A5: Extension Plan
DATA 512
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Problem statement

The coronavirus pandemic not only pushed the hospital system to its capacity but also brought a global economic slowdown. It has caused an economic crisis in the United States. The pandemic has disrupted people's daily lives. With the rapid spread of the highly infectious disease, many people have had to reduce their time outside or choose to stay at home. It has caused a sudden decline of traffic in small business and retail stores including restaurants, fitness centers, nail salons, etc. Without the regular stream of income to cover the spending of business operational expenses, many owners have had to shut down their businesses permanently or hire less employees to maintain the business. It has resulted in many people losing their jobs due to this economic decline. With the motivation of learning how the progress of covid-19 has impacted the unemployment in Arizona, I will investigate in which industries that people are occupied with would drastically crash by the global pandemic and how unemployment caused by the Covid-19 crisis has different impacts among various racial and ethnic groups. The analytical results of this project could reflect the trend of unemployment in the Arizona region which is a microcosm of America.

Research questions

How was the unemployment rate influenced by the pandemic?
The trends in distribution of unemployment over time.
The trends in distribution of unemployment across Arizona.
The comparison of different ethnic groups for unemployment.
The compassion of women and men for unemployment.
Which industries are primarily impacted by the spread of global pandemic?

Dataset

Data used to conduct this analysis will be required to narrow down to the county level. I acquire the local area unemployment statistics data with the state level, which provides in the U.S. Bureau of Labor Statistics with the link https://data.bls.gov/lausmap/showMap.jsp;jsessionid=6540593A63747DB9E7FEC733D7895656._t3_07v. Also, the unemployment rate over time in the United States available in the World Bank with the link https://data.world/bls/unemployment-rate. Local area unemployment statistics consists of labor force participation rate, employment-population ratio, employment, unemployment, unemployment rate from Jan 2011 to Sep 2021 for Arizona state available at https://data.bls.gov/timeseries/LASST040000000000003. The unemployment rates, 1948-2020, by different ethnic group including white, black or African American, Asian, Hispanic or Latino available at https://www.bls.gov/opub/ted/2020/unemployment-rate-rises-to-record-high-14-

point-7-percent-in-april-2020.htm. The US county-level unemployment rate data from Jan 1990 to Sep 2021 available at https://fred.stlouisfed.org/series/AZPIMA9URN.

Unknowns and Limitations

The dataset that I have collected contains unemployment information for the state level. I need to further search to see whether or not there is a county level unemployment dataset available which could have led to trend analysis over time or make comparison with the number of new cases since the pandemic breakout.

Since there is no thorough description of the distribution of the dataset, it is unclear whether this is a completely random sample representative of the population or harbors some biases. It is also hard to evaluate the existence of potential bias for the same reason.

Methodology

Qualitative: The thick data approach or the qualitative approach is used to answer questions about how the unemployment rate is influenced by the pandemic. The conclusion in this section is quite open ended. It is important to note that the answers are speculative in nature and do not satisfy the conditions of statistical significance.

Quantitative: Quantitative approaches are used to answer questions around the trends in distribution of unemployment across Arizona.

Timeline to completion

Task Name	Start	Finish	Duration
Collect Data	11/11/21	14/11/21	3 days
Clean Data	15/11/21	18/11/21	3 days
Analyze and Visualize the Dataset	19/11/21	26/11/21	7 days
Analyze Results	27/11/21	2/12/21	6 days
Document	3/12/21	8/12/21	5 days