Did the Covid-19 Pandemic Dampen Americans' Tipping for Food Services?:

Insights from Two Studies

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ABSTRACT

The recent Covid-19 pandemic raises questions about consumer willingness to give tips during such times of hardship. Analyses of a Texas pizza delivery driver's tip records and of nation-wide Square payment data for quick- and full-service restaurants explored this issue by comparing tips during the pandemic with those before it. These data suggest that the pandemic increased the average tip per-order given to a pizza delivery driver as well as the average tip percentage given for many transactions at quick- and full-service restaurants. They also suggest that the pandemic decreased the average tip percentage for face-to-face transactions at full-service restaurants, but only by a modest 1 to 2 percentage points. The findings suggest that the tipping model remains a viable means of employee compensation even during periods of public health and economic crises if the nature of the services provided does not change substantially.

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Many service workers depend on voluntary gifts of money (called tips in the U.S.) from their customers for a substantial portion of their incomes. Those workers receiving tips from customers include airport porters, baristas, bartenders, bellmen, busboys, concierges, courtesy van drivers, croupiers, doormen, golf caddies, hotel maids, parking valets, sommeliers, taxicab drivers, tour-guides, and waiters (Lynn, 2016, 2019). In the U.S. restaurant industry, these payments represent up to 62 percent of workers' incomes depending on their positions (Payscale, 2015) and total across foodservice workers to an estimated $45 billion or more a year (Azar, 2011).

Given its practical importance and puzzling nature (as a voluntary expense), tipping has been the subject of a substantial and growing body of interdisciplinary academic research – see Lynn (2006, 2015, 2017) and Azar (2007, 2020) for reviews. Some of this research has examined the consequences of various tipping policies for employee recruitment, motivation and retention (Kwortnik, Lynn and Ross, 2009; Lieven, Kwortnik and Tomczak, 2019; Lynn, Kwortnik and Sturman, 2011) as well as customer satisfaction and patronage intentions (Lynn and Brewster, 2018; Lynn and Kwortnik, 2020; Lynn and Wang, 2013). However, most of the research has examined the determinants of consumers' tipping decisions – with particular emphasis on consumer motivations for tipping (Azar, 2010; Becker, Bradley and Zantow, 2012; Lynn, 2015) and techniques workers can use to increase their tip incomes (see Fernandez, Dufour and Costa, 2020; Lynn, 2011, 2018).

All of the existing research on tipping has understandably occurred in relatively normal times characterized by stability in the economy, public health, and larger society. However, the recent and on-going Covid-19 pandemic, with its accompanying economic shutdowns, stay-in-place orders, and social distancing, raises interesting questions about consumer willingness to give tips during such times of crisis and hardship. The answers to these questions are important because they speak to the viability of tipping as a compensation model during such crises. The current paper begins to address this issue by examining the effects of COVID-19 on consumer tipping of restaurant workers.

BACKGROUND AND LITERATURE REVIEW

In late 2019 or early 2020, the Novel Coronavirus Disease (COVID-19) emerged out of Wuhan China and began spreading across the globe. The disease spread quickly due to a large percentage of affected people being asymptomatic and, therefore, taking few precautionary actions to prevent spread. Although many affected people were asymptomatic, others were severely affected and required hospital care, which threatened to overwhelm the health care industry (Chaplin, 2020). Moreover, the disease proved to be deadly - with a mortality rate of about half a percent (McNeil, 2020). On March 11th, the World Health Organization declared the disease as pandemic and on March 13th, the President of the United States and some of its states' governors declared national and state emergencies due to the disease. By late March, many states within the U.S. had imposed shutdowns of schools, restaurants, bars and other businesses as well as stay-at-home orders for their citizens and bans on large gatherings in attempts to limit spread of the disease (Hauck, Gelles, Bravo and Thorson, 2020).

Although in-restaurant dining was temporarily banned in many states, U.S. restaurant takeout and delivery have remained open throughout the pandemic and most states re-opened

restaurants for outdoor and limited in-door dining in late May and/or early June (NY Times, 2020). Many of the workers at these restaurants rely on tips a major source of income and, while that source of income is reasonably reliable during normal times, it may be less so during periods of economic and/or public health crises. Lynn (2015) has theorized that consumer tipping is determined by the balance of motivations for and against tipping – i.e., by the balance between desires to help servers, express gratitude, reward server effort, acquire better future service, and fulfill social obligations on one hand and desires to save financial resources and treat others as equals on the other hand. It is possible that periods of public crisis shift that balance.

In particular, it is possible that public health and economic crises such as the current pandemic enhance consumers' concerns about their own physical and financial wellbeing. Such a self-focus might in turn decrease consumers' altruistic concerns for others and increase their desires to conserve financial resources, which would discourage tipping and reduce the amounts tipped. However, it is also possible that periods of crisis increase perceptions of relative fortune among those less affected by the crisis and, thereby, enhance gratitude for services received, awareness of the costs involved in providing services, and or perceptions of servers' need for assistance, all of which would encourage tipping and increase tip amounts. Still another possibility is that periods of crisis change the aggregate demand for restaurant services in ways that affect tipping. More specifically, increases in take-out orders relative to in-restaurant dining and delivery orders may reduce the likelihood of tipping and tip amounts due to long-standing consumer reluctance to tip for take-out services (Mayyasi, 2015; Walster, 2014). Whether these pro- and anti-tipping processes will cancel one another out or one will dominate the other (and, if so, which one) are empirical questions that have not been previously studied.

