

Unemployment Unplugged: Analyzing the COVID Job Market Meltdown

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INDEX

01 - Background

02 - Our Goals for This Project

03 - Limitations

04 - Documentation

05 - Conclusions



01 - Background: Unemployment unfolds

Nationally

- Unemployment surged nationally as the pandemic took over the United States.
- According to the U.S. Bureau of Statistics, in the second quarter of 2020, the unemployment rate was 13%.
- Many businesses had to get suspended due to closures and the unemployment rate tripled compared to 2019 (BLS 2021).
- Unfortunately, many people lost their jobs and the economy was in turmoil.



02 - Our Goal: Observing Unemployment at the State Level

- Want to look at unemployment rate at the state level
- Our Project's Hypothesis: The unemployment rate for each state will increase with each phase.



02 - Our Goal: Looking at Data at State Level

- Found first covid case in a Science Direct research paper.
- Divided the monthly unemployment rate for each state into phases to assess how it changed once COVID cases began in the state
- Three Phases:
 - Phase1before
 - Phase1after
 - Phase2after
- Functions created:
 - `findthemonths()`
 - `find_phase_averages()`



03 - Limitations

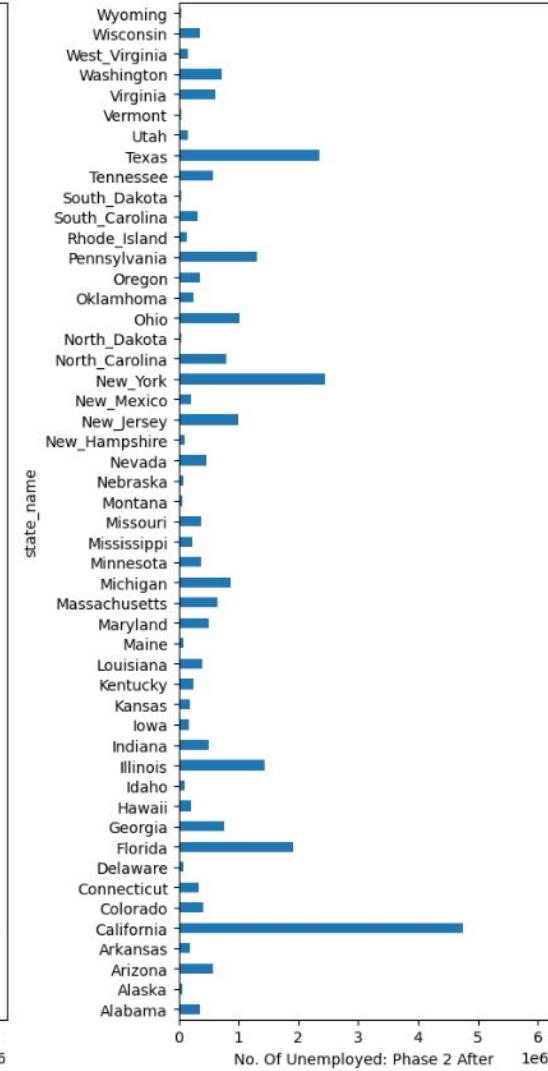
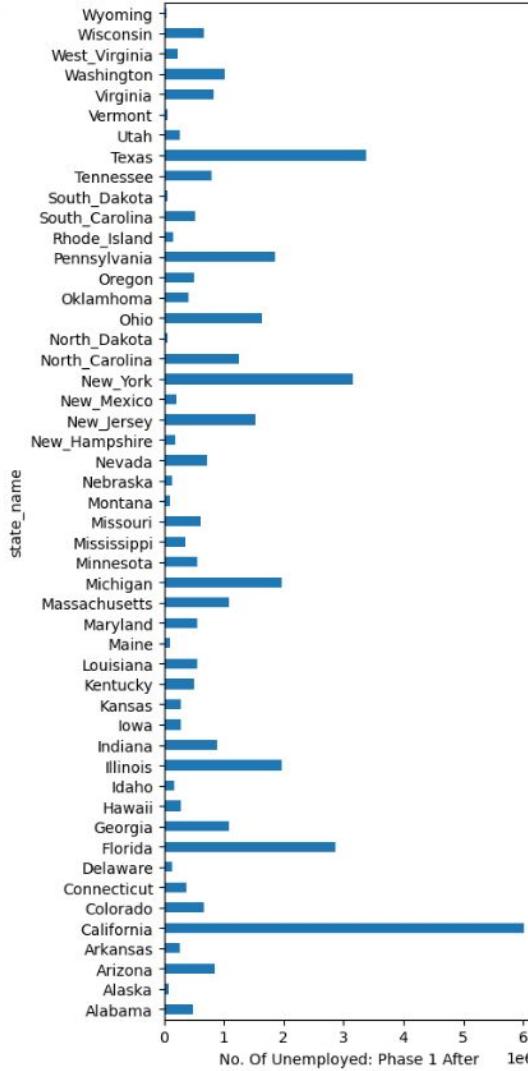
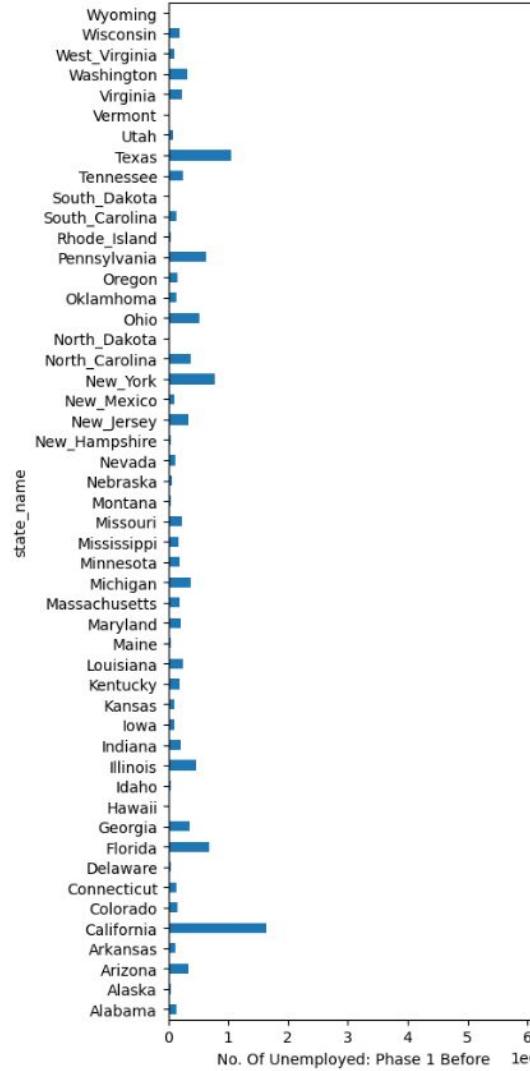
- Limited data for 2019 so some phase before calculations only consisted of two months
- Were using the census population estimate for each of the states, not the actual census population.
- Only look at the 50 states (did not look at Washington DC.)



04 - Documentations

- A subplot with 3 histograms of all the states to show the averages of the unemployment people in each of the 3 phases.
- 2 pie charts, 2 line graphs, and 2 bar graphs to show the maximum percentage changes between phases.
- 2 pie charts, 2 line graphs, and 2 bar graphs to show the minimum percentage changes between phases.
- The finalized table that was used for the graphs.

