The Unemployment Effect of COVID-19: A Visual Narrative

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INTRODUCTION

The COVID-19 pandemic has brought unprecedented challenges to the global economy, resulting in job losses and economic uncertainty for millions of people. As businesses shut down, workers were furloughed or laid off, and the labor market faced an unprecedented crisis. The impact of COVID-19 on unemployment rates has been felt across the world, affecting different countries, industries, and demographics in varying degrees.

In response to this issue, the visualization project, "The Unemployment Effect of COVID-19: A Visual Narrative," was developed to investigate the impact of COVID-19 on unemployment rates in the United States and globally, focusing on age and racial demographics. This project aims to provide an immersive visual experience, using data visualizations to illustrate the changes in unemployment rates during the pandemic. The project includes a comparison of unemployment rates across the United States and the globe, as well as a line chart depicting the change in unemployment rates across different ages in the US and a tree map depicting the change in unemployment rates across different races.

The project aims to provide a comprehensive understanding of the effects of COVID-19 on the labor market and inform policymakers, businesses, and individuals about the most affected demographics and industries. The findings from this project can help shape appropriate policies and responses to mitigate the pandemic's economic impact. The project offers a compelling narrative on the unemployment effect of COVID-19 and highlights the importance of understanding the pandemic's economic impact on different groups and industries. It provides a unique opportunity to explore the data in an engaging and interactive manner, making it accessible to a wide audience.

Project Link: [Group 1: The Unemployment Effect of COVID-19: A Visual Narrative | Tableau Public](#)

BACKGROUND

The COVID-19 pandemic led to significant economic turmoil, with tens of millions of people losing their jobs in the early months of the crisis. Despite some recovery in employment, unemployment remained high throughout 2020, leading to an increase in hardship levels. Although relief measures and improving employment helped to alleviate hardship, millions still reported insufficient food or being behind on rent in 2021. However, the federal government and states took exceptional measures to respond to the pandemic's economic impact, which helped to reduce the hardship.

Yet, there is still work to be done, with 3 million fewer individuals employed than before the pandemic.

The Bureau of Labor Statistics (BLS) reported that the unemployment rate reached 14.8% in April 2020, the highest level since the Great Depression. Although it has decreased since, it remained elevated throughout 2020 and into 2021. The BLS also collects data on labor market disparities based on age, race, and ethnicity. The pandemic exacerbated these disparities, with some demographic groups experiencing higher unemployment rates than others. For example, in December 2020, the unemployment rate for Hispanic or Latino workers was 9.3%, compared to 5.9% for White workers.

The project analyzes and visualizes the BLS data to provide a comprehensive understanding of the COVID-19 pandemic's impact on the US labor market, including demographic disparities in unemployment rates.

The International Labor Organization (ILO) reported that the pandemic had a significant impact on global unemployment rates, resulting in the loss of 245 million full-time jobs worldwide in 2020. Young people and women were disproportionately affected. The pandemic also had a significant impact on global labor markets, with many countries experiencing a sharp increase in unemployment rates.

The US government implemented several policies in response to the pandemic's economic impact, including the CARES Act and the American Rescue Plan Act, aimed at providing financial relief and assistance to affected individuals and businesses. The impact of these policies is reflected in the project's visualizations of unemployment rates.

PURPOSE

The purpose of this visualization project is to provide a comprehensive understanding of the impact of the COVID-19 pandemic on the US labor market, including the demographic disparities in unemployment rates. The project aims to visualize the changes in unemployment rates across different age groups and races in the US, as well as compare the US unemployment rates with the rest of the world.

The main learning objectives for the user of this project include:

1. Understanding the extent of the economic fallout caused by the COVID-19 pandemic, particularly in terms of unemployment rates.

2. Identifying the demographic disparities in unemployment rates and the impact of the pandemic on different age groups and races in the US.

3. Comparing the US unemployment rates with the rest of the world and understanding the global impact of the pandemic on the labor market.

4. Analyzing and interpreting the visualizations to draw insights into the effects of government policies aimed at alleviating the economic impact of the pandemic.

