

The effect of covid-19 on the labor market and some thoughts on reopening

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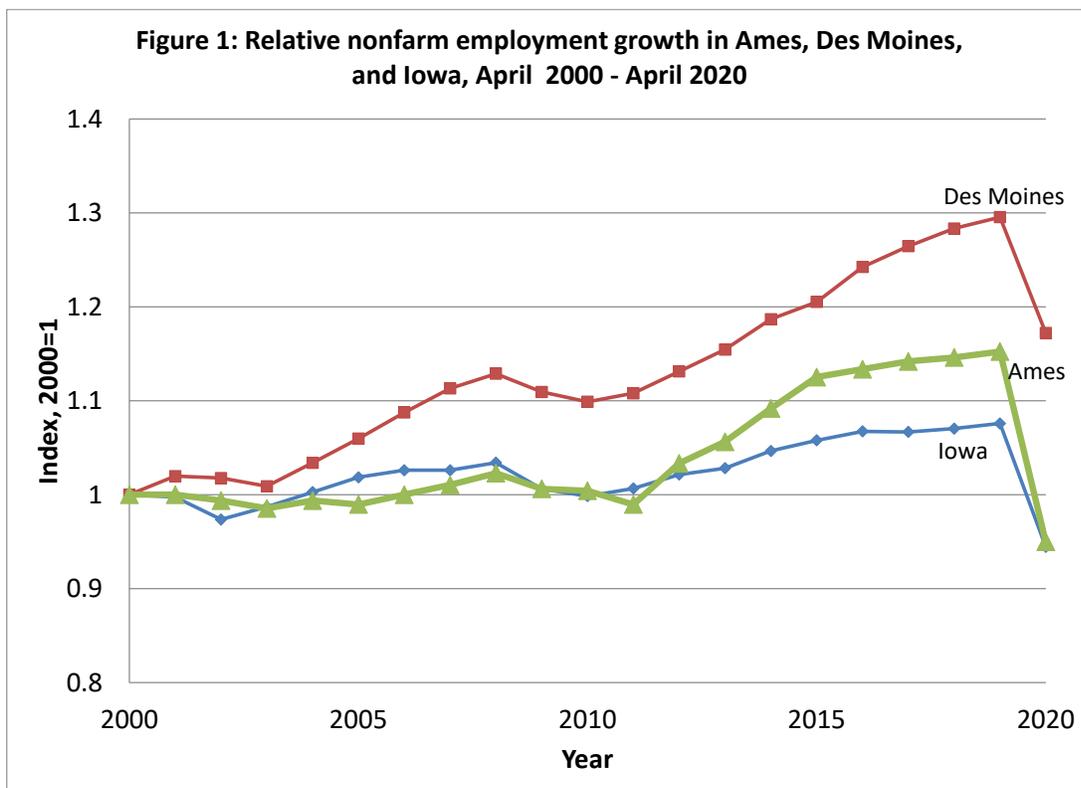
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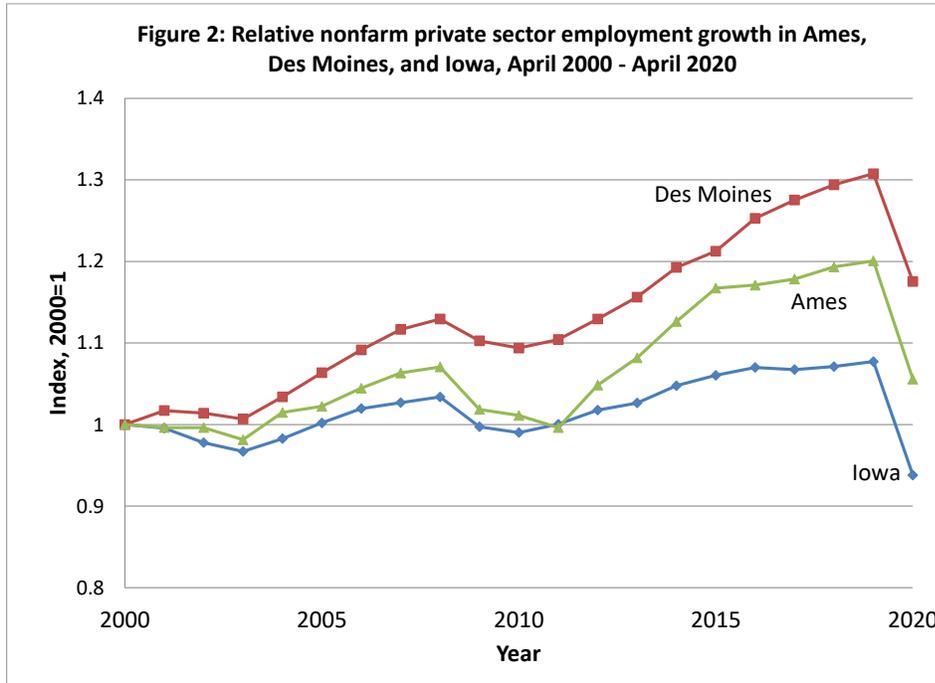
On March 17, 2020, Iowa Governor Reynolds announced an emergency statewide public health disaster that limited public gatherings to no more than 10 individuals and closed businesses deemed nonessential. We now have the first evidence of a full month under the covid-19 shutdown. The costs in lost jobs are very large and, as in other states, spread over almost every sector of the economy. Unlike past recessions where job loss and business closures occur gradually, this shutdown happened all at once with no ability to adjust or plan. This paper will review where we stand now in May as we start to reopen the closed businesses and to make a few observations on the government response to the pandemic.