The current paper addresses this issue in two studies reported below. In Study 1, segmented regression analysis of interrupted time series data recorded by a pizza delivery driver in Texas from January to July 2020 are used to examine the effects of the declarations of COVID-19 as a national and state of Texas emergency on March 13th (and subsequent spread of the disease over time) on consumer tipping of the delivery driver. In Study 2, difference-in-differences analyses of time series data from January 2019 to August 2020 provided by the payment systems company Square are used to examine the month by month effects of the pandemic on tipping of quick-service and full-service restaurant workers across the nation.

STUDY 1

Data Source and Variables

A female pizza delivery driver serving rural areas in Edinberg, Hidalgo County, Texas, provided photographs of her nightly checkout screen on the company's computer. With only a few exceptions, these photos captured the date, start time of the shift, number of hours worked, sales total of delivered orders, number of orders delivered, number of delivered orders paid with credit card, and tip totals. These data were used to generate the following additional variables – tips-per-order, tips as a percentage of sales, number of deliveries per hour, sales total per-order, percentage of orders paid with credit card, and day of week. This data was supplemented with a binomial measure that captured whether the observation occurred before or after Texas' governor declared a statewide emergency due to the Coronavirus on March 13th (Limon, 2020). Note that President Trump declared a national emergency due to COVID-19 that same day. In addition, the cumulative total number of county and statewide deaths due to COVID-19 on the date of each observation was recorded from the CDC website (see Figure 1).

The driver worked a total of 94 shifts from January 3, 2020 to July 22, 2020. However, one shift's photo was of the wrong screen and contained useless data. In addition, poor framing or resolution of the photo resulted in some missing values for crucial variables. In particular, the number of orders delivered and the number of delivered orders paid with credit card were missing for three days each (both variables missing for 2 of those 3 days). The date and start time were each missing for one day (different days), but the photos were in chronological order and the missing date occurred after May 1 and before May 9, so an arbitrary day in that gap (May 3) was selected and recorded for the missing date value. This arbitrary date preserved the true ordinal position of the observation in time, but not the true day of week so this observation was given a missing value in the calculation of day of week.

A preliminary inspection of the data revealed two outlying observations of tip-per-order that had z-scores of 3.16 and 4.14 respectively, two outlying values of tip-percentage that had z-scores of 3.56 and 3.87 respectively, and one outlying value of sales-per-order that has z-score of 4.30. These outliers were recoded as missing values to keep them from adversely affecting the analyses. The next largest value of tip-per-order had a z-score of 1.94, that of tip-percentage had a z-score of 2.47, and that of sales-per-order had a z-score of 2.06.

Analytic Strategy

Tips per order was used as the primary dependent variable and tips as a percentage of the bill was used as a robustness check. The two measures were highly correlated (r = .90, p < .001), but the former was the preferred outcome measure because most people tip food delivery drivers a flat dollar amount rather than a percentage of the bill (Lynn, 2004). Additional analyses also used number of orders delivered, sales per order, and percentage of orders paid with credit card as outcome variables.

The data were analyzed using segmented regression analysis of interrupted time series (Wagner, Soumerai, Zhang and Ross-Degnan, 2002). In these analyses, the date was recoded as the number of days since January 1, 2020 and that recoded variable was re-centered to March 13th. Then the outcome variables were regressed on (a) date, (b) before-after emergency declaration, and (c) the product of date with the before-after measure. The respective regression coefficients from this model reflected (a) the baseline time trend, (b) the immediate effects of the emergency declaration, and (c) the change in the trend after the emergency declaration. An additional model checking the robustness of the main results also included deliveries per hour, sales per order, percent of orders paid with credit card, start time, and day of week as control variables.

The data were collected over time at irregular intervals, raising concerns about potential autocorrelation. Accordingly, the Breusch-Godfrey test for autocorrelation (of orders 1 thru 7) was performed for each model. None of the resulting chi-squares had a p-value less than .05, indicating that autocorrelation was not a significant problem with any of the regression models.

Results

Descriptive statistics for the variables in this study are presented in Table 1. Segmented regression analyses of the data are presented in Table 2. Key findings are briefly described below.

Tip-per-order was decreasing over time before the Coronavirus emergency declaration. After the declaration, tip-per-order increased by $1.24 and the previous negative trend was eliminated (see Figure 2). Both the immediate positive effect and the change in trend were statistically reliable at the .05 level. Furthermore, both effects remained significant after

controlling for numerous other variables and remained significant at the one-tailed .05 level
when using tip percentage as the dependent variable. Note that the change in trend simply
eliminated the previous negative trend. These findings suggest that the pandemic-emergency
declaration immediately increased tips and that this effect persisted through at least July.

Orders-per-hour and sales-per-order also increased significantly and marginally
significantly (respectively) after the emergency declaration with no changes in trends for either
outcome. These effects may reflect a substitution of pizza delivery for in-restaurant dining after
Texas restaurants and bars were closed on March 19 (Limon, 2020). The percentage of orders
paid with credit cards was unaffected by the emergency declaration. Together, these findings
suggest that any economic hardship accompanying the pandemic had no negative effect on
demand for pizza delivery or on ability to pay in cash among these consumers.