By achieving these objectives, the user will gain a deeper understanding of the impact of the pandemic on the labor market and the effectiveness of government policies in mitigating the economic fallout. The target audience for this visualization project includes researchers, policymakers, and anyone interested in understanding the impact of the COVID-19 pandemic on the labor market in the US and around the world. The visualizations are designed to provide a comprehensive understanding of the demographic disparities in unemployment rates, as well as the effect of relief measures and government policies on the labor market.

DATA

The data for this visualization project was extracted from Bureau of Labor Statistics (BLS) and World Bank sources. BLS data was used to derive unemployment rates across different races and age groups in the US, as well as unemployment rates across different states. The World Bank data was used to derive unemployment rates across different countries. The data was then used to create visualizations that provide insights into the impact of the COVID-19 pandemic on unemployment rates globally and in the US.

The links to the datasets are:

- Unemployment Rates for States (bls.gov)
- Unemployment, total (% of total labor force) (modeled ILO estimate) | Data (worldbank.org)
- BLS Data Viewer- Unemployment across different races
- BLS Data Viewer- Age Categories

METHODS

The methods used in the creation of this visualization project involved the collection and analysis of data from various sources such as the Bureau of Labor Statistics and the World Bank. We extracted the necessary data and then visualized it using different techniques, such as choropleth heat maps, line charts, and tree maps.

During the initial design phase, we brainstormed several ideas for visualizations, including the use of choropleth heat maps to display unemployment rates across the globe and in the US over the years 2000-2021. After receiving peer feedback, we narrowed our focus to the period from 2018-

2021 to specifically highlight unemployment during the COVID-19 pandemic. We also decided to create a common timeline for the choropleth heat maps, enabling users to easily compare unemployment rates in the US and other countries.

We also created a line chart to display changes in unemployment rates across different age categories ranging from 16-44 years. The tree map was used to highlight unemployment rates across different races in the US, such as Hispanic or Latino, Asian, White, and Native American.

Throughout the design process, we continuously evaluated our visualizations, making adjustments as necessary to ensure that the data was accurately portrayed and easily understood by our target audience. Our aim was to provide a clear and comprehensive understanding of the impact of COVID-19 on unemployment rates, as well as the demographic disparities in unemployment rates across different age groups and races in the US.

