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# Impacts of COVID-19 on Coastal Tourism in Maine: Evidence from Bar Harbor

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## **Abstract**

This paper examines the effects of COVID-19 on coastal tourism in Bar Harbor, Maine, which was among the hardest hit regions statewide. The impacts of COVID-19 on Bar Harbor's restaurant sector are separated into those related to the reduction in overnight tourists, the decrease in the recreational activities of day visitors and local residents (e.g., Acadia National Park users), the cancellation of cruise ship visits, and the nationwide decline in hospitality sales due to the COVID-19 shutdown.

In July, which is during Bar Harbor's peak tourist season, 52 percent of the area's 2019 to 2020 year-over-year reduction in restaurant sales is due to the decrease in overnight visitors. In October, the decrease in overnight visitors explains only about 8 percent of the 2019 to 2020 year-over-year loss of restaurant sales, while the cancellation of cruise ships accounted for 47 percent of the impact on restaurant sales during this peak month for ships. Across all of 2020, Bar Harbor's loss of overnight visitors explains 40 percent of the area's reduction in restaurant sales, 35 percent of the decline is due to the nationwide impact of the pandemic and shutdown, 14 percent is related to the decrease in the recreational activities of day visitors and local residents, and the cancellation of cruise ships explains 11 percent of Bar Harbor's loss of restaurant sales between 2019 and 2020.

Knowing more about the channels by which COVID-19 impacted hospitality in Bar Harbor can help state and local officials with recovery efforts and support tourism along the Maine coast.

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<sup>1</sup> Todd Gabe is a Professor in the School of Economics and author of the book *Pursuit of Economic Development: Growing Good Jobs in U.S. Cities and States*. This project was funded under federal award ED20PHI3070072 from the EDA University Center Economic Response and Recovery Programs to COVID-19. Gabe's research program is also funded, in part, by Hatch Multistate Grant # ME 031808 (NE 1749) from the USDA National Institute of Food & Agriculture.

<sup>2</sup> This report may be updated to clarify errors or omissions, or as new data become available in the future.

## Impacts of COVID-19 on Coastal Tourism in Maine: Evidence from Bar Harbor

### 1. Introduction

Along with its serious impacts on health and overall wellbeing, the COVID-19 pandemic led to very large economic declines in most regions of the world. Between April of 2019 and 2020, total private nonfarm U.S. employment decreased by 15 percent, with a 16 percent reduction in Maine over this period.<sup>3</sup> The measures used to halt the spread of COVID-19, such as encouraging social distancing and prohibiting the assembly of large groups, had particularly severe impacts on leisure and hospitality businesses (Gabe and Crawley 2021; Gabe and Florida 2021). In Maine, leisure and hospitality industry employment fell by 50 percent between April 2019 and 2020, compared with a 47 percent decline nationally. Similarly, Maine experienced a 62 percent reduction in taxable hospitality (i.e., restaurant and lodging) sales between April 2019 and 2020.<sup>4</sup> Over all of 2020, Maine taxable hospitality sales were 28 percent lower than in the previous year.

Although most everywhere in Maine experienced declines in hospitality sales due to COVID-19, the economic impacts of the pandemic varied widely across regions. The Economic Summary Areas (ESAs) of Portland (43 percent reduction), Kennebunk (39 percent), Bar Harbor (37 percent), Camden (36 percent) and Kittery (34 percent) had the five largest percentage declines in annual hospitality sales between 2019 and 2020, whereas a few small ESAs (e.g., Dover-Foxcroft and Lincoln) had declines of less than ten percent. In terms of the dollar amounts

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<sup>3</sup> U.S. and Maine employment figures are from the U.S. Bureau of Labor Statistics.

<sup>4</sup> Taxable hospitality sales data used through this article are from Maine Revenue Services.

of “lost” sales in restaurants and lodging businesses, the five ESAs with the largest declines between 2019 and 2020 were Portland (\$325 million decrease), Kittery (\$153 million), Bangor (\$84 million), Bar Harbor (\$83 million) and Portland “Suburban” (\$74 million).

Bar Harbor is among the top five ESAs in terms of the percentage decline and dollar value of reduced hospitality sales between 2019 and 2020. As one of Maine’s biggest tourism draws and the gateway community to Acadia National Park, Bar Harbor welcomes millions of visitors per year, with a large share of annual hospitality sales occurring during the peak summer months of July and August.<sup>5</sup> In addition, Bar Harbor is a popular cruise ship port-of-call on autumn New England cruise itineraries. The number of cruise passengers scheduled to visit Bar Harbor increased from just over 225,000 guests in 2017 to about 300,000 visitors in 2020.<sup>6</sup> Whereas the largest numbers of overnight tourists visit Bar Harbor during the summer, the majority of cruise ships and passengers come to town in September and October.