Summary and Discussion

The results of this study indicate that tips to a pizza delivery driver in south Texas
increased immediately following the declarations of state and national emergencies due to
COVID-19 on March 13th and held steady at that higher rate until at least July 22nd (eliminating
a previous downward trend over time from January 1 to March 13). These findings provide some
preliminary and tentative support for the ideas that public awareness of the pandemic has
increased consumer willingness to tip for traditionally tipped services.

Single studies rarely provide definitive answers to the research questions they address
and this study is no exception. The findings are based on correlational data and other events on
or around March 13th could be responsible for the observed changes in tipping, so no definitive
causal interpretations of the findings advanced are possible. More importantly, the data came

from a single delivery driver serving a single community in Texas and the findings may not generalize beyond that context. In particular, supplemental analyses of orders-per-hour, sales-per-order, and payment method suggest that the patrons of this restaurant delivery service were suffering little personal economic hardship due to the pandemic. Thus, the observed enhancement of tip amounts during the pandemic may be limited to those tippers who have not been personally harmed by it. In addition, the nature of the delivery service provided did not change following the pandemic, so the observed effects on tipping may not generalize to situations where the pandemic has substantially altered the services provided – e.g., shifting restaurant service from dine-in to take-out. Study 2 was conducted to address these questions about generalizability.

STUDY 2

Data Source and Variables

Square, the payment systems company, provided daily data on tipping from January 1, 2019 to August 1, 2021. Specifically, the company provided the daily percentage of tippable transactions with a tip (aka, the tipping rate) and the daily means and medians of non-zero tip amounts (in dollars and cents and as a percentage of the bill) for the nation as a whole and for each state. The data were reported for all transactions as well as transactions broken down by business type and/or whether or not the transactions were credit-card present (i.e., face-to-face payments). Only data for geographic/business type combos with a minimum threshold of active businesses were reported. Furthermore, the reported daily averages were based only on tippable transactions from businesses that had at least 100 transactions in the 12 months ending March 1, 2020 and continued transacting most of the time since the pandemic started.

The current study constructs and analyses three outcome measures from the national quick-service (QSR) and full-service restaurants (FSR) data provided by Square. First, the mean daily percentage tip from all tippable transactions was calculated by multiplying the daily proportion of such transactions tipped by the daily average non-zero tip percentage. Second, the daily proportion of all transactions with face-to-face payments was calculated from tipping rate for all transactions, credit-card-present transactions, and credit- card-not-present transactions. Finally, the approximate average daily bill size was calculated from the mean non-zero tip amounts and non-zero tip percentages. The second of these measures was constructed separately for quick-service and full-service restaurants and the other two measure were constructed separately for credit-card-present and credit-card-not-present transactions at quick-service and full-service restaurants (see Table 3).

Analytic Strategy

The daily data were analyzed using a differences-in-differences approach. The pandemic was declared a national emergency on March 13, 2020 and has continued since then, so the strategy was to test the difference between 2019 and 2020 in the differences of March, April, May, June and July from January/February (combined). Only data from January thru July in 2019 and 2020 were analyzed because the 2020 data only went to August 1. Preliminary graphs of the data provided by Square showed very different temporal patterns for credit-card-present (face-to-face) and credit-card-not-present (distant) transactions, so separate analyses were done for these different types of transactions as well as for quick-service and full-service restaurants. The average tip percentages, proportion of payments that were face-to-face, and approximate bill size were used as outcome variables and regressed on dummy variables for month and year (1 = 2020, 0 = 2019) as well as on the products of the year dummy with March, April, May,

June, and July (see Tables 4 - 6). A positive (negative) regression coefficient for the interaction terms indicates that the specific month-vs-January/February difference was more positive (negative) during the pandemic year of 2020 than it had been the previous year. In other words, the year x month interaction coefficients reflect the likely effects of the pandemic on the outcome variables in the month involved. Significance tests of the regression coefficients used Newey-West standard errors to deal with serial correlation. These serial correlation robust standard errors were calculated using the optimal maximum lag as determined using procedures described in Newey and West (1994), which was 28 for each and all of the models.

Results

Descriptive statistics for the outcome variables – i.e., average tip percentages, proportion of payments occurring face-to-face, and approximate bill size -- are presented in Table 3. The results of difference-in-differences analyses of these variables are presented in Tables 4 through 6 and discussed below.

Tipping rate. The pandemic appears to have had different effects on average tip percentages for face-to-face and distance transactions at quick- and full-service restaurants (see Figure 3). For distant transactions, tip percentages at both quick-service and full-service restaurants increased with the year x month interactions from April thru July (see Figure 4). The year x March interactions were non-significant and the year x month interactions reliably increased from April to May and reliably declined from May to June and from June to July. For face-to-face transactions at quick-service restaurants, average tip percentages also increased with the year x month interactions starting in April and peaking in May. These findings, which broadly though not precisely replicate those of Study 1, suggest that the pandemic increased consumers' tipping for those foodservices whose nature or quality were largely unaffected by the

pandemic. Though speculative, this effect could stem from a perception that servers needed and/or deserved larger tips during the pandemic. The reliable weakening of this positive pandemic effect on tipping in June and July may reflect a reduction in consumers' perceptions that servers needed larger tips following the partial return to in-restaurant dining during those months.

