economic Injury Disaster Loans</td>
<td>206</td>
<td>111</td>
</tr>
<tr>
<td>EIDL Advances</td>
<td>35</td>
<td>20</td>
</tr>
<tr>
<td>SBA Forbearance</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Other Programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee Retention Tax Credit</td>
<td>85</td>
<td>71</td>
</tr>
<tr>
<td>Grants to Air Carriers</td>
<td>58</td>
<td>29</td>
</tr>
<tr>
<td>Food Assistance Program</td>
<td>30</td>
<td>21</td>
</tr>
<tr>
<td>Federal Reserve Programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate Credit Facility</td>
<td>750</td>
<td>15</td>
</tr>
<tr>
<td>Main Street Lending Facility</td>
<td>600</td>
<td>18</td>
</tr>
<tr>
<td>State Programs</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

Source: Chodorow-Reich, Iverson, Sunderam (forthcoming).
PPP: BACKGROUND

- Expanded authorization: April 27, last loan in August.
- Second round authorized in December 2020.
- Eligibility: < 500 employees or in Accommodation and Food Services.
- Amount: $2.5 \times \text{monthly payroll with cap of $10 million}.$
- Forgivable if qualified expenses.
PPP: SIZE DISTRIBUTION

Source: Chodorow-Reich, Iverson, Sunderam (forthcoming).
## PPP: FOLLOW THE MONEY

### Table 15
Aggregate drawdowns for PPP participants by firm size, 2019Q4–2020Q2.

<table>
<thead>
<tr>
<th>Firm assets ($mil)</th>
<th>Non-PPP credit outstanding ($Bil) 2019Q4</th>
<th>Non-PPP credit outstanding ($Bil) 2020Q1</th>
<th>Non-PPP credit outstanding ($Bil) 2020Q2</th>
<th>PPP amount ($Bil)</th>
<th>Repayment ratio (%)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not classified</td>
<td>11.4</td>
<td>11.5</td>
<td>10.8</td>
<td>3.6</td>
<td>19.5</td>
<td>6857</td>
</tr>
<tr>
<td>0–50</td>
<td>101.6</td>
<td>103.0</td>
<td>79.5</td>
<td>32.8</td>
<td>71.7</td>
<td>38,508</td>
</tr>
<tr>
<td>50–250</td>
<td>68.9</td>
<td>69.7</td>
<td>57.1</td>
<td>11.5</td>
<td>109.0</td>
<td>5055</td>
</tr>
<tr>
<td>250–1000</td>
<td>22.0</td>
<td>23.7</td>
<td>20.4</td>
<td>1.6</td>
<td>201.2</td>
<td>935</td>
</tr>
<tr>
<td>1000–5000</td>
<td>11.2</td>
<td>16.6</td>
<td>12.3</td>
<td>0.3</td>
<td>1431.3</td>
<td>248</td>
</tr>
<tr>
<td>5000–</td>
<td>7.8</td>
<td>12.5</td>
<td>9.6</td>
<td>0.1</td>
<td>2268.8</td>
<td>110</td>
</tr>
<tr>
<td>Sum</td>
<td>222.7</td>
<td>237.0</td>
<td>189.7</td>
<td>50.0</td>
<td>94.7</td>
<td>51,713</td>
</tr>
</tbody>
</table>

Notes: The table reports the total dollar amount (in $B) of non-PPP credit outstanding (left-most three columns), total PPP funds received, and the ratio of the change in credit outstanding between 2020Q1 and 2020Q2 to PPP funds received for the PPP recipients identified in the Y-14.

Source: Chodorow-Reich, Darmouni, Luck, Plosser (forthcoming).
Figure 1: Employment by Firm Size for Industries With PPP Eligibility at 500 Workers

Index (February 2020 = 1.0)

Source: Autor et al. (WP).
Figure 2: Event-Study Employment Effects at Firms Sized 1 - 49

Note. Estimates from Sun and Abraham (2020) event-study interaction estimator on the sample of loan-matched ADP firms with between 1-49 employees where firm size is defined using the average size in February 2020. The outcome variable—firm-level employment—is indexed to equal 1 in February 2020. The estimates are weighted by each firm's employment as of February 2020 and include controls for 3-digit industry-by-week and state-by-week fixed effects. Standard errors are clustered at the 3-digit industry. All points to the right of the solid line represent post-treatment periods. Alternatively, accounting for the biweekly pay schedule of most ADP employers, and the back-filling used to establish start dates, all periods to the right of the dashed line can be viewed as post-treatment. See online appendix section D.4 for more details.

Source: Authors' analysis of SBA and ADP data using Sun and Abraham (2020) “eventstudyinteract” STATA implementation.

While our findings in Figures 1 and 2 capture the employment effects of loans issued in 2020 from the first two tranches of PPP funding, we know of no similar evidence on the consequences of the third major tranche of $278 billion in PPP loans issued in 2021. To complete this picture, we estimate difference-in-difference threshold eligibility results analogous to those in Autor et al. (2020) for the second draw PPP loans which constituted the majority of third tranche loans issued in 2021 (comparing employment at firms above and below the 300 worker eligibility threshold for second draw loans).

Despite seemingly better targeting than the 2020 loans, we find no evidence in Figure 3 that the 2021 second-draw loans boosted employment, perhaps because they were issued too late to be relevant, after the economic recovery was well underway. If this interpretation is correct, it affirms that Congress was wise to prioritize speed over precision in dispatching the initial two tranches of PPP loans.
Other federal subsidies: evidence

- Comparably and remarkably little analysis of other business subsides.

- $100 billion employee retention credit?

- $41 billion to airlines (most to big 6)?
**CORPORATE CREDIT FACILITY: evidence**

- March 23: initial program announcement.
- April 9: program expanded.
- May 29: “The Fed is strongly committed to using our tools to do whatever we can for as long as it takes to provide some relief and some stability now.”
Main Street Lending Facility: evidence

- Low take up: $18 billion of $600 billion authorization.

- Banks retained 5% slice ⇒ bank balance sheet relaxed, not subsidized lending.

- Possibly important in future recession when banks are balanced sheet constrained.

- Unlikely to explain much of the 2020 recovery.
OUTLINE

1 RECOVERY
2 DEMAND IGNORES VIRUS
3 LABOR MARKET FUNCTIONING
4 GOVERNMENT SUPPORT
5 CONCLUSION
SUMMARY

- Rapid recovery by historical standards and relative to forecasts.
- Elasticity of demand to pandemic fell.
- High employer-employee attachment through recalls.
- Overwhelming government support.
Appendix slides