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COVID-19, Industry Mix and the Growth of Initial UI Claims across States

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In its latest news [release](#) on unemployment insurance (UI) weekly claims, the U.S. Department of Labor (DOL) reported that, relative to the prior week, the number of initial claims increased significantly by 70,000 in the week ending on March 14, 2020. The report noted that the increase “are clearly attributable to impacts from the COVID-19 virus. A number of states specifically cited COVID-19 related layoffs, while many states reported increased layoffs in service related industries broadly and in the accommodation and food services industries specifically, as well as in the transportation and warehousing industry, whether COVID-19 was identified directly or not.”

We evaluate this assessment quantitatively. Using state level data (the District of Columbia is treated as a state), we find the number of confirmed cases of COVID-19 as of the middle of the week on Wednesday March 11, 2020 is significantly correlated with the increase in initial UI claims. Specifically, relative to the week ending on March 16, 2019, one additional confirmed case is associated with a 0.25% (standard error: 0.08%) increase in initial UI claims in the week ending on March 14, 2020, and it increases to 1.37% (standard error: 0.54%) when the four states (Washington, New York, California and Massachusetts) with far more cases than other states are excluded.

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We then look at two service sectors that are likely to be directly affected by COVID-19: the leisure and hospitality sector and other services (repair and maintenance, personal and laundry service, etc.) that are less skill intensive. We find a larger correlation between the employment share of the two service sectors and the increase in initial UI claims among the 26 states with 6 or more confirmed cases than among the 25 states with at most five confirmed cases. This suggests that the two services sectors are indeed disproportionately affected by COVID-19 and this leads to a larger increase in initial UI claims in states where the two sectors have a larger employment share. However, because the data is limited and relatively noisy, and this result should be interpreted with caution.

Overall, our analysis of the data supports the DOL assessment on the initial impact of COVID-19 on unemployment. As more people are tested positive each day, and various counter measures are taken by both the federal and local governments, the economic impact of COVID-19 is likely to change quickly and dramatically. We will provide more analyses as new data come in.

Data and Measurement

We use the DOL [data](#) to calculate the growth rate of initial UI claims between the week ending on 3/16/2019 and the week ending on 3/14/2020 for each state. To reduce the effect of any secular trend, we subtract from this growth rate a similar one between the week ending on 3/9/2019 and the week ending on 3/7/2020. This normalized growth rate is used on the vertical axis in figures 1 and 2 reported below.

Alternatively, we could (1) calculate the growth rate of initial UI claims between the week ending on 3/14/2020 and the prior week ending on 3/7/2020, (2) calculate a similar growth rate between the week ending on 3/16/2019 and the prior week ending on 3/9/2019, and (3) take the difference between the two. Results with this alternative measure is very similar.

For COVID-19, we use the number of confirmed cases as of the middle of the week on Wednesday 3/11/2020, obtained from the Center for Systems Science and Engineering ([CSSE](#)) at John Hopkins University. Results are similar if we use the number of new cases confirmed in the week instead.

Finally, the industry-specific employment share for each state are calculated using [data](#) from the Bureau of Labor Statistics. Specifically, for each of the two service sectors, we calculate its employment share in each state by dividing its annual average employment in 2019 by the annual average employment of private nonfarm sector in 2019.

Results

Figure 1 shows that the number of confirmed cases of COVID-19 is significantly correlated with the recent growth of initial UI claims, no matter whether the four states (Washington, New York, California and Massachusetts) with the most confirmed cases are include (top panel) or not (bottom panel). Specifically, relative to the week ending on March 16, 2019, one additional confirmed case is associated with a 0.25% (standard error: 0.08%) increase in initial UI claims in the week ending on March 14, 2020, and it

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increases to 1.37% (standard error: 0.54%) when the four states with far more cases than other states are excluded.

Figure 2 shows that, among states with 6 or more confirmed cases of COVID-19 (colored in red), the shares of employment in the leisure and hospitality sector (top panel) and other services (bottom panel) are positively correlated with the recent growth of initial UI claims. In contrast, the correlation is much smaller and even negative among states with at 5 or fewer confirmed cases.