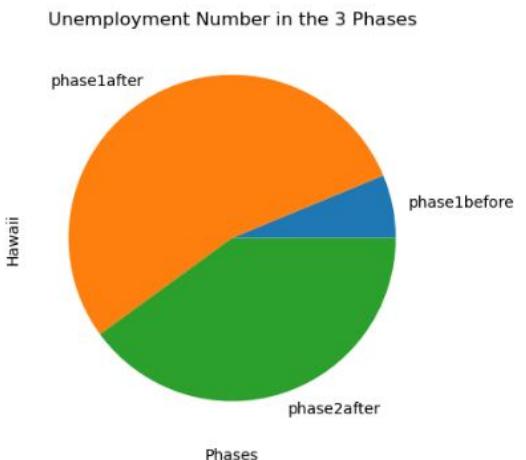
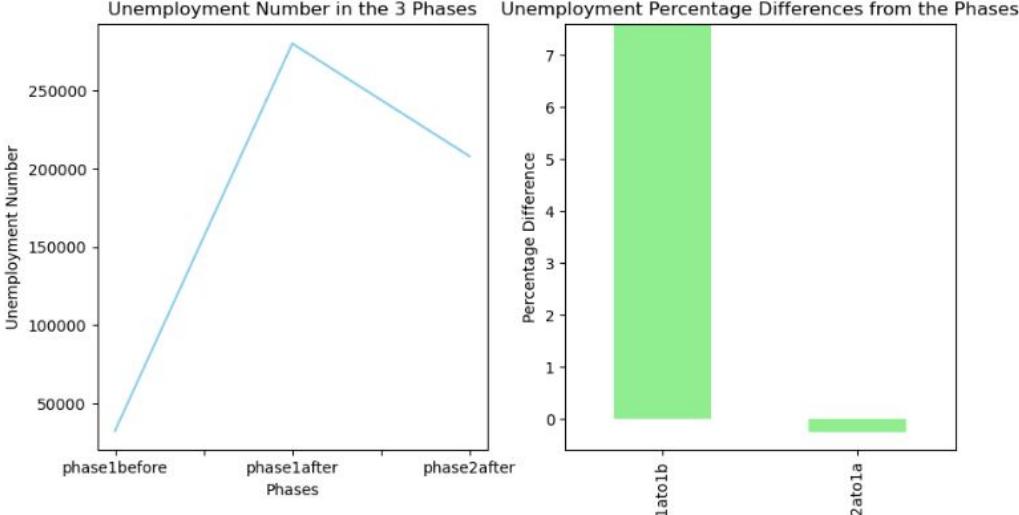




04 - Documentations

- Hawaii
 - the highest percentage difference from phase 1 before to phase 1 after

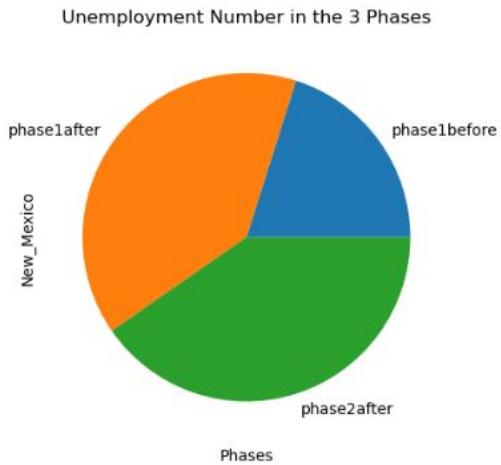
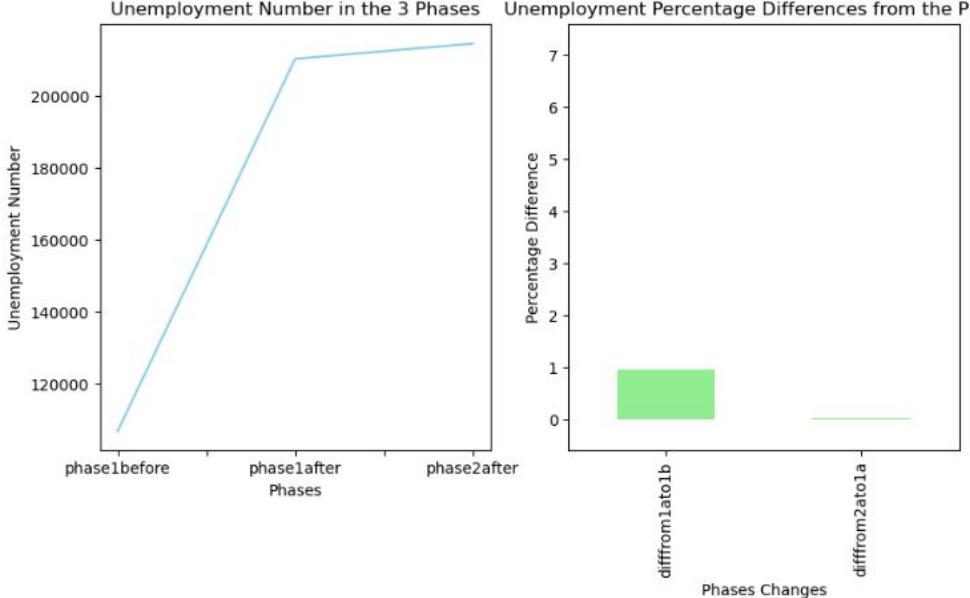
```
first_covid_case           NaN
phase1before            32585.63
phase1after             280218.82
phase2after              208107.24
difffrom1ato1b            7.60
difffrom2ato1a           -0.26
Name: Hawaii, dtype: float64
```