In contrast, for face-to-face transactions at full-service restaurants, average tip percentages decreased with the various month by year interactions from April through July -- with the strength of the negative year x month interactions reliably increasing from April to May and reliably decreasing each month thereafter. This negative effect of the pandemic on tipping at full-service restaurants may be attributable to an increase in the ratio of takeout orders to in-restaurant dining during the pandemic coupled with a long-standing consumer reluctance to tip for restaurant take-out (Mayyasi, 2015; Walster, 2014). Quick-service restaurants also experienced an increase in take-out orders relative to in-restaurant dining during the pandemic, but the limited services provided by these restaurants may have minimized the perceived loss of service and protected them from reductions in tipping. The reliable weakening of the negative pandemic effect on tipping rates in June and July could reflect a partial return to in-restaurant dining during the latter months or an increased willingness to tip for takeout as the pandemic spread.

Proportion of transactions occurring face-to-face. The proportion of transactions occurring face-to-face for both quick-service and full-service restaurants decreased with the various year x month interactions. This suggest that the pandemic decreased the proportion of transactions occurring face-to-face. Of course, this was expected given the economic closures (including bans on in-restaurant dining and stay-in-place orders) and social distancing measures

that the pandemic gave rise to. Again, the effects for March were weak and non-significant, which makes sense given that the national Covid-19 emergency was not declared until midway through the month and the pandemic took some time thereafter to spread throughout the nation. The effects were stronger for April and May than for June and July, which also makes sense given that many state closures were lifted in late May and/or early June (NY Times, 2020). Nevertheless, continued restrictions and voluntary social distancing resulted in face-to-face transactions remaining below normal (pre-pandemic) levels even in June and July of 2020.

Approximate average bill size. The bill sizes for all transactions at full-service restaurants and for distant transactions at quick-service restaurants also decreased with the various year x month interactions. However, average bill sizes for face-to-face transactions at quick-service restaurants were unaffected by these interactions. These results suggest that the pandemic decreased all spending at full-service restaurants and distance spending at quick-service restaurants but did not affect face-to-face spending at quick-service restaurants. Perhaps the pandemic increased consumer concern about their own financial well-being, but this did not affect face-to-face transactions at quick-service restaurants because they are less discretionary than the other transactions studied. Interestingly, the pandemic decreased bill size for distance transactions at quick-service restaurants substantially more than for transactions at full-service restaurants. This latter effect was unexpected because per-person costs are typically smaller at quick-service than at full-service restaurants, but it may be attributable to the loss of large lunch orders from businesses or other groups that order quick-service food and pay up-front when placing the order via phone or internet.

Summary and Discussion

The results of Study 2 suggest that Covid-19 pandemic increased the average percentage tip given for distant transactions at quick-service and full-service restaurants across the nation as well as for face-to-face transactions at quick-service restaurants. These findings provide at least a broad conceptual replication of Study 1's findings and should increase confidence that the pandemic's enhancement of tipping is not limited to a particular pizza delivery driver in Texas. However, the results of Study 2 also make it clear that the effects from Study 1 are not universally generalizable. In particular, Study 2's data suggest that the pandemic decreased (not increased) the average tip percentage for face-to-face transactions at full-service restaurants across the nation.[1] This latter effect is probably attributable to an increase in take-out orders relative to dine-in orders coupled with consumer reluctance to tip for restaurant take-out (Mayyasi, 2015; Walster, 2014). Taking all of these effects together, it appears that the pandemic enhanced tipping for those services whose fundamental nature did not change, but decreased tipping for those services whose benefits it degraded.

CONCLUSION

The results of the current studies suggest that the Covid-19 pandemic had varying effects on consumers' tipping of restaurant workers. On one hand, the pandemic appeared to increase the average tip per order given to a pizza delivery driver in Texas as well as the average tip percentage given across the nation for distant transactions at quick-service and full-service restaurants and for face-to-face transactions at quick-service restaurants. On the other hand, it

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[1] In addition, Study 1 found an immediate positive pandemic effect on tipping that was invariant over time, while Study 2 found a slightly delayed effect that, though persistent through at least July 2020, nevertheless varied in strength over time. These time-related differences in findings across the studies may be due to the uneven timing and spread of the pandemic across states of the U.S. as well as to differences in the nature and timing of the various state governments' interventions.

appeared to decrease the average tip percentage for face-to-face transactions at full-service restaurants. Explanations for these results can only be speculative, but they may be attributable to the pandemic's effects on consumers' perceptions of service workers' need for and desert of tips and its effects on the ratio of take-out to dine-in orders. Specifically, an increased perception that servers need and deserve tips during the pandemic may explain the increased tip percentages left. This increased perception of server need and desert of tips may have failed to increased face-to-face tip percentages at full-service restaurants (which declined rather than increased) because it was offset by a pandemic related increase in the proportion of orders that were for takeout, which consumers are reluctance to tip for (Mayyasi, 2015; Walster, 2014).