This article examines the effects of the COVID-19 pandemic on tourism and hospitality sales in Bar Harbor. Along with an overview of the reduction in lodging sales and the “lost” economic impact due to the cancellation of the 2020 cruise ship season, the analysis focuses on the factors that contributed to lower restaurant sales in Bar Harbor between 2019 and 2020. Restaurant sales are an excellent barometer of the amount of people—both visitors and local residents—spending money in an area. That’s because overnight tourists eat meals in restaurants as part of their vacations, and day visitors and local residents spend money in restaurants as well.

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<sup>5</sup> According to Maine Office of Tourism figures from 2019 (prior to COVID-19), 7.2 million tourists visited the “Downeast and Acadia” region of Maine, which includes Bar Harbor and surrounding areas.

<sup>6</sup> The passengers scheduled to visit Bar Harbor in 2020 did not come to town due to COVID-19 and the cancellation of cruise ship.

Specifically, the analysis considers the relative importance of four channels by which COVID-19 impacted Bar Harbor’s reduction in restaurant sales: (1) fewer overnight tourists; (2) reduction in Acadia National Park users; (3) cancellation of the 2020 cruise ship season; and (4) the broader national trends of lower restaurant sales during the shutdown and pandemic.

The rest of the article is organized as follows. The next section provides an overview of tourism and hospitality in Bar Harbor in 2019, which was before the COVID-19 pandemic. This overview includes a statistical analysis of the factors that influence restaurant sales, as well as a discussion of the importance of Acadia National Park to local tourism and the economic impacts of cruise passengers. After our look at how things were prior to the pandemic, we examine the effects of COVID-19 on tourism and hospitality in Bar Harbor. Here, we decompose the impacts of COVID-19 into the loss of restaurant sales associated with the reduction in overnight tourists, the decline in Acadia National Park users, the cancellation of the 2020 cruise ship season, and the broader trends impacting restaurant sales nationally. The final section provides a summary of key results and some ideas to consider moving forward.

## 2. Bar Harbor Tourism and Hospitality Before COVID-19

Bar Harbor’s tourism and hospitality economy is driven by large numbers of overnight tourists and activity during the peak summer season, especially July and August, and cruise ship visits during the autumn months. In 2019, the Bar Harbor Economic Summary Area generated \$225 million in hospitality sales, with 22 percent and 24 percent of the sales in July and August. These patterns closely match the annual cycle of Acadia National Park use, which had 22 percent

of its 2019 users in both July and August.<sup>7</sup> As a way to track the spending of people—both tourists and local residents—we analyzed a time-series regression model of monthly taxable restaurant sales with data from January of 2000 to December of 2019. This twenty-year period provides a sufficient time frame for determining how restaurant sales in Bar Harbor are related to the presence of overnight visitors, the recreational activities of local residents and Acadia National Park users, the numbers of cruise passengers that get off the ships, as well as the general ups and downs of restaurant sales nationally.

Table 1 shows time-series regression results on the factors affecting monthly restaurant sales, which are adjusted for inflation to December 2020 prices. The analysis shows that every dollar spent at hotels in the Bar Harbor area is associated with an additional \$0.37 spent at restaurants (and bars) in the area, and each cruise passenger spends an average of \$21.83 on food (and drinks) while in port.<sup>8</sup> The regression result corresponding with the number of Acadia National Park users suggests that, holding constant the effects of overnight visitors and cruise passengers (as well as broad trends in U.S. restaurant sales), the amount of activity in and around the park contributes \$6.13 in restaurant sales per user. Since the influence of overnight tourists (who use the park) and cruise passengers (who visit the park) are accounted for in their own variables, the effect of Acadia National Park users “picks up” the spending of day visitors and even local residents while recreating in the area. Finally, the results show a positive relationship

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<sup>7</sup> Acadia National Park use statistics are from the National Park Service.

<sup>8</sup> In addition to the results shown in table 1, we considered an additional 15 versions of the regression model that differed in terms of the variables and methods used. The impact of cruise passengers across all 16 regression models has a mean value of \$25.71, with a standard deviation of \$4.32.

between restaurant sales in Bar Harbor and U.S. restaurant sales. This means that Bar Harbor's restaurant sales are influenced by the sector's performance nationally.

