A Note on the Reduction in Hospitality Sales Prior to a State's COVID-related Stay-at-Home Order: Evidence from Maine, USA

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Abstract:

This paper examines Maine's (USA) daily hospitality sales over the period of February 1 to April 30, 2020, with a focus on the period covering the state's COVID-related Stay-at-Home order and the days immediately before the order was issued on April 2. Results show that consumers substantially lowered their spending prior to April 2—even more so than during the Stay-at-Home order—which suggests that a recovery in the hospitality industry is dependent on behavioral as well as statutory considerations.

Keywords:
COVID-19; Hospitality Sales; Maine; Stay-at-Home Order

Introduction

The measures used to slow the spread of COVID-19—e.g., encouraging social distancing and prohibiting the assembly of groups of people—are having particularly severe impacts on hospitality businesses worldwide. Many restaurants and hotels serve large groups gathered in confined spaces, which necessitated the shutdown of some hospitality businesses while others dramatically curtailed their operations. U.S. employment in the Accommodation and Food Services sector fell by 48.5 percent between February and April of 2020, a drop that exceeded the 14.5-percent decline in overall U.S. nonfarm employment.[1]

The 48.5-percent reduction in U.S. hospitality employment between February and April (and 4.8-percent decline from February to March) conceals the exact timing of when consumers stopped eating in restaurants and staying in hotels, and when these businesses slowed down their operations. The period of late January until the beginning of April 2020 includes several COVID-related milestones that may have impacted U.S. hospitality businesses.

About one month after the United States recorded its first confirmed case (January 21)—at that time—the country had its first confirmed death (at the time) from COVID-19 on February 29, 2020.[2] The United States approved widespread testing for Coronavirus on March 3, a national emergency was declared on March 13, the U.S. Centers for Disease Control and Prevention (CDC) issued a recommendation against gatherings of 50 or more people on March 15, and—by March 26—the United States had the largest number of confirmed cases in the

[1] U.S. employment figures, which are seasonally adjusted, are from the Current Employment Statistics series of the U.S. Bureau of Labor Statistics.

[2] These dates are from Taylor (2020).

world. States such as New York, Texas and Florida issued Stay-at-Home orders on March 22, April 2 and April 3, respectively (Chetty et al. 2020).

In some places, it appears that a reduction in hospitality sales happened even before states issued their Stay-at-Home orders. For example, Florida experienced a 63-percent drop in consumer spending at restaurants and hotels on March 27 (Chetty et al. 2020), which was seven days before the state's Stay-at-Home order on April 3. Likewise, overall U.S. restaurant and hotel spending had already fallen by 17 percent, as of March 15, when the CDC discouraged the gatherings of 50 or more people.

This paper investigates daily hospitality (defined as restaurants and lodging establishments) sales in the U.S. state of Maine from February 1 to April 30, 2020, with a focus on the period covering the state's COVID-related Stay-at-Home order and the days immediately before the order was issued on April 2. The state's hospitality sector is an important source of economic activity—e.g., it accounts for almost five percent of statewide GDP—which makes Maine a useful region to understand the early economic effects of COVID-19.[3] The analysis is based on monthly hospitality sales data from Maine Revenue Services, daily observations on the impacts of COVID-19 on consumer spending at restaurants and hotels in Maine, and—as a second indicator of daily economic activity in the state—daily traffic counts in Maine. The key research question that motivates the analysis is: What percentage of the reduction in hospitality spending in April of 2020 is explained by behavior that started before Maine issued its Stay-at-Home order on April 2?

[3] This figure is from: https://www.mdf.org/wp-content/uploads/2019/04/MOG-FullReport2019-FNL.pdf.

Our research contributes to a new literature on the economic and financial impacts of COVID-19 (Bartik et al., 2020; Bauer and Enzo 2020; Grobys 2020; Harjoto, Rossi and Paglia 2020; Kong and Prinz 2020; Lewis, Mertens and Stock 2020; Mamaysky 2020), and—specifically—how household spending changed as a result of the global pandemic. For example, Baker et al. (2020) found that U.S. household spending (e.g., groceries) increased sharply between February 26 and March 16, followed by large reductions in spending (e.g. restaurants) from the middle to late March of 2020. Likewise, Lewis, Mertens and Stock (2020) uncovered a steep decline in U.S. economic activity starting in the week that ended on March 21, 2020. The analysis presented below, which focuses on restaurant and lodging sales in Maine, reveals a substantial decrease that started in early March—with large reductions in the days leading up to the state's Stay-at-Home Order issued on April 2, 2020.