By any measure, the Ames labor market has been hit exceptionally hard. Ames suffered the largest employment loss of all the metropolitan markets in Iowa. Ames nonfarm employment fell almost 10 thousand workers, a drop of 17.6%. Contrast that with a drop of 9.5% in Des Moines, -12.2% for the state of Iowa, and -12.9% for the U.S. as a whole. Its April employment was last this low in 1998. In one month, employment fell from 15% above its 2010 level to 5% below. Ames job loss since the turn of the century now matches the Iowa average.

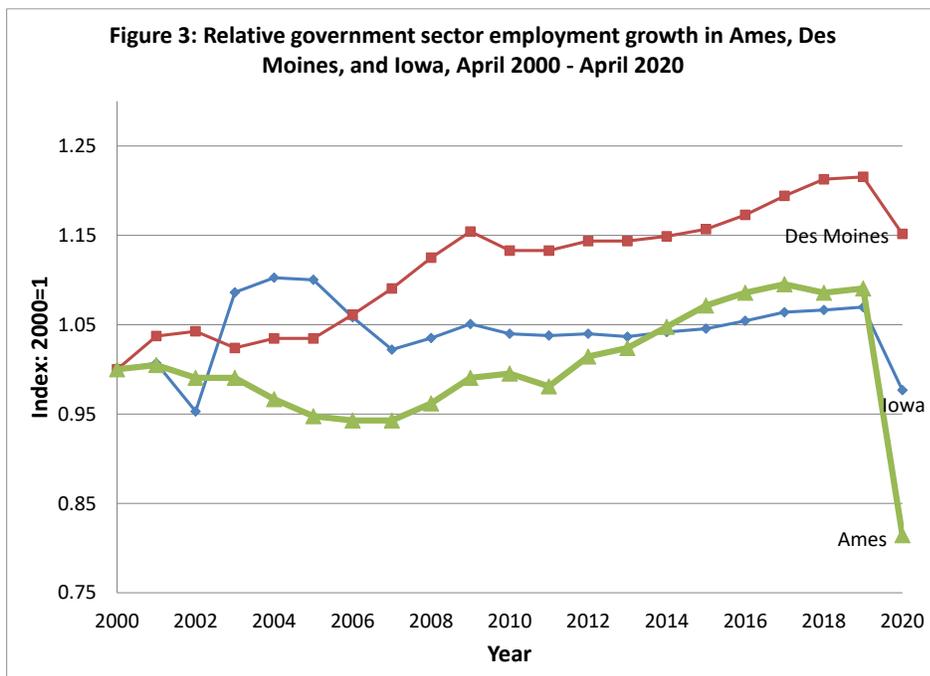


There are some bright spots, or perhaps more accurately, some areas that are not as bleak. First, Ames growth in its private sector over the last 10 years has cushioned some of the blow. Ames

did lose 12.1% of its private sector jobs which is not as bad as the state or nation, although it was hit harder than Des Moines (Figure 2). That said, one could look at this as an indication that our private sector is gaining by going to Hell slower than the rest of the country. Ames is still ahead of where it was in 2010 when we began our private sector expansion.



But what really cost Ames was its heavy reliance on government jobs, particularly those in state government. Ames lost a stunning 25% of its government jobs (Figure 3). Even more shocking, it lost one-third of its state government jobs, almost all of these at Iowa State University.



The loss of 5,500 state government jobs in April is unprecedented. The loss of over 5,000 jobs in June is an annual event. Almost all the lost jobs at Iowa State are the seasonal jobs related to instructors, teaching assistants, research assistants, and housing and food service. In June, Ames will look much better on the year-to-year comparison because the June-to-June job loss in the government sector will look more normal. What remains to be seen is whether those jobs come back in September.