In 2019, which was prior to the outbreak of COVID-19, the Bar Harbor ESA generated \$116 million in taxable sales at lodging establishments, \$109 million in restaurant sales and \$41 million in "other" retail sales.<sup>9</sup> The overnight visitors who come to Bar Harbor (and spend money in hotels, restaurants and local shops) are drawn to the Maine coast and the area's proximity to Acadia National Park. The closure of Acadia National Park back in 2013, during the U.S. government shutdown from October 1 to 16, revealed its importance to tourism in and around Bar Harbor. The 16-day shutdown led to 76 percent and 13 percent reductions in the number of park users and tourism-related sales, respectively, during October of 2013 (Gabe 2016). Overall, the park's 16-day closure in 2013 led to a \$2.7 million reduction in tourism-related spending. The result that an estimated 17 percent of the potential park users, who planned to explore Acadia in October of 2013, actually cancelled their visits to Bar Harbor underscores the park's impacts on the region's tourism and hospitality economy.

Moving to an analysis of restaurant sales, figure 1 shows monthly restaurant sales in 2019 and the estimated percentage of this activity that is accounted for by cruise passengers. A combined 45 percent of annual restaurant sales happened during the peak summer months of July and August, when only a small share of sales is attributed to cruise passengers. Based on the estimated number of cruise passengers that got off the ships in each month and the estimated restaurant spending of \$21.83 per passenger, cruise ships have their greatest relative impacts in

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<sup>9</sup> The "other" retail category is used by Maine Revenue Services to report taxable sales data in, among other businesses, gift shops, jewelry stores, bookstores and antique dealers.

September (10 percent of restaurant sales) and October (12 percent of sales). These figures are not surprising because Bar Harbor has its highest number of cruise passengers in these months and overnight tourism slows down in the fall.

Across all of 2019, the record number of cruise passengers that visited Bar Harbor generated an estimated \$5.2 million in taxable restaurant sales, which is about 4.7 percent of total restaurant sales over the entire year. The overall economic impact of cruise passengers, which includes spending at restaurants and other purchases, prior to COVID-19 is shown in table 2. These 2019 economic impact figures are based on the \$21.83 in restaurant spending per passenger, as well as expenditures on clothing, books and paper goods, art and jewelry, etc. The spending amounts in these other categories are from a cruise passenger survey conducted in 2016 (Gabe and McConnon 2018), after removing outlier observations where passengers spent more than \$150 in a given category. As an example of the data collected from the 2016 survey, figure 2 shows the distribution of passenger spending on art and jewelry. The majority of cruise passengers spend very little on art and jewelry, whereas a small number of “spenders” account for most of the economic impact. Although these spending figures are from a survey of cruise passengers, they likely reflect the expenditures of all types of tourists that come to Bar Harbor. That is, visitor spending of all sorts is often heavily skewed to the right (i.e., mean value is much higher than the median).

In the economic impact results shown in table 2, the direct passenger spending numbers have a range of \$15.2 million (not counting cruise-line sponsored tours) to \$23.2 million (counting spending on cruise-line sponsored tours), and this amount of spending supports 480 full- and part-time jobs over the cruise ship season, and \$5.8 million in labor income. The multiplier effects



are the additional economic activity supported by the spending of businesses and workers connected to cruise passengers. The multiplier effects are estimated using a county-level economic impact model (IMPLAN) because of the large commuting flows between workers in Bar Harbor and places of residence across Hancock County. Overall, the 2019 cruise ship season—prior to the pandemic—generated an economic impact, including multiplier effects, of between \$23.5 million and \$31.5 million in spending, 553 full- and part-time jobs, and \$8.3 million in labor income.

To put these economic impact figures into perspective, Zip Code Business Patterns data from the U.S. Census Bureau show a 2018 annual payroll in the Bar Harbor area (Zip Code 04609) of \$226 million.<sup>10</sup> The direct impact of \$5.8 million in labor income (2019 cruise ship season) is equivalent to about 2.5 percent of the area’s annual payroll in 2018. This two-and-a-half percent impact relative to Bar Harbor’s overall payroll, which does not include the multiplier effects shown in table 2, differs from the 4.7 percent of restaurant sales attributed to cruise passengers for a couple of reasons. First, and most important, the \$226 million in payroll covers the entire Bar Harbor economy (and about 45 percent of local businesses, included in the Zip Code Business Patterns data, are outside of the tourism and hospitality related sectors of Retail Trade; Arts, Entertainment, and Recreation; and Accommodation and Food Services). Second, the \$5.8 million counted in the direct impact on labor income is supported by cruise passenger spending of all sorts, not just on food and beverages.