Data and Analysis

Figure 1 displays daily hospitality sales in Maine over the three-month period of February 1 to April 30, 2020. To estimate these values, we used consumer expenditure data from Chetty et al. (2020) that show daily changes (relative to the period of January 4 to 31) in expenditures by sector. For example, Maine experienced a 39.6-percent reduction in consumer spending at restaurants and hotels on March 19, which suggests that spending was at a 60.4-percent level on that date (*Daily Percent*$_t$). These spending percentages were then used to apportion monthly taxable sales (for 29 days in February, 31 days in March and 30 days in April) at Maine restaurants and hotels (from Maine Revenue Services) into daily values.

(1) $$Daily\ Sales_t = (Daily\ Percent_t / \sum_{t=1}^{29,30,31} Daily\ Percent_t)\ x\ Monthly\ Taxable\ Sales$$

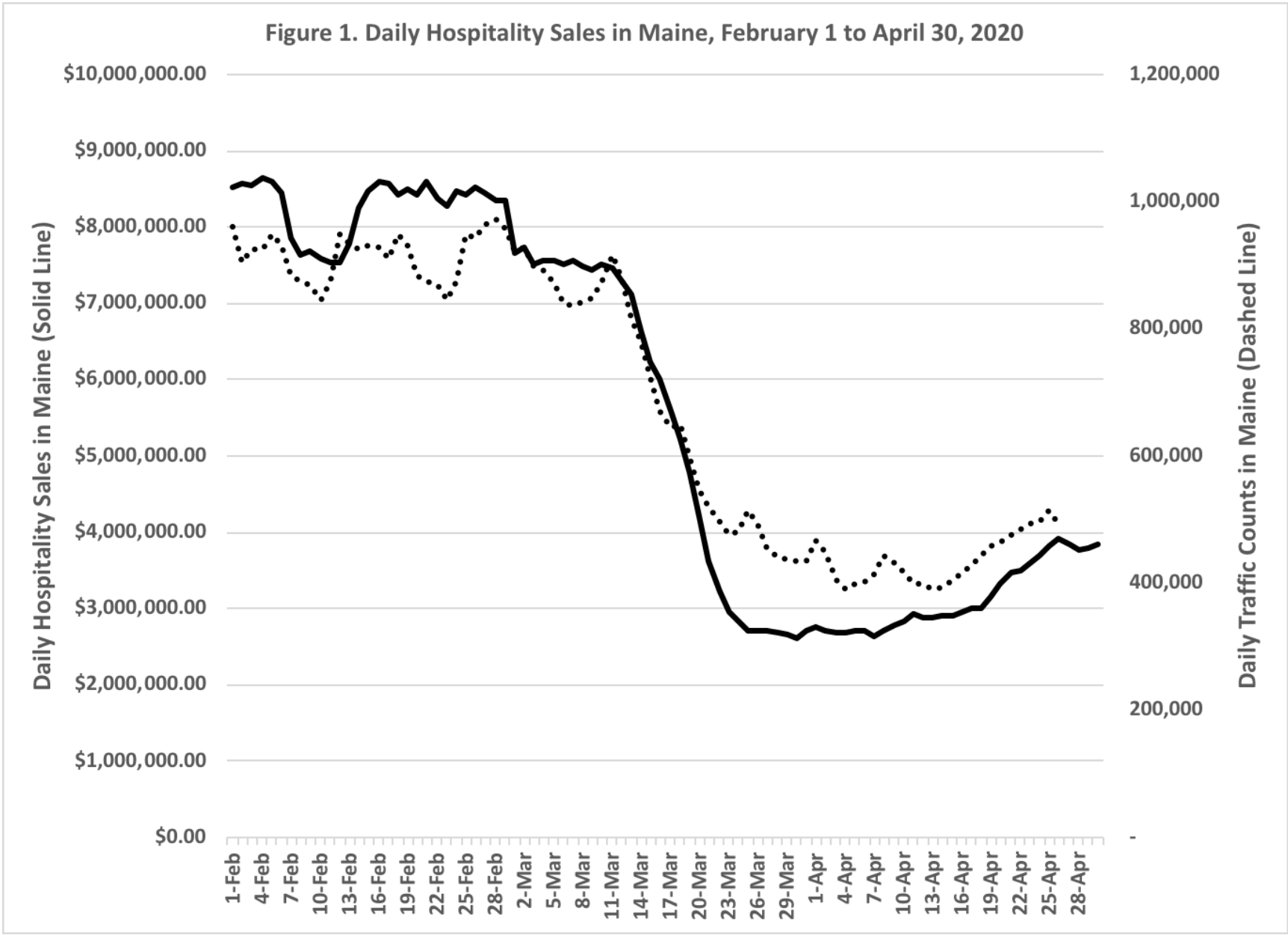
Figure 1. Daily Hospitality Sales in Maine, February 1 to April 30, 2020
Daily Hospitality Sales in Maine (Solid Line)
Daily Traffic Counts in Maine (Dashed Line)
$10,000,000.00
$9,000,000.00
$8,000,000.00
$7,000,000.00
$6,000,000.00
$5,000,000.00
$4,000,000.00
$3,000,000.00
$2,000,000.00
$1,000,000.00
$0.00
1,200,000
1,000,000
800,000
600,000
400,000
200,000
-
1-Feb
4-Feb
7-Feb
10-Feb
13-Feb
16-Feb
19-Feb
22-Feb
25-Feb
28-Feb
2-Mar
5-Mar
8-Mar
11-Mar
14-Mar
17-Mar
20-Mar
23-Mar
26-Mar
29-Mar
1-Apr
4-Apr
7-Apr
10-Apr
13-Apr
16-Apr
19-Apr
22-Apr
25-Apr
28-Apr

