

Broad Effects of Covid-19 on Tourism and Transportation in the U.S.

Principal Investigators: Lorenzo Puglielli, Lucy Kuo, Trevor Wasbotten and Sophia Bergman
(sbergman3@wisc.edu)

Introduction

The Covid-19 pandemic has had far-reaching effects worldwide. However, the impact across industries and locations is unclear. In our research, we seek preliminary results as to how Covid-19 has affected tourism and transportation in the United States. Specifically, we questioned how tourism and travel has changed in terms of volume and transportation medium, the degree of recovery in these industries, and the effect on certain local markets in the U.S.

To begin, we looked at multiple industry indicators. We found the most drastic changes occurred early during the pandemic. This is when most of the layoffs, travel reductions and spending reductions took place. However, many of these measures recovered to an extent, while still hovering below normal levels.

Data Sources

Our data comes from the St Louis Federal Reserve Database (FRED), Las Vegas Convention and Visitors Authority, the Bureau of Transportation Statistics (BTS), visitflorida.org. and data analyzed by Oxford Economics obtained from Airline Data Inc, TSA, and the US Travel Association. FRED data provided the number of layoffs in the leisure and hospitality industry. From BTS, we pulled passenger data for US flights and highway miles driven in the US. From the Las Vegas Convention and Visitors Authority and from visitflorida.org, we pulled visitor data. The data from Oxford Economics provided year-over-year percent change in weekly travel spending.

Analysis

Layoffs

We wanted to determine how the number of layoffs in the leisure and hospitality industry reacted and recovered during the pandemic. As shown in figure 1, since 2000 the growth rate of layoffs and discharges has been unremarkable until March of 2020.

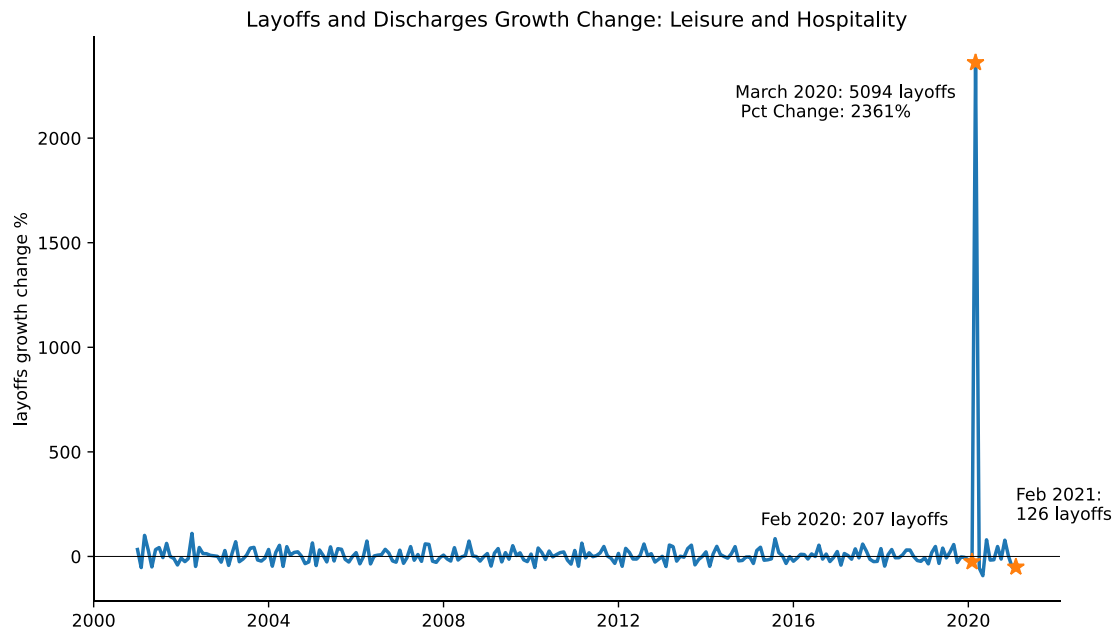


Figure 1

We found from February 2020 to March 2021, there was a 2361% increase in the number of layoffs. While many other industries such as manufacturing, construction, health care and social assistance also had surprising peaks in March, none compared the leisure and hospitality industry. Although the number of layoffs in February of 2021 (126) was lower than the year prior, it is necessary to inspect other factors in the industry to uncover recovery progression.