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<sup>10</sup> The Zip Code Business Patterns data from 2018 are the most up-to-date figures as of when this article was written.

### 3. Impacts of COVID-19 on Bar Harbor Tourism and Hospitality

The COVID-19 pandemic resulted in very large impacts on tourism and hospitality in the Bar Harbor region. Between 2019 and 2020, the area saw a \$39 million reduction in lodging sales (a 34 percent decrease) and a 768,000 person decrease in the number of Acadia National Park users (22 percent). The cancellation of the Bar Harbor cruise ship season meant the loss of the cruise passenger impact from 2019 and the broader nationwide COVID-19 shutdown at the beginning of the pandemic affected the Bar Harbor region as well. We can use information on these impacts along with the regression results presented in table 1 to investigate the channels by which COVID-19 lowered restaurant sales in Bar Harbor.

Figure 3 shows the sources of reduced Bar Harbor restaurant sales in the months of April, July and October, as well as for the entire year of 2020.<sup>11</sup> Although the analysis highlights the different channels by which the pandemic impacted the Bar Harbor area, it should be noted that all four of these impacts were ultimately caused by COVID-19. In April, during the COVID-19 shutdown, restaurant sales in Bar Harbor fell by \$1.5 million between 2019 and 2020. Results of the analysis suggest that 90 percent of the reduction in Bar Harbor restaurant sales in April is associated with changes to the industry nationally and the broader COVID-19 shutdown. Although Bar Harbor experienced a decline in lodging sales of \$1.3 million between April 2019 and 2020, the reduction in overnight tourists was a relatively small contributor to the decline in restaurant sales during April (that is outside of Bar Harbor's peak season for overnight tourists).

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<sup>11</sup> The regression results were used to estimate the year-over-year reduction in restaurant sales, which does not exactly match the actual loss. The information shown in figure 3 is the estimated amount of lost restaurant sales due to a given source, divided by the estimated overall reduction in year-over-year restaurant sales.

The channels by which COVID-19 impacted Bar Harbor restaurant sales changed dramatically between April and July. In July, a \$12 million reduction in lodging sales (\$15 million in 2020, compared with \$27 million in 2019) accounted for 52 percent of the loss in restaurant sales, and the decrease in Acadia National Park users (494,000 in 2020, compared with 756,000 in 2019) explains 19 percent of the 2019 to 2020 reduction in July restaurant sales. The broader impacts of COVID-19 nationally continued to have an effect on Bar Harbor restaurant sales in July (accounting for 24 percent of the reduction) but this “national effect” was far smaller than the one felt during the April shutdown (90 percent of Bar Harbor’s reduction in restaurant sales).

The impacts of COVID-19 on Bar Harbor restaurant sales changed yet again between July and October. In October, the impact of “fewer” Acadia National Park users disappeared altogether as the park actually saw an increase in users (481,000), compared with October of 2019 (436,000). Likewise, the impacts associated with the reduction in overnight tourists declined from July to October, as the year-over-year impact on Bar Harbor taxable lodging sales was much smaller in October (4.3 percent decrease) compared with July (44 percent decrease). In October, which is a peak month for cruise ships, the loss of cruise passengers from 2019 to 2020 accounted for 47 percent of the decrease in Bar Harbor restaurant sales. Likewise, the broader impacts of the decline in U.S. restaurant sales accounted for 45 percent of Bar Harbor’s year-over-year reduction in October restaurant sales.

The far-right bar of figure 3 shows the channels by which COVID-19 impacted Bar Harbor’s restaurant sales across the entire year of 2020. The reduction in overnight tourists in the region, notably during the summer months, explains 40 percent of the overall reduction in annual restaurant sales. Likewise, the broader declines in restaurant sales nationally, particularly during

the shutdown at the beginning of the pandemic, is associated with 35 percent of Bar Harbor's decline in 2020 restaurant sales. The cancellation of all cruise ship visits in 2020 explains 11 percent of the lost restaurant sales between 2019 and 2020 and the reduction in the number of Acadia National Park users, which is a proxy for the recreational activities of local residents and day visitors, is responsible for an additional 14 percent of the decline.

