The Pandemic and The Economy in Riverside County

by
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The Coronavirus pandemic prompted officials to shut down large parts of the economy beginning in mid-March of this year. The resulting job losses have been epic in proportion and can be hard to comprehend by simply looking at numbers without a reference (some sort of measuring tape). The unemployment rate peaked in April at 14.7% for the U.S., reached 16.4% in April in California, and increased to 16.0% in May in Riverside County (all seasonally adjusted). Perhaps one way to illustrate the severity of this recession is to mention that we had slightly over 23 million people unemployed in the nation in April 2020. By comparison, during the Great Depression of 1929-1930, the number of unemployed peaked at around 15 million. To be fair, the U.S. population was less than half the current size compared to today's, but we find this figure remarkable, nonetheless. Actually, the number of employees who lost their job from March to April is roughly 16 million, meaning that the unemployment created in a single month through the government shutdown was higher than the unemployment total during the peak of the Great Depression.

The stay-at-home orders enabled Riverside County and all of California to flatten the dreaded hospitalization curve in April and May. As the economy began to reopen in phases in late May and June, the number of cases started to surge again, as people increased social and/or family gatherings, increased workplace interactions, and may not have taken the disease seriously. At this point the County has lost precious ground in the fight against the Coronavirus. The rise of the disease is once again taxing the health care system and has already forced officials to shut down parts of the economy to limit the spread of the disease again. In the meantime, the general public has become increasingly restless about the prospect of restricting economic activity, perhaps best described as "COVID fatigue." This has reached a point where there has been open resistance with regard to wearing face masks in public. Given that the "positivity rate" (the rate at which COVID-19 tests are coming back positive) has reached values in the double digits, Riverside County had no choice but to follow the State's roll back some of the previous openings in Phase 2 and Phase 3 of Governor Newsom's plan to gradually reopen the economy. It is this conflict between the "COVID fatigue" and the need to restrict economic activity that is the motivation behind this report. We will show below that implementing public health practices to prevent the spread of COVID-19 and keeping the economy open are not mutually exclusive objectives. However, the failure to adopt safe public health practices will result in long term damage to the economy.

There seems to be a perceived "trade-off" between fighting the spread of the virus in certain policy circles as well as in parts of the public debate. There is little doubt regarding the massive costs of the shutdown. Simply consider the dollar losses from first postponing the Coachella Music Festival and then cancelling it completely. It has been estimated that the economic impact of the two weekends of having 225,000 attendees plus the 70,000 who flock to Stagecoach at the Empire Polo

Club in Indio is $450 million. This is just one of the many events that have been cancelled in Riverside County.

Riverside, of course, is not the only county in California that is heavily impacted. Los Angeles County has been affected as is reflected in its substantially higher unemployment rate (19.4% with the latest numbers). Other parts of the state and nation have likewise been hard hit as everyday routines have been disrupted or shut down altogether. Consider a relatively small activity, namely the absence of tourism/business travelers from China to California. Prior to the crisis, there were roughly 150 weekly direct flights from Chinese cities to either the Los Angeles or San Francisco area. Assume, conservatively, that there were 350 foreign visitors on board, and that, on average, they would stay for 14 days, spending $100 a day. The lost revenue from this simple activity is almost $300 million a month, or $1.2 billion for the four months of May to June. The sum total of these events has caused extensive damage to the economy that cannot be reversed overnight. Now maybe we should only calculate a percentage of this total, since some of the passengers will not be Chinese nationals, and perhaps business travelers do not stay for 14 days. Regardless, the numbers from this event only are still large.

This report evaluates the economic consequences of the shutdown and describes the path of the economy's recovery. It answers the following questions for Riverside County:

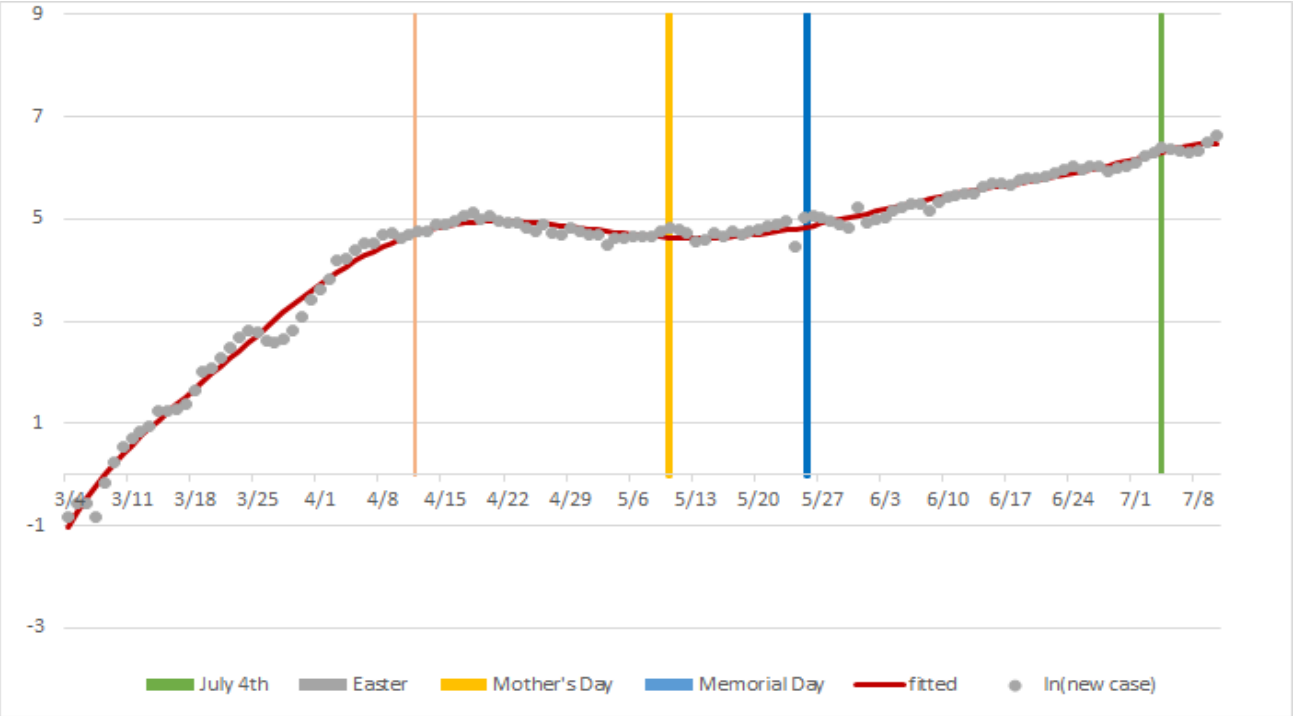
- How big were the job losses during the pandemic shutdown and which sectors were hit the hardest?
- What were the dollar losses to the economy overall and hardest hit sectors?
- What will the recovery look like and how long will it take?
- What damage is done when shutdown orders are reinstituted?

These questions are addressed herein, based on preliminary estimates of county-level indicators such as output and employment that have been produced for this report.

Impact of the Pandemic Shutdown

Three graphs describe much of the most relevant information regarding the Coronavirus recession. Figure 1 shows the 7-day (log) average of newly confirmed cases in Riverside County, Figure 2 displays the unemployment rate in the area, and Figure 3 gives you the number of jobs lost by industry in Riverside County since February 2020.

Figure 1: Newly Confirmed Cases, 7-Day Average, logarithm, Riverside County, Day 1 (first identified case) to Present



Technical Note: The variable on the vertical axis (Y-axis) is the logarithm of the 7-day average of new infections. For example, a value of 5 means that you had an average of 148 new *daily* infections over the previous week. The purpose of reporting the logarithm rather than the actual numbers is two-fold: (i) an exponential line (observations increasing exponentially) becomes a straight line, hence taking the logarithm just lowers the scale, (ii) the observations and fitted line values have a straightforward interpretation: they are growth rates in the 7-day average. For example, if you observe 5.1 now but had recorded 5.0 the week before, then the growth rate of new infections increases by 5.1-5.0 = 0.1 or 10%. If the line increases (upward sloping), then the growth rate is increasing; if the line is straight, then the growth rate is the same as previously; if the line slopes downward, then the growth rate decreases (meaning it has become smaller), but is still positive. Hence the aim is not just to flatten this curve, but to decrease it as we saw between April 22 and May 5. Eventually we will be able to predict when there is a 0% growth rate, at which point the virus no longer spreads.

The points indicate growth rates in the 7-day-average of new infections: for example, a change from 5 to 5.2 represents a 20% increase over the previous 7-day period. If the dots are higher, it means that the growth rate of the 7-day-average is still increasing, implying that we are far from having the virus under control. Even a flat curve only implies that the growth rate remained the same, that is, the number of cases will continue to increase at the same rate as before.