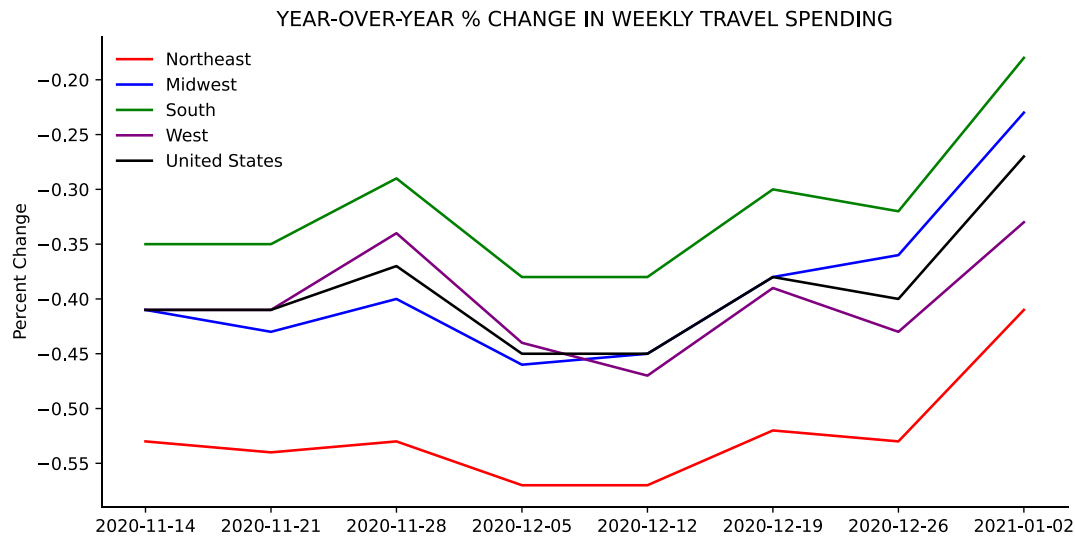
Travel Spending*Figure 2*

Figure 2 shows travel spending in late 2020 and the beginning of 2021 compared with spending one year prior. The United States experienced a 42% decline in travel spending in 2020. Throughout the pandemic, the Northeast (comprising New England and the Middle Atlantic) fared consistently worse than other regions. This may be due to the relative urbanization of the region coupled with more restrictive and longer-lasting lockdown measures. On the other hand, the South has done well, assumedly because of more lenient stay-at-home orders, faster reopening plans, lower density, and more outdoor attractions. In general, the pandemic took a greater toll on areas dependent on international travel and larger urban centers. All regions reported an uptick in travel spending during the holiday season, as people largely flaunted CDC guidelines to travel.

Flight and Highway Data

Next, we analyzed flight passengers and vehicle highway miles traveled for volume and substitution effects.