#### 4. Summary and Conclusions

The COVID-19 pandemic had very severe impacts on health and the economy, leading to especially large reductions in leisure and hospitality sales. For example, Maine experienced a 28 percent decrease (\$1.2 billion reduction) in restaurant and lodging sales between 2019 and 2020. The coastal town of Bar Harbor, which was among the hardest hit regions in the state, lost \$84 million in hospitality sales due to the pandemic. Using restaurant sales as a barometer of the number of people spending money in the area, this article separated the impacts of COVID-19 on Bar Harbor's tourism economy into the amounts related to the reduction in overnight visitors, the cancellation of the 2020 cruise ship season, the decrease in the number of Acadia National Park users, and the overall decline in activity nationally due to the pandemic and shutdown.

Focusing on the impacts related to the reduction in overnight visitors, Bar Harbor experienced a \$39 million reduction in lodging sales in 2020 compared to the amount in 2019, which is a 34 percent decrease. The impacts of having fewer overnight visitors on local restaurants ranged from 52 percent of the reduced taxable sales in July to 8 percent in October. The dramatic reduction in overnight visitors led to large impacts on retail stores in and around

Bar Harbor and it is responsible for 40 percent of the Bar Harbor ESA's decrease in restaurant sales across all of 2020.

Turning to the impacts of the cancelled cruise ship season, the loss of cruise passengers is responsible for 11 percent of Bar Harbor's reduction in restaurant sales from 2019 to 2020. These impacts were greatest in September and October, when most of the ships visit Bar Harbor, and largest in the areas of town close to where passengers enter port. An analysis of the businesses visited by cruise passengers, based on a survey conducted in 2016, shows a negative relationship between the number of passengers that visit a store or restaurant and its distance from where they enter port (and favorable on-line ratings attract more cruise passengers) (Gabe 2021a). Likewise, an analysis of the number of people encountered on Bar Harbor's sidewalks suggests that the impacts of cruise ships on sidewalk pedestrian traffic peter out at greater distances from where passengers enter Bar Harbor (Gabe 2021b). Both of these studies suggest that the loss of cruise passengers from 2019 to 2020 had its greatest impacts on stores and restaurants located near the passenger point-of-entry.

The broader economic impacts of COVID-19 nationally and a reduction in Acadia National Park users also contributed to the decline in Bar Harbor's restaurant sales that happened between 2019 and 2020. For example, the impacts of COVID-19 nationally (e.g., shutdown) accounted for 90 percent of the year-over-year decline in Bar Harbor restaurant sales in April, which was when the United States (and Maine) had the strictest COVID-related restrictions and prior to Bar Harbor's peak seasons for overnight tourists and cruise ships. The reduction in the number of park users, which in our analysis is a proxy for the recreational activities of local residents and day visitors to the area, had relatively larger impacts in the summer. By fall,

however, the numbers of Acadia National Park users in 2020 exceeded the levels from one year earlier (prior to COVID-19).

When thinking about the results presented in this article, it is important to keep in mind that the impacts of COVID-19 are measured relative to the economic activity that happened in 2019. These values are, thus, conservative estimates of the actual impacts of COVID-19 because, in all likelihood, the economic activity in and around Bar Harbor would have increased between 2019 and 2020 “if not” for the pandemic. This means that a comparison of the actual sales that occurred in 2020 to the sales that would have happened without COVID-19 would likely be considerably larger than the impacts (reported in this article) measured by comparing actual sales in 2020 to the sales that occurred in 2019.

Looking ahead, the Bar Harbor area (and all of Maine) will almost certainly experience a large rebound in visitors and hospitality sales moving into the future. The extent to which Bar Harbor’s tourism and hospitality sector recovers (to levels that would have been expected in future years had the sector experienced typical growth) depends on all four of the factors that are found to contribute to hospitality sales. First, the strong connection between Bar Harbor’s tourism economy and the health of the sector nationally suggests that any large setback from the country’s recovery from the COVID-19 pandemic would adversely impact tourism and hospitality in Bar Harbor. As of June of 2021, the number of U.S. daily COVID-19 cases was decreasing along with the ready availability of COVID-19 vaccines. A continuation of this trend will help the hospitality industry nationally as well as in Maine.

Second, as noted earlier in the report, the number of Acadia National Park users had already recovered to pre-pandemic levels as of the end of 2020. Continued growth in this

measure, which represents the recreational activities of local residents and day visitors to Bar Harbor, will help the area's economic recovery from COVID-19. Third, and perhaps most important, a recovery in Bar Harbor's overnight tourism will be needed for the area's hospitality sector to bounce back from COVID-19. Lodging sales at the end of 2020 were approaching their levels from 12 months earlier, which is suggestive of a recovery.<sup>12</sup> The area's lodging sales during the peak summer season, however, is most important to its performance over an entire year. Finally, a return of cruise passengers to Bar Harbor will contribute to the area's recovery, especially during the autumn months when most ships visit.

