

What is the tradeoff between covid infections and economic recovery?

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Since July 2019, Iowa has lost 3.4% of its labor force and 3.3% of its employment. Nationally, employment is 3.7% below the July 2019 level, and so Iowa is doing slightly better on employment loss. However, the national labor force has fallen only 1.4% and so Iowa has performed much worse than the nation on labor force participation. That said, there has been a surge in Iowa's labor force participation from June 2021 to July 2021 as the two-year decrease in labor force participation was -4.7% in June, and so there was a substantial improvement in Iowa's labor force participation over the past month.

The Iowa experience is just one of 50 very different labor market outcomes across the 50 states. Driving the differences in outcomes is the variation in state responses to the pandemic. Some states used strict and comprehensive mandatory shut-downs of their economies to reduce the spread of the disease. Others relied more on voluntary limits on economic activity with more modest and short-lived shut-downs. In this note, I examine the magnitude of the trade-off between the severity of the covid restrictions and the resulting benefit in reduced spread of the disease against the cost of lost jobs and economic activity.

The overall picture is shown in Figure 1 that compares the relative changes in labor supply (those over 15 who are either employed or actively seeking work) and the change in employment. I separate the states into those who suspended supplemental unemployment benefits in June and those who are suspending them in September. In general, the states in blue have performed better in the sense that they lost less employment and labor force than did the states in red, but it is hard to tie this to the unemployment insurance policy. The reason is that they were also performing better before the suspension of the supplemental unemployment insurance benefit due to less stringent restrictions imposed on their economies in response to the covid-19 pandemic. I estimate that about 14% of the difference in the labor force participation between the states with and without the \$300 additional UI benefit can be tied to dropping the supplemental UI benefit and the rest is due to the differences in other policies that favored employment.

The upper right quadrant includes states that have gained employment and labor force since July 2019. Those states are generally in blue. The lower left quadrant includes states that lost both employment and labor force, and they are disproportionately red. Interestingly, Iowa, a state that had some of the least economic restrictions during the pandemic, has performed atypically poorly compared to the other blue states in both employment loss and lost labor force. So, while Iowa's labor market appears to have responded to the suspension of the supplemental unemployment insurance benefits, it remains among the poorer performing states overall.

To illustrate the tradeoffs between economic performance and the spread of the pandemic, I use the wallethub.com measure of the severity of the restrictions.¹ While there are many measures of

¹ <https://wallethub.com/edu/states-coronavirus-restrictions/73818>

the relative degree of covid-related restrictions on mobility, production, sales, and personal hygiene across states, they tend to conform closely with one another. In the wallethub.com measure, the states with the least restrictive policies were Iowa, Florida, Wyoming, South Dakota, and Texas. The most restrictive were Vermont, DC, Delaware, Virginia, and Washington. The least restrictive group averaged a 12.4 % covid incidence rate, a 2.5% loss of employment and a 0.7% increase in their labor force. The most restrictive group average a 7.5% covid incidence rate, a 4% employment loss and a 2.4% decrease in their labor force.

In Figure 2, we show the tradeoffs between the economy and the disease. As the policies went from most restrictive to least restrictive, average disease incidence rose from 8% to 12%, or an increase of 4 percentage points. On the other hand, over the same range, average employment changed from -6% to -1%, an increase of 5 percentage points. From these trendlines, we can capture the indirect effect of employment on the covid incidence, using the Wald (1940) estimator. The effect of a unit relaxation of economic restrictions on employment is 0.058% more jobs, but with 0.059% more covid cases. Therefore, the rate of increase in covid incidence as jobs increased is $\frac{0.059}{0.058} = 1.02$. A one percentage point increase in jobs results in an increased covid rate of 1.02 percentage points. Using Iowa numbers as an example, that means that the tradeoff to get 16,000 more jobs (roughly one percent of the workforce) and \$959 million in annual compensation, we should expect 32,600 more covid cases. The cost of lowering covid cases by one person is \$29,390 in lost annual compensation.

Of course, there is a benefit from reducing covid cases with fewer serious illnesses and deaths. The Department of Transportation values one life at \$11.6 million.² Taking that estimate at face value, we can generate the corresponding value from a single incident of the disease. With death rates from covid infection at 0.2% in the U.S. (Johns Hopkins), It takes 515 covid cases to get one death on average. Hence, we need to reduce 515 cases to save one life. The value of reducing covid cases by one is $\frac{\$11.6 \text{ million}}{515} = \$22,524$, a value just a few thousand dollars below the cost of lost jobs from reducing that covid case. The states at the left side of Figure 2 have decided to lower the risk of disease spread at the cost of lost jobs, while those at the right side have decided to take on more risk in order to generate more economic activity.

Interestingly, there is almost no relationship between covid incidence and labor force participation. As we go from most to least restrictive economic policies in Table 2, average labor force participation does not change, and we cannot reject the hypothesis that there is no relationship.

