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COVID-19 AND UNEMPLOYMENT DYNAMICS:

A REGIONAL ANALYSIS IN THE UNITED STATES

by

Keesha St. John

B.Ed., University of Guyana, 2020

A Thesis
Submitted in Partial Fulfillment of the Requirements for the
Master of Science Degree

School of Agricultural Sciences
in the Graduate School
Southern Illinois University Carbondale
May 2024

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THESIS APPROVAL

COVID-19 AND UNEMPLOYMENT DYNAMICS:

A REGIONAL ANALYSIS IN THE UNITED STATES

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Keesha St. John

A Thesis Submitted in Partial

Fulfillment of the Requirements

for the Degree of

Master of Science

in the field of Agribusiness Economics

Approved by:

Dr. Wanki Moon, Chair

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Southern Illinois University Carbondale
March 20, 2024

AN ABSTRACT OF THE THESIS OF

Keesha St. John, for the Master of Science degree in Agribusiness Economics, presented on March 20, 2024, at Southern Illinois University Carbondale.

TITLE: COVID-19 AND UNEMPLOYMENT DYNAMICS: A REGIONAL ANALYSIS IN THE UNITED STATES

MAJOR PROFESSOR: Dr. Wanki Moon

The influence of the COVID-19 pandemic on unemployment rates in several US locations is examined in this research article. We investigate the intricate relationships between COVID-19 cases, mortality, GDP per capita, and unemployment rates through a thorough study of the data. The study sheds insight into the complex interaction between health crises and labor markets by revealing considerable differences in how these factors affect unemployment in various geographic locations.

Unexpectedly, key findings show that places with higher COVID-19 cases frequently have lower unemployment rates. This trend is related to several variables, including critical sectors and public health activities. The positive correlation between increased COVID-19 deaths and increased unemployment highlights the significant economic impact of the COVID-19 pandemic. The findings suggest that the relationship between GDP per capita and unemployment rates during the COVID-19 pandemic varied across different regions of the United States.

These findings have broad ramifications, highlighting the connection between the economy and public health. Policymakers are urged to consider regional differences when creating focused measures to solve problems with the job market brought on by the pandemic. This study advances the knowledge of the COVID-19 pandemic's impact on the labor market. It emphasizes the value of concerted actions to save people's lives and way of life in times of crisis.

Keywords: COVID-19, United States, Labor Market, Unemployment rate, Pandemic

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I am grateful to my family and friends for their support and encouragement throughout this endeavor. Their belief in my abilities and their constant motivation has been instrumental in overcoming challenges and persevering during demanding times.

DEDICATION

This document is dedicated to my family in appreciation of their understanding, help, and support. In addition, I would like to also dedicate it to my friends and colleagues for their support and inspiration during my studies. My gratitude is also extended to my Apostle and to the church members who have helped and supported me. I also dedicate this thesis to Karen Inniss, my mentor, who encouraged me to pursue academia and believed in me.

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CHAPTER 1

INTRODUCTION, OBJECTIVES AND HYPOTHESIS

1.1 INTRODUCTION

The COVID-19 pandemic has caused widespread illness and disrupted daily activities worldwide. In the United States, the first case was identified in January 2020, leading to significant efforts to contain the virus through measures such as social isolation. Consequently, many healthy individuals have been urged or mandated to stay at home, resulting in a substantial increase in unemployment across the country (Wormser, 2020).

Unemployment refers to a situation where a person actively searches for employment but is unable to find work. It serves as a key measure of the health of the economy. The most frequently used measure of unemployment is the unemployment rate, which is calculated by dividing the number of unemployed people by the total number of people in the labor force. Unemployment is common, and various causes have contributed to its growth and reduction over time. For example, the 1930s Great Depression caused a significant increase in unemployment, prompting the government to enact many initiatives to alleviate the issue. In addition, the Civil Rights Movement of the 1960s and the Women's Liberation Movement of the 1970s impacted the labor market, resulting in substantial changes in job prospects and workers' (Wormser, 2020).

The COVID-19 pandemic has profoundly impacted the global economy, resulting in widespread job losses and economic instability in several countries, including the United States. The effects of the pandemic on employment, however, have not been evenly distributed across the states, with some experiencing greater job losses than others. Various factors, including differences in industrial mix, pandemic intensity in each state, and state-level legislation measures, cause these discrepancies. Many workers have been laid off in large numbers, while

others have resorted to working from home while still earning regular wages. (US Bureau of Labor Statistics,2023)

According to the United States Bureau of Labor Statistics (2023), the national unemployment rate jumped to 14.7 percent in April 2020, the highest level since the Bureau of Labor Statistics began tracking unemployment in 1948. Subsequently, the rate gradually declined, reaching 3.5% in December. 2022. However, while the unemployment rate is a well-known metric, it is important to note that the unemployment rate has limitations, such as excluding discouraged workers and those who desire employment but have not actively sought it (Jones & Riddell, 1999; Feng & Hu, 2013).

In April 2020, the labor force participation rate in the United States dropped to its lowest level since January 1973, standing at 60.2% (US Bureau of Labor Statistics, 2023). Furthermore, there was a significant increase in individuals claiming to have a job but were away from work due to COVID-19-related company closures during the same period. Despite this, not all these workers were classified as unemployed, leading to an underestimation of COVID-19 related job losses in the official unemployment rate (US Bureau of Labor Statistics, 2023).

The first wave of COVID-19 has impacted certain states more significantly than others in the United States, with New York being the clear outlier with 0.438 percent of the population infected, followed by New Jersey, Louisiana, Massachusetts, and Connecticut. West Virginia, Nevada, Minnesota and Kentucky, on the other hand, are the least impacted states (Hong and Werner,2020). These regional disparities are due to the infection rate in the different states.

Although numerous studies have examined the link between unemployment and economic variables like GDP, inflation, and interest rates, research on the specific impact of the

COVID-19 pandemic on the labor market across different regions in the US and the factors contributing to the rise in the unemployment rate remains limited.

It is critical to comprehend how the pandemic has impacted the US economy, particularly the job market. Previous studies have indicated a significant increase in the unemployment rate in the United States due to the COVID-19 pandemic, but few studies have assessed the impact on a regional or state level. Therefore, this study aims to assess the relationship between COVID-19 cases, COVID-19 deaths, and the US unemployment rate on a regional level (Northeast, Southeast, Midwest, Southwest, West). Additionally, the study will examine how the gross domestic product (GDP) influences the unemployment rate during the pandemic.

The findings of this study hold important implications for policymakers, businesses, and the public. They provide valuable insights into the impact of the COVID-19 pandemic on the labor market and the overall economy in the United States. Understanding the connection between COVID-19 and the unemployment rate enables governments to make informed decisions to mitigate the economic effects of the pandemic and support those who have lost their jobs as a result. Moreover, businesses can benefit from this study by understanding how the pandemic has influenced the labor market and adapting their operations accordingly.

In conclusion, this research aims to contribute to a deeper understanding of the influence of COVID-19 on unemployment rates in the United States. It seeks to shed light on the economic repercussions of the pandemic. The insights gained from this study can inform policymakers, businesses, and the public, aiding in the development of effective strategies to mitigate the adverse impacts of the COVID-19 pandemic on the labor market and the overall economy.

1.2 OBJECTIVES

The overall objective of this study is to analyze the impact of COVID-19 on the employment rate of the different states in the United States of America.

The specific objectives aim to:

- To examine the relationship between COVID-19 cases and the unemployment rate.
- To investigate the influence of COVID-19 deaths on the unemployment rate.
- To analyze the effect of GDP per capita on the unemployment rate.
- To provide policymakers with insights into the labor market implications of the COVID-19 pandemic.

1.3 HYPOTHESIS

The hypotheses of this study are as follows:

- The number of COVID-19 cases has a positive and significant impact on the unemployment rate.
- The number of COVID-19 deaths has a positive and significant impact on the unemployment rate.
- GDP per capita has a negative and significant impact on the unemployment rate.

CHAPTER 2

LITERATURE REVIEW

2.1 LITERATURE REVIEW

Globally, the COVID-19 pandemic has had enormous economic implications, resulting in high unemployment and economic instability. As a result, several studies on the pandemic's influence on the labor market were done. This literature review gives an overview of the present state of research on the impact of COVID-19 on the labor market and unemployment rates.

While the COVID-19 pandemic is still ongoing worldwide, albeit at a slower pace, there remains a need for more literature on its unemployment effects. An insightful starting point is to draw parallels with historical incidents of a similar nature. Spanish Influenza outbreaks in 1918-19 are among the earliest studies on the economic impact of infectious diseases. Retrospectively, the Great Influenza provided the basis for studying the unemployment consequences of COVID-19. We can learn from the last outbreak how costly it is without strict control measures—in addition to reduced sales owing to negative consumer feelings, previous pandemics, such as the 1918 influenza, resulted in high service sector expenses due to the facemask and social alienation, as well as pressure on financial activity (Boissay & Rungcharoenkitkul, 2020; Barro et al., 2020).

Using data from the United States, Boissay and Rungcharoenkitkul (2020) studied the macroeconomic repercussions of COVID-19 compared to other pandemics. Past epidemics such as influenza 1918-19, SARS (2003), H5N1 avian Influenza (2003-19), Ebola (2014-16), and the current COVID-19 pandemic have resulted in a fall in GDP growth and a decrease in industrial output activity. They discovered that the economic cost of the Covid-19 pandemic may be proxied by GDP foregone by comparing the present GDP prediction with the COVID-19

prognosis. Based on statistics from Boissay and Rungcharoenkitkul (2020), the analysis projects that COVID-19 will result in production losses of 5-9 percent for the US economy and 4 to 4.5 percent for the global economy. Exceptional knowledge of COVID-19's economic transmission route, economic decisions, and the pandemic, as well as policy trade-offs, might aid in reducing the pandemic's macroeconomic effect.

From a pessimistic standpoint, Fornaro and Wolf (2020) investigated the macroeconomic effects of COVID-19. They claimed that COVID-19 would cause a supply shock for the global economy by forcing manufacturers to shut down and disrupting global supply lines (OECD, 2020). Coronavirus has also reduced worldwide demand and according to the researchers, the affected demand drop caused involuntary unemployment. The spread of the Coronavirus caused a negative supply shock and macroeconomic impact.

An evaluation of the impacts of COVID-19 on short- and medium-term economic variables for collective Europe (France, Germany, the Netherlands, Italy, Spain, and the United Kingdom) based on data from macroeconomic reactions to past pandemic episodes is offered by Jorda et al. (2020) in his papers. A similar pandemic, for example, occurred during the previous millennium; Jorda et al. (2020) discovered that COVID-19 has similar macroeconomic consequences such as low returns on assets, depressed investment opportunities due to excess capital per unit of surviving labor, and an increase in saving, along with precautionary savings, to rebuild depleted wealth.

On the economic front, the diseases' effects extend beyond sickness and death and may have far-reaching consequences for global economies. Data suggests that the pandemic's impact has spread to widespread areas, including travel, tourism, supply chains, stock market volatility, and oil price variations (Fairlie, 2020). For example, the pandemic has caused considerable

disruptions to global import and export patterns. Similarly, due to travel-related limitations, economies worldwide have suffered a further drop-in economic activity (Ji & Chu, 2020; Vanov, 2020). Furthermore, widespread fear among consumers and businesses has altered established purchase patterns and generated market abnormalities (Baker et al., 2020).