Local businesses and policymakers can take a few steps to help coastal towns, such as Bar Harbor, and the rest of the state in the economic recovery from COVID-19. First, companies should remember the practices that helped them operate during the pandemic as they return to "business as usual." Even though, for example, people will return to eating inside restaurants in the post-pandemic period, businesses can enhance their revenues by continuing to offer outdoor seating, pick-up options, and delivery services. Using a mix of business practices that worked during the pandemic, as well as practices employed prior to COVID-19, can help businesses succeed during the recovery and beyond.

In addition, government officials and business owners need to recognize that a full recovery from the COVID-19 economic shock will take time to achieve. As mentioned above, a return to pre-pandemic sales and employment numbers does not signify a full recovery, as these indicators of tourism would have likely increased over the years and moving into the future.

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<sup>12</sup> Bar Harbor lodging sales over the last three months of 2020 were 2.6 percent lower than lodging sales in the fourth quarter of 2019.

Finally, local businesses and policymakers need to recognize that the environment for conducting business changed during the period of the pandemic, with many of these changes not directly related to COVID-19. The country saw a change in some of its national government policies, the Maine labor force is different than it was in 2019 prior to the pandemic, and perhaps the attitudes of some workers have changed regarding their ideas about ideal work conditions and expectations around compensation. Moving forward, it's important to consider the impacts of these changes when developing plans to help regions and businesses recover from the COVID-19 pandemic.



## References

Gabe, Todd. (2016). "Effects of the October 2013 U.S. Federal Government Shutdown on National Park Gateway Communities: The Case of Acadia National Park and Bar Harbor, Maine," *Applied Economics Letters*, 23(5), 313-317.

Gabe, Todd. (2021a). "Yelp.com Ratings and the Businesses Visited by Cruise Passengers in Bar Harbor, Maine," *Applied Economics Letters*, 28(2), 119-123.

Gabe, Todd. (2021b). "Measurement and Analysis of Neighborhood Congestion: Evidence from Sidewalk Pedestrian Traffic and Walking Speeds," *Growth and Change*, forthcoming.

Gabe, Todd and Andrew Crawley. (2021). "Effects of the COVID-Related Stay-at-Home Order on Hospitality Sales and Automobile Traffic Counts." *Economics and Business Letters*, forthcoming.

Gabe, Todd and Richard Florida. (2021). "Impacts of Jobs Requiring Close Physical Proximity and High Interaction with the Public on U.S. Industry Employment Change During the Early Stages of the COVID-19 Pandemic," *The BE Journal of Economic Analysis & Policy*, forthcoming.

Gabe, Todd and James McConnon Jr. (2018). "Popping the Question: The Influence of Survey Design on Estimated Visitor Spending in a Region," *Journal of Regional Analysis & Policy*, 48(4), 9-24.

Table 1. Factors Affecting Monthly Taxable Restaurant Sales in the Bar Harbor ESA: January 2000 to December 2019

| Variable                           | Estimated Coefficient | Standard Error |
|------------------------------------|-----------------------|----------------|
| Lodging Sales                      | 0.371*                | 0.027          |
| Cruise Ship Passengers             | 21.83*                | 4.22           |
| Acadia National Park Users         | 6.13*                 | 0.671          |
| U.S. Restaurant Sales (\$millions) | 153.1*                | 48.6           |
| Constant                           | -508.5                | 7,827          |
| ARMA L1 (monthly lag)              | -0.388*               | 0.050          |
| ARMA L2 (monthly lag)              | -0.162*               | 0.061          |
| ARMA12 L1 (seasonal lag)           | -0.583*               | 0.051          |

Notes: Empirical results are from a time-series regression model, which is appropriate given the use of monthly data. The superscript \* denotes statistical significance at the 1-percent level.