As of Tuesday, July 21, Riverside County had 31,163 cases, a 14.8% increase from the previous week. Note that at this rate, the number of newly confirmed cases doubles roughly every month. There have been 588 deaths, an increase of 6.9% from the previous week. By comparison, the confirmed cases in California are 400,769 with 7,755 deaths. We want to stress here that this is not some “Second Wave” of the virus. We are still in the “First Wave” and have so far failed to get it under control. Existence of a “Second Wave” requires that the “First Wave” is brought under control, and that new cases would arrive sometime late in the fall.

How does Riverside County compare to locations where the Coronavirus is under control? Take Germany, for example. Like the U.S., Germany has a local government structure similar to our counties. Much of everyday life is back to the "new normal" with people dining out in restaurants, retail stores open to the public, and even hotels operations - travel restrictions to most other European countries have been lifted (although there are restrictions on foreign tourists from a restricted list being allowed into the country; this includes the U.S., but not China and Canada). In Germany, a county faces scrutiny and serious limitations to economic activity are put into place if the new infections reach 50 per 100,000 residents. By comparison, Riverside County currently has close to 200 new infections per 100,000 people.

The figure reveals that the growth rate of new infections in Riverside County has not only remained elevated at a high level, but instead has increased for three months running. Currently there are no signs of retreating. By now we can lay the theory to rest that the virus will just die out in the heat, although that should have been clear when analyzing data from Australia earlier in the year. We are not denying that sunlight and increased temperatures make it harder for the virus to survive; there are simply other factors that dominate its spread. This point cannot be overemphasized: the virus will not vanish without policy actions and vigilance in adhering to social distancing and other mandated health-related protocols. As explained below, if we do not contain the virus, economic recovery will be delayed or jeopardized altogether.

Note that the infections are not evenly distributed. While the two largest cities in Riverside County (Riverside, Moreno Valley) also have the highest number of infections, there are three cities from the Coachella Valley (Coachella, Cathedral City, Palm Desert) that are in the Top 10 of cases infected, which are not on the list of most populated cities. On the other hand, three cities down the I-15 (Murrieta, Temecula, Menifee) have larger populations, but do not show sufficiently high numbers of infections to be included here. Table 1 lists the number of infections and the population size.

Table 1: Confirmed Coronavirus Cases, Top 10 Cities in Riverside County, June 13, 2020

City	Confirmed Cases	Top 10 Rank by Population
Riverside	3,387	1
Moreno Valley	2,232	2
Indio	1,879	9
Coachella	1,438	-
Jurupa Valley	1,261	6
Corona	1,191	3
Cathedral City	923	-
Perris	795	10
Hemet	629	7
Palm Desert	564	-

Figure 2: Unemployment Rate, Riverside County, Non-Seasonally Adjusted and Seasonally Adjusted, January 1990 - May 2020