Table 1: Employment growth from April 2019 to April 2020, by Iowa Metropolitan

City	Total	Private	Government
Ames	-17.6%	-12.1%	-25.3%
Cedar Rapids	-10.8%	-12.0%	-1.8%
Davenport, Rock Island, Moline	-11.4%	-11.8%	-8.7%
Des Moines	-9.5%	-10.1%	-5.3%
Dubuque	-15.4%	-16.2%	-6.1%
Iowa City	-12.0%	-15.6%	-6.5%
Omaha-Council Bluffs	-8.7%	-9.8%	-1.8%
Sioux City	-10.0%	-8.5%	-20.6%
Waterloo/Cedar Falls	-10.2%	-9.2%	-15.0%
Iowa	-12.2%	-12.9%	-8.7%
United States	-12.90%	-14.50%	-3.60%

Source: U.S. Bureau of Labor Statistics

In Table 1, we can see how the Ames experience relates to the other metro areas, the state, and the nation. Iowa City did not experience the same loss of government jobs, but Cedar Falls, and, surprisingly, Sioux City were hit hard by government job loss. Omaha and Des Moines performed reasonably well with single-digit percentage job loss.

Iowa's government sector was hit much harder than the nation. I suspect that reflects Iowa's low concentration of federal jobs, but also because Iowa faced greater loss of local and state government jobs.

The overriding conclusion from Table 1 is that every jurisdiction lost jobs. They lost lots of jobs. They lost more jobs than in the 2007-9 recession. And, as shown in Table 2, those jobs were lost in almost every sector of the economy.¹ The job loss was not uniform across sectors, but unlike most recessions where some sectors are hit and others spared, every industry faced some retrenchment.

The biggest job losses were in the hospitality industry where closing of bars and restaurants and lost hotel bookings led to massive layoffs. Almost half the jobs disappeared in a month. Even with the reopening that is now occurring in all 50 states, these jobs will not reappear quickly. As shown in Figure 4, virtually all restaurants shut down for seated service on or after March 20,

¹ The exception is the increase in employment in federal government related to the Decennial Census.

2020. In fact, reservations had dropped by a third even before the mandated closures were announced. After the reopening, the early experience is that business is still 75% or more below their previous norms. Consumers will not flock back to bars or restaurants until they are assured of their safety. Absent a reliable disease treatment, vaccine, or rapid testing system, that feeling of security will not come back any time soon.

Table 2: Percent Change in Industry Employment, April 2019 - April 2020, Iowa and the

Sector	IOWA	UNITED STATES
Total Nonfarm	-12.2%	-12.9%
Total Private	-12.9%	-14.5%
Construction	-10.7%	-11.3%
Manufacturing	-6.3%	-10.5%
Durable Goods	-7.1%	-11.6%
Non-Durable Goods	-5.2%	-8.7%
Wholesale Trade	-3.0%	-5.5%
Retail Trade	-13.1%	-13.4%
Food and Beverage Stores	-3.5%	-0.8%
General Merchandise Stores	-5.1%	-1.4%
Utilities	-4.8%	-1.2%
Transportation and Warehousing	-3.7%	-9.4%
Information	-7.4%	-7.2%
Financial Activities	-2.5%	-1.6%
Professional and Business Services	-12.6%	-9.0%
Educational Services	-17.6%	-10.3%
Health Care and Social Assistance	-6.7%	-8.3%
Leisure and Hospitality	-49.1%	-47.2%
Other Services	-13.9%	-21.3%
Government	-8.7%	-3.6%
Federal Government	-0.6%	2.1%
State Government	-12.3%	-4.1%
Local Government	-8.1%	-4.5%

Source: U.S. Bureau of Labor Statistics

This brings us to the issue of reopening. I have been amazed at how many commentators presume that unless we shut everything down, the disease will spread uncontrollably. In fact, businesses have changed how they operate to adapt to changing realities. Large public gatherings such as concerts, parades, and holiday ceremonies have been curtailed or eliminated. Conferences, conventions, and other crowded events have been cancelled. Restaurants now focus on carry out or delivery, knowing that they will not be able to survive on seated service. Even if they open, the distancing requirements mean that restaurants will never be more than 25-50% occupied. And the first reported disease outbreak will close the restaurant down so the

open ones have new operating procedures aimed at limiting disease. In short, the disease will not spread as easily now as it did in January-March before we knew of its existence.