COVID-19 has posed an unprecedented threat to European economies since the virus's transmission has accelerated and caused harm in nearly every area of these economies (Demertzis et al., 2020). In reaction to the current economic turbulence caused by the pandemic, the International Monetary Fund (IMF) forecasts that the global economy will fall by 4.4% in 2020. It is even anticipated to be even worse than the 2008-09 financial crisis. However, the same analysis predicted an 8.1 percent decline in GDP growth, a 0.5 percent inflation rate, and an 8 percent unemployment rate for contemporary Europe in 2020. Furthermore, the same research forecasted similar levels for 2021. According to this analysis, contemporary Europe's GDP growth predictions for 2021 are 5.2 percent, inflation is 1%, and unemployment is 8.5 percent (Demertzis et al., 2020).

According to the World Bank (2020), unemployment can develop due to health measures designed to restrict the spread of the virus, such as school and daycare closures and tourism-related enterprises. Maliszewska, Mattoo, and Van Der Mensbrugghe (2020) forecasted a 3% increase in worldwide unemployment. McKibbin and Fernando (2020) predicted global unemployment trends based on death rates and absenteeism in China. Considering that McKibbin and Fernando's study was one of the earliest economic evaluations of COVID-19, their predicted changes in unemployment are on the low side (3.44 percent for China). For example, the maximum assumed rate of increase for unemployment in their work in the United States is 1.30 percent; however, recent data show US unemployment reaching nearly 15 percent.

Data on changes in unemployment from the OECD and IMF are gathered for countries where unemployment changes differ internationally, with slightly improved unemployment in Egypt, most likely due to non-COVID-19 related factors, to a double increase in unemployment in Mauritius relative to that in 2019 (World Bank,2020).

Capital fluctuations are another element to consider when it comes to unemployment. Although resources cannot be transferred across sectors in the short run, sectors can substitute capital for labor. The previously cited CGE publications did not examine capital changes; nevertheless, as the World Bank (2020) emphasized, employee avoidance of workplaces will unavoidably result in the capital (e.g., machinery) being idle for extended periods. Furthermore, specific industries are working at a reduced capacity to comply with social distancing requirements, resulting in decreased economic capital use. A related argument contends that the necessity for more labor has idled capital or reduced its utilization to a bare minimum. As a result, no change in the capital is expected.

The investigation found that COVID-19 cases create unemployment in Germany, Italy, and the United Kingdom. COVID-19 deaths, on the other hand, induce unemployment in Italy and the United Kingdom (Su et al., 2021). An increase in the number of cases of COVID-19 in Europe has far more significant negative consequences on the labor market than an increase in deaths through lowering the employment rate. The COVID-19 pandemic has also hampered economic activity by lowering market jobs, and European manufacturing and service sectors have declined dramatically throughout the pandemic (Su et al., 2021).

KPMG (2020) investigated the economic effect of COVID-19 in Nigeria based on business activity. The pandemic caused several internal global shocks, including oil price shocks in Nigeria's oil-dependent economy. The twin shocks' economic impact is projected through

supply, demand, and financial channels. However, unlike Ebola, Zika, and SARS, the study suggests that the social-economic impact may last long after the pandemic.

Dingl and Neiman (2020) investigated the employment consequences of COVID-19 on the US labor force due to social alienation and working from home. According to job categories, just 34% of employment in the United States can be done from home. This group accounts for around 44% of total earnings. As the global economy expands, more employment in the United States cannot be performed from home. As a result, authorities in chosen European economies where pandemics have already wrought devastation should be supported in controlling pandemic reactions. Three factors motivate the attention to European economies: 1) they are the world's most influential economies, and as such, they play an essential role in conveying spillover effects to other countries. 2) These economies are presently experiencing two significant shocks: the spread of a pandemic and a declining trend in macroeconomic indices, most notably unemployment. Despite having far better information to deal with the outbreak's implications than other countries, most European economies remain under lockdown. However, these economies have more verified cases and deaths than any other country. Moreover, the continuing pandemic's influence on unemployment in these economies can give policy lessons for the rest of the developed and developing nations.

The already high unemployment rates among young people have risen significantly. From spring 2019 to spring 2020, the unemployment rate for young employees aged 16 to 24 increased from 8.4% to 24.4%, while the rate for those aged twenty-five and older increased from 2.8% to 11.3%. Young Black, Hispanic, and Asian American/Pacific Islander (AAPI) employees saw higher unemployment rates in the spring of 2020 (29.6%, 27.5%, and 29.7%, respectively). COVID-19 is more likely to affect employment held by young employees.

Younger employees have suffered disproportionate job losses due to their concentration in severely impacted industries and occupations. For example, a quarter of young people work in leisure and hospitality, with a 41% decrease in employment between February and May 2020. (Young Workers Hit Hard by the COVID-19 Economy Workers Ages 16-24 Face High Unemployment and an Uncertain Future, n.d.)

The economic regions in the USA in which this research will be focused on are Northeast, Southeast, Midwest, Southwest and West. States like New York, Massachusetts, and Pennsylvania are included in the Northeastern area of the United States, which has a varied and robust economy. This area, formerly renowned for its industrial power, has switched to a service- and technology-based economy. Major cities like Boston and New York City are financial and technology hubs, and the healthcare and educational sectors are thriving (Mappr, 2021). The Northeast was one of the hardest-hit areas during the COVID-19 pandemic, with stringent lockdowns having a negative impact on commerce and tourism. But it also set the bar for launching widespread immunization programs and public health initiatives, which helped the economy gradually recover. Due to its extensive infrastructure, strong manufacturing capacity, and dense population, the Northeast is home to some of the largest seaports in the world.

A diverse range of sectors are present in the Southeast's economic environment, which includes states like Florida, Georgia, and North Carolina. Although tourism is still a key component of Florida's economy, the state's tourist industry suffered during the pandemic because of travel restrictions and safety concerns. Production issues plagued Georgia's developing film industry. Additionally, the area is home to many manufacturing facilities, particularly in the automobile and aerospace industries, whose supply networks were disrupted. With its rich soil and lengthy growing season, agriculture has been a long-standing principal

sector in this area (Mappr, 2021). The Southeast is a well-liked vacation spot because of its pleasant weather, beaches, and historical attractions. While the Southeast responded to the pandemic with varying degrees of effectiveness, leading to a diverse economic response, it maintains lower living costs than the Northeast or the West Coast.

Ohio, Michigan, and Illinois are all part of the Midwest, sometimes called the "Rust Belt." Once dominated by heavy manufacturing and industry, the terrain has altered to emphasize technology, healthcare, and agriculture. Since industry and agriculture were seen as vital and generally stable industries, the pandemic had a mixed effect on the Midwest (Mappr, 2021). Service sectors also saw difficulties due to lockdowns and decreased consumer expenditure. The Midwest could retain economic continuity and efficiently respond to the pandemic because of its strategic position and well-developed transportation infrastructure.

The West Coast, which is where California, Oregon, and Washington are located, is known for its creativity and development in technology. Silicon Valley in California is a hub for innovation and entrepreneurship worldwide, and Hollywood's entertainment sector is another notable engine of the state's economic strength (Mappr, 2021). The COVID-19 pandemic presented difficulties for the West Coast, with technology businesses effectively implementing remote work while the entertainment sector was adversely affected. Early implementation of COVID-19 policy and immunization efforts in the region was essential to its economic recovery.

The Southwest area includes states like Texas, Arizona, and Nevada, exhibiting a remarkable economic variety. Texas has a thriving economy fueled by the oil, technology, and healthcare industries, with a significant contribution from the state's vast energy resources. Due to a drop in demand and erratic oil prices throughout the pandemic, the energy sector experienced oscillations (Mappr, 2021). Arizona and Nevada, famous for their tourism and

technology, saw their economies decline due to the severe downturn in the travel and hospitality sectors. In response to the pandemic Southwest used various policy strategies to damper its expected adverse economic effects.

The study will add to the current literature on the economic effects of the pandemic in many ways. It examines the cases of the world's most potent and sophisticated economies. It will also illuminate a vital policy issue on how COVID-19 affects labor markets, particularly in these economies and globally. Labor market efficiency has become an integral aspect of the recent era's economic growth process. The growth process is halted without properly functioning labor markets in developed and developing countries.

The COVID-19 pandemic has considerably influenced the worldwide labor market and unemployment rates, with differing repercussions in different nations. Studies show in general that the pandemic has resulted in high unemployment rates and economic instability in many countries, with the service sector being particularly hard hit. Although there is currently a lack of literature on the COVID-19 unemployment impact in the USA, past epidemics such as the Spanish Influenza outbreaks have given a foundation for researching economic implications of infectious illnesses.

This research uses well-known economic theories and models to create a systematic framework for comprehending the intricate relationships among COVID-19, economic circumstances, and unemployment rates. Neoclassical economics, a foundational economics theory, hypothesis holds that labor market supply and demand changes can affect unemployment rates. According to the theoretical framework, changes in labor demand, which are typically associated with economic disturbances, have the potential to lead to changes in unemployment

rates. The current COVID-19 pandemic, characterized by supply and demand disruptions, may be used as a backdrop for the discussion of neoclassical notions.

Therefore, further study on the pandemic's influence on the job market and unemployment rates is needed to understand the long-term impacts better and establish measures to reduce its harmful consequences. This study aims to measure the impact of COVID-19 on unemployment in the United States. COVID-19 severely impacted the United States; hence, the goal is to aid policymakers in controlling the pandemic's reaction in the United States, where a pandemic has previously wreaked havoc.

CHAPTER 3

DATA AND METHODOLOGY

3.1 DATA

This section presents the analysis methods (descriptive and regression analysis), study area, data, and their sources. The United States of America is a country made up of 50 States and 1 Federal District. These states are then divided into five geographical regions: the Northeast, the Southeast, the Midwest, the Southwest, and the West, each with different climates, economies, and people. These are the regions used in this analysis.

Table 1: States included in the study.