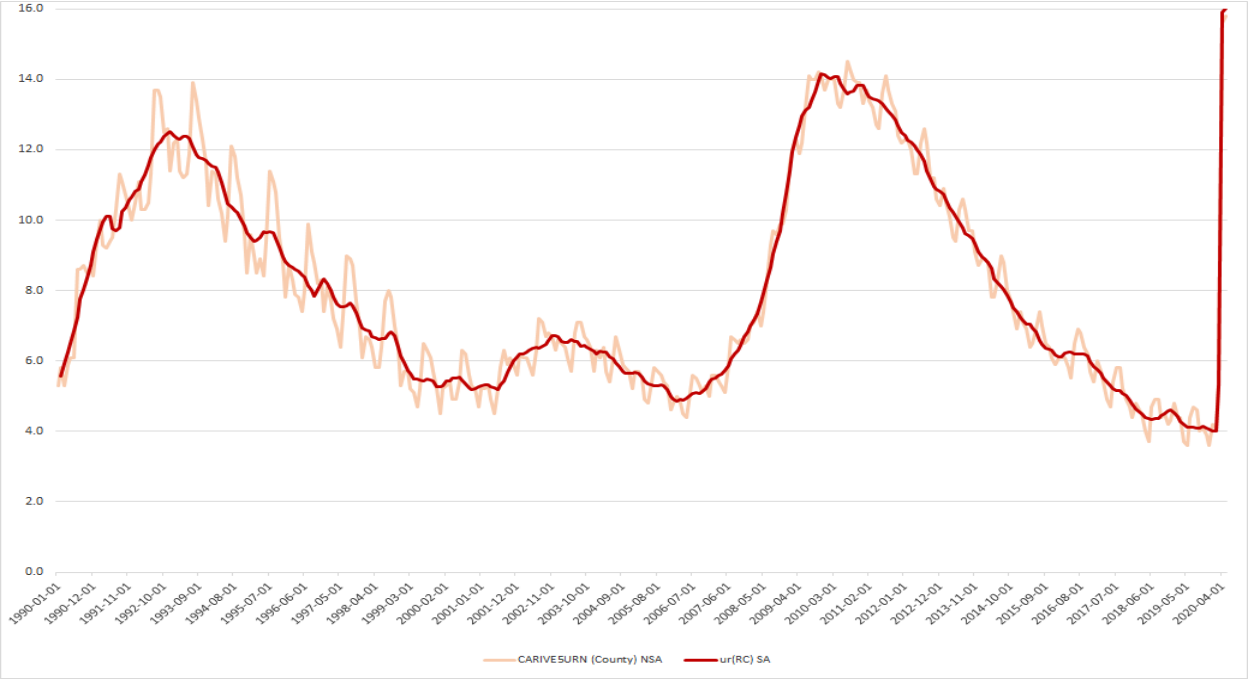


Figure 2 shows the unemployment rate for Riverside County in raw (not seasonally adjusted or NSA) terms and in seasonally adjusted (SA) terms. The county rate rose sharply to record-setting highs during the shutdown. Clearly the current unemployment rate of 16% (seasonally adjusted) is higher than it was at the height of the Great Recession. However, the unemployed are concentrated in different sectors now than they were during the Great Recession. In 2008-2009, the majority of job losses were in construction and manufacturing. By comparison, of the 100,500 jobs that were lost during the shutdown months of March and April, most job losses (84,970 or 85%) occurred in just five sectors.

These are:

- Leisure and Hospitality (44,370)
- Retail Trade (15,820)
- Health and Education (10,730)
- Professional and Business Services (8,520)
- Other Services (5,530)

Leisure and Hospitality has been most severely affected as workers were at least temporarily laid off due to the closing of hotels and restaurants, and the absence of most tourists. Of course, Retail Trade has been impacted from the closing of stores. The industry category Other Services includes establishments in personal services that were not allowed to open until Phase 3 of the Governor's plan, such as hairdressers, nail salons and tattoo parlors.

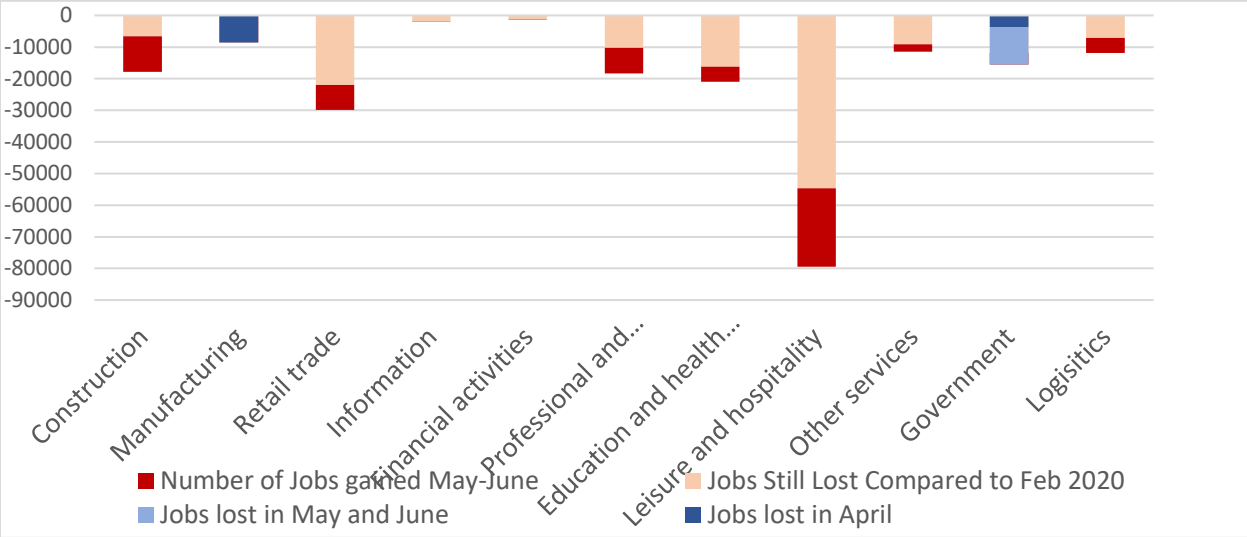
Perhaps surprising to some is the inclusion of Health and Education on this list. However, note that many medical services that were not related to the treatment of Coronavirus patients were scaled back significantly (non-essential medical services, dental visits, etc.). While health care is expected to recover gradually, the outlook for education in general remains uncertain, particularly for K-12 education. Gov. Gavin Newsom announced on July 17 that more than 5.5 million California students will not be allowed to attend school for in-person education this fall. Instead, all education for at least 90% of the state's children must be held online. Under the requirements, California school districts cannot reopen campuses until their counties stabilize coronavirus infections and hospitalizations. Of course, getting K-12 schools to open is not only important for the learning process of children, and especially minorities, but also because it frees parents from providing education and supervision at home.