Table 2. 2019 Economic Impact of Bar Harbor Cruise Ship Passengers

|              | Direct Impact            | Multiplier Effects | Total Impact             |
|--------------|--------------------------|--------------------|--------------------------|
| Spending     | \$15.2 to \$23.2 Million | \$8.3 Million      | \$23.5 to \$31.5 Million |
| Employment   | 480                      | 74                 | 553                      |
| Labor Income | \$5.8 Million            | \$2.5 Million      | \$8.3 Million            |

Notes: The direct spending figure is based on the regression result of \$21.83 in restaurant spending per passenger, and other expenditure (e.g., souvenirs, art and jewelry, clothing) data are from a 2016 survey of Bar Harbor cruise passengers (Gabe and McConnon 2018). The direct employment and labor income figures—and the multiplier effects—are based on an input-output model (IMPLAN) of the local region. The range of spending values has a low-end that does not count passenger spending on tours and a high-end that accounts for tours, of which an unknown amount is kept by the cruise lines. The direct employment of 480 full- and part-time jobs is adjusted in the analysis to account for the fact that cruise ships visit over a six-month period of the year. Economic impact figures are based on the estimated numbers of passengers that “got off the ships” in Bar Harbor.

Figure 1. 2019 Monthly Restaurant Sales in the Bar Harbor ESA

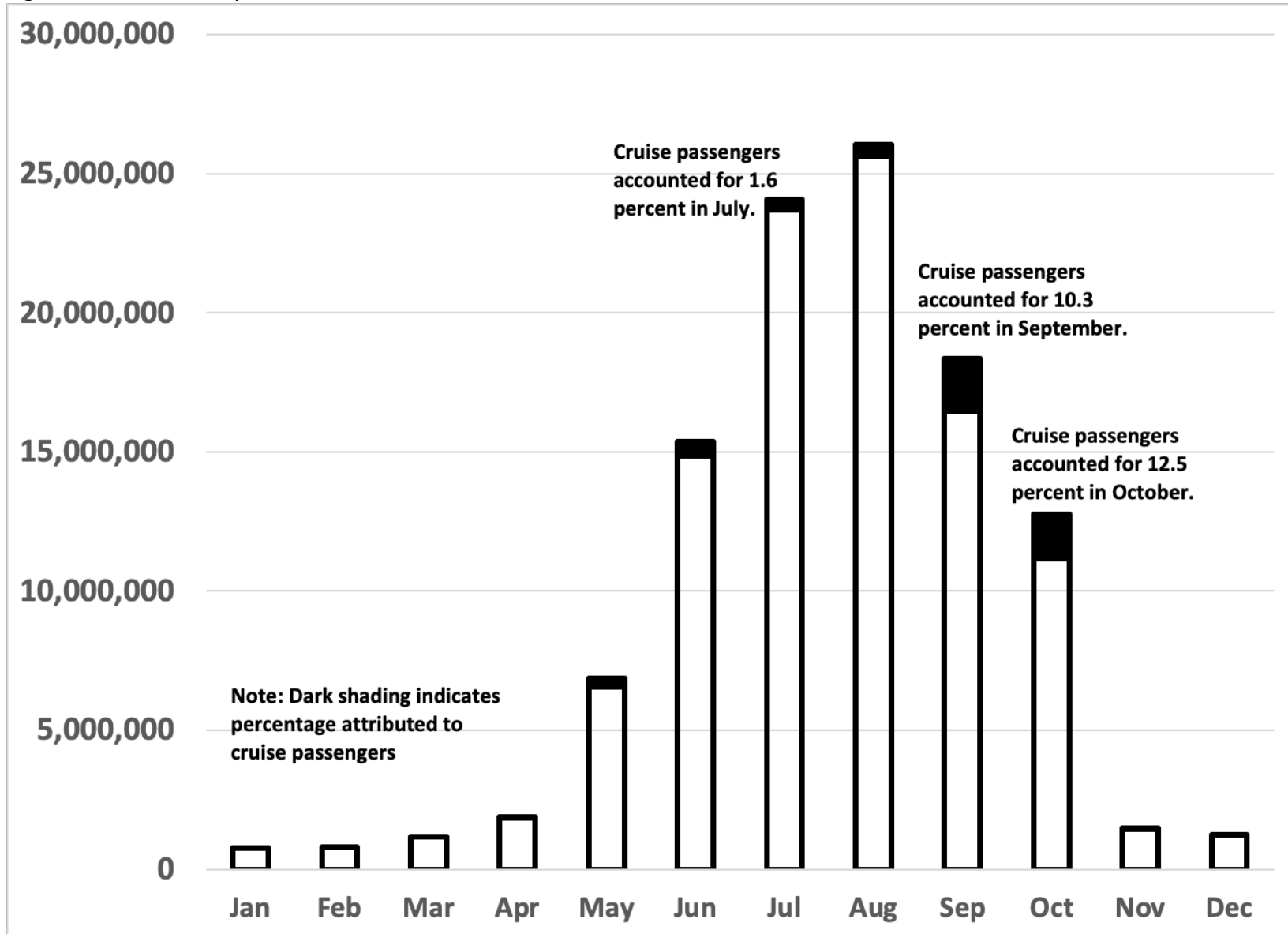


Figure 2. Distribution of Bar Harbor Cruise Passenger Spending on Art and Jewelry