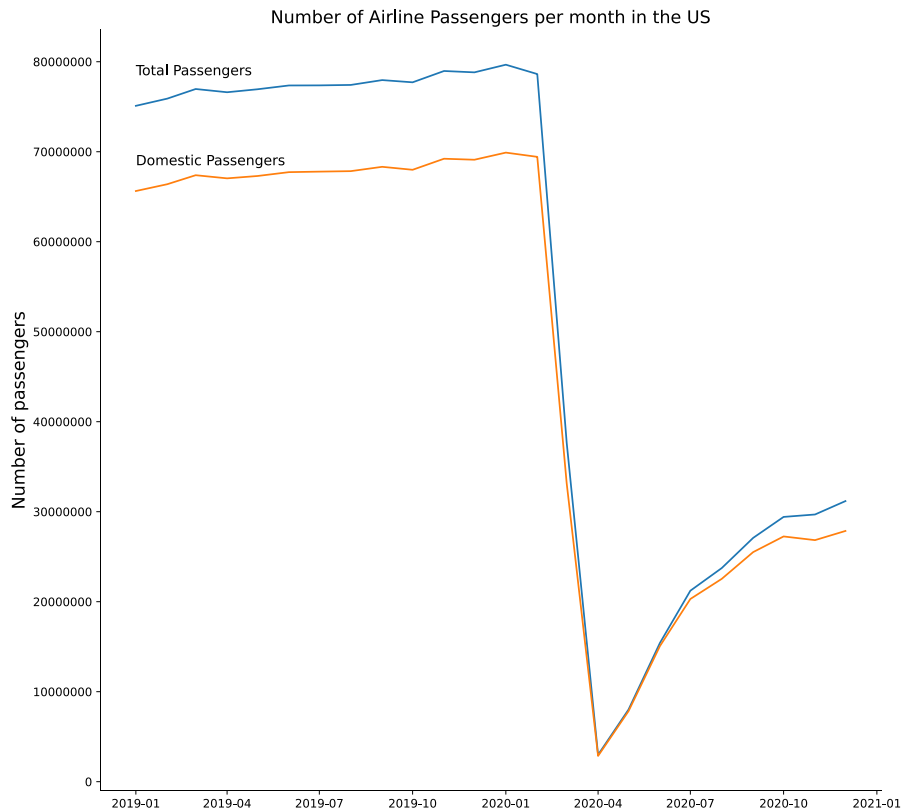


Figure 3

First, we compared U.S. flight data for all travelers to data for domestic travelers. We wanted to see how these numbers compare to get a clearer picture of Covid-19's impact on domestic tourism. Figure 3 shows the comparison of domestic U.S flight passengers to total U.S. flight passengers. Most of the decrease in air travel can be attributed to a decrease in domestic passengers. With this in mind, there is still a striking difference between pre-covid flight passengers and current day numbers.

Next, we wanted to observe how covid affected highway miles driven, which is another key component of tourism and travel.



Figure 4

Figure 4 shows a similar decrease in highway travel during the beginning of the pandemic (around March 2020), however this measure recovered quickly to near pre-pandemic levels by the summer of 2020.

Transportation Method Comparison

We questioned how (if at all) did Covid-19 change transportation in the United States. We compared flight data and highway miles driven to see if substitution occurred.