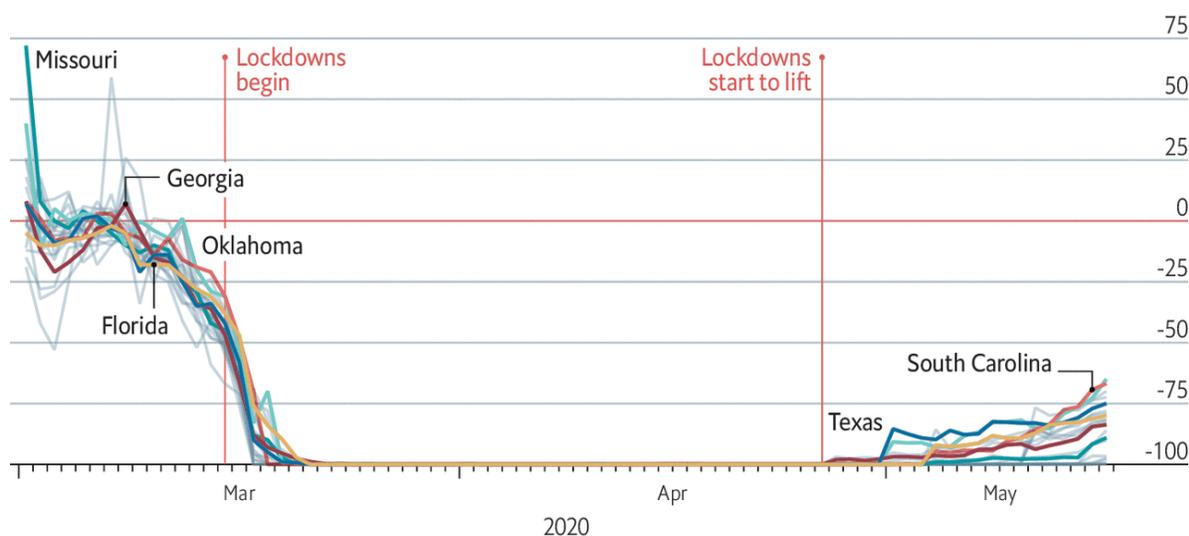
That said, there are many things we could do that have been implemented in countries with greater success in stemming the disease, such as aggressive testing and contact tracing in Korea or a virtual shut-down of business and extensive contact tracing in New Zealand. Reopening before the spread of the disease had been fully checked and before testing and tracing is available may prove a mistake if the disease resurges and we exceed the threshold set by our health care capacity.

Figure 4: Restaurant reservations before and after the covid-19 shutdowns.

Table for none

United States, OpenTable restaurant reservations, % change on previous year

States where lockdown orders have expired



Source: OpenTable

The Economist

Starting a business is never easy, even in the best of times. Consistently over time, one-third of start-ups die within two years of opening, and two-thirds die within six years. Research shows that the odds are even worse for businesses that open during a recession. Many firms will close during this pandemic. The longer we force firms to remain closed, the more will die, and the deeper and more protracted will be the recession.

Shelter-in-Place

Much has been made about the 5 states that have not issued a shelter-in-place order. In reality, the differences between “shelter-in-place with exceptions for essential work” and “mandated closures with voluntary guidelines for open businesses” is a matter of semantics. Consumer behavior in states with and without a shelter-in-place order is very similar. For example, the fraction of the public who isolated themselves is only modestly smaller in the states that did not issue a shelter-in-place order (Table 3). The gap in self-isolation widened after reopening, but

that is influenced by the lower disease rates in the non-sheltered states. There is no significant evidence that the mandated shelter-in-place states were more effective at limiting the spread of the disease than the five hold outs. The ten worst states in per capita covid-19 cases or per capita deaths all had ‘Stay-Home’ orders.²

For additional evidence that formal and informal sheltering produced similar behavior, look at the change in employment by sector in Iowa compared to the U.S. as a whole, as reported in Table 2. The pattern of reduced activity is identical. If Iowa were more lax in restricting economic activity, it would show up in smaller employment losses.³⁴

Table 3: Percent Changes in Social Distancing with and without Shelter-in-Place Orders

	Before Reopening	After Reopening	Change
All U.S. adults	68%	58%	-10%
Shelter-in-Place states	71%	64%	-7%
No Shelter-in-Place order states	64%	51%	-13%

Figures are the percentage completely or mostly isolating themselves from people outside their household

Source: <https://news.gallup.com/poll/311018/social-distancing-eases-states-lift-restrictions.aspx>

‘Stay-Home’ orders disproportionately disadvantage the least educated and lowest income groups. According to a survey conducted by the Federal Reserve, 74% of workers with bachelor’s degrees can work at least part-time from home. For workers with high school or less, only 32% can work at home. Forced sheltering will atypically unemploy the least educated and the lowest paid.

It is obvious that most of the discussion of ‘Stay-Home’ orders is aimed at scoring political points and not driven by health concerns. As an example, our County Board of Health and County Supervisors wrote a resolution asking the Governor to issue a ‘Stay-Home’ order. The evidence they advanced was

² The hardest hit states all issued shelter-in-place orders, and so this may be due more to the progression of the disease before the government reacted and not how the government reacted. The evidence does suggest that efforts to slow the economy have slowed the spread of the disease. The recent study by Courtemanche et al (2020) found a faster slowdown from shelter-in-place rules, but that result could be entirely driven by the imposition of these rules in places that had already had significant outbreaks of the disease. My read is that government action slowed the spread, but that it is more difficult to isolate the effect of each specific policy. Courtemanche, C., Garuccio, J., Le, A., Pinkston, J., & Yelowitz, A. (2020). Strong Social Distancing Measures In The United States Reduced The COVID-19 Growth Rate. *Health Affairs*, 10-1377.

