COVID-19’s Impact on the United States Labor Market

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COVID-19’s Impact on the United States Labor Market

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Abstract

The goal of this paper is to investigate how COVID-19 impacted the US labor market, but more specifically how stay-at-home orders and other COVID policies adversely impacted the United States labor market. Using working papers from other economists, we can see who was so adversely affect and why. Also, how governments COVID policies impact the labor market. Using Bureau of Labor Statistics’ Local Area Unemployment data, the Center for Disease Controls Case Surveillance Public Use data, and state COVID-19 policies, I created graphs illustrating these factors. I found that when there was a large decrease in cases, those unemployment rates were also falling at the same time. Although when cases increased there were times when the unemployment rate would increase, decrease, or remain the same. It is difficult to disentangle the difference between the effect that fear of the virus and COVID policies had on the labor market.
Introduction

The COVID-19 pandemic gained traction in the U.S. in late February and early March of 2020 and, according to the *New York Times*, by the end of the first week of April, the 7-day new case average was above 30,000. During the same month, the unemployment rate was above 14% according to the BLS (The New York Times, 2020), (U.S. Bureau of Labor Statistics, 2020). As a result, national policymakers created policies designed to keep the community safe and keep people afloat financially.

The first major change in policy was the declaration of a national state of emergency, specifically the Stafford Act and the National Emergencies Act, which occurred on March 13th. On March 27th President Trump signed the CARES Act which gave aid to small businesses, families, state and local governments. It gave an additional $600 of unemployment insurance for individuals, people with an income below $98,000 could receive up to $1,200. Families received $500 per child up to 17 and could get up to $3,4000 in total (U.S. Department of the Treasury, 2020). The CARES act also established the payroll protection program which gave small businesses loans of up to 8 weeks of payroll costs (U.S. Department of the Treasury, 2020). In addition to these measures, by April 7th more than 40 states had passed some type of stay-at-home order (AJMC, 2020). Although these orders differed slightly, they all have a common theme of differentiation between essential and non-essential businesses. Non-essential businesses were no longer allowed to have face-to-face interaction with their customers; some of these included retailers not offering food or equipment, bars/restaurants, and other leisure activities. While essential businesses were allowed limited face-to-face interaction with their customers, businesses such as grocery stores, hardware stores, and banks.
During the months of May and June cases per week decreased and most state governments began to re-open their states. Many states opened with some sort of phase system were based on different COVID indicators such as death rate, case rate, and ICU capacity different counties, sections, or the whole state would move between phases. Although which businesses were open, and their capacity varied greatly across the state.

The Cases per week increased throughout July, mainly in the Southeastern and Southwestern US (The New York Times, 2020). There was a slight nationwide decrease in September, but from mid-October to mid-January the cases grew at an uncontrollable rate across the country. Some state and local governments responded, for example, New York City closed indoor dining on December 12th (Gold, 2020). The state of California implemented a stay-at-home order in early December (Office of Governor Newsom (D) 2020). While other states just kept their business almost completely open in order to have people return to employment. With a focus on helping people that might have adverse employment effects from either the increased number of cases or policy President Trump signed another $600 stimulus check on December 29th. Since January, COVID cases have steadily dropped and with an increased number of vaccinations, this will hopefully continue in that same direction.

The goal of my study will be to investigate the effect of COVID 19 on the United States labor market. More specifically how the stay at home and phase policies and new cases affected the unemployment rate. The United States labor market consists of a supply of workers and a demand by businesses to hire workers at a given wage. Due to state and federal government policies and peoples’ risk preferences, COVID negatively impacted the US labor market. Peoples’ risk preferences changed due to the information available. If the information present is about the high number of cases, this causes people to become more risk-averse thus they will
consume less, which reduces the demand for labor for businesses. Government policies also decreased labor demand because some businesses were forced to temporarily close. Theoretically, we would expect these reductions in labor demand to cause a decrease in wages and a decrease in employment. Although we might not see the reduction in wages in the short-run (due to the “sticky” wage phenomenon), there will clearly be an immediate effect on employment.

These changes in the labor market affect some groups of people more than others. According to Mongney et al (2020) people with physically demanding jobs or jobs that could not be performed from home were the most impacted. These people are more likely to have low income, are less educated, and are more likely to be renters (Mongney et al, 2020). In addition, some workers became dropped out of the labor market entirely. Gupta (2020) found that 800,000 women left the workforce between August and September. This is primarily due to k-12 school closures and a parent needs to stay at home with their child. This causes the partner with the lower wage to drop out of the labor force, which on average is women (Gupta, 2020). Another compounding factor was that female-dominated industries saw higher than average decreases in employment such as education and hospitality (Dvorkin, 2020). Dropping out of the labor force could also have implications on someone’s ability to reach that same career point in the future.