	Regions	States	Total
1	**Northeast**	Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhoda Island, Vermont	11
2	**Southeast**	Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, West Virginia	10
3	**Midwest**	Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin	12
4	**Southwest**	Arizona, Arkansas, New Mexico, Oklahoma, Texas, Virginia	6
5	**West**	Alaska, California, Colorado, Hawaii, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming	11
Total			50

Source: World Atlas

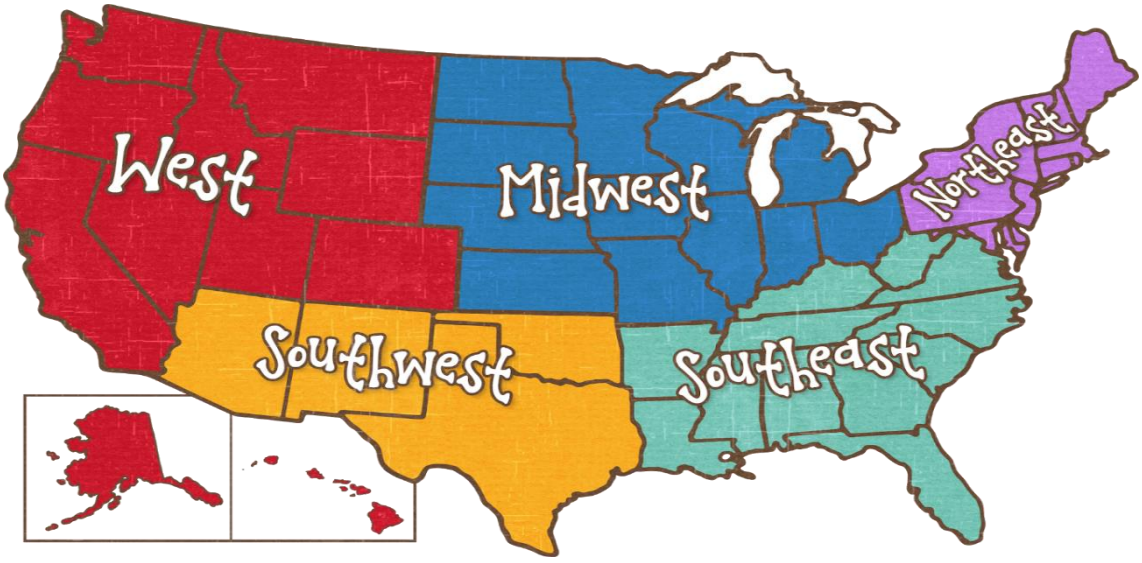

Figure 1: Map of the Regions in the United States of America

3.1.1 SOURCES OF DATA

Table 2 displays the data that were gathered for this study. GDP per capita is expressed in US dollars; the employment rate is expressed as a percentage; COVID-19 deaths are expressed as the number of documented COVID-19 deaths; COVID-19 cases are expressed as the number of recorded COVID-19 cases.

The unemployment rate data is collected from the U.S. Bureau of Labor Statistics (BLS) database (https://www.bls.gov/). The percentage of the labor force without a job is known as the unemployment rate. It is computed by dividing the total number of people in the civilian labor force by the total number of jobless people. People who are not currently employed but are actively looking for a job are unemployed. The unemployment rate is a lagging indicator, which means that rather than predicting changes in economic conditions, it often increases or decreases in response to them.

GDP per capita is a gross domestic product divided by midyear population. The GDP by state is collected from the US Bureau of Economic Analysis (BEA) (https://www.bea.gov/) and the population data is collected from the US Census (https://www.census.gov/). The World Bank

determines GDP at purchaser's prices as the total of the gross value contributed by all resident producers in the nation, plus any applicable product taxes, less any subsidies that are not reflected in the value of the items. It is estimated without considering natural resource depletion, deterioration, or manufactured asset depreciation. The GDP per capita used in this study is always expressed in US dollars.

Data on COVID-19 cases and deaths are gathered from the Centers for Disease Control and Prevention (CDC) (https://www.cdc.gov/). According to the CDC, a COVID-19 death is one in which the death certificate specifically lists COVID-19 or its associated complications as the cause of death. A person tested and found to have the COVID-19 virus is referred to as a COVID-19 case by the CDC.

3.1.2 PANEL DATA

Data used in the study is panel data, covering the period of 2020- 2022 and across all fifty (50) states in the United States of America. The period that was chosen was based on when COVID-19 occurred and the available data. The use of panel data in this study is justified by the advantages it offered over other types of series data. Panel data can better detect and measure effects that cannot be observed in cross- sectional or time series data. These data types have more degrees of freedom and less multicollinearity than cross sectional data. Panel data are better suited to study the dynamics of change and can better capture the complexity of human behavior than a single cross- sectional or time series data.

3.1.3 VARIABLES

Identifying an appropriate set of variables is the most critical step in empirical studies. Employment rate, GDP per capita, COVID-19 cases and deaths are used in this study to measure

of the impact of COVID-19 on employment rate in the different states in the United States of America.

Table 2: Variables, data, and sources of data

Variables	Data collected	Source
Unemployment	Unemployment rate percentage per state	U.S. Bureau of Labor Statistics (BLS)
Economic development	GDP per capita (millions)	US Bureau of Economic Analysis (BEA) US Census
Deaths	COVID-19 deaths	Centers for Disease Control and Prevention (CDC)
Cases	COVID-19 cases	Centers for Disease Control and Prevention (CDC)

Source: Author

3.2 METHODOLOGY

Descriptive statistics and the regression model are the analysis methods used in the study. In econometrics and other disciplines, a panel data model is a statistical technique used to examine data with both cross-sectional and time-series characteristics. Data is gathered from various subjects or entities in a panel data model across many time periods, creating a structured dataset where each topic is tracked periodically throughout time. Using this sort of data, we can evaluate the impact of time-varying and time-invariant factors on the dependent variable(s).

3.2.1 DESCRIPTIVE ANALYSIS

Descriptive statistics were used to summarize the unemployment rate data and other variables. This includes calculating means, standard deviations, and correlations to understand

the relationships between variables. This section provides some general features of the data that gives a preliminary insight of unemployment rate of the different regions and the COVID-19 cases and deaths. We look at the trends in the unemployment rate, GDP per capita, COVID-19 deaths and cases.

UNEMPLOYMENT RATE

The Table 3 below presents average (mean), median, standard deviation and maximum and minimum of unemployment rate (%) in the different regions in the United States of America. The tables show that among the five regions the Midwest had the lowest unemployment rate at 4.5% and Northeast and west had the highest unemployment at 5.6%. The pooled unemployment average is 5.19%. Southeast and Southwest both have an average of 5.14%.

The data reveals regional disparities in unemployment rates across the United States, with the West region experiencing both the highest maximum rate and the greatest variability. The Northeast region, on the other hand, shows a higher average and median unemployment rate but lower variability, indicating a relatively stable employment landscape within the region.

Table 3: Unemployment rate (percentage (%)

Regions	Pool	Northeast	Southeast	Midwest	Southwest	West
Mean	5.19	5.6	5.14	4.5	5.14	5.6
Median	4.6	5.5	4.55	4.05	4.1	5.2
Maximum	13.5	9.8	8.6	10	7.9	2.3
Minimum	2.1	2.5	2.6	2.1	2.9	13.5
Standard Dev.	2.13	2.1	1.8	1.97	1.7	2.58

Source: U.S. Bureau of Labor Statistics

The figure below represents the pattern over the study period.

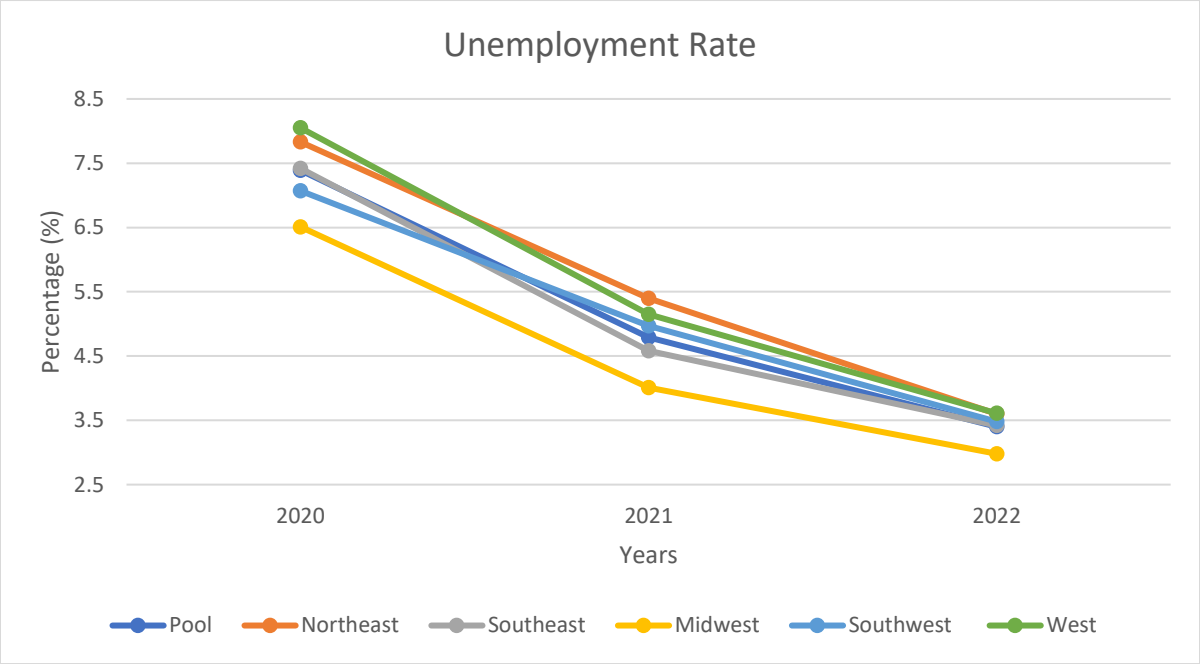

Figure 2: Unemployment Rate

Figure 2 shows that the average unemployment rate Midwest had the lowest rate in 2020 at 6.51% and declined to 2.98%. The unemployment rate fluctuated 3.5% in 2022 for all regions. The pooled data for all regions show that 7.39% was the average unemployment rate in the United States in 2020, it then decreased to 4.79% in 2021 and further decreased to 3.4% in 2022. The West had the highest average at 8.05 in 2020. In 2021 all regions had a significant decline of approximately 2% in 2021 and an approximately another 1% in 2022.

The average unemployment rates across all regions experienced a notable decline over the three-year period from 2020 to 2022. This trend indicates an overall improvement in labor market conditions and economic recovery following the challenges posed by the COVID-19 pandemic.

While there is a general downward trend in unemployment rates, there are regional variations. In 2020, the Northeast had the highest average unemployment rate at 7.83%, while

the Midwest had the lowest at 6.51%. However, by 2022, the Midwest had the lowest average unemployment rate at 2.98%, while the West had the highest at 3.61%. These regional disparities suggest differing economic conditions and recovery trajectories.

The higher unemployment rates observed in 2020 can be attributed to the initial shock of the COVID-19 pandemic, which led to business closures, layoffs, and economic uncertainty. Subsequently, the implementation of stimulus measures, vaccination campaigns, and the easing of restrictions contributed to the decline in unemployment rates.

The decreasing trend in unemployment rates from 2020 to 2022 reflects the gradual recovery of the labor market as businesses reopened and economic activity resumed. Lower unemployment rates in 2022 indicate a more stable and robust job market, potentially driven by increased consumer confidence and business growth.

The Midwest and Southwest regions demonstrated resilience, with consistently lower unemployment rates compared to other regions. This resilience could be attributed to diversified economies, strong manufacturing sectors, and effective economic policies.

In summary, the average unemployment rates across U.S. regions declined steadily from 2020 to 2022, indicating overall labor market improvement and economic recovery. However, regional variations persist, reflecting distinct economic conditions and recovery trajectories in various parts of the country.

COVID-19 CASES

COVID-19 cases played a crucial role in the unemployment rate between 2020 to 2022. Table 4 shows the average (mean), median, standard deviation, maximum and minimum of COVID-19 cases per quarter in the different regions in the United States.