³ If only jobs that could be performed at home were allowed (i.e. a real ‘Stay-Home’ rule) only 37% of the jobs would remain. So the lower-bound of covid-19 job loss would be 63%. See Dingel, Jonathan I., and Brent Neiman. *How many jobs can be done at home?*. No. w26948. National Bureau of Economic Research, 2020.

⁴ Some blame Iowa’s lack of a ‘Stay-Home’ order on covid-19 outbreaks in meatpacking plants, but outbreaks in packing plants have occurred in 19 states, 14 of which have shelter-in-place orders. It is probably useful to consider why large, labor intensive manufacturing places are particularly vulnerable. First, they were not designed to prevent interactions among workers. Team production methods or assembly operations were designed to enable interactions. Second, when covid-19 outbreaks were first announced, the insufficient quantities of personal protective equipment (PPE) was targeted at the health care industry and so manufacturers were not first in line for PPE. But even the best PPE system can fail, as the high incidence of the disease among health professionals shows. If a plant with a thousand workers has a PPE system that is 99% reliable, the probability it fails is $1 - 0.99^{1000} = 0.999$. If it is 99.9% reliable, failure probability is 0.63. With 99.99% reliability, failure probability is 0.095. Eliminating risk is not easy. A 100% reliable system will be undone by human error.

the purported slow-down of cases in New York that the chair of our Board of Health attributed to their Shelter-in-Place policy.

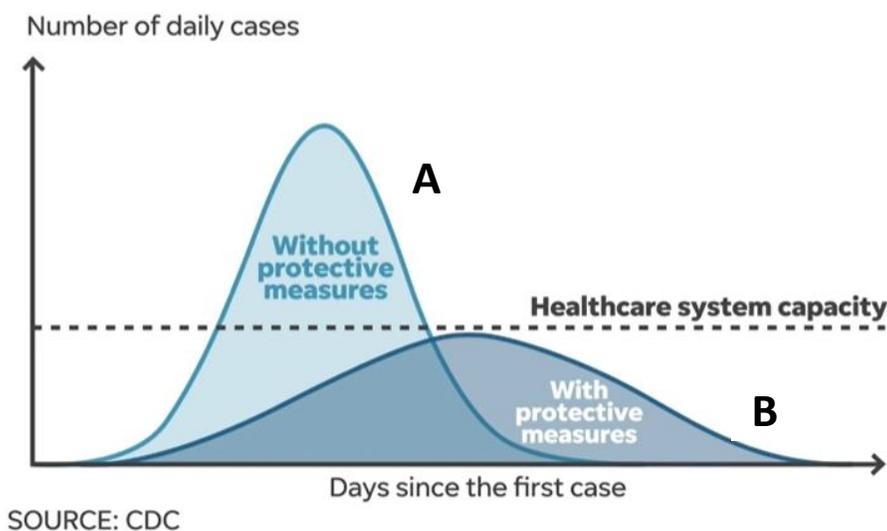
New York's experience with covid-19 is the worst of any government jurisdiction in the world. The only reason New York has slowed down is that they had so many cases and deaths in the first place. The worst performing governments in Europe, including Spain, Italy Belgium, the UK, France, and Sweden, have fewer per capita cases and deaths than New York.