The daily sales estimates in figure 1 follow the exact pattern as the COVID-related impacts in Maine (Chetty et al. 2020), and the daily values sum to the exact amount of taxable hospitality sales in each month. As a second indicator of activity in Maine—and a check of the accuracy of the estimated hospitality sales numbers—figure 1 also shows daily traffic counts in Maine from the Maine Department of Transportation. The traffic counts are based on hourly data, which are aggregated to daily values, from 71 permanent recorder sites located throughout the state.[4]

Maine hospitality sales fell substantially from an estimated $7.7 million per day on March 1 to $2.7 million on March 31. This reduction in economic activity is consistent with the patterns uncovered by Baker et al. (2020) and Lewis, Mertens and Stock (2020) and, similarly, Carvalho et al. (2020) found very sharp COVID-related declines in Portugal's hospitality sector. Sales in April, which cover 29 days of Maine's Stay-at-Home order starting on April 2, ranged from $2.6 million to $3.9 million per day with a slight upward trend over the period.[5] Overall, the estimated Maine hospitality sales figures track very closely with daily traffic counts observed across the state ($r = 0.99$).

We can use the information shown in figure 1 to estimate the impacts of COVID-19 on Maine hospitality sales. To do this, we compare the daily sales figures to average hospitality sales—if not for COVID-19—in the months of March and April. The counterfactual values are found by applying the January 2019 to 2020 growth rate in hospitality sales to March and April hospitality sales in 2019. Based on the 12.3-percent growth in Maine hospitality sales between

[4] To smooth the data, the traffic counts in figure 1 are 5-day moving averages.

[5] Maine allowed the opening of "selected" nonessential businesses on May 1, 2020.

January 2019 and 2020—and the $258 million and $252 million in hospitality sales recorded in March and April of 2019—we would expect $9.3 million and $9.4 million in average daily hospitality sales in March and April of 2020, if not for COVID-19.

Figure 2 shows the estimated reduction in Maine hospitality sales associated with COVID-19. The daily loss in sales is the difference between average daily sales (if the growth that happened between January 2019 and 2020 also occurred in March and April) and estimated daily sales with the COVID-related impacts from figure 1. For example, hospitality sales on March 2 and April 2 were an estimated $1.6 million (17-percent) and $6.7 million (71-percent) lower, respectively, than average daily sales in March and April if not for COVID-19.