One final point. There is considerable debate as to whether the slow recovery of employment is due to weak labor demand or weak labor supply. It seems clear cut that the weakness is labor supply is holding the economy back. The Bureau of Labor Statistics reported over 10 million new job openings in June 2021, just under 3 million more openings than in June 2019. There were only 8.7 million unemployed workers, so there were more vacancies than unemployed

² <https://www.transportation.gov/office-policy/transportation-policy/revised-departmental-guidance-on-valuation-of-a-statistical-life-in-economic-analysis>

workers. Because of the small number of individuals wanting work, over 3.3 million of those openings were not filled.

We can offer a geekier economics proof that it is weak labor supply holding back the labor market recovery in Figure 3. Note that since 2019, real wages have risen, even as employment has fallen. With unemployment at 3.5% in 2019, we can claim that the labor market was at full employment. Since then, wages have risen from W_{2019} to W_{2021} , and employment has fallen from N_{2019} to N_{2021} . Perhaps there has been a decrease in labor demand from 2019 to 2021, but the only way to get falling employment with rising wages is if that decrease in labor demand is accompanied by a much larger decrease in labor supply. Increased stimulus payments are unlikely to resolve a weakness in labor supply.

Wald, Abraham. "The fitting of straight lines if both variables are subject to error." *The Annals of Mathematical Statistics* 11, no. 3 (1940): 284-300.

Figure 1: Employment and Labor Force Changes by State and Unemployment Benefit Policy, July 2019 – July 2021