The final way in which COVID has affected the U.S labor market is through the CARES act. With its $600 weekly benefit for people who are unemployed on top of their state’s unemployment benefits. This means that some unemployed people could have had a wage that was over 100% of their replacement rate. A replacement rate is what percentage of income is being replaced by unemployment insurance. A high replacement rate could incentive people to not reenter the labor market.
Throughout the rest of this paper, I will look at the relevant literature from other economists that look at the demographics, the ability to work from home, and government policy as it pertains to unemployment in the labor market and COVID-19. I will then be discussing four key states (California, Florida, New York, and Texas), and how their COVID-related policies and the amount COVID cases affected that state's unemployment using the Center for Disease Control and Bureau of Labor Statistics data.

**Literature Review**

*Demographics and Occupation of the Unemployed*

Since the start of the pandemic, there has been a lot of literature discussing COVID-19 and its effect on the labor market, one concentration is centered around what jobs in the labor market can be done from home, and how that impacts someone’s employment during the pandemic. Other authors investigate who are the people in the labor market were disproportionately affected by the pandemic and why. In addition, how different government policies have impacted the labor market.

Sobieralski (2020) research how airlines were affected by past uncertainty and how the global pandemic might affect airlines. Since past events like 9/11 and the great recession have caused uncertainty, which results in a decrease in air travel. Using data from the Bureau of Transportation Statistics and Department of Transportation Form 41 data to make a regression, separating airlines into low-cost, regional, and major. Then separating the employees into six groups cargo handling, aircraft handling, maintenance, passenger handling, aircrew, and management. Their findings suggest that in times of uncertainty low-cost and regional airlines do better compared to major airlines. The researcher believes this is due to low-cost airlines already being having low operation costs which makes them much better equipped to operate in times of
uncertainty. Unlike major airlines, which are more financially exposed and have a larger payroll. Also, regional airlines became a substitute for major airlines. Sobieralski (2020), finds that among all types of airline employees cargo handling sees the greatest reduction in employment in times of uncertainty. Specifically for larger airlines, it tends to be cargo handling and passenger handling employees that see the greatest reduction in employment, and they make up over 45% of the airline's employees.

Bloom et al (2020) looks at the impact that the pandemic had on business in the US. Using the Study of Internet Entrepreneurship survey data, which is a survey administered to business founders across the US in cooperation with a payment technology company. The survey was administered before COVID and in the spring and fall of 2020, massing over 2,500 firms in total. This survey collected demographic information on the founder and self-reported sales. The firms were separated into small, large, and funded. Funded firms have venture capital backing. The unfunded firms are then broken up into small and large. Small firms have a profit below $10,000 while large firms have a profit over $10,000. Bloom also divided businesses by their number of sales online vs offline. Firms with over 50% of their sales online were considered online firms while firms with less than 50% of their sales online were offline firms.

In Q2 and Q3 of 2020, they found that firms on average had their sales drop by 29%. Although 43% of firms reported either zero or positive impact within that same time. Firms that were majority offline saw an almost 13% greater decline in sales compared to majority online firms. Larger online firms fared much better than their smaller offline counterparts. Sales only decreased about 10% for the large online firms while small offline firms with no employees saw their sales drop by over 40%. Bloom credits this to the possibility that larger firms have better management and financial structure, so they were able to adapt and handle the blow of the
pandemic better. The researchers find female business owners had a larger loss in sales compared to male owners. But if controlling for industry, size, and online sales then they find that the difference has decreased by 75%. Although black owners still see worse sales even after controlling for all those variables. The researchers believe that it might be caused due to the pandemic being worse in black communities and if the black-owned business is located in that community that its sales might suffer as a result.

A general overview for which job occupations can be done at home is by Baker (2020). She combines 2018 Bureau of Labor Statistics wage and unemployment data, with O*NET data which measures the importance of using a computer and the importance of dealing with people face to face. Baker (2020) finds that 25% of Americans can easily do their job remotely these jobs mainly include managerial, technology, and financial occupations. While the remaining Americans are in occupations considered difficult to work from home. This causes a large health discrepancy among the labor population due to many of the jobs that are difficult to do remotely are low-wage jobs.

Montenovo et al (2020) investigate the impact of the COVID-19 pandemic on employees based on demographics and occupation. The researchers use the Bureau of Labor Statistics Current Population Survey from February to May 2020 to collect demographic information like race, age, gender, education, state of residence, occupation, and recent employment status. They additionally use O*NET data to gather information on the ability of a job to be done remotely, as well as Homeland Security data on which occupations and business were considered essential. Through descriptive analysis, the researchers find that Hispanics are the group to have the lowest work from home score, which is a score to see if a certain job can be done at home. In addition to Hispanics, many younger workers ages 18-24 were also likely to have a low work from home
score. When comparing unemployment rates to work from home scores the researchers found that unemployment rates were lower for occupations that have a better ability to be done from home. The researchers also find, a person's ability to work from home increases with the level of education.