From a practical perspective, the findings suggest that the tipping model remains a viable means of employee compensation even during periods of public health and economic crises as long as the nature of the services provided does not change. Fears of substandard tipping from consumers concerned about their own well-being during times of hardship received little support from the current data. Only in cases where the crisis substantially lowered service benefits (i.e., face-to-face full-service restaurant transactions) did it decrease average tip percentages and even that decline was a modest 1 to 2 percentage points. Thus, restauranteurs can expect customers to tip their servers reasonably well in bad times as well as good times. In fact, the data provides restaurant delivery drivers, quick-service counter workers, and their employers/managers some reason to hope for even better than normal tipping from their customers during public health and economic downturns like one we are currently experiencing.

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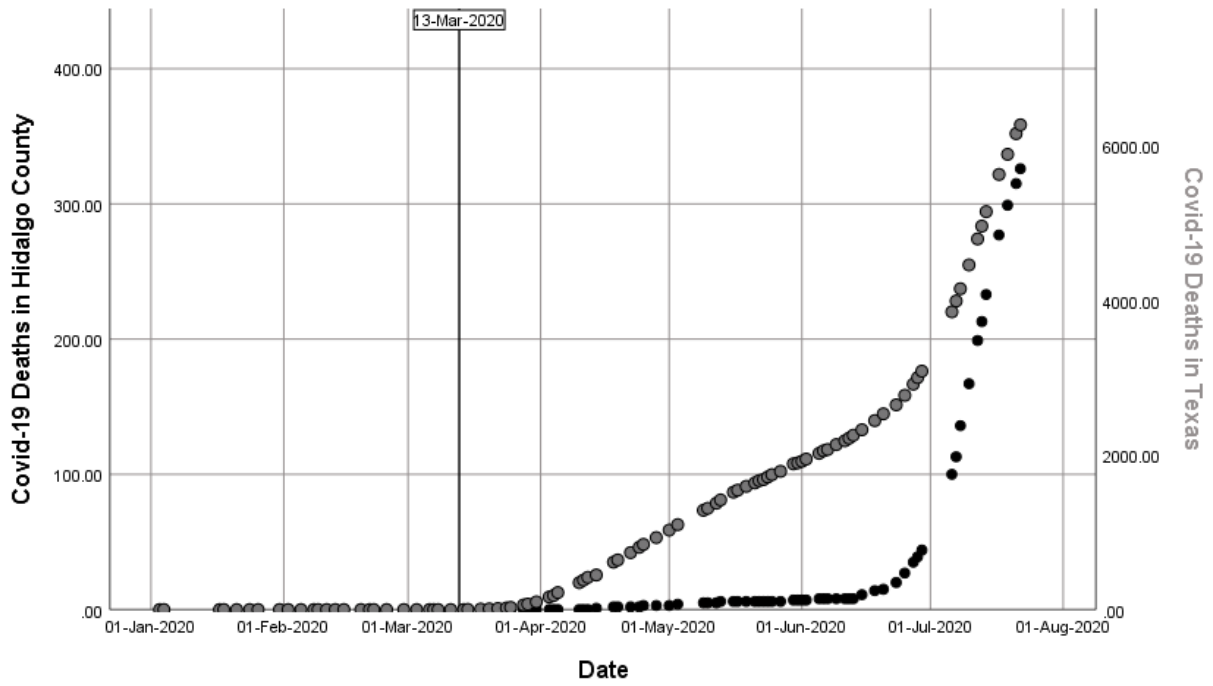