Southwest region has the highest average COVID-19 cases followed by Southeast. Southwest cases are 0.6 percent greater than Northeast region which has the lowest average. The

West had the highest maximum and Southeast had the lowest minimum per quarter of the year. From these results COVID-19 cases had the highest quarter in the West but the highest average was in the Southwest.

The data highlights significant regional disparities in the total number of COVID-19 cases across the United States, with the West region experiencing both the highest maximum cases and the greatest variability. The Southeast region, on the other hand, shows a higher average and median number of cases but lower variability, indicating a relatively consistent COVID-19 case count within the region.

Table 4: COVID-19 Cases

Regions	Pool	Northeast	Southeast	Midwest	Southwest	West
Mean	166471.8	141670.2	200406.38	142947.32	230057.81	151403.77
Median	75250.5	53180.5	116462.5	79825	117294	41973.5
Maximum	3672690	1657048	1977255	947421	2196449	3672690
Minimum	39	52	39	41	113	44
Standard Dev.	285823.8	227120.26	163718.58	167760.75	350250.3	396041.58

Source: Centers for Disease Control and Prevention

Figure 3 shows that the COVID-19 cases increased in all regions. Over the three-year period from 2020 to 2022, the total number of COVID-19 cases in the United States exhibited a notable trend of growth. In 2020, there were 19,475,797 reported cases nationwide. This number significantly surged in 2021 to reach 33,428,582 cases, marking a substantial increase of approximately 71.77% compared to the previous year. While the upward trajectory persisted in 2022, the rate of growth somewhat moderated. By 2022, the total cases reached 46,978,729, indicating a further increase of approximately 40.32% compared to 2021.

In 2022, when examining the distribution of COVID-19 cases across different regions of the United States, distinct patterns emerged. The Northeast region reported 7,762,021 COVID-19 cases, reflecting the pandemic's presence in this area. Meanwhile, the Southeast, with its larger population, recorded the highest number of cases among all regions, totaling 10,972,506 cases.

A closer examination of regional trends over the three years reveals important insights. The Northeast, which initiated 2020 with 3,001,369 cases, experienced steady growth through 2021, reaching 6,731,495 cases, and continuing to 7,762,021 cases in 2022. Similarly, the Southeast region saw its case numbers rise from 4,518,810 in 2020 to 8,557,450 in 2021, and ultimately to 10,972,506 in 2022. The Midwest maintained relatively stable numbers throughout this period, starting with 4,902,215 cases in 2020, which increased to 7,040,971 in 2021 and 8,641,228 in 2022. In the Southwest, cases started at 3,227,072 in 2020, surged to 5,325,866 in 2021, and further increased to 8,011,225 in 2022. The West region reported 3,826,331 cases in 2020, 5,772,800 in 2021, and 10,386,167 in 2022.

The data clearly illustrates a consistent trend of increasing COVID-19 cases from 2020 to 2021, characterized by substantial growth rates. However, in 2022, although the number of cases continued to rise, the rate of growth notably moderated compared to the previous year.

Regionally, the Southeast consistently reported the highest number of cases, surpassing other regions in all three years. The West region, while not the highest in 2021, notably recorded the highest number of cases in 2022. The Northeast, although experiencing significant case growth, did so at a slower rate in 2022. The Midwest and Southwest regions also exhibited increases in cases, reflecting the broader national trend.

The data's persistence of COVID-19 cases in 2022 underscores the ongoing challenges in effectively managing the pandemic, despite extensive vaccination efforts and public health

measures. Regional variations in case numbers may be influenced by factors such as differences in vaccination rates, the implementation of public health measures, and population density.

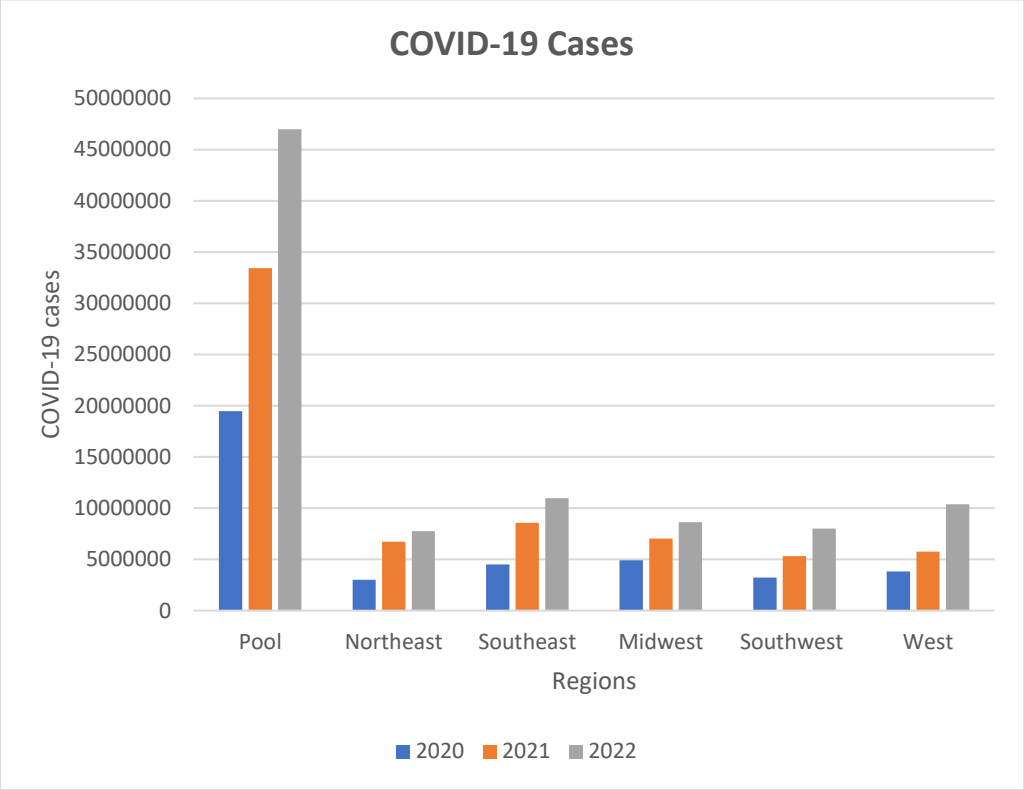

Figure 3: COVID-19 Cases

COVID-19 DEATHS

According to literature COVID-19 deaths played a crucial role in the unemployment rate between 2020 to 2022. Table 5 shows variations among the regions in terms of the mean, median, maximum, and minimum values. The Southeast and Southwest regions have relatively high mean and median values, while the West region has the lowest values. Additionally, the presence of zero values in several regions suggests a certain level of variability or diversity in the data distribution.

The data highlights significant regional disparities in the total number of COVID-19 deaths across the United States, with the Northeast and Southeast regions experiencing the highest maximum deaths.

The Southeast region, on the other hand, shows both the highest mean and median number of deaths, indicating a relatively higher average death count within the region. The variability in COVID-19 deaths, as measured by standard deviation, varies across regions, with the Southeast region exhibiting the highest variability.

Table 5: COVID-19 Deaths

Regions	Pool	Northeast	Southeast	Midwest	Southwest	West
Mean	1799.42	1710.86	2309.75	1577.167	2541.13	1261.94
Median	766.5	517	1546	796.5	1321.5	385.5
Maximum	34529	34529	15807	8998	20304	33085
Minimum	0	0	0	0	1	0
Standard Dev.	3123.37	3771.03	2631.56	1982.15	3733.40	3370.17

Source: Centers for Disease Control and Prevention

Figure 4 shows that across the three-year period from 2020 to 2022, the total number of COVID-19 deaths in the United States exhibited fluctuating trends. In 2020, there were 352,298 reported deaths nationwide. This number increased in 2021, reaching 467,926 deaths, marking a significant rise of approximately 33.02% compared to the previous year. However, in 2022, the trend shifted as the total deaths decreased to 259,429, representing a notable decline of approximately 44.58% compared to 2021.

In 2022, examining the distribution of COVID-19 deaths across different regions of the United States reveals varying patterns. The Northeast region reported 47,850 COVID-19 deaths,

while the Southeast, with its larger population, recorded the highest number of deaths among all regions, totaling 69,377 deaths.

A closer look at regional trends over the three years provides additional insights. The Northeast region began 2020 with 104,309 deaths, and this number increased to 73,675 deaths in 2021 before declining to 47,850 deaths in 2022. In the Southeast region, deaths started at 73,178 in 2020, surged to 134,615 in 2021, and decreased to 69,377 in 2022. The Midwest maintained relatively stable numbers throughout this period, starting with 82,520 deaths in 2020, which increased to 87,199 in 2021 and then decreased to 57,393 in 2022. The Southwest also followed a similar pattern, with deaths starting at 51,287 in 2020, increasing to 90,813 in 2021, and then declining to 40,861 in 2022. The West region reported 41,004 deaths in 2020, 81,624 deaths in 2021, and 43,948 deaths in 2022.

The data illustrates an initial surge in COVID-19 deaths from 2020 to 2021, marked by significant growth rates. However, in 2022, there was a notable decrease in the number of deaths, indicating a reversal of the previous trend.

Regionally, the Southeast consistently reported the highest number of deaths, surpassing other regions in all three years. The Northeast, while initially high in 2020, experienced a substantial decline in deaths by 2022. The Midwest and Southwest regions also showed fluctuations in death numbers, following the broader national trend. The West region, although not the highest in any year, reported varying numbers of deaths.

The data reflects the changing dynamics of the COVID-19 pandemic, with an initial surge in deaths followed by a significant decrease in 2022. This decrease could be attributed to vaccination efforts, public health measures, and improved treatments. Regional variations in death numbers may be influenced by factors such as healthcare infrastructure, population

density, vaccination rates, and the timing and severity of COVID-19 waves. These variations emphasize the need for ongoing public health interventions and vaccination campaigns to mitigate the impact of the virus and protect public health.