Montenovo et al (2020), created a regression where the dependent variable is the indicator that a person in a certain industry, occupation, and state is unemployed. The independent variables are the ability to work face to face, if they are female, have a child under 6, if you are in an essential occupation, and a vector of covariates including age, race, and education. The results of the regression show that a person's ability to work from home decreases their chance of being unemployed by 44% and being in an essential industry also decreases your chance of being unemployed by 71%. The results controlling for gender show a higher unemployment rate for women compared to men. However, when controlling for job occupation and industry the disparity decreases. Considering age, an increase in age corresponds with a decrease in unemployment at a decreasing rate. In addition to the regression, the researchers also use an Oaxaca-Blinder decomposition. Through the decomposition, they find that some of the disparities in unemployment between demographics can be explained by their job occupation and industry. Although there remains a sizable portion that is unable to be explained by the decomposition. The researchers believe this could be due to the variation in employee responses to the pandemic, other demographic factors outside of the model, and how variation in the ways employers treat employees when laying them off.

Gezici & Ozay (2020), with research objectives comparable to Montenovo et al (2020), are also investigating causes of disparity in unemployment across different demographic groups. Using the BLS’s Current Population Survey data from April 2020 the researchers run a
regression controlling for an individual’s ability to work from home, industry, occupation, and if they were an essential employee. From this regression, the researchers find that minorities have a higher unemployment rate compared to white men. For example, Hispanic women have over a 5% higher chance of being unemployed. Even in occupations with a high ability to telecommunicate, Hispanic and black women have over a 6% chance of being unemployed. One reason that the researchers believe why minorities have a higher chance of unemployment is due to the Paycheck Protection Program, there is some evidence to believe that minorities had trouble receiving these loans and received much less than they asked for. Another possible explanation that Gezici & Ozay (2020) gives is "last-hired, first-fired", or that already existing forms of discrimination might have been exacerbated by COVID.

A more specific study about the impacts of the pandemic on employment by age is by Bui et al (2020). Their paper investigates how the elderly (65+) faired during the early months of the pandemic. Using the Current Population Survey through April 2020 the researchers find the percent point decrease in unemployment for the elderly does not seem bad upon initial inspection, only being around 4 percentage points. Upon further inspection, the percent change decrease in employment for women 65+ was 18.75% and the men 65+ it was 16.92%. In comparison women ages 25-44 only had a 14.27% decrease in percent change in employment, and men of the same age only had a percent change decrease of 12.98%. The researchers believe that the elderly fared much worse due to the potential risk of contracting COVID and having serious health complications. Due to these risks, elderly people cannot take a bridge job due to those jobs being high in person-to-person contact.

Alon et al (2020) writes look at a specific demographic, where they investigate why this recession is disproportionately affecting women and what can be done to try and decrease this
disparity in the future. Using the Current Population Survey and US Census data, they show that in past recessions women’s employment tended to be less volatile than men’s. This is potentially due to women taking a safer job due to their partner's career being more volatile. Also, women-dominated industries like education and healthcare tend to be less affected in a normal recession. Compared to male-dominated occupations like construction and manufacturing, although the COVID-19 recession differs in which occupations are affected.

Alon et al (2020), then uses the American Time Use Survey data, find that 28% of males reported that their job is highly telecommutable while only it is 22% for women. Also, there is a higher percentage of men that work in essential occupations compared to women. Although the biggest impact on women’s employment was the increased childcare needs that resulted from school closures. The researchers found that due to the already existing gender biases such as women providing more childcare than their male partners and a potential wage discrepancy, implies that women were more likely to forgo employment when in need of sudden childcare. They also discuss how there is a positive association with employment and experience in the labor market so it could be difficult for women to reenter the labor market in the future. Although the authors provide hope that the disparity will decrease in the future due to increases in scheduling flexibility and an increase in the male's childcare responsibility.

**Government Policy and the Labor Markets Response**

While individuals were feeling the effect of the pandemic through job loss the US government put two important policies into action. Han et al (2020) examine the impact of the Economic Impact Payments (EIP) and Pandemic Unemployment Compensation (PUC) program, and if these programs counteracted the effects of job loss in the early months of the pandemic. Using monthly CPS data, they find that poverty declined by .9 percentage points in the year
leading up to the pandemic, and from April 2020 to June 2020 that poverty decreased by 1.5 percentage points. They find that regardless of race, age, education, and geographical there is a decrease in poverty. The larger decreases in poverty are actually in the regions that initiated a lockdown later. When looking at people's income the paper finds that families in the 25th percentile of income had their income raised from $46,000 to $49,000 or a 6.4% increase from February 2020 to June 2020. People with higher incomes saw their income increase less than people with lower incomes during the same time. Using estimates, they find that poverty would have increased, and income would have decreased without the assistance of government programs, which is consistent with the goal of government programs.