## RESULTS
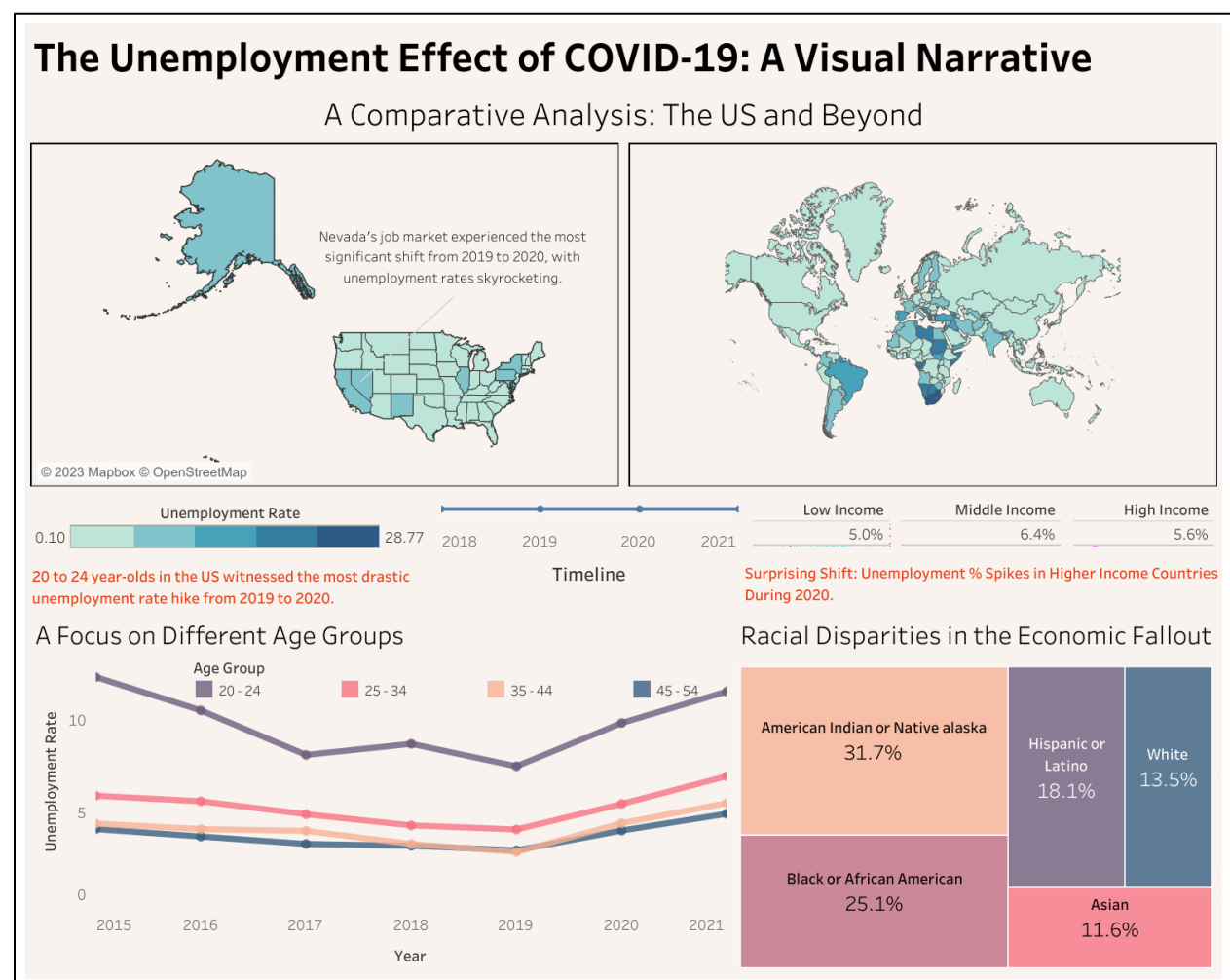
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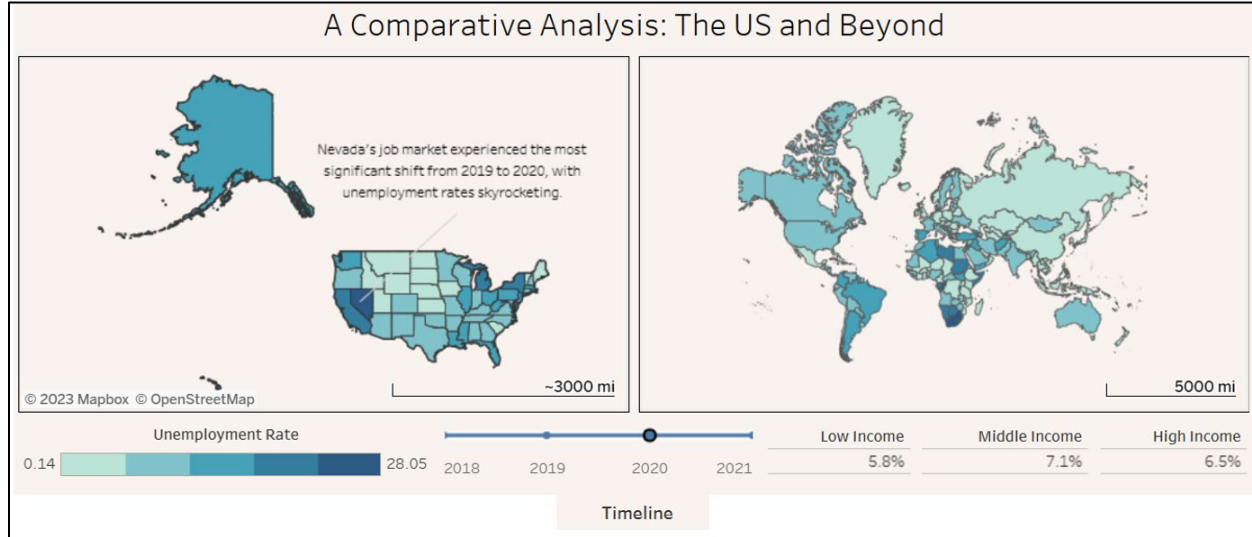
The visualization provides a comparative analysis of unemployment rates between the United States and other countries around the world. Users can select a specific year from 2018 to 2021 to observe changes in unemployment rates for both the United States and globally. The visualization consists of two parts: a map of the world that displays the unemployment rates for each country, and a graph that displays the unemployment rates specifically for the United States.