Figure 1. Coronavirus related timeline for Texas (grey dots) and Hidalgo County (black dots). Deaths are cumulative counts on the days the driver in Study 1 worked. March 13 was the date of both the U.S.'s and Texas' Coronavirus emergency declarations.
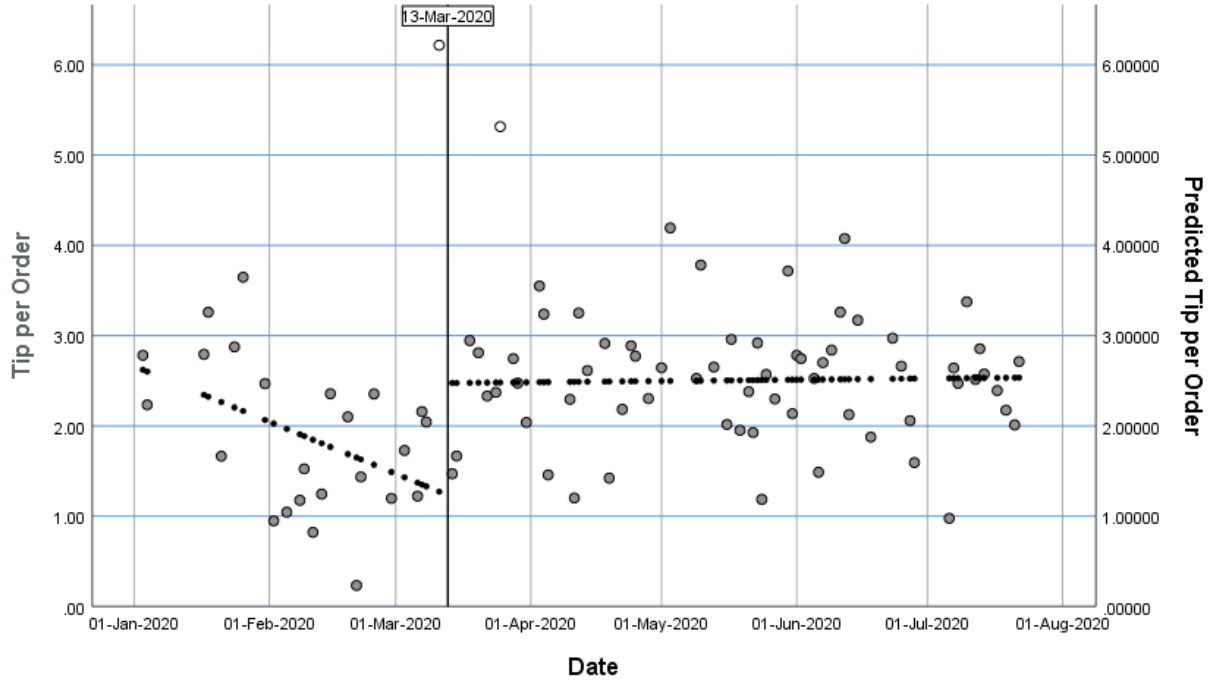
Figure 2. Tip-per-order (grey dots) and predicted tip-per-order (small black dots) by date. White dots mark deleted outliers. Prediction model: tip per order = date, before-after 3/13, and date X before-after 3/13. Date was re-centered on March 13th, the date of Texas' statewide Coronavirus emergency declaration.
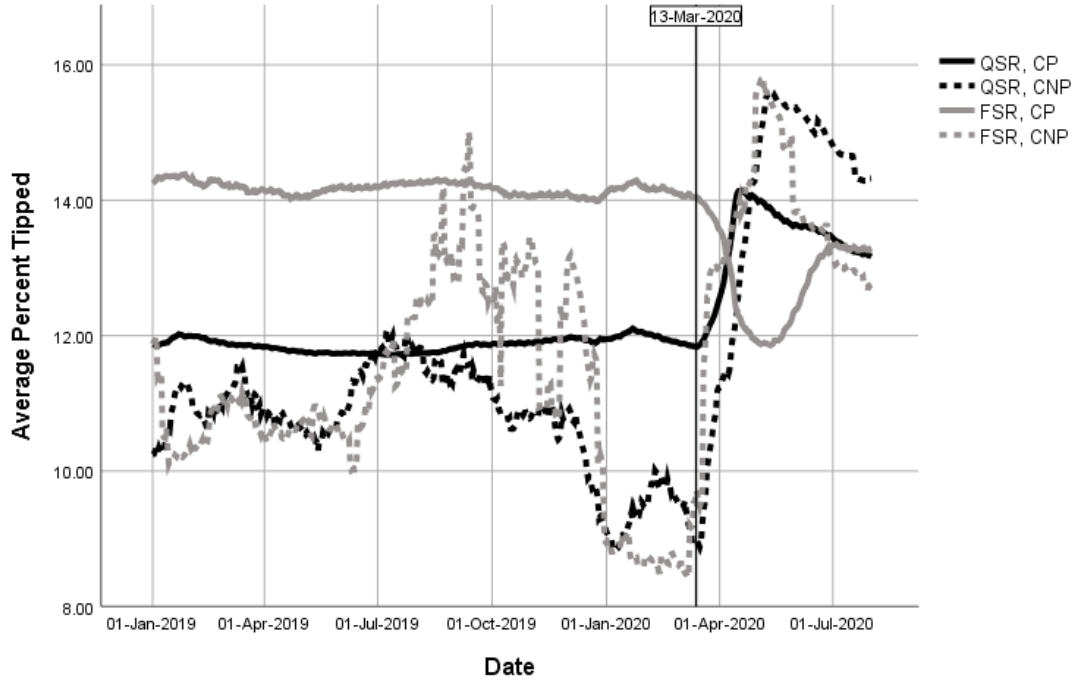
Figure 3. Average percent tip over time for face-to-face (CP) and distant (CNP) transactions at quick-service (QSR) and full-service restaurants (FSR). March 13 was the date of the U.S.'s Coronavirus emergency declarations.
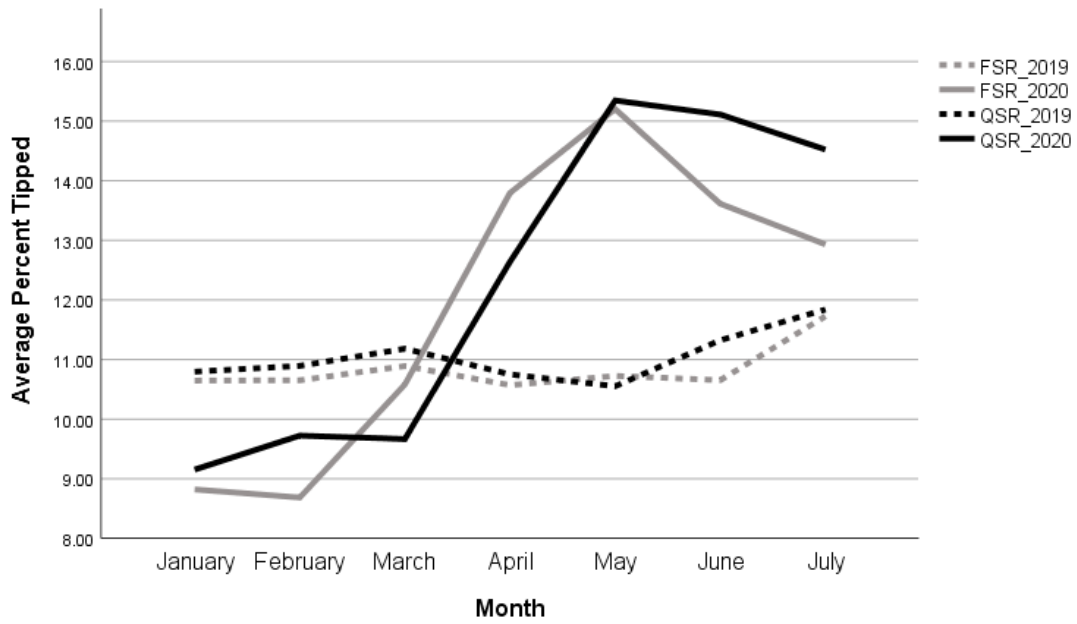
Figure 4. Depiction of the year by month interactions on average tip percentage for distant transactions at quick-service (QSR) and full-service (FSR) restaurants.
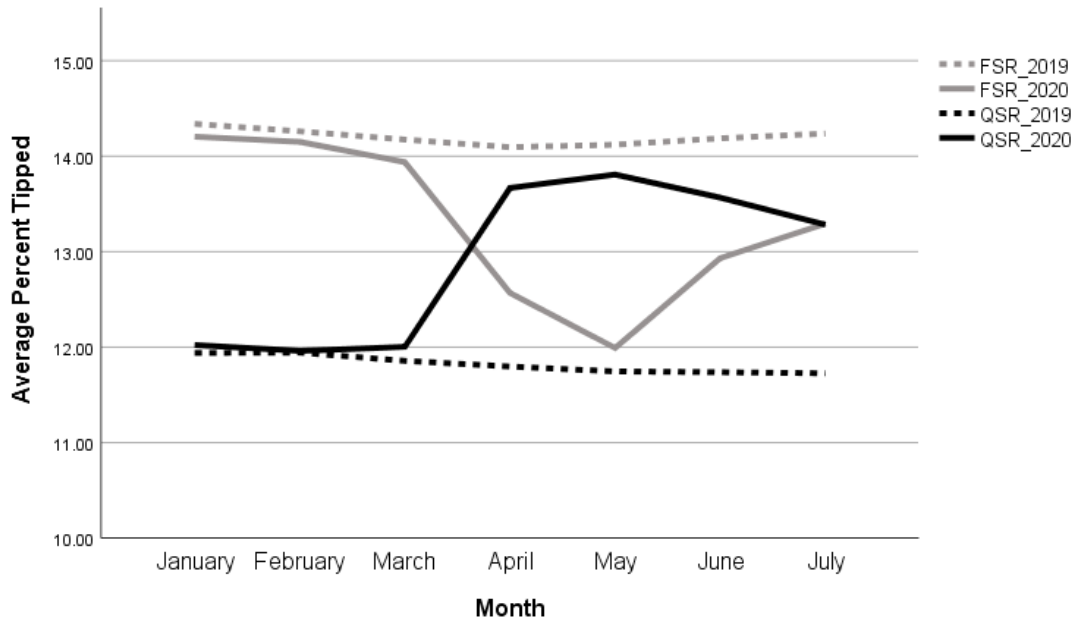
Figure5. Depiction of the year by month interactions on average tip percentage for face-to-face transactions at quick-service (QSR) and full-service (FSR) restaurants.

