COVID-19 Is a Persistent Reallocation Shock

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*Any opinions and conclusions expressed herein are those of the authors and do not necessarily represent the views of the Federal Reserve Bank of Atlanta.
We draw on data from the monthly Atlanta Fed/Chicago-Booth/Stanford Survey of Business Uncertainty to show argue COVID-19 is a persistent reallocation shock for the US economy.

Our analysis expands Barrero, Bloom, and Davis (2020, forthcoming BPEA), who provide evidence of near, medium, and longer-term reallocative effects of the pandemic.
The Survey of Business Uncertainty

Monthly panel survey collected by Atlanta Fed

- ≈ 400 responses from business executives per month
- Our sample: 9/2016 - present

Survey questions elicit information on:

- Past, current own-firm employment, sales growth
- Five-point subjective distribution about future employment, sales growth

Altig, Barrero, Bloom, Davis, Meyer, Parker (forthcoming, *J. of Econometrics*)
Currently, what is your **NUMBER OF EMPLOYEES** (including part-time)?

500

Looking back, 12 months ago, what was your **NUMBER OF EMPLOYEES** (including part-time)?

490
Looking ahead, 12 months from now, what **NUMBER OF EMPLOYEES** (including part-time) would you assign to each of the following scenarios?

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Options</th>
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<tbody>
<tr>
<td>The LOWEST number of employees would be about:</td>
<td>400</td>
</tr>
<tr>
<td>A LOW number of employees would be about:</td>
<td>450</td>
</tr>
<tr>
<td>A MIDDLE number of employees would be about:</td>
<td>500</td>
</tr>
<tr>
<td>A HIGH number of employees would be about:</td>
<td>550</td>
</tr>
<tr>
<td>The HIGHEST number of employees would be about:</td>
<td>500</td>
</tr>
</tbody>
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Please assign a percentage likelihood to the **NUMBER OF EMPLOYEES** you entered above. (Values should sum to 100%)

- **LOWEST CASE**: The likelihood of employing about **400** people 12 months from now would be: 10%
- **LOW CASE**: The likelihood of employing about **450** people 12 months from now would be: 20%
- **MEDIUM CASE**: The likelihood of employing about **500** people 12 months from now would be: 40%
- **HIGH CASE**: The likelihood of employing about **550** people 12 months from now would be: 20%
- **HIGHEST CASE**: The likelihood of employing about **500** people 12 months from now would be: 10%

**Total**: 100%
**24-month (Realized + Expected) Reallocation**

To study the persistent effects of COVID-19, we add:
- Firm $i$’s realized employment/sales growth rate from $t-12$ to $t$
- Firm $i$’s forecast employment/sales growth rate from $t$ to $t+12$

The resulting growth rate $g_{it}^{24}$ covers 24 months: $t-12$ to $t+12$

We then compute implied 24-month (realized + expected future) reallocation rates:

$$X_t^{24} = \sum_j \frac{z_t}{Z_t} \|g_{tj}^{24}\| \quad - \quad \left\| \sum_j \frac{z_t}{Z_t} g_{tj}^{24} \right\|$$

where $\frac{z_t}{Z_t}$ are appropriate activity weights.
**Fact 1: COVID-19 Linked to High 24 Month Excess Reallocation**

**Notes:** In each month $t$, we add firm $i$'s realized employment and sales growth rates over the past year to its forecast for the next year, obtaining the cumulative growth rate for months $t-12$ to $t+12$. We then compute the excess reallocation rates associated with these growth rates.
In month $t$ we plot activity-weighted percentiles of the distribution of realized sales growth rates for the past year.

In the latest month (December 2020) compute the growth rate forecast among firms $+\/-\ 5$ centiles from percentile $q$

- Append this expected growth rate to the realized growth for percentile $q$, yielding a projection through December 2021
Fact 2: Firms Expect (as of December 2020) a Continuation of COVID Effects

Notes: In each month up to December 2020, we plot sales-weighted percentiles of the sales growth rate distribution over the past year. In December 2020 we also append the sales-weighted average sales growth forecast (looking one year ahead) among firms within plus or minus 5 centiles of the indicated percentile, yielding projections through December 2021.
Industry-Level Shifts and Capacity to Work from Home

We aggregate past + expected future employment growth rates at the industry level:

▶ Before COVID: 9/2016 - 2/2020
▶ During COVID: 3/2020 - 12/2020

Merge with industry-level measures of teleworkable employment from Dingel & Neiman (2020)

Shift to working from home will persist after the end of the pandemic (Barrero, Bloom, & Davis, 2020)
Fact 3: Relative Employment Growth Trends Have Shifted Towards Industries with High WFH Capacity

Notes: For each industry group we compute the aggregate growth rate implied by firms growth in the past 12 months and their expected future growth in the next 12 months, separately for the pre-COVID (9/2016-2/2020) and COVID (3/2020-12/2020) periods.
CONCLUSION

COVID-19 is a persistent reallocation shock

1. COVID-19 linked to high 24-month (past + expected future) excess reallocation, especially for sales revenue.

2. As of December 2020, firms foresee a continuation of COVID-induced sales reallocation effects over the next one year, not a reversal.

3. COVID shifted relative employment growth trends in favor of industries with high capacity of employees to work from home.
**Fact 2: Firms Expect (as of December 2020) a Continuation of COVID Effects**

**Notes:** We divide the sample period into pre-COVID (9/16 - 2/20) and COVID subperiods (4/20 - 12/20). In each period we normalize the average firm-level sales level to zero in Year 0 (12 months prior to any given survey date). In Year 1 we plot employment-weighted quantiles of the distribution of sales growth rates over the 12 months prior to the survey date. We also compute the employment-weighted average sales growth forecast (looking four quarters ahead) among firms that are within 5 percentiles of each quantile in Year 1. We then add this sales growth forecast to the realized growth quantile from Year 1 and plot the resulting cumulative growth in Year 2. The sample period covers survey waves from 9/2016 to 12/2020, inclusive.