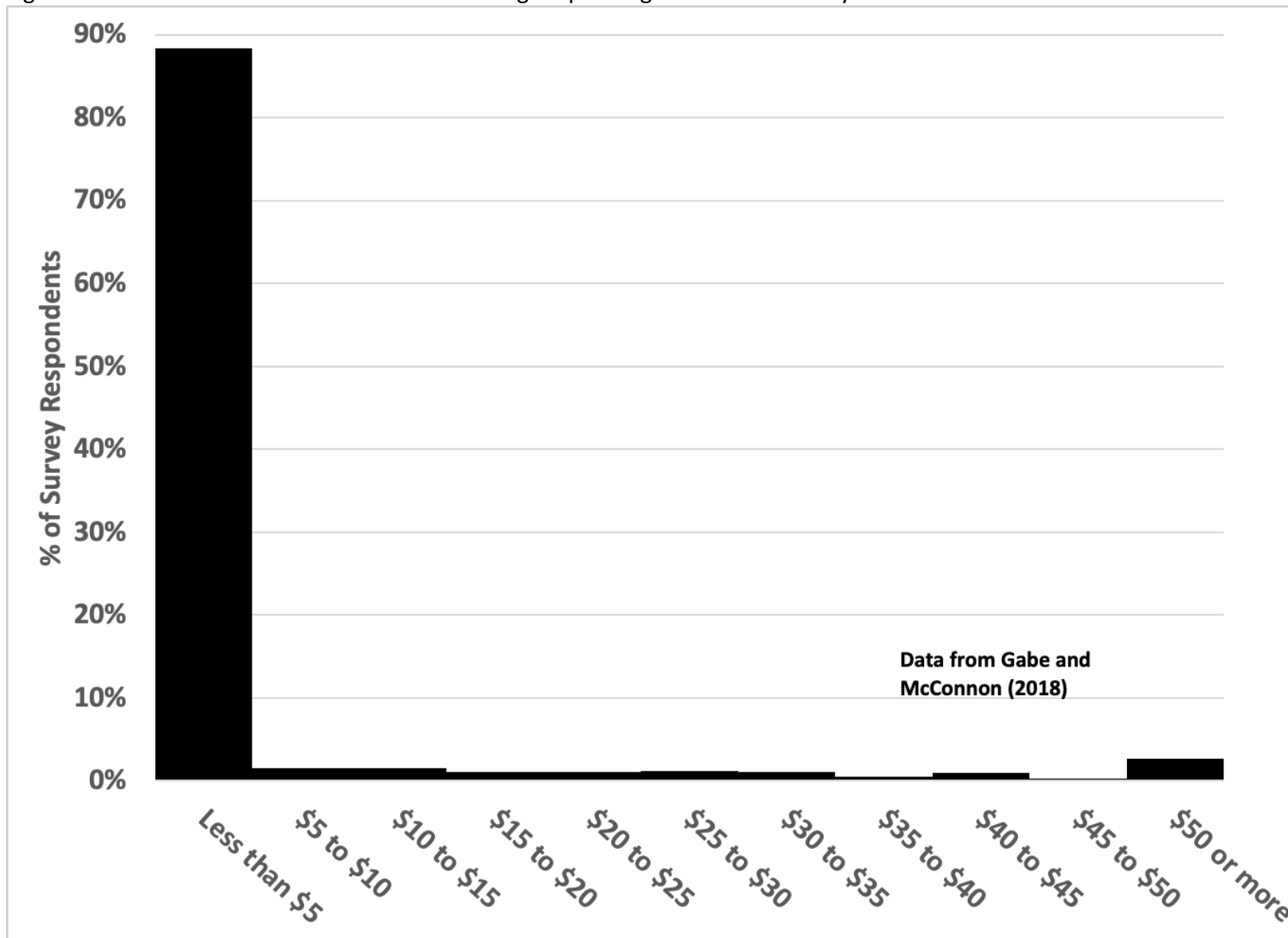


Figure 3. Sources of Reduced 2020 Bar Harbor Restaurant Sales Due to COVID-19