The shaded area of figure 2 highlights the reduction in April hospitality sales after Maine issued its Stay-at-Home order on April 2, 2020. The total decrease of $181.6 million translates into an average daily loss of $6.3 million. The COVID-related reductions in Maine hospitality sales in the days leading up to April 2 suggest, however, that people changed their behavior in advance of the Stay-at-Home order. For example, hospitality sales on March 12 were $2.1 million lower than predicted, if not for COVID-19, which is equivalent to 33 percent of the average daily loss from April 2 to 30.

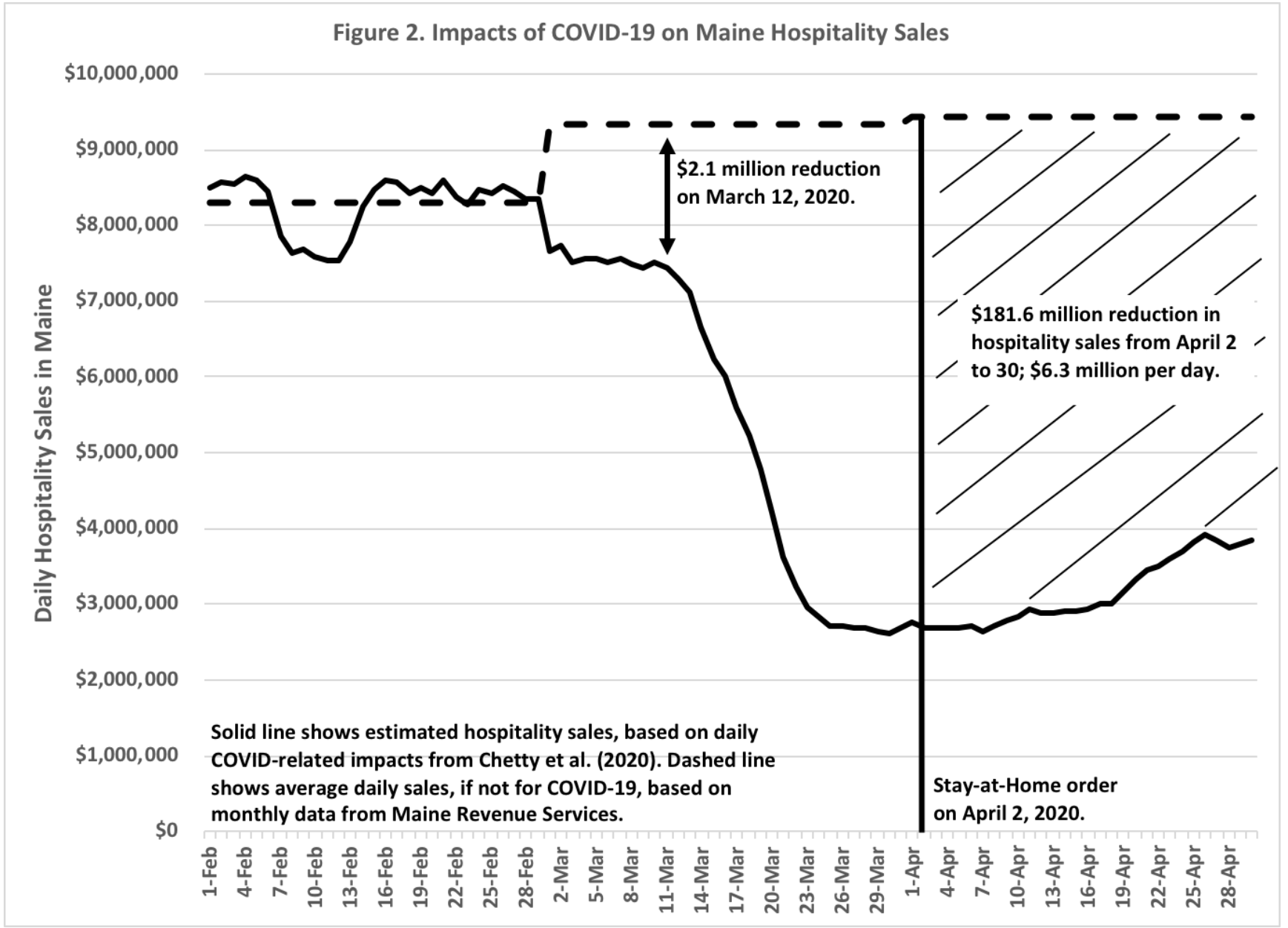
Figure 2. Impacts of COVID-19 on Maine Hospitality Sales
Daily Hospitality Sales in Maine
$10,000,000
$9,000,000
$8,000,000
$7,000,000
$6,000,000
$5,000,000
$4,000,000
$3,000,000
$2,000,000
$1,000,000
$0
$2.1 million reduction on March 12, 2020.
$181.6 million reduction in hospitality sales from April 2 to 30; $6.3 million per day.
Solid line shows estimated hospitality sales, based on daily COVID-related impacts from Chetty et al. (2020). Dashed line shows average daily sales, if not for COVID-19, based on monthly data from Maine Revenue Services.
Stay-at-Home order on April 2, 2020.
1-Feb
4-Feb
7-Feb
10-Feb
13-Feb
16-Feb
19-Feb
22-Feb
25-Feb
28-Feb
2-Mar
5-Mar
8-Mar
11-Mar
14-Mar
17-Mar
20-Mar
23-Mar
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19-Apr
22-Apr
25-Apr
28-Apr

