**Introduction:**

The National Restaurant Association’s article dated 01/25/21 titled “*State of the Restaurant Industry report measures virus' impact on business”* indicated that:

* *The restaurant industry ended 2020 with total sales that were $240 billion below the Association’s pre-pandemic forecast for the year.*

* *As of Dec. 1, 2020, more than 110,000 eating and drinking places were closed for business temporarily, or for good.*

**Our Initial Hypothesis and the Information We Considered:**

Is there a correlation between high COVID-19 cases and restaurant closures in CA counties?

    According to CDC, several restrictions were necessary to help slow down the spread of the virus in 2020.

The two main restrictions in CA were:

*1.* *Statewide Mask Mandate*

*2.* *6-feet Physical Distancing*

Since it’s not possible to implement these two in a restaurant setting, this project directed its focus on finding out the effect of these restrictions on the restaurant industry.

**Initial Questions Considered:**

* 1. How many restaurants closed down during the COVID-19 pandemic?
  2. What was the survival rate of restaurants during the COVID-19 pandemic?
  3. For those restaurants that survived, by what means did they conduct business? What did their revenues look like for those strategies?

In answering these questions, we came upon the following challenges, which led us to our final hypothesis:

* We could not find any historical data. This was needed as a foundation to our data.
* We can only infer closure due to data clarity.
* We could not find pre-Covid-19 data on restaurant closure rates.
* We focused on the time frame between March 2020 to December 2020, considering the COVID-19 shutdowns began in March 2020 for the state of California.

**Final Hypothesis:**

Counties with high COVID-19 cases were not in compliance with restaurant restrictions. Thus, spreading the virus further and leading to higher COVID-19 cases.

**Questions based upon our final hypothesis:**

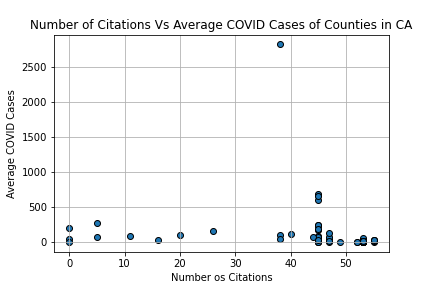
1. What time frame do we focus on?
   * March 2020 to December 2020.
2. What counties have the *highest* and *lowest* number of COVID cases?

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1. How many restaurants remained opened during this time frame?
   * Due to the limitations of our data, we noticed that all counties represented the same number of restaurants - 292.
2. What restrictions did restaurants follow?
   * The restaurants are subject to meet Covid-19 requirements in order to reopen during the pandemic.
   * The restaurants that remained open had limited seating capacity to account for social distancing. This may have led to reduced revenues and closures since they could not maintain the overhead costs. To stay afloat, some restaurants maximized on drive-throughs, curbside take out, or delivery options as applicable. Other restaurants prioritized outdoor seating as much as possible.

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1. What did the COVID rate look like for areas where restaurant restrictions were not followed?
   * There is no obvious pattern to make an assumption between the variables.



1. Is there a connection between the higher numbers of COVID cases and restaurant compliance?
   * The county with the most positive Covid-19 cases has the lowest citations of Covid-19 response; while the county with the least positive Covid-19 cases has the highest citations of Covid-19 response. However, both plots do not show a strong relationship between the variables.

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**Conclusion:**

The intention of this project was to prove the above findings as true. Despite the challenges experienced by the team, the data that was analyzed has indications that failure to comply with the restrictions, led to high covid cases, which may have eventually led to loss of business.

Based upon the data that we were able to find, the results indicate that the top five counties in California whose restaurants did not comply with the restrictions experienced high Covid-19 cases, while those counties whose restaurants maximized on alternative business options like curbside pick-up, carryout, drive-through or deliveries experienced lesser Covid 19 cases.

**Final Thoughts and Learning Experience:**

Considering the research is still new with limited data, We tailored our analysis based upon the data we were able to find. Some data we found yielded inconclusive results because the sample size data we received was not sufficient to support our analysis. Thus, further research needs to be applied.

**Citations**

* ([March 16, 2021](https://catalog.data.gov/dataset/u-s-state-and-territorial-orders-closing-and-reopening-restaurants-issued-from-march-11-20-b9593#sec-dates) )*U.S. State and Territorial Orders Closing and Reopening Restaurants Issued from March 11, 2020 through December 31, 2020 by County by Day.*<https://catalog.data.gov/dataset/u-s-state-and-territorial-orders-closing-and-reopening-restaurants-issued-from-march-11-20-b9593>
* ([2020 - present](https://data.chhs.ca.gov/dataset/covid-19-time-series-metrics-by-county-and-state)) *COVID-19 Time-Series Metrics by County and State*. <https://data.chhs.ca.gov/dataset/covid-19-time-series-metrics-by-county-and-state>
* ([November 18, 2020](https://www.nytimes.com/interactive/2020/11/18/us/covid-state-restrictions.html)) *States That Imposed Few Restrictions Now Have the Worst Outbreaks*. <https://www.nytimes.com/interactive/2020/11/18/us/covid-state-restrictions.html>
* (January 25, 2021) *State of the Restaurant Industry report measures virus' impact on business*. <https://restaurant.org/articles/news/new-report-measures-pandemics-effect-on-business#:~:text=Several%20key%20findings%3A,business%20temporarily%2C%20or%20for%20good>