Casado et al (2020) investigate the effect of the Pandemic Unemployment Compensation (PUC) on consumer spending more specifically how replacement rate and employment are related to spending in Illinois. The authors use state administrative data from the Illinois Unemployment Insurance system consisting of the individuals' claims, benefits, and earnings. They also use credit and debit transactional spending data to measure economic activity. Using an OLS regression method they find that without the PUC that spending would have decreased by 44% and that even a reduction of $200 in the plan would decrease spending by 12%.

Boar and Mongey (2020) focus on what effect the PUC payments had on people's choice to reenter the labor market. Where did they get their data?????? Unemployed people's replacement rates for wages were over 100% for 68% of the unemployed collecting UI payments. One would expect these high replacement rates to incentivize people to not return to work. Using a dynamic model that incorporates the individuals' previous wage, current wage under cares act, normal UI wage, probability of their current job will be rescinded, probability of finding a new job, and the probability of the CARES act expiring. They find that only under certain conditions would
people not return to their job after being on UI payments. Those being; their job offer will never be rescinded, they will experience no frictional wage loss while being unemployed, or have an extremely low wage, to begin with. Although these results represent more of a one-time static look at the situation where nothing changes with time. People would most likely return to their jobs because of the uncertainty of if their job offer will be taken away, the length of the CARES act, job search frictions, and/or wage loss due to being unemployed in a recession.

Marinescu et al (2020) also investigate the impact of increases in UI payments had on employment. Using job vacancy and job posting data from Glassdoor they find that overall applications per job vacancy were higher after the CARES act was passed. This increase was due to a larger decrease in job postings compared to job applications. Although people with the largest increase in replacement rate have fewer applications per job but have the same number of job vacancies, but the group was sending fewer job applications before COVID.

One topic that was debated amount economists was the effects of social distancing policies on the labor market. Gupta et al. (2020) uses data from Current Population Survey, Google Mobility, and Safeguard. Then creates a difference-in-difference to calculate what effect of employment social distancing policies had and how much was from decreased demand from the consumers due to fear of contracting and transmitting the virus. They found that 40% of unemployment was caused by a decrease in demand from people not wanting to contract COVID-19 and 60% was from social distancing policies. The using estimates Gupta et al. (2020) found that states that implement the lockdown later saw a saw a smaller mobility decrease compared to states who issued them sooner. Although this could be due to the late adopters being more resistive of the social distancing policies. A limitation in the data is that there is a
possibility that changes in unemployment demand may have occurred before the policies were put in place.

Cronin and Evans (2020) is also investigating the effect of COVID shutdown policies on the labor market. The researchers use cell phone records and industry foot traffic data to create a difference-in-difference model. Their results find that state stay-at-home orders only account for a small part of the unemployment the reduction in foot traffic. This is most likely due to precautions taken by private businesses.

**Data Analysis**

In this section, I plot both states’ new cases per day per capita and the unemployment rate over time. The unemployment rate is measured on the right-side y-axis and the new cases per day per capita on the left-side y-axis. I then overlayed the states’ policy by month and year over those graphs. The policy types are stay-at-home policies, phase systems, and other COVID restrictions. This should allow me to measure the effects of both policy and COVID rates themselves on unemployment.

The COVID-19 case data is from the CDC Case Surveillance Public Use Data (CDC 2020). I used COVID new case per day data because it is a good indicator of how severe COVID was in that state at that time. It is also similar to the data that governors and other lawmakers were looking at while deciding their policy. It is important to look at the information they had available when making these decisions. To compare states with different populations I used new cases per day per capita because it is essential to have a COVID indicator that can compare the states' severity of COVID-19 equally across differing populations. The unemployment rate and population data are from the Bureau of Labor Statistics Local Area Unemployment Statistics program (Bureau of Labor Statistics 2020). I used the unemployment
rate because it is good at showing the overall health of the labor market by comparing willing workers to job openings. The dates and details for the state COVID policy are mainly from state government executive orders and press releases. These sources give the most detailed and accurate information about the COVID policies.

The states of California, Florida, New York, and Texas were chosen for two different reasons. Firstly, they are all states with large populations, secondly, there is a large variation in these states’ response to the COVID-19 pandemic. They had different implementation times and lengths; there was also a variation in percent capacity restrictions for different businesses and which ones could be open.

**California**

California was one of the first states to have COVID-19 cases, having a few cases in both January and February 2020. By March 4th the new cases rose to around 10 per day (CDC 2020). That same day Governor Gavin Newsom declared a state of emergency in the state of California (The State of California (A) 2020). Then on March 17, when California averaged about 50 new cases per day, (CDC 2020), State Health officials closed all bars, nightclubs, and limited restaurants to 50% capacity (State of California Department of Public Health (A) 2020). To further slow the spread on, March 19, a stay-at-home order was put in place, meaning that non-essential employees could not have face-to-face interaction due to the high risk of spreading COVID (State of California (B) 2020). During the next couple of weeks, California lawmakers created policies to help people financially by suspending rent and mortgage payments and extending financial deadlines for businesses (Office of Governor Newsom (A) 2020).