In addition, UCR, CSUSB, and junior colleges will have primarily online courses, but this will not have immediate employment consequences for employees there (although there will also be no new hires). Some smaller institutions are still in the process of making a final decision regarding the form of instructions during the fall semester/quarter.

Many industries within Professional and Business Services involve firms in the private sector that may have employees continue to work from home, or that will gradually re-open under very new guidelines from what existed before. But most of the job losses during the shutdown occurred in building services and in employment services, where positions are temporary and were among the first to be cut as businesses pulled back.

Changes in other sectors such as Government may matter, but these job losses are dwarfed by what we observe in the most affected sectors, especially leisure and hospitality, retail trade, and other services. The policy implication is clear: to return to the (new) normal, policy must focus on these sectors.

Figure 3: Job Losses and Gains by Industry, Riverside County, February 2020 - June 2020



(*Note*: if the bars are light/dark red, then the sector is recovering; if it is light/dark blue, then additional jobs have been lost in addition to the initial decline.)

Recovering employment in the most affected sectors is important, and not just because they bore the brunt of job losses during the shutdown. More significantly, recovery in the overall economy will only occur with gains in containing the virus itself. These industries will be our "canaries in the coal mine." To clarify, containing the virus is a pre-requisite for the recovery of the economy, not an alternative.

There is renewed hope of a vaccine being available by the end of the year. Two groups -- one from the University of Oxford, the other from China -- seem to have made the most progress according to medical journals. At the same time, there seems to be concern regarding some evidence about the rapid decay in antibodies for persons with a mild case of COVID-19.

Recovery Trajectory

So, what will the recovery look like, how long will it take, and how will individual sectors fare over the near future? To begin, recall how severely the county economy was affected by the shutdown. From February to April of this year, the Riverside County economy lost 100,500 jobs.

This was a sharp 13.3% decrease in just two months. As mentioned earlier, some industries were more successful than others at moving from the workplace to remote work during the pandemic shutdown. These industries include Professional and Business Services. They may have seen some job cuts, but to the extent that they could move successfully to remote work, recovering lost jobs and lost business will largely be dictated by customer demand and specifically how quickly it is restored. We already mentioned that the Health sector should experience a recovery sooner rather than later as regular medical services will be provided again.

For other industries, particularly those hardest hit by the shutdown, a quick look at news headlines from across the nation tells us that reopening will be bumpy at best. With 85% of all job losses in just 5 industries, it will likely be years before fundamental indicators of economic well-being in the county, such as the unemployment rate and the number of payroll jobs in the region, return to pre-pandemic levels.

Let us clarify a bit at this point. The Bureau of Labor Statistics stated in its July report that 60% of unemployed persons classified their layoff status was temporary. Hence these 60% have the expectation that they will be called back. What we are trying to stress here is that most of the sectors that were hit hardest are in the business of face-to-face interaction with their main customers (Leisure and Hospitality, Other Services, Retail Trade, Health and Education). Hence, they will face the toughest road ahead in re-opening and returning to the old level of activity, especially with the return of shutdowns.