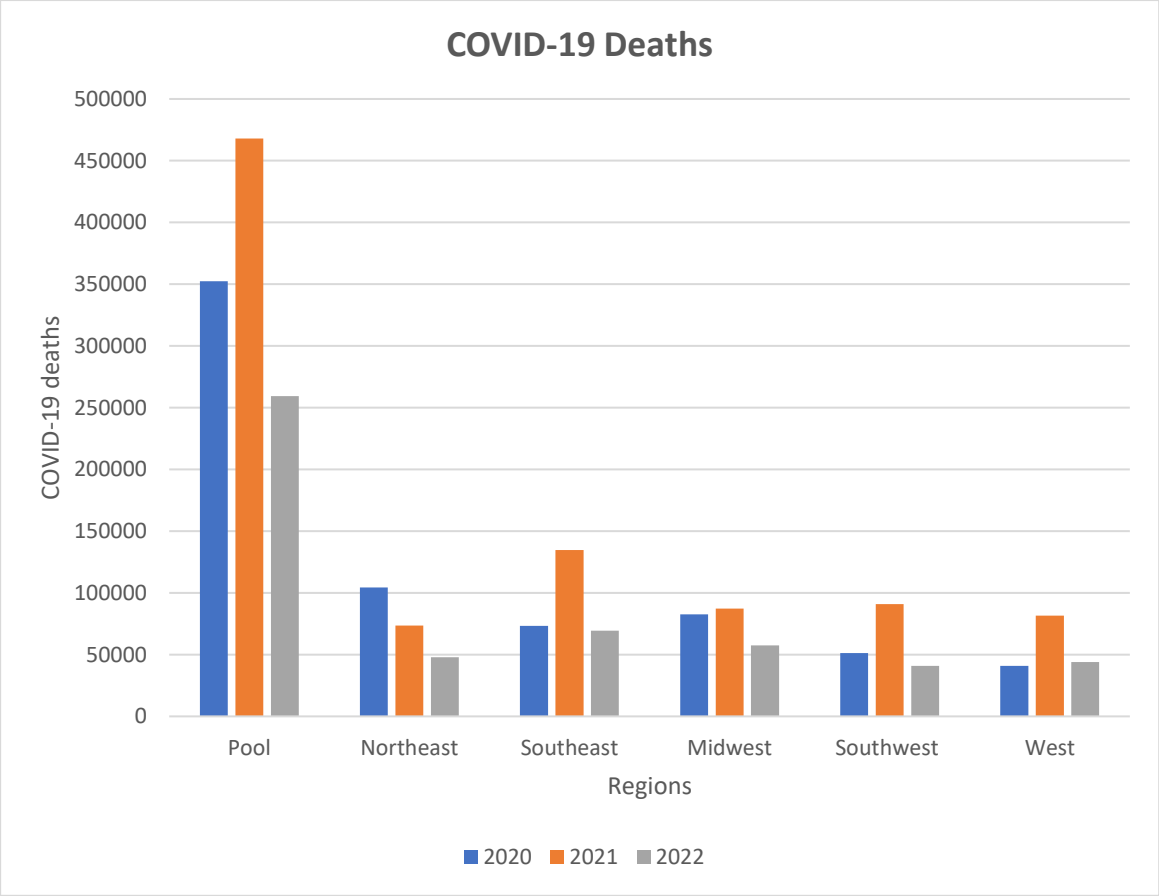

Figure 4: COVID-19 Deaths

GDP PER CAPITA

Table 6 displays the averages, medians, standard deviations, maximum, and minimum GDP per capita values for the various US regions. The research indicates differences in GDP per capita between geographical areas. With the highest mean and median numbers, the Northeast area stands out as having better economic success. The lowest mean and median values, on the other hand, are found in the Southeast, which is consistent with poorer economic success. The standard deviation numbers demonstrate the degree of variation present in each region, with the

pool and West regions exhibiting the highest levels of variation in the statistics on GDP per capita. In the graph below, the average GDP per capita was greater in all areas in 2022 and lower in 2020**.**

The data illustrates significant variations in GDP per capita across different regions of the United States, with the Northeast region having the highest mean and maximum income levels. Income distribution within regions appears to be relatively balanced, as indicated by median values close to the mean. Some regions, such as the Southeast, exhibit lower income variability, suggesting a more consistent income distribution, while the West region has higher income variability.

Table 6: GDP per capita

Regions	**Pool**	**Northeast**	**Southeast**	**Midwest**	**Southwest**	**West**
Mean	65134.24	73057.42	54516.18	67179.67	57811.39	68626.73
Median	63446.1	72000.74	54307.01	66843.63	55711.27	67588.61
Maximum	105226.5	105226.49	69834.52	96462.29	79995.71	93977.76
Minimum	35957.62	48572.96	35957.62	46690.8	41804.66	42971.83
Standard Dev.	12864.41	13588.03	7719.34	9141.89	9815.86	12712.61

Source: US Bureau of Economic Analysis

Figure 5 displays the variation in GDP per capita across the different regions. The GDP per capita for each region increased between 2020-2022. Southeast states had the lowest GDP per capita than followed by Southwest states. Northwest states had the highest average GDP per capita than other regions.

The data shows a general trend of GDP growth across all U.S. regions from 2020 to 2022. This economic expansion likely reflects the gradual recovery from the economic impacts of the COVID-19 pandemic. While all regions experienced growth, there are notable differences in the pace and extent of economic recovery. The Northeast, Southeast, Midwest, Southwest, and West regions all saw increases in GDP over this period.

The Northeast region, which includes states like New York and Massachusetts, started with the highest GDP in 2020 and continued to experience robust economic growth in 2021 and 2022. The presence of major financial centers and technology hubs likely contributed to this economic resilience. The Southeast region, encompassing states like Florida and Georgia, also displayed significant GDP growth. The region's diverse industries, including tourism, manufacturing, and technology, contributed to its economic recovery. The Midwest, known for its manufacturing and agriculture, showed steady GDP growth. The region's stability in these essential sectors likely contributed to its economic performance. The Southwest and West regions, including states like Texas and California, experienced growth, albeit at varying rates. The energy sector's performance in Texas and the technology sector's influence in California played significant roles in these regions' economic trajectories.

Government stimulus measures and relief programs may have contributed to the economic rebound observed in many regions. These initiatives aimed to support individuals, businesses, and industries affected by the pandemic's economic disruptions. Variations in economic growth among regions could be attributed to the composition of their industries, resilience, and adaptability. Regions heavily reliant on sectors such as technology, healthcare, and finance seemed better positioned for recovery.

In conclusion, the data demonstrates a positive economic trend with GDP growth across U.S. regions from 2020 to 2022. While the recovery has been broad-based, regional disparities exist, influenced by the diversity of industries and the ability to adapt to changing economic conditions.

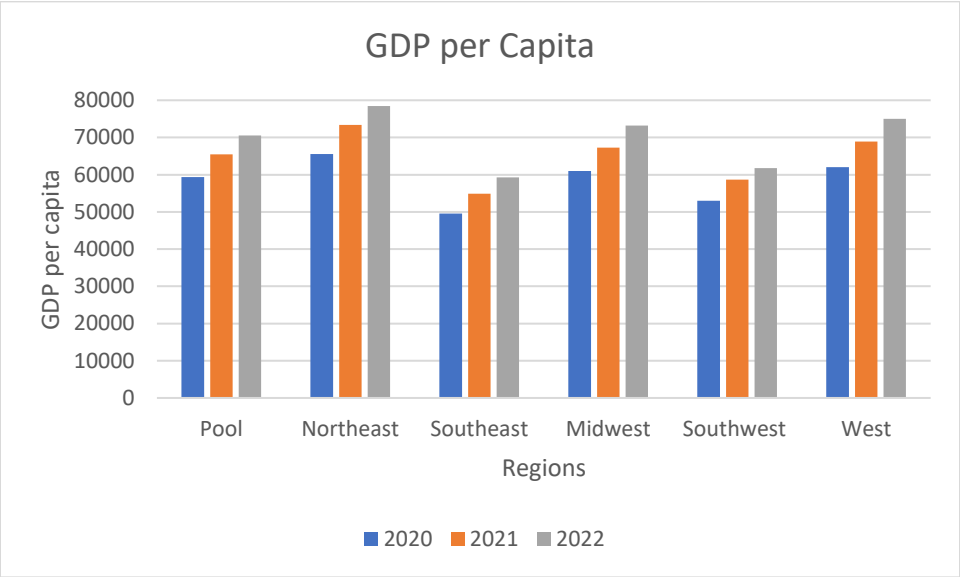

Figure 5: GDP per Capita

CORRELATION ANALYSIS

In the regression model, there may be correlation among the independent variables and therefore multicollinearity problems. Therefore, this study provides correlation analysis among explanatory variables.

The correlation matrix reveals several interesting relationships among key variables. The unemployment rate exhibits a very weak negative correlation of approximately -0.037 with COVID-19 cases (-0.037), implying that areas with slightly higher unemployment rates tend to report slightly fewer COVID-19 cases.

Conversely, there is a weak positive correlation of approximately 0.179 between unemployment rates and COVID-19 deaths (0.179), suggesting that regions with higher

unemployment may experience slightly more COVIS-19 related deaths. Meanwhile, GDP per capita demonstrates a moderate negative correlation of approximately -0.173 with unemployment rates (-0.173), indicating that economically prosperous regions tend to have lower unemployment rates.

Additionally, there is a moderate positive correlation of approximately 0.229 between GDP per capita and COVID-19 cases (0.229), implying that wealthier areas report more COVID-19 cases. Finally, there is a strong positive correlation of approximately 0.645 between COVID-19 cases and COVID-19 deaths (0.645), emphasizing that regions with more reported COVID-19 cases also tend to have more COVID-19 related deaths.

These findings provide valuable insights into the interplay between economic indicators, COVID-19 statistics, and highlight the complex dynamics at play during the pandemic. The correlation matrix presented in table 7 shows that there is a correlation, but this correlation is low in most variables. Therefore, the risk of multicollinearity issues is likely to be low.

Table 7: Matrix of Correlation

	Unemployment Rate	COVID-19 Cases	COVID-19 Deaths	GDP per capita
Unemployment Rate	1			
COVID-19 Cases	-0.037172257	1		
COVID-19 Deaths	0.179236267	0.645453392	1	
GDP per Capita	-0.172970247	0.229280273	0.075230732	1

Source: Author

3.2.2 REGRESSION ANALYSIS

A multiple linear regression model was utilized in this investigation. It investigates the link between the dependent variable, the unemployment rate, and three independent variables: COVID-19 cases, COVID-19 deaths, and GDP per capita. The multiple regression equation below is developed to examine respectively the effects of COVID-19 deaths and cases on unemployment rate, the effects of COVID-19 deaths and cases on GDP per capita of USA states and the effects of COVID-19 deaths and cases on unemployment rate and GDP per capita.

$$LN\_UNEMPLOYMENTRATE_{ti} = \beta_0 + \beta_1 LN\_COVID19CASES_{ti} + \beta_2 LN\_COVID19DEATHS_{ti} + \beta_3 LN\_GDP\_PERCAPITA_{ti} + \mu_{ti}$$

Codes	Explanation
LN_UNEMPLOYMENTRATE	Unemployment rate (percentage %)
LN_COVID19CASES	COVID-19 cases (per person)
LN_COVID19DEATHS	COVID-19 deaths (per person)
LN_GDP_PERCAPITA	GDP per capita (USD)
μ	Error terms
i	State
t	Year

3.2.3 COMPARATIVE ANALYSIS

Table 8 provides a comparative analysis of unemployment rates in various regions of the United States, both before the COVID-19 pandemic in 2019 and during the pandemic in 2020. This data sheds light on how the labor markets in different regions were impacted by the pandemic, offering valuable insights into the economic consequences of this global crisis.

The unemployment rate in the Northeast increased dramatically from 3.309% in 2019 to 7.827% in 2020, representing a significant improvement of 4.518%. This substantial rise highlights the serious economic disruption the pandemic in the Northeast has brought about. Due to the lockdowns and decreased economic activity, businesses had to close, which resulted in significant employment losses.

Like the Northeast, the Southeast had a considerable increase in unemployment. The unemployment rate was 3.920% in 2019, however it increased to 7.420% in 2020, marking a 3.5% improvement. This significant rise underscores the difficulties the Southeast is dealing with, particularly the pandemic-related interruptions to its industrial, tourism, and supply networks.