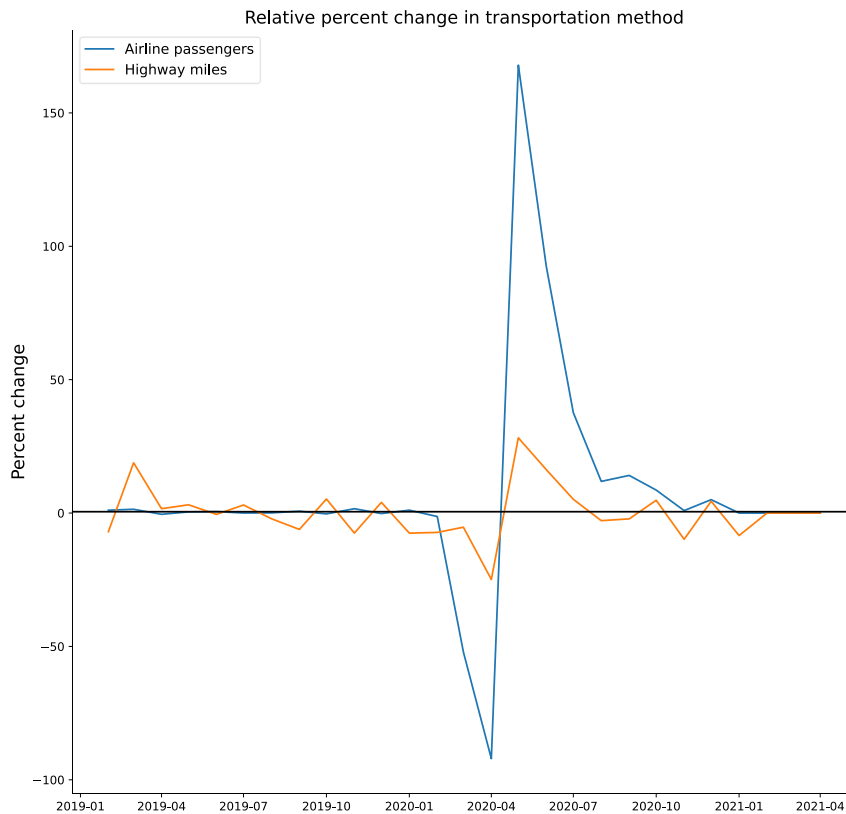


Figure 5

Figure 5 shows the month over month percent change in domestic flight passengers (blue) and highway miles driven (orange). We compared the percent changes to determine if people substituted flight for driving. Initially, this does not appear to be the case. They move relatively in sync, although the magnitude of change in flight passengers is greater. Early in the pandemic, people may have substituted flying for driving, given the lower magnitude decrease in highway miles driven (Flyers switching to driving at a less than 1 for 1 basis, as highway miles are still decreasing). With limited data, exact effects are unclear without data on the total number of travelers and proportions for flying and driving. What we observed is both number of flyers and miles driven decreased, but it is more pronounced for flyers.

Local Markets

We also wanted to look at popular tourist destinations to determine the effects of Covid.

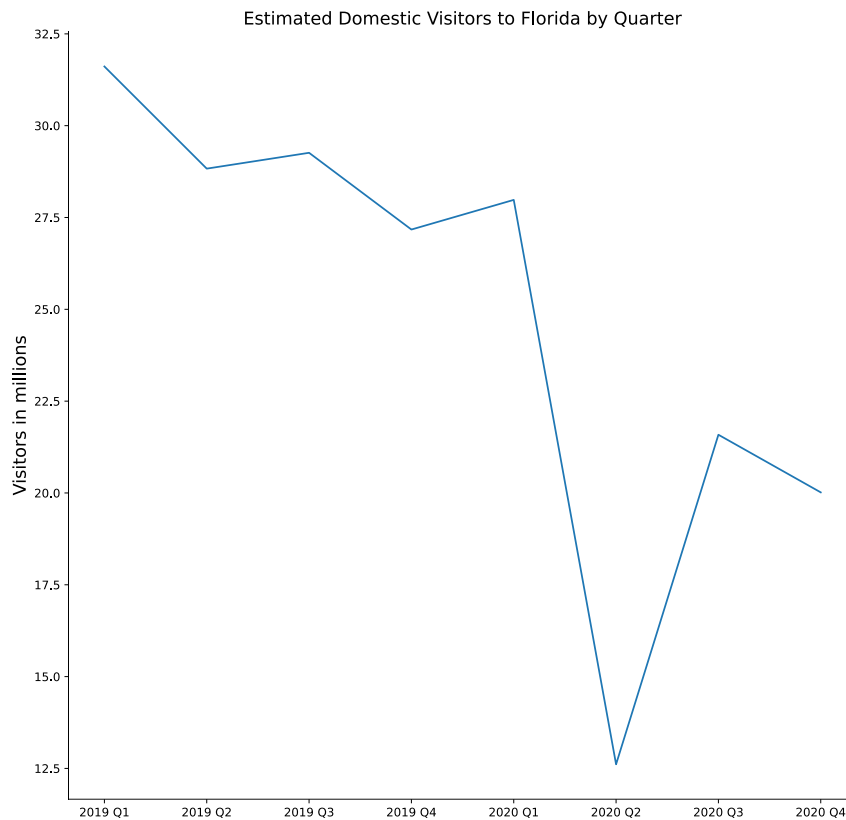


Figure 6

Figure 6 provides data estimating the number of domestic visitors to Florida spanning from 2019 through 2020. There was a marked decline in domestic visitors during the beginning of the pandemic, as number of visitors fell to around 1/3rd of normal quarterly numbers. Some recovery has taken place. However, the most recent data shows Florida is seeing about 2/3rds of the visitors in a normal quarter. Although the economic impact is difficult to determine, researchers from UCF estimate that tourism makes up around 10% of Florida's GDP¹. Consequentially, there could be significant impacts to Florida's GDP from decreased tourism.