According to Figure 2, throughout April the new cases per day were at 0.0000437 new cases per day per capita (CDC 2020). Due to this slow growth in the rate of new cases, on April
28 California Governor Newsom created a county-based four-phase system to reopen the state (Office of Governor Newsom (B) 2020). According to the governor’s plan, every county in California started in phase One, which emphasized increasing COVID testing and PPE equipment in addition to making essential workplaces as safe as possible. Phase Two was reopening nonessential retail business to curbside pickup, public spaces, re-starting manufacturing, and office jobs if telecommuting was not an option. (Office of Governor Newsom (A) 2020). To move from Phase One to Phase Two a county needed their hospitalization and intensive care numbers to become stable. In addition to, having hospitals be able to weather a surge of COVID-19 patients, have enough PPE supplies to meet demand, sufficient testing capacity to meet demand, and contact tracing statewide (Office of Governor Newsom (B) 2020). Phase Three was opening gyms, nail salons, hairdressers, movie theaters, and religious events to a limited capacity, and phase Four was reopening live concerts and convention centers (Office of Governor Newsom (B) 2020).

On April 28th California was on Phase One of its plan. By May 25, most California counties were able to move into Phase Two (Martichoux). In early July, with new cases per day per capita reaching 0.000281 (CDC 2020), many counties started implementing more restrictions. Then on July 13, The California Department of Public Health put out a public health order calling for the closure of many indoor businesses and that counties with higher cases should close even more businesses (California Department of Public Health (B) 2020).

After the spike in July, cases were decreasing, and many people finding the Phase system to be confusing. On August 28 Governor Newsom put out a new color-coded tier-based reopening system to replace the phase system. This system had four tiers widespread, substantial, moderate, and minimal. In widespread many non-essential businesses are closed, in substantial
some nonessential businesses are allowed (California For All 2020). While in moderate some nonessential business is open with modifications, and in minimal most nonessential businesses are open (California For All 2020). Much like the phase system to move between tiers was based on case rates and ICU capacity. In October and November, the new cases per day per capita were at 0.00011 and 0.00031 (CDC 2020). In response, the governor pulled his “emergency break” and closed many non-essential businesses on November 13 (Office of Governor Newsom (C) 2020). With cases still increasing rapidly through December, there was a conditional stay-at-home order put on certain sections of California that had high numbers of cases on December 3rd (Office of Governor Newsom (D) 2020). When cases finally began to decrease at the beginning of 2021 Governor Newsom lifted the conditional stay-at-home order in late January. Cases continued to fall in California to 0.00026 new cases per day per capita in February 2021 (CDC 2020).

Now that we have established the timeline of California’s COVID policies and cases, we can see how unemployment was affected. According to Figure 2, California’s unemployment rate went up from 4.5% to 16% from March to April when their cases were relatively low (Bureau of Labor Statistics 2020). After their unemployment reached its peak at 16% in April 2020 it kept decreasing throughout the summer and fall hitting 8.7% in November 2020 (Bureau of Labor Statistics 2020). Although, in December the unemployment rate increased from 8.7% to 9.3% as new cases per day per capita were at 0.00107 and Governor Newsom issued a conditional stay-at-home order for the entire state of California (Bureau of Labor Statistics 2020), (CDC 2020). Their unemployment rate decreased to 8.5% in February 2021 (Bureau of Labor Statistics 2020).

\textit{Florida}
Florida, unlike California, did not record its first COVID-19 case until early March (CDC 2020). According to Figure 3, in March with the new cases per day per capita slowly growing at 0.00001 (CDC 2020). Florida Governor Ron DeSantis took his first step to containing the spread by shutting down all bars and nightclubs on March 17 and, just a few days later, restaurants were shut down as well (State of Florida (A) 2020). With the number of COVID cases increasing, on March 27 the governor issued a stay-at-home order for a few counties and on April 1 the entire state of Florida was put under a stay-at-home order (State of Florida (B) 2020).

With new COVID cases per day per capita decreasing from 0.000051 to 0.000038 from April to May Governor DeSantis started opening Florida under a phase system (CDC 2020). When the plan was released on April 29th, Florida was in Phase 0 meaning that bars and restaurants were closed, and retailers were operating under restricted business (Reopen Florida Task Force 2020). Phase One for most counties started on May 4th and was fully implemented on May 18th in this phase bars were closed, and restaurants, retailers, movie theaters, casinos, museums, and libraries were allowed to open at 50% capacity (Florida Health 2020), (Reopen Florida Task Force 2020).