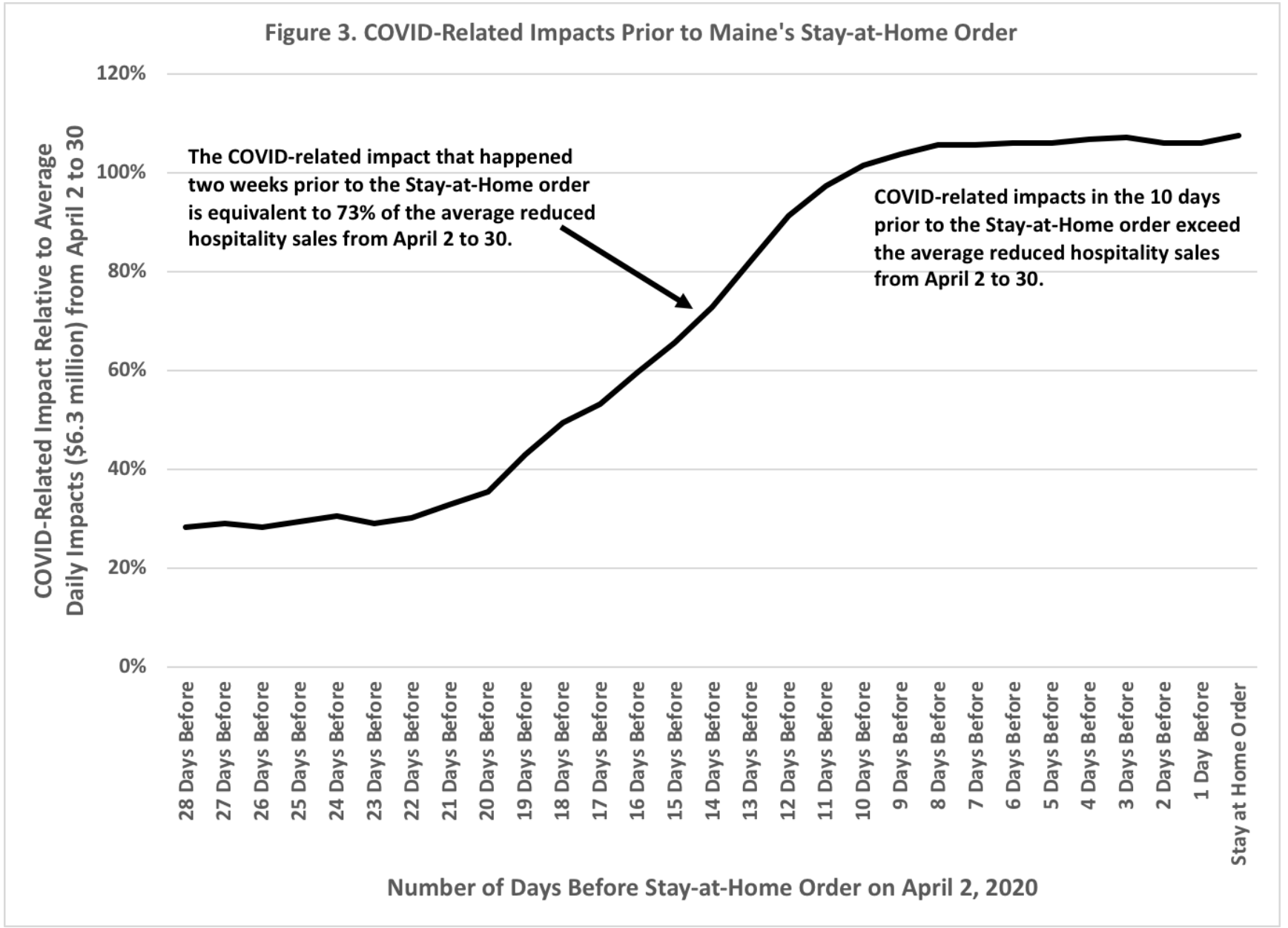
Figure 3. COVID-Related Impacts Prior to Maine's Stay-at-Home Order
COVID-Related Impact Relative to Average Daily Impacts ($6.3 million) from April 2 to 30
120%
100%
80%
60%
40%
20%
0%
The COVID-related impact that happened two weeks prior to the Stay-at-Home order is equivalent to 73% of the average reduced hospitality sales from April 2 to 30.
COVID-related impacts in the 10 days prior to the Stay-at-Home order exceed the average reduced hospitality sales from April 2 to 30.
28 Days Before
27 Days Before
26 Days Before
25 Days Before
24 Days Before
23 Days Before
22 Days Before
21 Days Before
20 Days Before
19 Days Before
18 Days Before
17 Days Before
16 Days Before
15 Days Before
14 Days Before
13 Days Before
12 Days Before
11 Days Before
10 Days Before
9 Days Before
8 Days Before
7 Days Before
6 Days Before
5 Days Before
4 Days Before
3 Days Before
2 Days Before
1 Day Before
Stay at Home Order
Number of Days Before Stay-at-Home Order on April 2, 2020