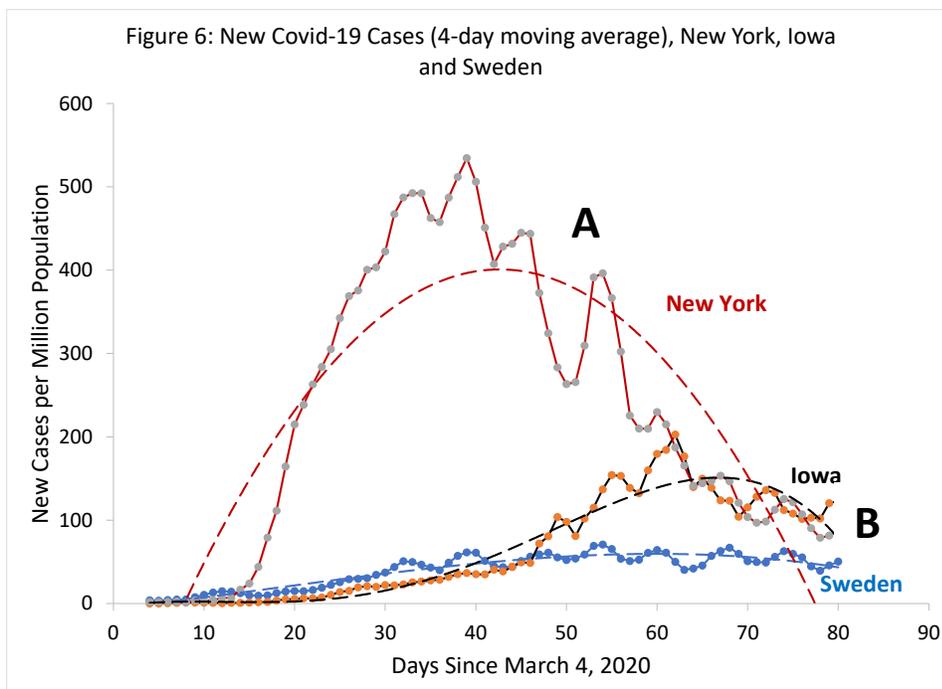
Supposedly, health officials were trying to slow the spread of the disease by encouraging social distancing. Figure 5 shows the widely disseminated graph from the Centers for Disease Control. State policies were aimed at imposing protective measures to slow the spread of the disease so that the number of new cases would look like line B, rather than the unrestricted disease spread, line A. In so doing, we would not experience a surge of cases that would overwhelm our capacity to treat victims.

Figure 6 shows the time path of new covid-19 cases per capita in New York, in Iowa, and in Sweden. Sweden is characterized as opting for the herd immunity strategy of letting the disease spread, although what they are really doing is advising that the most vulnerable in the population shelter while those likely to handle infection well (under 60 and physically fit) continue with life as normal.

Clearly, New York's path is similar to A in Figure 5, while Iowa is tracking the desired path B. Oddly enough, Sweden has not experienced a rapid growth of cases although that may reflect a lack of testing as their death rates are higher than Iowa's although well below New York's. What our Board of Health claimed as justification for their action was the apparent slowing of case growth in New York compared to Iowa around day 40. But that difference reflects the fact that by flattening the curve, Iowa was still in the rising phase of its graph while New York's failure to arrest the curve meant that they had peaked. Moreover, even though the number of cases was declining in New York on day 40, they still had 10 times the number of new cases per capita as in Iowa. So which path is better, A or B? If you said A, you could qualify for our Board of Health.

Figure 5: The objective of flattening the curve





Should we have a national or a local reopening policy?

"Having some states lock down and some states not lock down is like having a peeing section in the swimming pool."

This was a very popular, albeit ridiculous commentary on state-by-state approaches to the pandemic. It is costly to shut down parts of the economy by impoverishing workers, bankrupting firms, and lowering the resources available to mitigate the damage of the illness. Conditions differ by area, and it is silly to argue that we should not tailor the policies to match the conditions. In fact, shutting down one state because another state is experiencing a surge is like closing a pool in Wyoming because someone peed in a pool in New York. If we set a common national policy based on the worst existing case, we would maximize the economic pain of the pandemic with virtually no benefit in limiting the spread of the disease.⁵

The Governor of Illinois expressed alarm that neighboring states were opening their economies, concerned that this would endanger citizens of Illinois. As the state with the 8th highest per capita incidence of the disease with rates much higher than her neighbors, it is more dangerous for his citizens to stay in Illinois. In fact, travel has dried up because of the virus. Airline passengers are down to 200 thousand per week, less than 10% of what they were in mid-March. Public transit ridership is down 68%. These numbers have not changed as economies are

⁵ In theory, a strategy that allows economic activity where the probability of transmission is low with time outs for sectors or places or age groups where the risk is high will allow the greatest amount of economic benefit at the smallest health cost. Uniform policies result in more deaths and lower economic output. Acemoglu, Daron, Victor Chernozhukov, Iván Werning, and Michael D. Whinston. *A multi-risk sir model with optimally targeted lockdown*. No. w27102. National Bureau of Economic Research, 2020.

opening and they won't for some time. Even if Broadway reopened, when would anyone fly to New York to see a show?

In the end, what matters for reopening the economy is that firms try to maintain safe and sanitary conditions. It is inevitable that there will be outbreaks, even with the most careful workplace safety policies. One industry representative told me that his firm asks each worker four questions every day before they enter the plant. A worker did not report that he had spent time with a girlfriend who had the disease. He exposed the entire workstation, leading to a 2-week shutdown for cleaning.

Since the reopening, the Bloomberg lockdown index has hardly changed. No doubt it will drop over the next weeks, but analysts who presumed that reopening means moving back to the disease transmission rates of February and March were assuming that Americans were incapable of making rational or publicly spirited decisions on their own. The actual reopening has been much more cautious. Americans have persisted in wearing masks, self-isolating, reducing travel, and limiting exposure to others, whether mandated or not. These behaviors are grounds for optimism.