When new cases per day per capita were increasing from 0.000039 in May to 0.000180 in June (CDC 2020). Governor DeSantis still allowed counties to open up to phase two on June 5 (Florida Health Plan 2020). Phase Two limited social gatherings to 50 people, bars and sporting events were limited to 50% capacity, restaurants and retailers were open to 75% capacity (Reopen Florida Task Force 2020). New cases per day per capita increased in June eventually reaching 0.000576 new cases per day per capita in July (CDC 2020). During this time Governor DeSantis did not take action to slow the spread of the virus, it took The Department of Business
and Professional Regulation to suspend the sales of alcohol at bars on June 26th (State of Florida Department of Business and Professional Regulation 2020).

In August the new cases per day per capita decreased to 0.000276 and kept decreasing throughout September eventually reaching 0.000153 (CDC 2020). Due to this decline in cases, all Florida counties entered phase three by September 25th (Florida Health 2020), phase Three was everything operating at full capacity (Reopen Florida Task Force 2020). New cases per day per capita then increased throughout October, November, December eventually peaking in January 2021 at 0.000706 (CDC 2020). Throughout this time Governor DeSantis implement no new policies to limit the spread of COVID-19. In early March 2021, the Governor announced that Florida is will no longer be having lockdowns of any sort (Office of Governor DeSantis 2021).

According to Figure 3, initially, Florida’s unemployment rate trended in a similar way to California’s, spiking in April at 14% (Bureau of Labor Statistics 2020). After April Florida’s unemployment rate kept decreasing from that point on reaching its low in February 2021 at 4.7% (Bureau of Labor Statistics 2020). However, from November 2020 to February 2021 the unemployment rate, although decreasing, started decreasing at a much smaller rate. This might be due to the state becoming close to its natural unemployment rate. Although the state’s new cases per day per capita also peaked in January 2021.

**New York**

Unlike California and Florida, which had around 0.00001 new cases per day per capita in March (CDC 2020). New York City was the epicenter for the pandemic in the US and Statewide the new cases per day per capita were 0.000067 (CDC 2020). By March 20th Governor Cuomo put a stay-at-home order in place for the state of New York (New York State (A) 2020).
Unfortunately, cases continued to rise and by April they were at 0.00022 new cases per day per capita (CDC 2020).

According to figure 4, new cases per day per capita across the state decreasing to 0.000063 in May the governor implemented the New York phase plan for reopening on May 16th (CDC 2020), (New York State (B) 2020). Phase One of the plan opened manufacturing, construction, retail with curbside pickup only, and agricultural businesses (New York State (B) 2020). Throughout early June, nine out of the ten New York state regions had gone to phase two with only New York City lagging behind (New York State (C) 2020). Phase Two opened up nonessential retailers, outdoor dining, and places of worship to 25% capacity (New York State (B) 2020). In late June cases had decreased to only 0.000023 the majority of the regions of New York state had begun phase Three which increased capacity for retailers and indoor dining to operate at 50% capacity (New York State (B) 2020). Although indoor dining was not allowed as part of New York City’s phase three. With COVID cases staying at a stable rate throughout July all parts of New York state had entered phase four by July 20th (New York State (E) 2020). Phase four mainly reopened entertainment and educational facilities (New York State (B) 2020). In late August Governor Cuomo opened gyms and measures at 25% capacity (New York State (F) 2020). In September with the cases only slightly increasing to 0.0000302 new cases per day per capita, (CDC 2020) the governor opened up casinos state-wide and indoor dining in New York City both at 25% capacity (New York State (G) 2020. Throughout December and January Governor Cuomo was mainly moving different counties of the state into different phases, and on December 14th Cuomo closed indoor dining for New York City once again (Gold 2020). In January and February, the governor was mainly implementing policies to ensure that people have access to the vaccine.
New York’s unemployment rate looks similar to California and Florida with their unemployment reaching 16.2% in April (Bureau of Labor Statistics 2020). The unemployment rate then decreased slowly reaching 8.7% in October (Bureau of Labor Statistics 2020). After October the unemployment rate stopped decreasing and stayed at 8.7% for November and December. This was happening while the new cases per day per capita rose from 0.0000615 in October to 0.000441 in December. The unemployment rate then increased to 8.8% and 8.9% in January and February 2021.

Texas

At the beginning of the pandemic, Texas behaves similarly to California and Florida. On March 19th Texas Governor Greg Abbott closed bars, restaurants, and gyms (The State of Texas (A) 2020). Later that month March 31st Governor Abbott issued a statewide stay-at-home order which closed all nonessential businesses (The State of Texas (B) 2020). With cases only rising a moderate rate throughout the month of April to 0.000037 the governor implemented a phase system starting May 1st (CDC 2020). In phase One nonessential retailers, restaurants, and museums were allowed to operate at 25% capacity, while bars and other large venues were to remain closed (The State of Texas (C) 2020). If counties were doing particularly well with keeping their cases down, they could open the capacity of restaurants and retailers to 50% (The State of Texas (C) 2020). Although nail salons and hairdressers were initially kept close under phase one on May 8th the governor allowed them to open (The State of Texas (C) 2020).