The map displays the unemployment rates for each country and is color-coded to indicate higher rates of unemployment with darker shades. The unemployment rates for both the United States and the world map change as users select different years on the timeline. Additionally, the countries are segregated based on their income level, which allows users to observe differences in unemployment rates between different income groups. For example, low-income countries tend to have higher rates of unemployment compared to middle- and high-income countries.

The separate graph for the United States displays the unemployment rates over the selected time period. Users can compare the United States' unemployment rates with those of other countries in different income categories to get a better understanding of the global trend. The visualization is beneficial in analyzing the global unemployment trend and the impact of income level on unemployment rates. Overall, the visualization provides an accessible way to understand the global unemployment situation, identify trends and patterns, and compare the situation of different countries.

A Focus on Different Age Groups
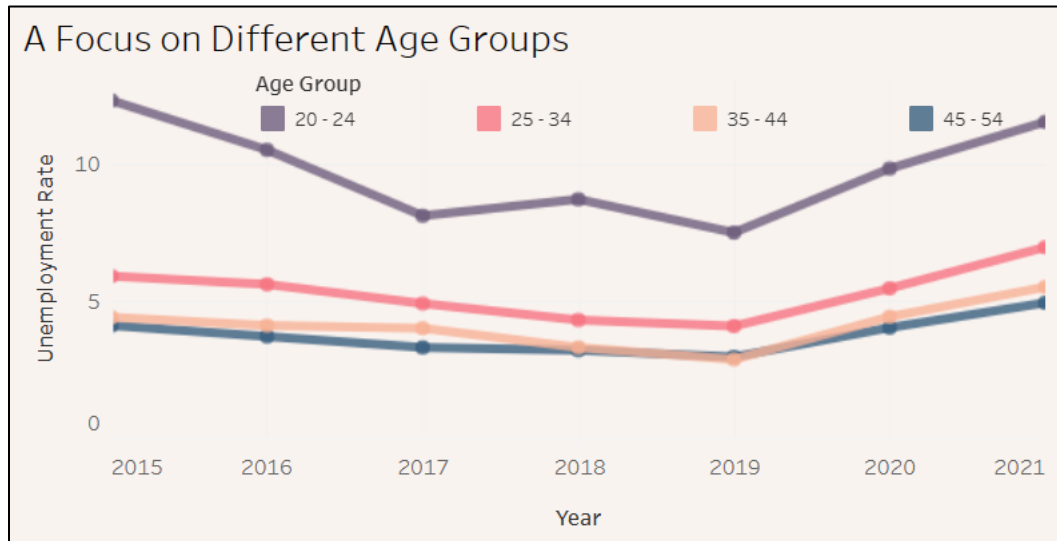
The line chart displays the unemployment rates for various age groups in the United States. Each age group has a different color-coded line to enable easy distinction between trends. The chart also allows users to hover over individual data points to view the specific unemployment rate for a given year.

The line chart analysis indicates that the 20-24 age group had the most significant increase in unemployment rates from 2019 to 2020, as reflected by the steep increase in their line during this period. This trend is different from the other age groups whose lines show relatively smaller increases in unemployment rates during the same time frame. This observation provides valuable insights for policymakers, researchers, and other stakeholders who wish to understand how economic events impact different age groups.

Overall, the line chart provides a visual representation of the differences in unemployment rates across age groups, facilitating a better understanding of the trends and patterns that exist.