Table 1. Descriptive statistics for the variables in Study 1.

	N	Minimum	Maximum	Mean	Std. Deviation
Tip per Order	88	.23	4.19	2.34	.77
Tip Percentage	91	.85	18.34	8.78	3.16
Declared Emergency (n=0, y=1)	93	.00	1.00	.73	.45
Deaths in Hidalgo	93	.00	326.00	29.72	74.12
Deaths in TX	93	.00	6274.00	1388.16	1652.65
Shift Start Time	92	10:00	20:57	16:05	2:56
Orders per Hour	89	.58	2.92	1.99	.45
Sales per Order	90	16.24	45.35	27.12	4.24
Percent Paid with Credit	89	25.00	100.00	62.01	16.43
Sunday (n=0, y=1)	91	.00	1.00	.19	.39
Monday (n=0, y=1)	91	.00	1.00	.07	.25
Tuesday (n=0, y=1)	91	.00	1.00	.18	.38
Wednesday (n=0, y=1)	91	.00	1.00	.11	.31
Thursday (n=0, y=1)	91	.00	1.00	.05	.23
Friday (n=0, y=1)	91	.00	1.00	.18	.38
Saturday (n=0, y=1)	91	.00	1.00	.23	.42

Table 2. Coefficients (and standard errors) from segmented regression analyses of interrupted time series data in Study 1.