04 - Documentations

- New Mexico
 - the highest percentage difference from phase 1 after to phase 2 after

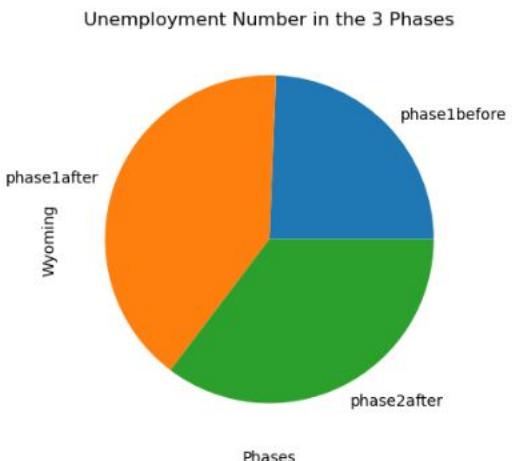
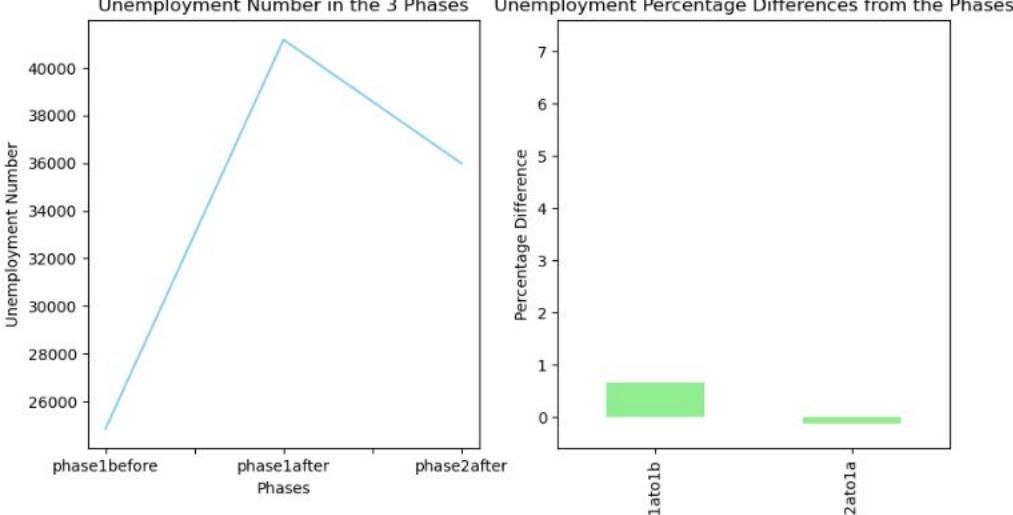
```
first_covid_case           NaN
phase1before            106958.22
phase1after             210344.89
phase2after             214580.02
difffrom1ato1b          0.97
difffrom2ato1a          0.02
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```



04 - Documentations

- Wyoming
 - the lowest percentage difference from phase 1 before to phase 1 after

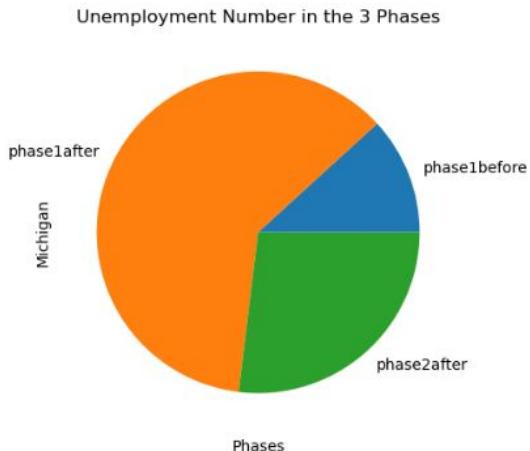
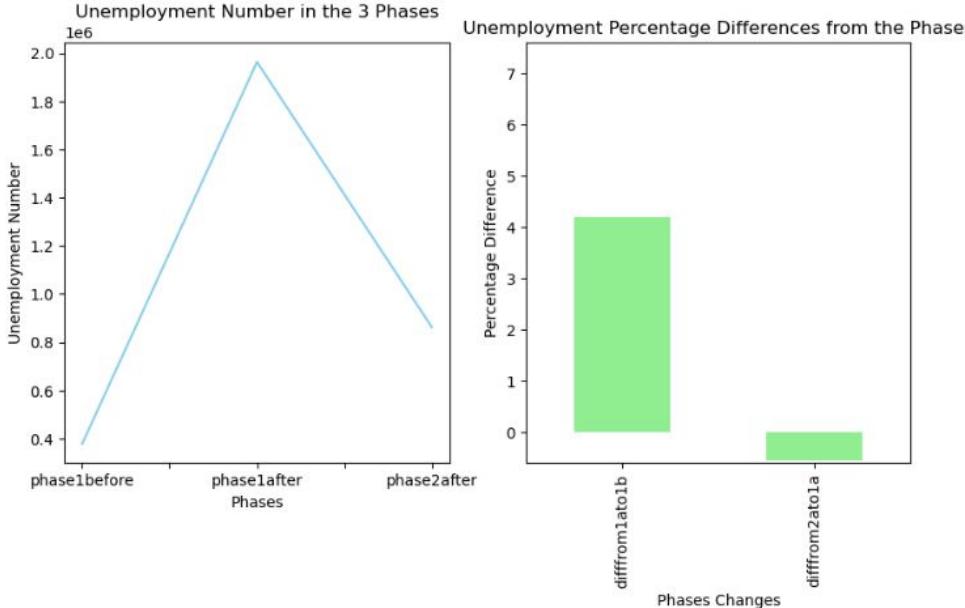
```
first_covid_case          NaN
phase1before            24840.88
phase1after             41178.38
phase2after              35982.98
difffrom1ato1b           0.66
difffrom2ato1a          -0.13
Name: Wyoming, dtype: float64
```



04 - Documentations

- Michigan
 - the lowest percentage difference from phase 1 after to phase 2 after.

```
first_covid_case          NaN
phase1before            378164.85
phase1after             1963194.48
phase2after              862463.22
difffrom1ato1b           4.19
difffrom2ato1a          -0.56
Name: Michigan, dtype: float64
```



04 - Documentations

05 - Conclusions

- Revisiting our Project's Hypothesis:
 - *The unemployment rate for each state will increase with each phase*



Our results prove that our hypothesis is **TRUE!** Well partially. We found out that Wyoming has the lowest percentage difference of 0.66 from phase 1 before to phase 1 after. This proves that the percentage difference is positive meaning there is a correlation. A positive correlation, as first covid date occurred, the following 3 months have increase in unemployment rate in all the states. We can infer that as the lowest percentage difference is still positive.

However, the 3rd phase (1st after to 2nd after) did experience a decrease when looking at Michigan (-0.56) but Michigan still experienced an increase in unemployment overall.

06 - References



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- David García-García, Enrique Morales, Cesar de la Fuente-Nunez, Isabel Vigo, Eva S. Fonfría, Cesar Bordehore, Identification of the first COVID-19 infections in the US using a retrospective analysis (REMEDID),
<https://doi.org/10.1016/j.sste.2022.100517>.