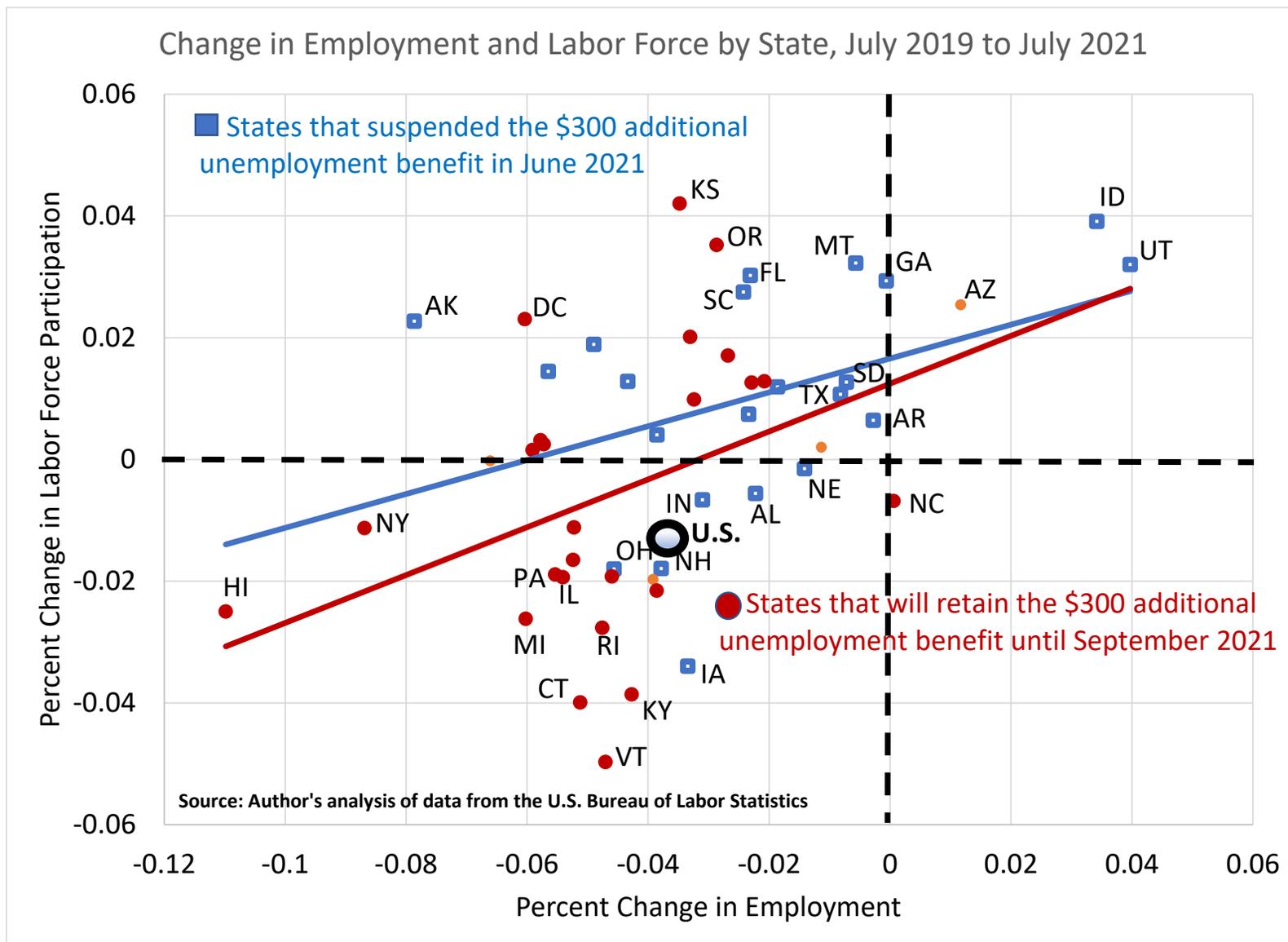


Figure 2: How government economic restrictions affected labor supply, employment, and covid rates

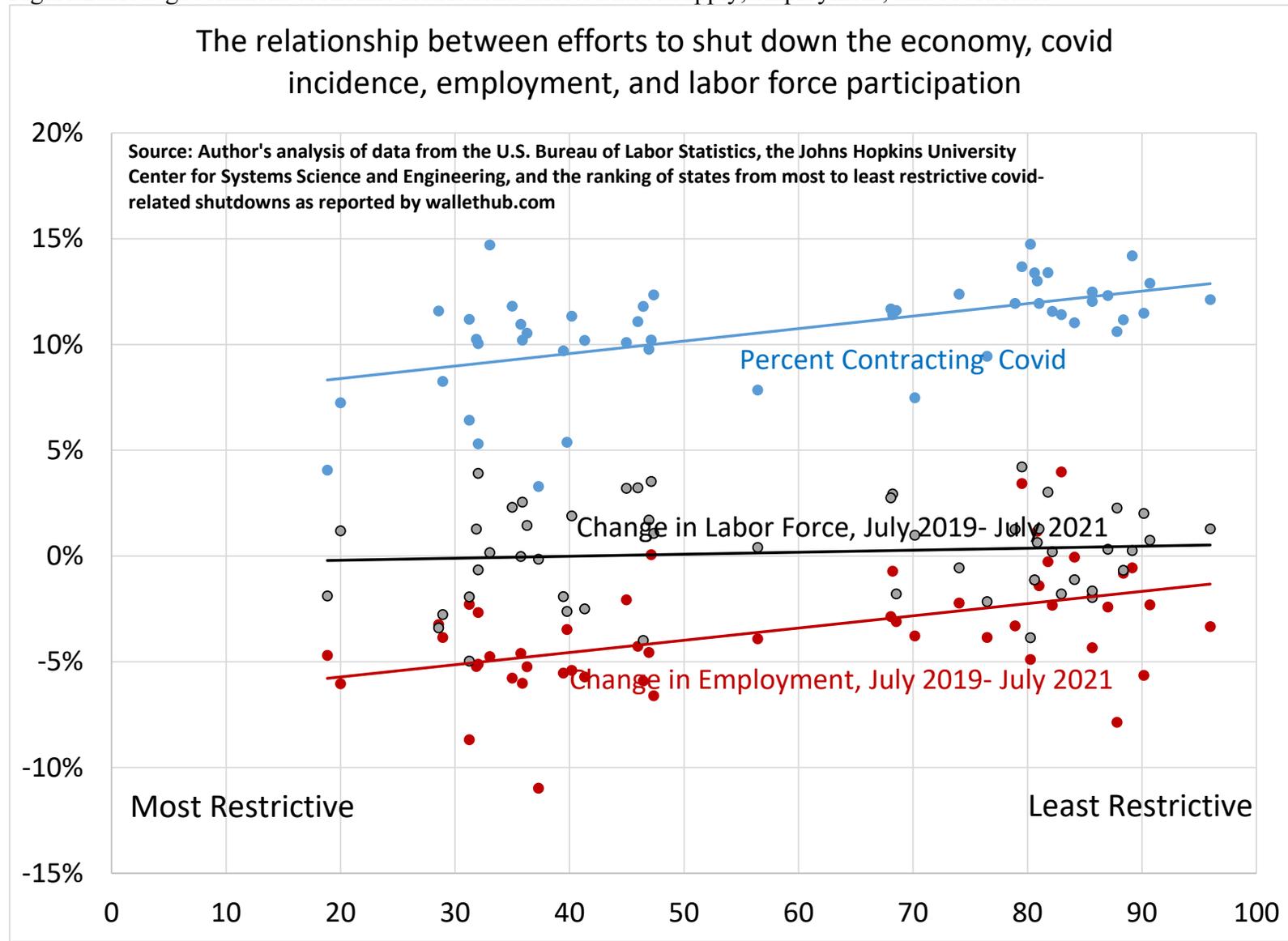


Figure 3: Labor Demand and Supply from 2019 to 20