A significant increase in unemployment was also seen in the Midwest, where the rate increased from 3.367% in 2019 to 6.508% in 2020, a rise of 3.141%. Due to lockdowns and decreased consumer spending, the pandemic's effects on Midwest industries including manufacturing and agriculture led to this increase in unemployment.

The unemployment rate has increased in the Southwest area as well. The unemployment rate was 3.783% in 2019 and increased to 7.067% in 2020, a decrease of 3.284%. The increase in unemployment was a result of the area's reliance on the tourist and technology sectors, which were both negatively damaged by the pandemic.

The rate of unemployment in the West area also increased significantly, rising from 3.591% in 2019 to 8.045% in 2020, a difference of 4.454%. The pandemic's economic hardships in the West, notably in the technology and entertainment industries, contributed to this sharp increase in unemployment.

In conclusion, Table 8 highlights the significant and broad economic effects of the COVID-19 pandemic on unemployment rates throughout different American areas. Due to company closures, supply chain disruptions, and decreased consumer spending caused by the pandemic, all areas suffered significant increases in unemployment throughout the year 2020.

Table 8: Unemployment rate without (2019) and with (2020) COVID-19 pandemic in United States

Regions	Without COVID-19 in 2019(%)	With the COVID-19 in 2020 (%)	Change	Change
Northeast	3.309	7.827	4.518	Positive
Southeast	3.920	7.420	3.5	Positive
Midwest	3.367	6.508	3.141	Positive
Southwest	3.783	7.067	3.284	Positive
West	3.591	8.045	4.454	Positive

Source: Author's calculations

In Table 9, the unemployment rates in several American areas are compared between the years before the COVID-19 pandemic in 2019 and the years after the pandemic in 2021. This information offers insightful analyses of the shifting job environment and how it was impacted by the pandemic in various geographic areas.

The Northeast saw an increase in the unemployment rate from 3.309% in 2019 to 5.355% in 2021, a gain of 2.046%. This improvement suggests that unemployment increased significantly during the pandemic. Despite having a broad and strong economy, the Northeast was not exempt from the pandemic's economic issues, with lockdowns having an adverse effect on companies and tourists.

Similar to the Northeast, the Southeast saw an increase in unemployment. The unemployment rate was 3.920% in 2019 and rose to 4.580% in 2021, being a rise of 0.66%. This rise indicates how the pandemic affected the Southeast, notably how the region's tourist industry suffered because of travel restrictions and health worries.

The Midwest saw an increase in unemployment rates as well. The Midwest's unemployment rate climbed from 3.367% in 2019 to 4.008% in 2021, representing a rise of 0.641%. Despite the area's traditional emphasis on manufacturing and agriculture, the pandemic's difficulties had an impact on the service sector because of lockdowns and decreased consumer spending.

Similar trends were observed in the Southwest area, where the jobless rate increased from 3.783% in 2019 to 4.967% in 2021, a rise of 1.184%. This rise was influenced by the pandemic's effects on the tourism and hospitality sectors in areas like Arizona and Nevada. The unemployment rate in the West area rose from 3.591% in 2019 to 5.145% in 2021, representing a rise of 1.554%. Silicon Valley and other innovation and technology hotspots in the West encountered difficulties during the pandemic, with technology firms effectively implementing remote work while the entertainment sector experienced setbacks.

In conclusion, Table 9 illustrates how the COVID-19 pandemic affected unemployment rates in several US locations. Due to the pandemic's extensive economic effects, unemployment

rates increased across the board, albeit to various degrees. The results emphasize how crucial it is to comprehend regional differences in the labor market's reaction to the pandemic and the necessity for focused economic measures to tackle these issues.

Table 9: Unemployment rate without (2019) and with (2021) COVID-19 pandemic in United States

Regions	**Without COVID-19 in 2019 (%)**	**With the COVID-19 in 2021(%)**	**Change**	**Change**
Northeast	3.309	5.355	2.046	Positive
Southeast	3.920	4.580	0.66	Positive
Midwest	3.367	4.008	0.641	Positive
Southwest	3.783	4.967	1.184	Positive
West	3.591	5.145	1.554	Positive

Source: Author's calculations

The unemployment rates in several US areas are contrasted in Table 10 before and after the COVID-19 pandemic in 2019 and 2022, respectively. This information sheds light on how the pandemic and subsequent economic recovery affected the labor markets in various regions of the nation.

The Northeast had a modest increase in the unemployment rate from 3.309% in 2019 to 3.582% in 2022, a rise of 0.273%. Although the shift is good and shows a minor increase in unemployment, it is still rather small. This shows that the Northeast showed resilience in the face of economic hardships and was able to maintain relatively consistent employment levels throughout the pandemic.

On the other hand, the Southeast saw a notable decline in its unemployment rate. The unemployment rate was 3.920% in 2019, and it dropped to 3.470% in 2022, a decline of -0.450%. This decrease shows that the Southeast managed to lower its unemployment rates during the pandemic, showing a promising development in the region's labor market recovery.

The Midwest region's unemployment rates similarly showed a dip, falling from 3.367% in 2019 to 2.983% in 2022, a decrease of -0.384%. The work market in the area has significantly improved as evidenced by the fact that in 2022 there were less unemployed individuals than there were before the pandemic.

Similar improvements were made in the Southwest area, where unemployment fell from 3.783% in 2019 to 3.483% in 2022, a negative change of -0.300%. This shows that the Southwest successfully managed its labor market during the pandemic, enhancing job opportunities for its citizens. With the rate growing from 3.591% in 2019 to 3.609% in 2022, the West had a negligible increase in unemployment, marking a positive change of 0.018%. Although the improvement is favorable, it is not very significant, indicating that the West region's labor market remained comparatively stable during the pandemic.

In conclusion, Table 10 shows how the COVID-19 pandemic has had a variety of effects on unemployment rates across the United States. The job markets in the Southeast, Midwest, and Southwest saw improvements and declining unemployment rates because of effective solutions to the pandemic's economic obstacles. On the other hand, while in very tiny amounts, jobless rates increased in the Northeast and West areas.

Table 10: Unemployment rate without (2019) and with (2022) COVID-19 pandemic in United States

Regions	Without COVID-19 in 2019(%)	With the COVID-19 in 2022 (%)	Change	Change
Northeast	3.309	3.582	0.273	Positive
Southeast	3.920	3.470	-0.450	Negative
Midwest	3.367	2.983	-0.384	Negative
Southwest	3.783	3.483	-0.300	Negative
West	3.591	3.609	0.018	Positive

Source: Author's calculations

3.2.4 CORRELATION ANALYSIS

The Pearson correlation coefficient data are shown in Table 11, which illustrates how variables are related to one another across different US areas. The correlation matrix provides insightful information on how these elements interacted during the COVID-19 pandemic. The study yields a few interesting findings.

First, a surprising trend may be seen in the association between the unemployment rate and COVID-19 cases. There is a negative association across all areas, suggesting that places with more COVID-19 cases typically have lower unemployment rates. This surprising discovery may be explained by elements like pandemic-resistant sectors and remote jobs.

Second, there are geographical differences in the relationship between the unemployment rate and COVID-19 deaths. There is a significant association between COVID-19 death rates and unemployment rates in the Northeast and Midwest, indicating that these regions often have

higher COVID-19 death rates. On the other hand, the Southeast has a negative correlation, indicating a different tendency. The Southwest and West, on the other hand, show lesser correlations, pointing to a less obvious relationship between these factors.

Third, there is an inconsistently modest positive association between the unemployment rate and GDP per capita across all areas. This implies that areas with greater economic development often experience a minor increase in jobless rates. The relationships, however, are often weak, highlighting the probability that other important variables may have an impact on unemployment rates during the pandemic.

The correlation matrix, considering the complex interactions between variables in various locations, reveals the myriad mechanisms affecting unemployment rates in the context of the COVID-19 pandemic.

Table 11: Correlation Matrix

		Unemployment Rate	**COVID-19 Cases**	**COVID-19 Deaths**	**GDP per Capita**
Northeast	Unemployment rate	1			
	COVID-19 cases	-0.005	1		
	COVID-19 deaths	0.033	0.043	1	
	GDP per capita	0.002	0.465	0.136	1
Southeast	Unemployment rate	1			
	COVID-19 cases	-0.276	1		
	COVID-19 deaths	-0.087	0.785	1	
	GDP per capita	-0.547	0.369	0.252	1

Midwest	Unemployment rate	1			
	COVID-19 cases	0.159	1		
	COVID-19 deaths	0.425	0.820	1	
	GDP per capita	-0.576	-0.040	-0.287	1
Southwest	Unemployment rate	1			
	COVID-19 cases	-0.127	1		
	COVID-19 deaths	0.103	0.729	1	
	GDP per capita	-0.348	0.417	0.331	1
West	Unemployment rate	1			
	COVID-19 cases	0.003	1		
	COVID-19 deaths	0.137	0.675	1	
	GDP per capita	-0.124	0.381	0.288	1

3.2.5 GEOGRAPHICAL ANALYSIS

Geographical analysis was conducted to examine regional variations in the unemployment rate and how COVID-19 impact differed across states and regions.

The analysis aimed to provide insights into the impact of COVID-19 on the labor market, specifically the unemployment rate, and to understand the influence of GDP per capita on unemployment during the pandemic.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 RESULTS AND DISCUSSIONS

4.1.1 COVID-19 EFFECTS ON UNEMPLOYMENT RATE – POOLED ANALYSIS

The panel data analysis conducted in this study has yielded significant findings that provide valuable insights into the complex relationship between several factors and the unemployment rate across various states. These findings illuminate intriguing trends and connections, shedding light on how different variables impact unemployment rates.

Firstly, the study reveals robust connections between COVID-19 variables and the unemployment rate. Notably, COVID-19 cases exhibited a solid negative coefficient of -0.054 at a 1% significant level. This suggests that there was an unexpected inverse relationship between the unemployment rate and the number of COVID-19 cases, indicating that businesses and policymakers initially did not respond to the increasing cases of COVID-19. During this period of rising cases, it appears that many businesses continued operating as usual, and employees continued to work. It was the subsequent increase in COVID-19 deaths that eventually prompted state authorities to implement lockdown measures. The rise in cases did not immediately lead to changes in business operations or employment practices.

COVID-19 deaths displayed a positive coefficient of 0.025 at a 10% significant level. This positive relationship indicates that higher COVID-19 death tolls were associated with increased unemployment rates. This outcome aligns with expectations, as a rising number of COVID-19 deaths likely prompted stricter public health measures, including business closures and stay-at-home orders, leading to higher unemployment rates.

Another significant finding relates to GDP per capita, which exhibited a robust negative coefficient of -3.017 at a 1% significant level. This indicates that the unemployment rate tends to decrease as GDP per capita increases. This outcome was anticipated, as regions with higher GDP per capita typically offer more job opportunities, resulting in lower unemployment rates. It underscores the importance of economic prosperity in mitigating unemployment challenges.

However, this regression analysis utilizes a pooled model, which provides a broad overview of the general effects of these variables on the unemployment rate. It is essential to acknowledge that the impact of these variables may vary among states, and smaller states or those less affected by the pandemic could be overshadowed by larger states with denser populations, which contribute more data to the analysis.