Figure 3 shows how the COVID-related impacts in the days leading up to Maine's Stay-at-Home order on April 2, 2020, compare to the average daily impacts between April 2 and 30. For example, the decrease in daily sales that happened two weeks prior to the Stay-at-Home order (i.e., reduction of $4.6 million on March 19) is equivalent to 73 percent of the average COVID-related decrease between April 2 and April 30. Furthermore, the reductions in Maine hospitality sales in the ten days leading up to April 2—ranging from decreases of $6.4 million to $6.7 million—exceed the average daily impact of $6.3 million from April 2 to 30. These results suggest that a large part of the decline in hospitality sales that took place during April had already started in advance of Maine's Stay-at-Home order.

Conclusions

The U.S. hospitality sector experienced substantial losses in March and April of 2020 due to COVID-19. These losses were acutely felt by restaurants and hotels as, for example, sales fell by 41.6 percent nationwide between January and March 20, and by 64.9 percent from January to April 10 (Chetty et al. 2020). A variety of factors contributed to these reductions, including households acting to limit their exposure to COVID-19, states requiring their residents to stay at home, and government authorities mandating the closures of nonessential businesses.

In Maine, daily spending at restaurants and hotels fell from an estimated $8.2 million on February 14 to $6.6 million on March 14, and then to $2.9 million by April 14. Daily spending on April 14 was an estimated $6.5 million below the average daily spending in April of 2020, if not for COVID-19. Although April 14 was over ten days after Maine issued its Stay-at-Home order,

the COVID-related impact on that date was similar to the $6.5 million difference between average daily spending of $9.3 million in March (if not for COVID-19) and daily spending of an estimated $2.8 million that took place on March 24. In fact, almost two weeks before Maine residents were told to stay at home on April 2, 2020, consumers had already reduced their spending at restaurants and hotels. These findings suggest that consumers altered their spending, in response to COVID-19, ahead of the initial Stay-at-Home orders. This is an important discovery, as it suggests that a recovery in the hospitality industry is dependent on behavioral as well as statutory considerations.

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