¹ Research from: <https://www.ucf.edu/online/hospitality/news/florida-tourism>

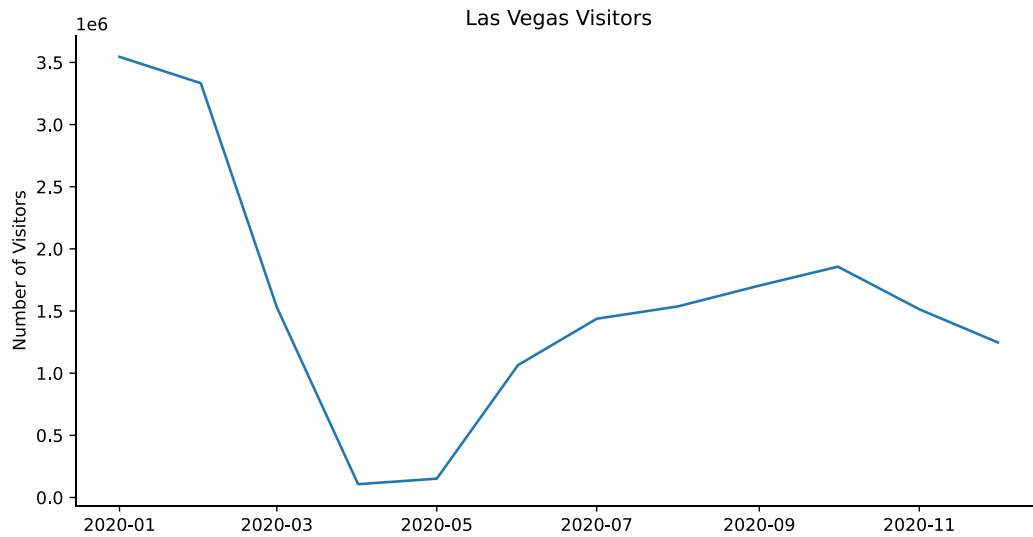


Figure 7

Figure 7 displays the number of visitors in Las Vegas in the year 2020, as provided by research reports from the Las Vegas Visitor Center. The number of visitors starts above 3,500,000 and takes a steep decline around February and March, hitting a low of below 200,000 towards the end of March, when shutdown orders began. Entering the summer, visitors rose steadily, with a peak of around 2,000,000 visitors, however, not reaching the original level for the rest of the year.

Local Market Comparison

Finally, we wanted to compare our two selected local markets to determine how Covid-19 impacted these different areas.

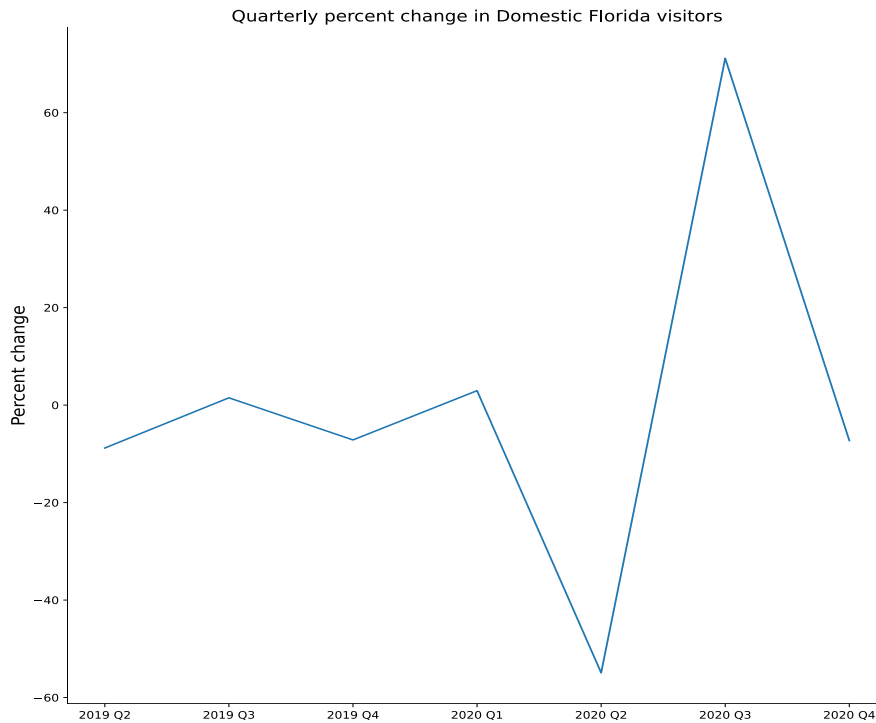


Figure 8

Figure 8 shows the percent change growth rate in domestic visitors to Florida. The rates were hovering around 0% through most of 2019 and early 2020, implying a steady number of visitors. However, there was a drastic reduction of nearly 60% in Q2 with the pandemic. Recently, there was a large positive growth rate followed by a slightly negative growth rate, implying there was some (but not full) recovery.