New cases per day per capita were rising at an increasing rate throughout May reaching 0.000052 Governor Abbott still moved the state into phase Two on May 18th (CDC 2020), (The State of Texas (D) 2020). Phase Two opened up restaurants and retailer’s capacity to 50%, and childcare services (State of Texas (D) 2020). In the next coming week bars, zoos, and
professional sporting events may have up to 25% capacity (The State of Texas (D) 2020). Just over two weeks after implementing phase two Governor Abbott started phase Three which just mainly increased the capacity of business from 50% to 75%, and from 25% to 50% (The State of Texas (F) 2020). In June new cases per day per capita rose to 0.000143, (CDC 2020), in turn, Governor Abbott closed bars and limited restaurant capacity back down to 50% on June 26th (The State of Texas (G) 2020). In July new cases per day per capita doubled to 0.000377 (CDC 2020). By mid-September when new cases per day per capita lowered back to 0.000202, (CDC 2020), the governor increased the capacity of restaurants and retailers back to 75% (State of Texas (H) 2020). Although the region had to have low hospitalization rates in order to participate in expanding its capacity. In October Governor Abbott opened up bars and other entertainment would be able to open up.

Texas unemployment rate like the other states increased in March peaking in April at 12.9% (Bureau of Labor Statistics 2020). After April Texas saw a rapid decrease in its unemployment rate until September when the unemployment rate increased slightly from 6.9% in August to 7.9% in September (Bureau of Labor Statistics 2020). After that, the unemployment rate was decreasing at a very small rate. Even flatlining from December 2020 to February 2021.

**State Comparison Analysis**

There are some similarities and differences to each state’s COVID-19 story, all states had their highest unemployment rate increase from March 2020 to April 2020. Although most of their new cases per day per capita, except for New York, were relatively low in comparison to what they would see later in December 2020 and January 2021. This high increase in the unemployment rate in April was most likely due to both people's fear of contracting the virus and the restrictions of stay-at-home orders.
It is important to remember that in March there was a high level of uncertainty around the virus about how long it would last, how it was transmitted, the best way to treat it, and how severe the symptoms were. This uncertainty around the virus caused many private businesses to send lay employees off even before stay-at-home orders were implemented. For example, in Florida, their theme parks closed down about two weeks before their stay-at-home order was ever implemented (Russon 2020).

To analyze whether or not stay at home and other COVID policies had an adverse impact on the unemployment rate after April 2020. I will be looking at a few different instances where the unemployment rate increased, decreased, or remained the same. These unemployment rate changes along with changes in the cases and COVID policy will be able to give necessary information on what the circumstances were when the unemployment rate changed.

First, looking at a few instances where the unemployment rate did increase outside of April 2020, including California from November to December 2020, Texas from August to September 2020 and January to February 2021, and New York from January to February 2021. California’s unemployment rate increased 6.9% from 8.7% to 9.3% from November to December 2020 (Bureau of Labor Statistics 2020). In the same month that the unemployment rate increased Governor Newsom implemented a conditional stay-at-home order on December 3rd, and new cases per day per capita were seeing record high numbers at 0.001071 (Office of Governor Newsom (D) 2020), (CDC 2020).

However, the month prior the governor already pulled his “emergency break” and moved many counties back into the widespread tier in mid-November (Office of Governor Newsom (C) 2020). The implementation of this “emergency brake” before the unemployment rate decreasing suggests California's conditional stay-at-home order in December may have caused the
unemployment rate to increase. Although, the high number of new cases per day per capita increases people's fear of contracting the virus thus causing an overall decrease in demand for services and supply for the labor market.

When Texas’s unemployment rate increased from August to September 2020. This was at a time where their new cases per day per capita had decreased from 0.000277 in August to 0.000203 which is over a 26% decrease in cases (CDC 2020). Also, in September Governor Abbott increased restaurant and retailer capacity to 75% (The State of Texas (H) 2020). The resulting increase in the unemployment rate counterintuitive because when cases decrease, and the state opens more of its business the unemployment rate will decrease. Due to people's fear of the virus decreasing and more employment opportunities. Based on their COVID policies and cases it is difficult to detail why Texas’s unemployment increased in September 2020. Although one reason outside of COVID-19 related factors could be the hurricane TS Beta which reached Texas on September 22 and flooded parts of southeastern Texas (NOAA National Centers for Environmental Information 2020).

Now looking at smaller increases in the unemployment rate Texas’ unemployment rate also increased from January to February 2021. Although this was a small increase of only 0.1 percentage points and happened the same month where Texas was experiencing massive power blackouts. In New York when the New York unemployment rate increased from 8.8% in January to 8.9% in February 2020. During this time Governor Cuomo was mainly planning vaccine distribution and moving some counties into less restrictive phases.