Together, consistent with the DOL assessment, the two figures suggest that the spread of COVID-19 contributed to the recent increase in unemployment and the effect is larger in states intensive in service related industries.

We conclude by noting that the data is limited and relatively noisy, thus the results should be interpreted with caution. We will provide more analyses as new data come in.

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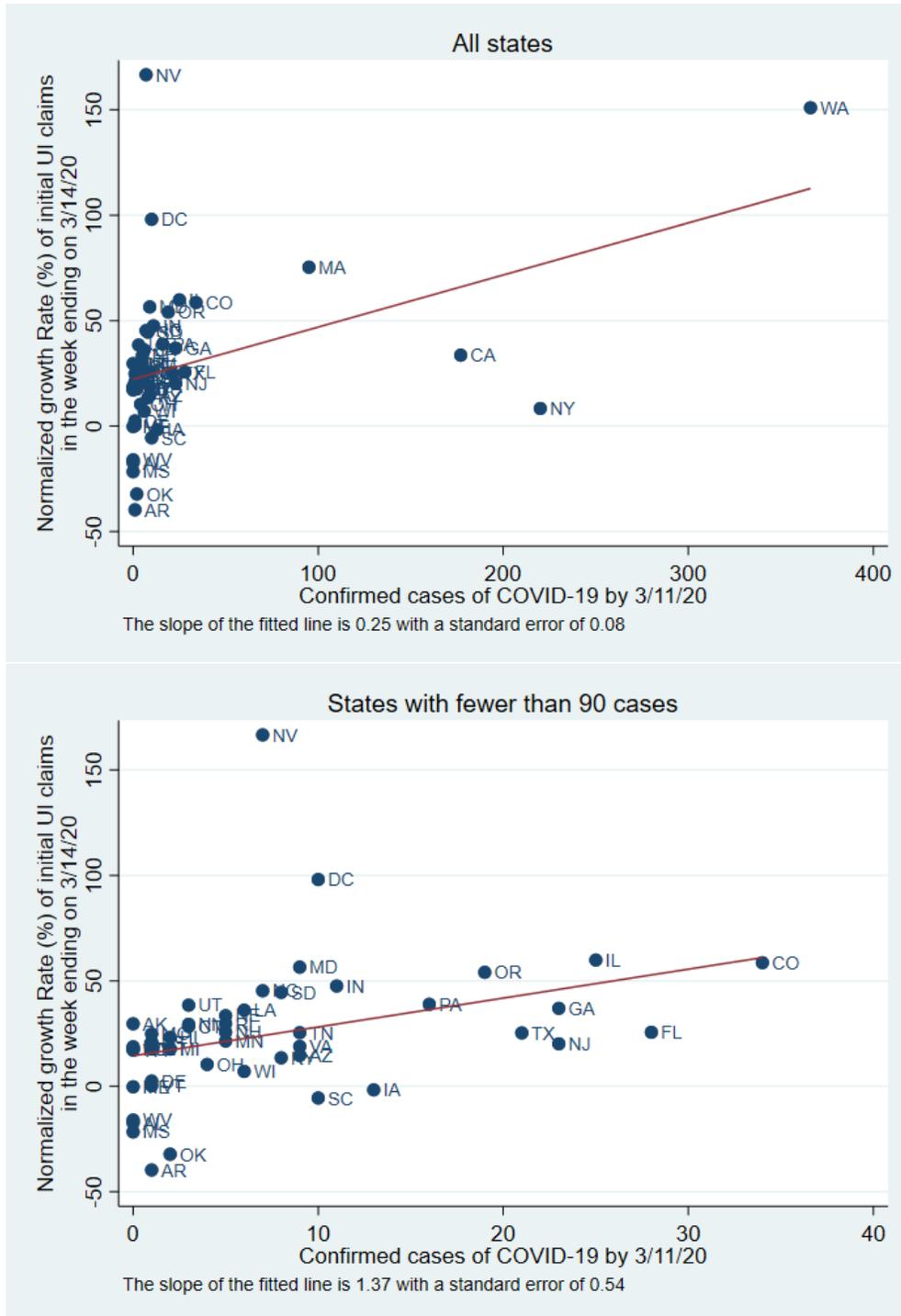