Racial Disparities in the Economic Fallout
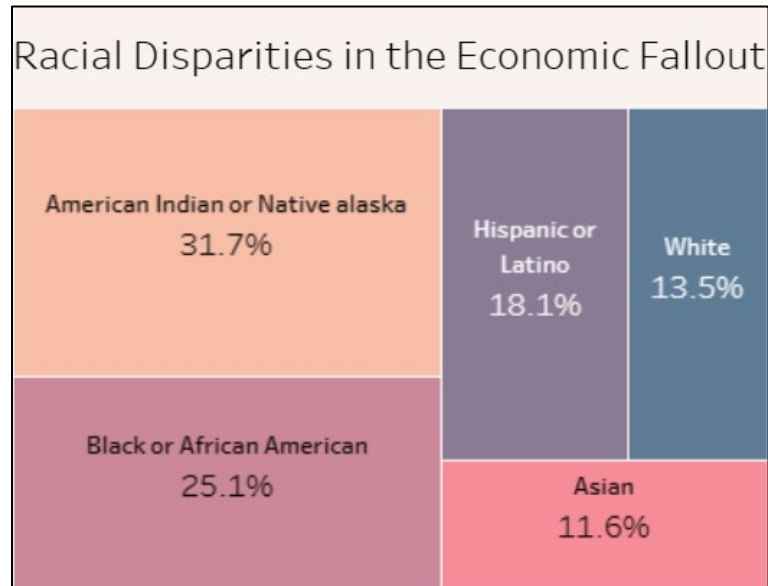
The Tree Map visualization provides a detailed analysis of the economic impact of the COVID-19 pandemic on different racial groups in the United States. The visualization represents each racial group with a unique color and displays the size of each box proportional to the economic fallout, with larger boxes indicating a greater economic impact. Users can select different years to view the economic fallout for each racial group for a specific year.

The Tree Map visualization provides a concise and accessible way to understand the disparities in the economic impact of the COVID-19 pandemic on different racial groups. The representation of each group with a unique color makes it easy to distinguish between the groups, and the size of the boxes provides a clear understanding of the magnitude of the economic fallout. The visualization is helpful for policymakers, researchers, and other stakeholders who are interested in understanding the impact of the pandemic on different racial groups and identifying disparities in the economic impact. Overall, the Tree Map visualization provides a comprehensive and informative representation of the economic impact of the COVID-19 pandemic on different racial groups in the United States.

INFERENCES AND FINDINGS

The first visualization compared the unemployment rates across the USA and the globe. The findings showed that the state of Nevada was the most affected by the pandemic in 2020, with the highest increase in unemployment rates as compared to other states in the US. However, in 2021, the unemployment rate in the US declined from 2020, and Nevada saw the highest decline in the

unemployment rate compared to other states. Additionally, high-income countries across the globe witnessed the highest increase in the unemployment rate in 2020.

The second visualization depicted the change in unemployment rates across different age categories in the US. The findings showed that the age group of 20 to 24 years saw the most drastic increase in unemployment rates from 2019 to 2020.

The third visualization, a tree map, depicted the change in unemployment rates across different races in the US. The findings showed that unemployment rates increased the highest for Asians from 2019 to 2020, while American Indians witnessed a decline in unemployment rates during the same period.

FUTURE WORK

There are several avenues for future work to build upon our current project. Firstly, an analysis of the impact of COVID-19 on joblessness by gender or educational level can be undertaken. This would provide deeper insights into the dynamics of unemployment during the pandemic and identify any disparities that may have arisen. It would also help policymakers design targeted interventions to support groups that have been disproportionately affected.

Secondly, an examination of the industries that have been hardest hit by the pandemic and how this has affected the overall unemployment rate could be conducted. This would enable a better understanding of the specific industries that require immediate support and those that are more resilient to the pandemic's impact. It would also inform future policy decisions on how best to stimulate economic growth in the wake of the pandemic.

Finally, an analysis of the impact of COVID-19 on joblessness in prominent US cities could be undertaken. This would help to identify the cities that have been most affected by the pandemic and provide insights into the factors that contributed to this impact. This information could be used by policymakers to design more targeted interventions to support these cities' economic recovery and prevent future job losses.