What we can learn from the 1918-20 H1N1 Flu?

While there have been other deadly diseases to hit the U.S., the last pandemic of comparable impact was the Spanish Flu.⁶ About 650 thousand Americans died. There was no cure, and so isolation and segregation were the only options available to slow the spread of the disease. The Spanish Flu atypically killed infants and young adults 15-40 (Figure 7). In contrast, covid-19 atypically attacks individuals over 65 who make up about 80% of the deaths. Only 8% of the deaths are for individuals under 55,⁷ even though they represent over half of all cases.

During the Spanish Flu outbreak, U.S. per capita GDP rose in 1918 and 1919 before declining modestly in 1920. In other words, people went to work during the Spanish Flu outbreak even though working-age individuals were atypically harmed by the disease. We are in a much better position to treat the sick now than we were in 1918. And the covid-19 virus appears to be kinder to working age individuals than was H1N1. That means that, unlike the case in 1918-20, most people who are exposed to the covid-19 virus at work should recover. That does not mean that one should accept needless risks at work, but it does suggest that we should focus shielding those over 65, but not by impoverishing those under 55.

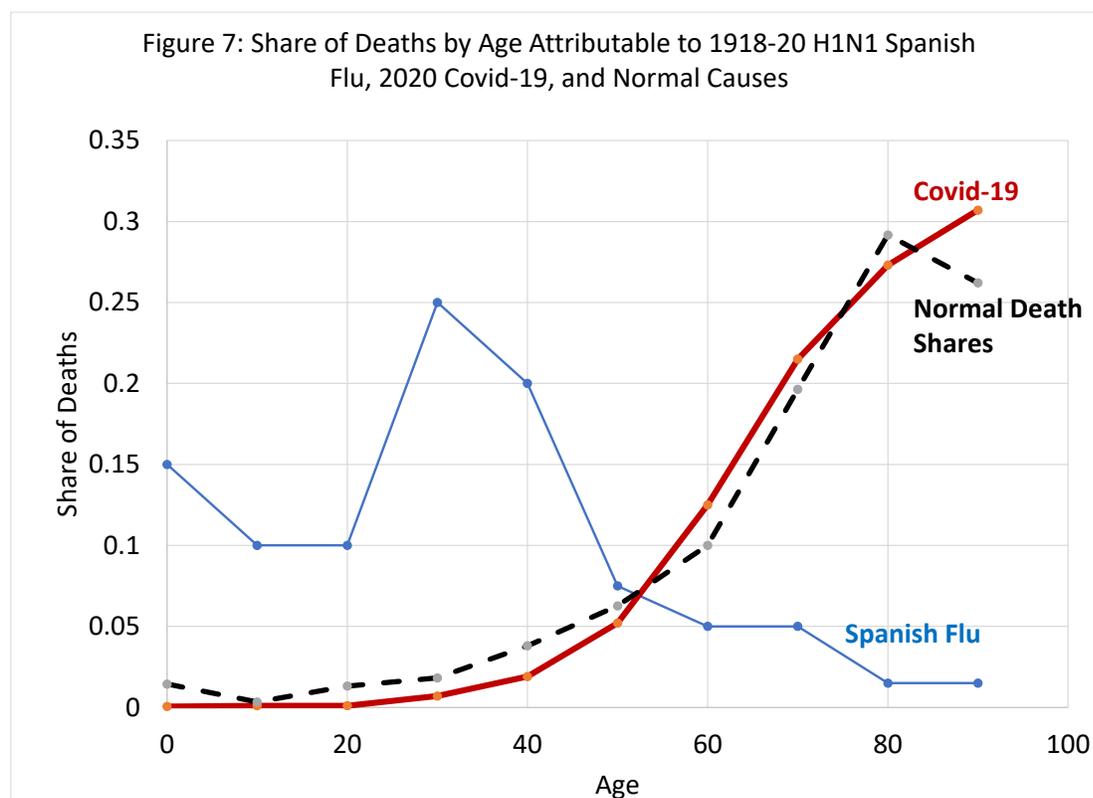
Related is the fact the hospitalizations which are the worst incidence of the disease have been heavily concentrated among individuals with other health concerns. The CDC estimates that 90%

⁶ The disease was first identified in Kansas and there were outbreaks in Germany, the United Kingdom, and France. To avoid concerning families of soldiers in Europe, the epidemic was said to originate in Spain which was a neutral party in the war.

⁷ Data culled from CDC data and the results from Gagnon, Alain, Matthew S. Miller, Stacey A. Hallman, Robert Bourbeau, D. Ann Herring, David JD Earn, and Joaquín Madrenas. "Age-specific mortality during the 1918 influenza pandemic: unravelling the mystery of high young adult mortality." *PLoS One* 8, no. 8 (2013).