Table 12: The effects of COVID-19 on the different states in the United States of America

Variable	Coefficient	Std. Error	P-value
Constant	35.381	1.262	0.081
COVID-19 cases	-0.054***	0.013	0.000
COVID-19 deaths	0.025*	0.012	0.044
GDP per capita	-3.017***	0.118	0.000
	R Squared: 0.82	Observations:593	

*, **, *** significant indices at 10%, 5% and 1% respectively

Source: Author

4.1.2 COVID-19 EFFECT ON UNEMPLOYMENT RATE- REGIONAL ANALYSIS

COVID-19 impacts almost every aspect of the economy, including the labor market. There are too many jobless people in these five US regional economies. These economies are juggling two problems at once. Due to the lockout and closure of countless businesses, most of the employed populace has lost their jobs, and those still employed work fewer hours. Both

reduced purchasing power and poverty are correlated with unemployment. The other problem is that COVID-19-related illnesses cost families money in medical expenses. Thus, individuals already below the poverty line and low-skilled workers must face the weight of this situation.

With a focus on COVID-19 cases, COVID-19 deaths, and GDP per capita as explanatory variables, the research looked at how COVID-19 affected various regions of the United States. The results show varied patterns in how these factors affect unemployment rates in various locations.

The regression output analysis for Northeastern states reveals exciting insights into the relationship between COVID-19 factors and unemployment rates in this region. The negative coefficient of -0.278 for COVID-19 cases, significant at a 1% level, is unexpected at first glance. This suggests that as COVID-19 cases increase, the unemployment rate decreases. However, this counterintuitive finding can be attributed to varying policies and responses among Northeastern states. One possible explanation for this result is the differences in timing and strictness of shutdown policies. Some states in the Northeast region may have implemented early and stringent shutdown measures when COVID-19 cases began to rise. While impacting economic activity initially, these measures helped control the virus spread more effectively, leading to a quicker recovery and lower unemployment rates in the long run.

On the other hand, COVID-19 deaths had a positive coefficient of 0.252 at a 1% significant level, aligning with expectations. As COVID-19 deaths increased, the unemployment rate also increased. This outcome can be explained by the fact that as the death toll rises, businesses may choose to shut down temporarily or reduce operations due to health concerns, resulting in job losses.

Additionally, the positive coefficient of 0.581 for GDP per capita, significant at a 1% level, indicates that unemployment rates also rise as GDP per capita increases. This result may be due to the Northeast's diverse economy, including finance, healthcare, and technology sectors. An increase in GDP per capita could reflect economic growth in these industries during the COVID-19 pandemic, which may have occurred while industries utilized remote workers and online shopping; this would reduce the number of individuals needed and increase the unemployment rate.

The availability and popularity of remote work options in industries such as banking, technology, and education played a crucial role in mitigating the impact of COVID-19 on unemployment rates in the Northeast. States like New York and Massachusetts, with a significant presence of IT businesses and universities, were better equipped to transition to remote work arrangements, which could have contributed to the region's lower unemployment rates over time.

In the Southeastern states, a similar pattern emerged when examining the impact of COVID-19 variables on unemployment rates. However, the magnitude of these effects differed from those observed in the Northeastern states. COVID-19 cases had a negative coefficient of -0.185 at a 1% significant level, indicating that as COVID-19 cases increased, the unemployment rate tended to decrease. COVID-19 deaths, on the other hand, had a positive coefficient of 0.140 at a 1% significant level, suggesting that higher death tolls were associated with increased unemployment rates. However, these effects in the Southeastern states were somewhat less pronounced than in the Northeastern states.

Several factors could explain these differences. First, the Southeastern region might have a more diversified economy, including industries like manufacturing, agriculture, and tourism,

which responded differently to the pandemic compared to the Northeast's economy. The presence of essential industries that remained operational, such as agriculture, could have contributed to maintaining some level of employment even during the pandemic.

Moreover, state-specific policies in the Southeast might have played a significant role. Some states in this region had fewer labor protections and social services, potentially affecting unemployment rates differently. Defining specific industries as essential allowed them to continue production and maintain employment, even amid the pandemic and stay-at-home orders.

Population density also played a role in shaping economic outcomes. The Southeastern region encompasses densely populated urban areas and rural regions, leading to variations in how the virus spreads and how states implement stay-at-home policies.

Furthermore, the adaptability of different industries to remote work likely had varying effects in this region. While some sectors could transition to remote work effectively, others, such as tourism and agriculture, needed to be more adaptable in this regard, potentially influencing the impact of COVID-19 on unemployment rates.

In the Midwestern states, a similar trend emerged when assessing the impact of COVID-19 variables on unemployment rates. COVID-19 cases had a negative coefficient of -0.193 at a 1% significant level, indicating that unemployment rates tended to decrease as the number of COVID-19 cases increased. Conversely, COVID-19 deaths had a positive coefficient of 0.217 at a 1% significant level, suggesting that higher death tolls were associated with increased unemployment rates. This pattern aligns with what was observed in the Northeastern and Southeastern states, reflecting a typical response of businesses to the rising death toll by closing or transitioning to remote work.

Moreover, the impact of GDP per capita on unemployment rates in the Midwest was notable, with a negative coefficient of -1.218 at a 1% significant level. This suggests that as GDP per capita increased, unemployment tended to decrease. This outcome implies that wealthier states within the Midwest were more successful in reducing unemployment, possibly due to their capacity to invest in remote work infrastructure and adapt to changing economic conditions.

A robust industrial and agricultural foundation characterized the Midwest's economic landscape, but it faced challenges related to global trade and fluctuating commodity prices. Additionally, the region's mix of conservative and progressive political ideologies influenced labor laws and social programs, resulting in state unemployment rate variations.

Population density also shaped the dynamics of disease transmission, which differed across the Midwest due to varying population densities. As in other regions, the response to stay-at-home regulations varied, with some states implementing strict measures while others adopted more lenient approaches.

The availability of remote employment in the Midwest exhibited disparities across states, with specific industries like manufacturing and agriculture less adaptable to remote work. These differences likely contributed to the diverse patterns in unemployment rates observed within the region.

In the Southwest states, a distinctive pattern emerged when assessing the impact of COVID-19 variables on unemployment rates. COVID-19 cases had a negative coefficient of -0.177 at a 1% significant level, indicating that unemployment rates tended to decrease as the number of COVID-19 cases increased. Similarly, to other regions, COVID-19 deaths had a positive coefficient of 0.160 at a 1% significant level, suggesting that higher death tolls were associated with increased unemployment rates. This pattern underscores the typical response of

businesses to rising COVID-19 deaths by scaling down operations or transitioning to remote work.

However, the analysis revealed an intriguing result regarding GDP per capita in the Southwest. It had a negative coefficient of -0.370, but the result was not statistically significant, implying that economic factors might not have played a dominant role in shaping the labor market during the pandemic in this region. The relatively lower number of observations in the Southwest compared to other regions could contribute to the need for more statistical significance in this case.

The Southwest region exhibited notable economic stability differences during the pandemic, reflecting its diverse economic landscape encompassing significant energy resources, tourism, and technology industries. The region's policies, which spanned conservative and liberal principles and prominent positions in various sectors, influenced economic fluctuations.

Population density also shaped the dynamics of disease transmission within the Southwest, featuring densely populated cities and sparsely populated desert areas. These variations impacted the coefficients and contributed to diverse unemployment patterns.

Furthermore, the Southwest exhibited varying degrees of adoption of remote work, primarily influenced by the dominant economic sectors in each state. While some states relied heavily on industries like energy and tourism, others with a solid technological presence had more significant opportunities for remote employment. The positive constant coefficient may reflect the initial economic challenges less adaptable regional industries face.

In the West states, a consistent pattern emerged when examining the impact of COVID-19 variables on unemployment rates. COVID-19 cases exhibited a negative coefficient of -0.325 at a 1% significant level, indicating that unemployment rates tended to decrease as the number of

COVID-19 cases increased. This trend mirrors the findings observed in other regions, suggesting a typical response by businesses to rising COVID-19 cases, possibly involving scaled-down operations, or transitioning to remote work.

Similarly, COVID-19 deaths in the West states had a positive coefficient of 0.289 at a 1% significant level. This signifies that higher death tolls due to COVID-19 were associated with increased unemployment rates, aligning with the expected outcome across regions.

An intriguing result surfaced concerning GDP per capita in the West region. It displayed a positive coefficient of 0.420, although the result was only statistically significant at the 10% level. This indicates that greater economic prosperity might lead to higher unemployment rates in this area. Wealthier states within the West, mainly those reliant on industries affected by the pandemic, such as technology, experienced higher unemployment rates. This unexpected relationship suggests that the pandemic's economic impact was complex and influenced by numerous factors.

The West region, known for its thriving tech industry, entertainment sector, and abundant natural resources, exhibited economic dynamics that bolstered resilience throughout the pandemic. The dominance of these sectors likely contributed to the region's stable GDP per capita coefficient, reflecting its capacity to weather economic challenges.

The findings also emphasized the variability in responses to stay-at-home directives among states within the West, leading to fluctuations in unemployment rates. The region's economic robustness and adaptability, coupled with progressive policies, played a pivotal role in mitigating the pandemic's economic repercussions.

Additionally, the prevalence of the Information Technology sector in the West facilitated more significant opportunities for remote employment, contributing to the region's resilience.

With their pioneering approach to remote work, states like California demonstrated this effect, as indicated by the positive GDP per capita coefficient. Policies and the availability of remote job opportunities likely played a role in reducing unemployment rates over time in the West.

The findings of this investigation shed light on the intricate connection between COVID-19 and unemployment rates in various American areas. Both COVID-19 cases and deaths significantly influence the dynamics of unemployment. Higher COVID-19 case counts are linked to decreased unemployment rates; this association may be explained by public health initiatives to suppress the virus that may have reduced unemployment and the delayed response of businesses as COVID-19 cases increase.

Conversely, unemployment rates are associated with higher COVID-19 deaths, demonstrating the severity of the pandemic's economic impact. In Germany (1.090%), Spain (1.400%), and the United Kingdom (0.493%), COVID-19 has led to a favorable and significant improvement in unemployment, according to findings of a comparative study done in the United Kingdom (Su et al., 2021).

These results also suggest that during the COVID-19 pandemic, employment conditions were better in France and Italy. Accordingly, compared to France and Italy, the labor market in Germany, Spain, and the United Kingdom hinders the spread of pandemics (Su et al., 2021).

The results show a strong positive significant relationship between COVID-19 cases and unemployment rate during the pandemic in France, Germany, Spain, and the United Kingdom. However, there is a significant relationship between COVID-19 deaths and unemployment during the pandemic in Germany and Spain. Although there is a negative correlation between COVID-19 cases, COVID-19 deaths, and unemployment in Italy, it does appear that COVID-19 has boosted the number of online job opportunities and reduced unemployment. In other words,

according to the statistics, the impact of COVID-19 cases surpasses the number of deaths (Su et al., 2021).