In 2019, Riverside County added 19,200 jobs, a 2.6% increase over 2018. If recovery from the pandemic proceeded at that pace, it would take 5 years to recover the 100,500 jobs lost in the two-month shutdown period! At 4.9% per year, equivalent to the growth rate from 2013 to 2014 which was the fastest annual growth rate during the recovery from the Great Recession, it would take roughly 3 years to regain those jobs. The point is: under plausible assumptions regarding the recovery, it will take 3 to 5 years to regain jobs that have been lost so far. If more jobs are lost because of repeated shutdowns, the recovery period will be even longer! This is, of course, the known downside of closing down businesses again.

Up to this point, the damage from the pandemic shutdown has been measured in terms of job losses and lost wages, but we need to understand how the shutdown has affected the economy in terms of economic activity. With a population of over 2 million, Riverside County is one of the most populous in the country. Its economy is also large with an estimated $93.2 billion in output (nominal Gross Domestic Product or GDP) in 2019.

Assuming the county economy had remained on trend this year, it would have grown, in conservative terms, by approximately 2% or $2 billion to roughly $95 billion this year. Instead, in just two months of the shutdown during March and April, the economy lost $1.033 billion or 1.1% of output, based on conservative estimates by the IEEP. In a growing economy such as the county's, the economic "hole" created by the shutdown is more than the $1 billion lost during the shutdown, because you should also account for the $2 billion in trend growth that would have occurred in 2020 in the absence of the pandemic shutdown. Roughly speaking, it might take 18 months to recover $3 billion in lost output. But if there are repeated surges in COVID-19 cases over the next several months, parts of the economy will be shut down, adding to those losses and making the output gap even larger.

If history is any guide, the subsequent boom following the Great Recession may offer some insights. County GDP began to recover in 2010 after falling 6.8% over the period 2008 and 2009. Over the three-year period of 2010 through 2012 when the county recouped lost output, it grew by an average of 3.2% annually. The single strongest year was 2011 when the growth rate was 4.9%. The fastest growth rate over the period of expansion occurred in 2015, when nominal GDP grew by 8.6%.

The bottom line here is not to expect a "V" shape recovery but rather a "Nike Swoosh" type: a steep decline, followed by a period with gradually increasing growth rates.

Any recovery trajectory must assume that the virus is being contained and the hardest hit industries are able to reopen at a pace that is sustainable. The Governor's July 13 shutdown orders in response to the latest surge in cases illustrates that containment is not a foregone conclusion. The county can expect to go through a cycle of shutting down and reopening until it succeeds in containing the virus, Such a cycle makes it that much harder for businesses to get going again, and will jeopardize the long run survival of more and more of those businesses.

It will also take a toll on households. The average wage of a worker in Riverside county was just over $43,000 in 2019 (Source: Quarterly Census of Employment and Wages), but workers in many of the hardest hit private sectors earned less:

- Retail trade: $34,000
- Education: $41,000
- Leisure and hospitality: $24,000
- Personal services: $28,000

Despite being known as one of the more affordable parts of Southern California, the average rent in the Inland Empire[1] is $1,900 per month. Data from the 2018 American Community Survey show that 56% percent of renting households in Riverside County are rent-burdened, meaning they devote at least 30% of their household income to rent. It is beyond the scope of this report to determine the rent burden for households with workers in the four industries shown above, but given their below-average wages and average monthly rent approaching $2,000, a large share of these households are likely to be rent-burdened even if they have two or more working household members. They are also very likely to have limited savings. Like the businesses that employ these workers, a cycle of shutting down and reopening compromises their ability to pay their rent, to feed their families, and to meet other household expenses.

Conclusion

[1] County-level rents were not available.

The Coronavirus recession has been severe in terms of economic and human cost. It has become increasingly clear over the last few weeks that we have been unable to control the spread of the virus given our current regulations. New restrictions have been announced which will result in further curtailment of activity. At the same time, there is a certain amount of COVID-19 fatigue.

What can be done to convince the public to follow recommended or required public health practices rather than ignoring them? One message must be clear: there is no trade-off between fighting the virus (until there is a vaccine) and a functioning economy. Rather, fighting the virus is a prerequisite for returning the economy to a new normal.

There is empirical evidence from a University of Chicago academic paper that a higher number of deaths results in fewer subsequent visits by the public to stores and businesses. At this point, it is of utmost importance that the general public understand that higher infection and death rates act as a direct deterrent to future economic activity. There is no choice between going to a party and having fun now versus staying at home. The simple fact is that if we do not stay at home now, there will be no party tomorrow.

The bottom line is: if we do not bring the virus under control, there will be no economic recovery.