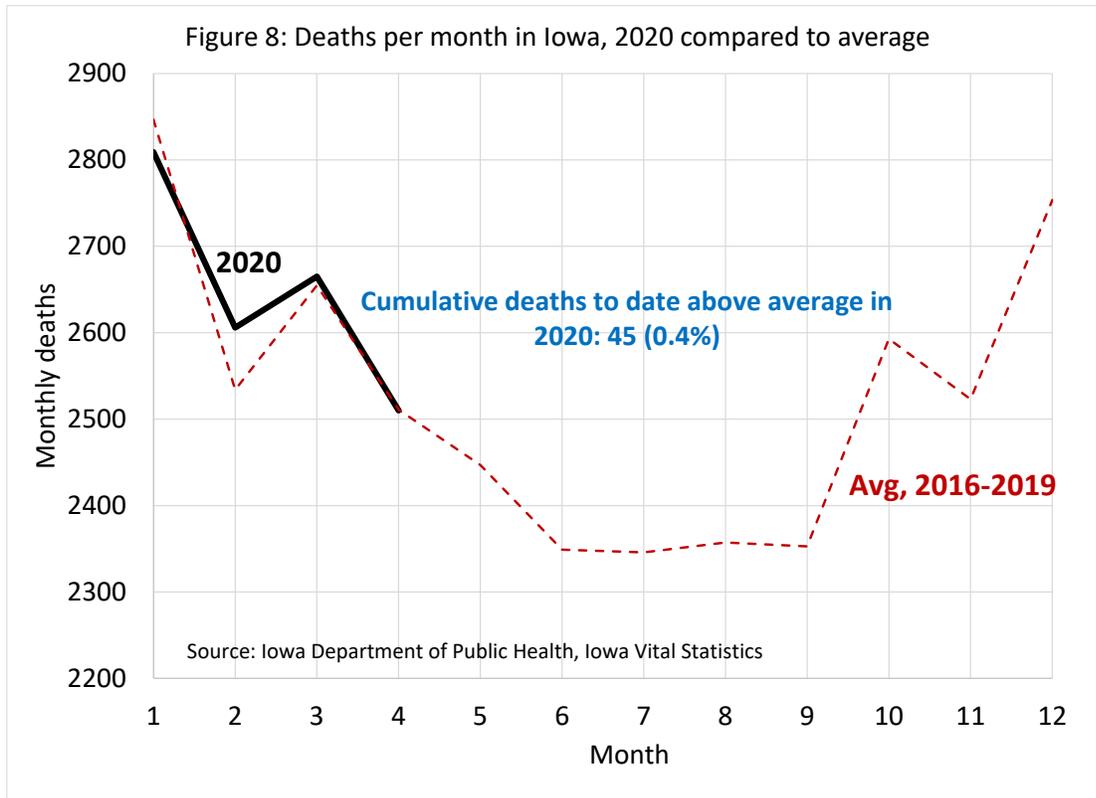
of the hospitalizations were individuals with at least one prior comorbidity.⁸ Again, we can shelter those at greatest risk while allowing others to work.

Is this a tradeoff of risks? Yes. Is it an unreasonable risk? Not if the presumption is that the disease will be with us for an extended period of time and we will need a functioning economy to produce the goods and services that they and those who cannot work will require to consume.



To make this point clearer, Figure 8 compares our death rate this year through the end of April to the average for the prior four years. Through the first four months of 2020, we have experienced 45 deaths above average, an increase of only 0.4%. The reason is that most of the covid-19 deaths are individuals who were already at risk, and so we are substituting covid-19 deaths for a host of other illnesses that would endanger the elderly or infirm in other years. Perhaps the death rate will accelerate in subsequent months, but so far, we have managed to keep our mortality rates in check. As we reopen, we can monitor for outbreaks, shutdown in locations or sectors where the risk spikes, but remain flexible to allow economic activity to occur where the risks to workers are lowest.

⁸ Garg S, Kim L, Whitaker M, et al. Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019 — COVID-NET, 14 States, March 1–30, 2020. MMWR Morb Mortal Wkly Rep 2020;69:458–464. DOI: <http://dx.doi.org/10.15585/mmwr.mm6915e3external> icon.



Government Spending

To date, the federal government has borrowed \$3 trillion to subsidize firms and workers adversely affected by the pandemic. While there will be inefficiencies in these transfers, let's assume that most of it went to the people who need it. How much sense does it make to spend an additional \$3 trillion? The Congressional Budget Office estimates that the pandemic will cause a 5.6% drop in GDP, a loss of \$1.2 trillion. Goldman Sachs estimates a 6.4% decline. Suppose the upper-bound estimate is twice that, so that the worst GDP loss would be \$2.7 trillion. Does it make sense to borrow \$6 trillion to make up for a maximum loss of under \$3 trillion?