Figure 1. COVID-19 and the Growth of Initial UI Claims

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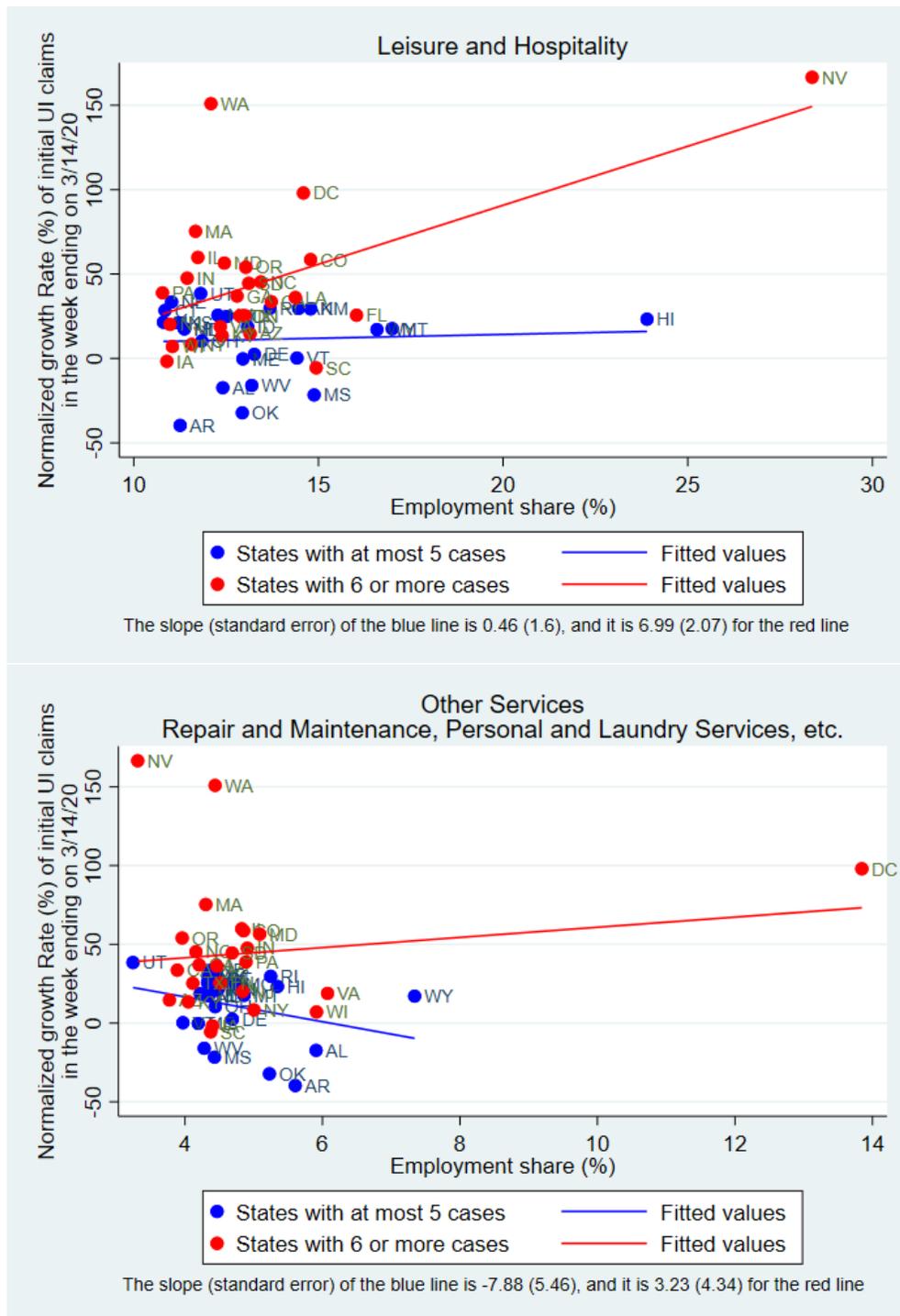


Figure 2. COVID-19, Industry Mix and the Growth of Initial UI Claims