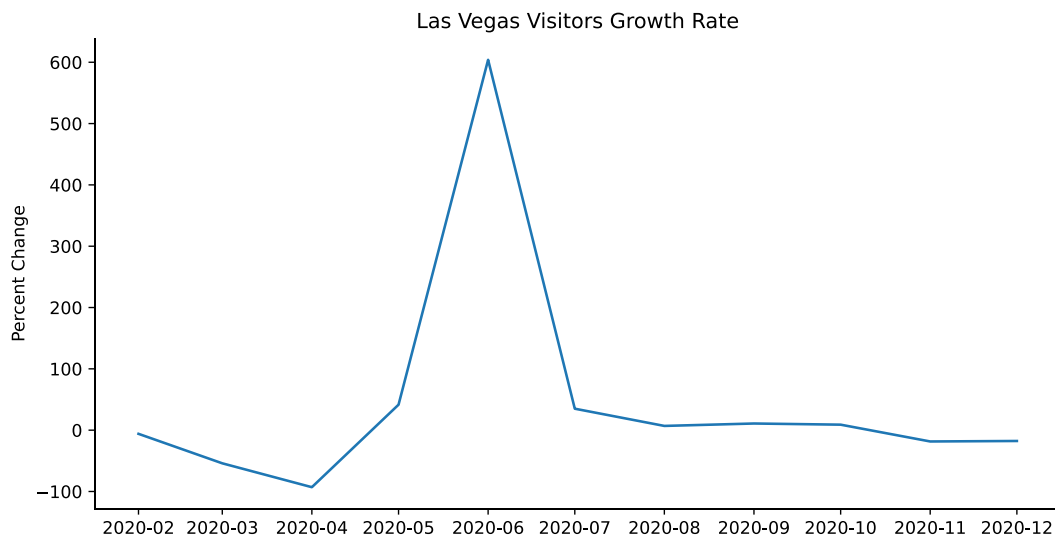


Figure 9

Figure 9 displays information on the growth rate of the quantity of visitors in Las Vegas in the year 2020, as provided by research reports from the Las Vegas Visitor Center. From the beginning of the year until April, the city experienced around a 100% decline in tourists, then rose from the year's low and took a steeper rise entering the summer months in the month of May. Once reaching a high of around a 600% rise in tourists, the growth rate experienced a symmetrical drop back to between 0 and positive 100% at the start of July. From there, it leveled off with a minor decline back to 0 percent for the remaining months. Overall, this tourist destination encountered negative growth during the months corresponding to the initial outbreak in the nation.

Figures 8 and 9 tell a similar story for the first part of 2020. Both Florida and Las Vegas experienced a significant and similar drop in tourism (~60%-80%) at the start of the pandemic. However, paired with figures 6 and 7, we can see that both areas are still well below their normal visitor numbers, with Las Vegas showing slightly less recovery than Florida. It seems Covid did not impact either of our selected regions more significantly.

Conclusions and Future Research

To answer how the travel and tourism industries were affected and how they recovered, we assessed the number of layoffs in the industry, observed a decrease in travel spending throughout different regions in the US, a steep decline in flight and highway travelers, and analyzed a specific comparison between highly touristic areas - Florida and Las Vegas, where we predictably saw a noticeable reduction in visitors in both attraction sites, with a slow rise back to normalcy. There is little evidence of a change in travel methods, but this would be a question that can be answered with future data.

For future research, it would be interesting to see how those few months of destruction affect the travel and tourism industries in the long run when we have access to more data. While the abrupt impact in February, March and April of 2020 will most likely just look like outliers years from

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now, many sectors, businesses, and individuals will be affected far longer than what our data points presently portray.