According to earlier studies, the labor market suffers because of the heightened concern in the economy brought on by a rise in the overall number of COVID-19 cases. These lockdowns aggravate the issue since they stop the labor market's supply and demand sides (Bianchi et al., 2021). The demand for labor declines, and unemployment rises in these economies because of business closures and supply chain disruptions (ILO-OECD, 2020).

According to a recent study on the effects of COVID-19 on the labor market, the bulk of low-skilled workers and independent contractors are the ones most negatively impacted. Our results are analogous to other research on the labor market, such as Boneva et al. (2020), who found that COVID-19 hurt the labor markets of the UK and Germany (Su et al., 2021). This research shows a rise in unemployment in 2020 due to the lockdown and a gradual decline in unemployment once the country reopens, like earlier studies that indicated increased unemployment rates due to lockdown measures.

Different areas have different effects of GDP per capita on unemployment rates, highlighting the need to consider regional economic issues. Higher economic success and reduced unemployment are in specific locations but sometimes in others, where the link is more complex. This shows that local economic factors and policies may influence the impact of the pandemic on job outcomes. Policymakers should consider these geographical differences when developing tailored initiatives to address the labor market issues brought on by the COVID-19 pandemic.

Table 13: The effects of COVID-19 on different regions in the United States of America

Variable	Coefficient	Std. Error	P-value
	Northeast States		
Constant	-3.400	1.932	0.081
COVID-19 cases	-0.278***	0.036	0.000
COVID-19 deaths	0.252***	0.032	0.000
GDP per capita	0.581***	0.183	0.002
	R Squared: 0.34	Observations:131	
	Southeast States		
Constant	11.381	2.059	0.000
COVID-19 cases	-0.185***	0.038	0.000
COVID-19 deaths	0.140***	0.035	0.000
GDP per capita	-0.795***	0.199	0.000
	R Squared: 0.420	Observations: 119	
	Midwest States		
Constant	15.671	2.818	0.000
COVID-19 cases	-0.193***	0.048	0.000
COVID-19 deaths	0.217***	0.051	0.000
GDP per capita	-1.218***	0.264	0.000
	R Squared:0.475	Observations:142	
	Southwest States		
Constant	6.528	2.418	0.009
COVID-19 cases	-0.177***	0.046	0.000
COVID-19 deaths	0.160***	0.050	0.002
GDP per capita	-0.370	0.230	0.113
	R Squared:0.282	Observations:72	
	West States		
Constant	-1.302	2.205	0.556
COVID-19 cases	-0.325***	0.051	0.000
COVID-19 deaths	0.289***	0.050	0.000
GDP per capita	0.420*	0.209	0.047
	R Squared:0.251	Observations: 129	

*, **, *** significant indices at 10%, 5% and 1% respectively

Source: Author

4.1.3 COMPARISON OF POOLED AND REGIONAL ANALYSIS

The two models better understand the association between COVID-19 variables, GDP per capita, and the unemployment rate (pooled and regional regression analysis). The study reveals that, at the national level, COVID-19 deaths have a positive association with unemployment, whereas COVID-19 cases have a negative association with the unemployment rate. A lower unemployment rate is associated with a greater GDP per capita. The total effect of these factors is demonstrated by this national-level study, with an R-squared value of 0.82 indicating a good model fit.

The regional studies, however, reveal significant differences in relationships. The patterns of different areas vary, with some exhibiting positive relationships between GDP per capita and the unemployment rate and others showing negative associations. These geographical variations underscore the importance of considering geographic variances in economic dynamics. Despite the differences in regional R-squared values, they all demonstrate the significant explanatory power of these models at the regional level.

Considering the current COVID-19 pandemic, understanding these geographical discrepancies is essential for developing region-specific policies and solutions to economic concerns. Together, these studies help policymakers make educated decisions by providing a sophisticated knowledge of how various variables interact and affect national and regional unemployment rates.

CHAPTER 5

CONCLUSION AND IMPLICATIONS

5.1 CONCLUSION AND IMPLICATIONS

The COVID-19 pandemic is a worldwide emergency that has seriously altered the US economy and put public health at risk. This study examined the complex relationship between unemployment rates and the COVID-19 pandemic in various states, revealing a complex picture of the impacts of this health emergency.

COVID-19 Cases and Unemployment Rates: The study found a surprising negative relationship between national unemployment rates and COVID-19 cases. States with more significant COVID-19 cases saw less labor market disruption and a low unemployment rate, suggesting a delayed economic reaction to the worsening health problem**.**

COVID-19 Deaths and Unemployment Rates: On the other hand, the investigation found a strong positive link between COVID-19 deaths and unemployment rates. Areas with higher death rates had more severe economic hardships, highlighting the vital importance that an effective healthcare system and preventative measures play in preserving lives and livelihoods during pandemics.

GDP per capita and Unemployment Rates: The results confirmed an inverse link between the two variables. States with higher GDP per capita showed stronger resistance to the pandemic's economic effects, underscoring the need for stable economies to create job opportunities.

Implications:

Public Health Measures and Economic Recovery: To stop the spread of COVID-19 and reduce its negative consequences on employment, policymakers should prioritize focused public health actions. Targeted lockdowns and intensive immunization efforts are two tactics that can balance public health and economic recovery.

Assistance for Vulnerable Populations: Governments should provide support mechanisms, including income assistance, job retraining programs, and unemployment benefits, to lessen the negative consequences of unemployment, as these populations are affected.

Regional Economic Resilience: Tailor-made policy interventions are necessary to address differences in economic dynamics between regions. Policymakers should consider variables like population density and industrial mix when addressing unemployment in various geographical areas.

Infrastructure for Remote Work: The epidemic highlighted how critical remote work skills are to preserving economic stability. Investments in digital connections and infrastructure for remote work can enable remote work arrangements and lessen the effect of upcoming crises on unemployment.

Formulating Collaborative Policies. Governments, corporations, academic institutions, and civil society organizations must collaborate to address the problems associated with unemployment. Policymakers should include stakeholders in creating comprehensive policy frameworks that support inclusive economic recovery.

To sum up, the research provides a significant understanding of the connection between COVID-19 factors, GDP per capita, and unemployment rates. Policymakers may foster a robust and inclusive post-pandemic economy through the implementation of evidence-based

policymaking and focused interventions. Maintaining vigilance, making necessary policy adjustments, and learning from this crisis are essential to strengthening the economy and ensuring the welfare of the populace in the face of upcoming difficulties.

REFERENCES

5 US Regions Map and Facts | Mappr. (2021).https://www.mappr.co/political-maps/us-regions-map/

Baker, S. R., Bloom, N., Davis, S. J., Kost, K., Sammon, M., & Viratyosin, T. (2020). The unprecedented stock market reaction to COVID-19. The Review of Asset Pricing Studies, 10(4), 742–758. https://doi.org/10.1093/rapstu/raaa008

Barro, R. J., Ursúa, J. F., & Weng, J. (2020). The coronavirus and the great influenza epidemic: Lessons from the "Spanish flu" for the coronavirus's potential effects on mortality and economic activity. National Bureau of Economic Research. https://doi.org/10.3386/w26866

Boissay, F., & Rungcharoenkitkul, P. (2020). Employment and output effects of non-pharmaceutical interventions in OECD countries. OECD Economics Department Working Papers, 1665, OECD Publishing. https://doi.org/10.1787/95efc999-en

Demertzis, M., Gros, D., & Roth, C. (2020). A strategy for international cooperation to fight the economic fallout of COVID-19. Bruegel Policy Contribution, Issue 7. https://www.bruegel.org/publications/policy-contributions/strategy-international-cooperation-economic-fallout-covid19/

Dingl, J., & Neiman, B., (2020). “How many jobs can be done at home?” Covid Economics, Issue 1,pp 1-8.

Fairlie, R. W. (2020). The impact of Covid-19 on small business owners: Evidence of early-stage losses Current Population Survey. National Bureau of Economic Research. https://doi.org/10.3386/w27309

Fornaro, L., & Wolf, M. (2020). Covid-19 coronavirus and macroeconomic policy. CEPR Press. https://cepr.org/sites/default/files/news/CovidEconomics1.pdf

Gallant, J., Hale, T., Kira, B., & Phillips, T. (2020). The effect of COVID-19 on the labor market in the United States. Journal of Public Economics, 189, 104238. https://doi.org/10.1016/j.jpubeco.2020.104238

Hong, J., & Werner, R. A. (2020). Economic conditions of states and COVID-19 infections: A preliminary analysis. Applied Research in Quality of Life, 15(4), 1065-1077.

International Labor Organization. (2020). COVID-19 and the world of work: Impacts and

responses. International Labour Organization. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/briefingnote/wcms_740877.pdf

Ji, Y., & Chu, B. (2020). COVID-19 and tourism: Impacts and implications for advancing and resetting industry and research. Journal of Travel Research, 0047287520965018. https://doi.org/10.1177/0047287520965018

Jorda, O., Singh, S. R., & Taylor, A. M. (2020). Longer-run economic consequences of pandemics. Federal Reserve Bank of San Francisco. https://doi.org/10.24148/wp2020-09

Jones, S. R., & Riddell, W. C. (1999). The measurement of unemployment: An empirical approach. Journal of Labor Economics, 17(4), 732-755.

KPMG, (2020). "Covid-19: A Business Impact Series- Economic impact and Pandemic Planning". KPMG Covid-19 Publication, Issue 1, pp 1-4.

Maliszewska, M., Mattoo, A., & van der Mensbrugghe, D. (2020). The potential impact of COVID-19 on GDP and trade: A preliminary assessment. World Bank Policy Research Working Paper, 9211. https://doi.org/10.1596/1813-9450-9211

McKibbin, W. J., & Fernando, R. (2020). The global macroeconomic impacts of COVID-19: Seven scenarios. CAMA Working Paper, 19. https://ssrn.com/abstract=3547729

Narayan, P. K. (2020). Oil price news and COVID-19—Is there any connection? Energy Research Letters, 1(1), 131 76.

OECD. (2020). Coronavirus: The world economy at risk. OECD Economic Outlook, Interim Report March 2020, OECD Publishing. https://doi.org/10.1787/7969896b-en

Su, C.-W., Dai, K., Ullah, S., & Andlib, Z. (2021). COVID-19 pandemic and unemployment dynamics in European economies. Economic Research-Ekonomska Istraživanja, 35(1), 1–13. https://doi.org/10.1080/1331677x.2021.1912627

U.S. Bureau of Labor Statistics. (2023). Economic news release: The employment situation—January 2023. Retrieved from https://www.bls.gov/news.release/pdf/empsit.pdf

Vanov, N. (2020). The impact of the COVID-19 pandemic on the global economy. Journal of Economic Impact, 1(1), 43-52. https://doi.org/10.1017/je

World Bank (2020). "Assessing the Economic Impact of Covid-19 and Policy Responses in Sub-Saharan Africa". Africa's Pulse,21, pp 22-26.

Wormser, A. (2020). Coronavirus economic policy could lead to a Great Depression. The Hill. Retrieved from https://thehill.com/opinion/finance/492025-coronavirus-economic-policy-could-lead-to-a-great-depression

Young workers hit hard by the COVID-19 economy Workers ages 16-24 face high unemployment and an uncertain future. (n.d.). https://files.epi.org/pdf/203139.pdf

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