In addition to times when the state’s unemployment rate increased there were also times where the unemployment rate would remain the same or will only decrease slightly. This happened in New York from October to December 2020. During these three months from
October to December 2020, the New York unemployment rate stayed at 8.7% (Bureau of Labor Statistics 2020). In that same three-month span, they saw their new cases per day per capita increase over 600% during that time going from 0.000062 to 0.000441 (CDC 2020). While cases were increasing, the only major policy that Governor Cuomo put in place was to close New York City’s indoor dining (Gold 2020). Although many counties were placing more restrictions on business during this time.

Lastly, there were times where the unemployment rate decreased substantially. This happened in California when their unemployment rate decreased from 12.3% in August to 10.6% in September 2020, overall decreasing 13.82%. This happened while new cases per day per capita decreased by over 47%. In addition, California had recently switched to its tier system and some counties were moving into less restrictive tiers in terms of COVID restrictions (CITATION). Although many of the state’s counties remained in the severe tier. Schools were being allowed to reopen in-person instruction.

The remainder of the states’ largest decrease came from July to August 2020. For Florida, this was over a 31% decrease in the unemployment rate and their new cases per day per capita decreased by 51% in the same month. New York’s decrease was not as large as Florida’s only being a 20% decrease in unemployment rate while their cases decreased 8%. Both states were opening up business in their states during this time.

Based on the different states’ COVID policies, cases, and unemployment rates it is unclear how much of an impact social distancing and other COVID-related policies had on the labor market. One difficulty is disentangling whether people’s fear of the virus or social distancing policies caused unemployment. There is strong evidence that at the beginning of the pandemic around March and April 2020 both played a large role in the high unemployment rate,
although fear was much higher. Many private businesses were closing down even before states implemented their stay-at-home orders (Russon 2020).

It is also clear that every time a state saw its unemployment rate greatly decrease it was always accompanied by a large decrease in cases. This suggests that when cases decrease greatly unemployment rate will follow. Whether this is due to people's decreased fear of catching the virus or because when cases decrease state governments would tend to be less restrictive on business is unclear.

**Conclusion**

In conclusion, COVID came in three main phases in April 2020, July 2020, and January 2021, and hit different parts of the country. Some demographics were disproportionately affected for example minorities and women were more likely to be unemployed than white men (Gezici & Ozay 2020). Although when controlling for occupation this decreases, there is still a gap there most likely due to preexisting discrimination (Gezici & Ozay 2020). Also government programs completed their goal of compensating people for lost income through the stimulus payments and Pandemic Unemployment Compensation without decreasing people's likeliness to go back to work due to the temporary nature of these acts (Han et al. 2020), (Boar and Mongey 2020).

Looking at CDC Public Case Surveillance, COVID-19 related policies, and Bureau of Labor Statistics Local Area Unemployment Statistics data. There is no clear evidence that COVID-19 policies restricting business caused the unemployment rate to increase. This is due to it being difficult to disentangle fear of contracting the virus and COVID-related policies. They would happen at similar times, when COVID cases would increase there would be both people's fear would increase and that city, county, or state might implement a policy to restrict business.
Although there were times where the unemployment rate would increase, decrease, or remain the same. Looking different states during these specific instances there isn’t a definite pattern of how the unemployment rate acted when looking at cases. Although every time the state saw their largest unemployment rate decrease it was happening while they were also seeing a large reduction in cases. There was also an instance in Texas where cases were decreasing, and the unemployment rate increased showing that a reduction in cases did not always lead to a decrease in the unemployment rate. When cases were increasing there were times when the unemployment rate would be decreasing, increasing, or remaining the same.
Citations


Appendix

Figure 1: National Unemployment Rate vs New Cases Per Day Per Capita
Figure 2: California Unemployment Rate vs New Cases Per Day per Capita

- **Stay at home order**
- **Phase System Reopening**
- **Closing**
- **Color Coded System Stay at Home Order**

- Yellow line: Average of Unemployment rate - California
- Black line: Average of New Cases Per Day Per Capita - California
Figure 3: Florida Unemployment Rate vs New Cases Per Day Per Capita

Stay at home order
Phase 1
Phase 2
Phase 3

Unemployment Rate

New Cases Per Day Per Capita

01 02 03 04 05 06 07 08 09 10 11 12 01 02

2020

0 0.0001 0.0002 0.0003 0.0004 0.0005 0.0006 0.0007 0.0008

Average of Unemployment rate - Florida
Average of New Cases Per Day Per Capita - Florida
Figure 4: New York Unemployment Rate vs New Cases Per Day Per Capita
Figure 5: Texas’ Unemployment Rate vs New Cases Per Day Per Capita.
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