	Tip per Order	Tip per Order	Tip Percentage	Orders per Hour	Sales per Order	Percent Paid with Credit
Constant	1.23***	.99	5.08***	1.75***	24.92***	59.54***
	(.29)	(.90)	(1.24)	(.16)	(1.47)	(6.37)
Date	-.02*	-.02*	-.07^t	.001	-.01	-.02
	(.01)	(.01)	(.03)	(.004)	(.04)	(.17)
Declared	1.24***	1.11**	4.24**	.47*	2.99^t	-.38
Emergency (DE)	(.34)	(.37)	(1.45)	(.19)	(1.73)	(7.59)
Date x DE	.02*	.02*	.07^t	-.003	.001	.07
	(.01)	(.01)	(.03)	(.005)	(.04)	(.18)
Start Time		.000001				
		(.000009)				
Sales per Order		-.01				
		(.02)				
Percent Paid with Credit		.01				
		(.005)				
Sunday		-.15				
		(.26)				
Monday		-.004				
		(.38)				
Tuesday		-.12				
		(.25)				
Wednesday		-.10				
		(.32)				
Thursday		-.13				
		(.37)				
Friday		.19				
		(.27)				
R^2	.19***	.23^t	.12**	.16**	.09*	.02
N	88	84	91	89	89	89

Table 3. Descriptive statistics for the outcome variables in Study 2.

Variable	N	Mean	Standard Deviation
Average percent tipped for face-to-face QSR transactions	579	12.24	.72
Average percent tipped for distant QSR transactions	579	11.49	1.76
Average percent tipped for face-to-face FSR transactions	579	13.85	.66
Average percent tipped for distant FSR transactions	579	11.71	1.79
Proportion of QSR transactions that are face-to-face	579	.97	.04
Proportion of FSR transactions that are face-to-face	579	.96	.06
Approximate mean bill size for face-to-face QSR transactions	579	$12.05	1.19
Approximate mean bill size for distant QSR transactions	579	$33.28	6.49
Approximate mean bill size for face-to-face FSR transactions	579	$30.69	1.20
Approximate mean bill size for distant FSR transactions	579	$41.54	3.54

Table 4. Coefficients (and Newey-West standard errors) from regression analyses predicting the average percent tip in Study 2.

	Quick-Service Restaurants		Full-Service Restaurants	
	Face-to-Face Transactions	Distance Transactions	Face-to-Face Transactions	Distance Transactions
Intercept	Included	Included	Included	Included
Month dummies	Included	Included	Included	Included
2020 year dummy	Included	Included	Included	Included
Year x March	.10[a]	-.10[a]	-.11[a]	1.59[ta]
	(.08)	(.33)	(.07)	(.84)
Year x April	1.81***[bcd]	3.31***[b]	-1.40***[b]	5.12***[b]
	(.23)	(.52)	(.25)	(.29)
Year x May	2.01***[b]	6.21***[c]	-2.01***[c]	6.37***[c]
	(.07)	(.16)	(.07)	(.27)
Year x June	1.78***[c]	5.20***[d]	-1.13***[b]	4.85***[b]
	(.04)	(.21)	(.14)	(.24)
Year x July	1.50***[d]	4.10***[b]	-.82***[d]	3.10***[a]
	(.05)	(.17)	(.02)	(.21)

[t] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

coefficients within each column that share an alphabetic superscript do not significantly differ from one another at the .05 level

Table 5. Coefficients (and Newey-West standard errors) from regression analyses predicting the proportion of face-to-face transactions in Study 2.

	Quick-Service Restaurants	Full-Service Restaurants
Intercept	Included	Included
Month dummies	Included	Included
2020 year dummy	Included	Included
Year x March	-.01[tc]	-.01[tc]
	(.004)	(.006)
Year x April	-.10***[ab]	-.16***[ab]
	(.02)	(.02)
Year x May	-.12***[a]	-.18***[a]
	(.004)	(.01)
Year x June	-.08***[b]	-.11***[b]
	(.01)	(.01)
Year x July	-.06***[d]	-.08***[d]
	(.001)	(.002)

[t] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

coefficients within each column that share an alphabetic superscript do not significantly differ from one another at the .05 level

Table 6. Coefficients (and Newey-West standard errors) from regression analyses predicting the average bill size in Study 2.

	Quick-Service Restaurants		Full-Service Restaurants	
	Face-to-Face Transactions	Distance Transactions	Face-to-Face Transactions	Distance Transactions
Intercept	Included	Included	Included	Included
Month dummies	Included	Included	Included	Included
2020 year dummy	Included	Included	Included	Included
Year x March	.01[a]	-3.58[a]	-.51[c]	-8.03**[ab]
	(.12)	(2.34)	(.41)	(2.29)
Year x April	.04[ab]	-13.75***[b]	-3.21***[ab]	-9.17***[b]
	(.12)	(1.25)	(.47)	(1.12)
Year x May	.11[b]	-16.26***[c]	-3.80***[a]	-8.99***[b]
	(.13)	(1.26)	(.39)	(1.18)
Year x June	.03[ab]	-15.47***[d]	-2.47***[b]	-8.49***[b]
	(.13)	(1.30)	(.49)	(1.17)
Year x July	.05[ab]	-13.26***[e]	-1.45***[d]	-5.83***[a]
	(.13)	(1.25)	(.34)	(.92)

[t] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

coefficients within each column that share an alphabetic superscript do not significantly differ from one another at the .05 level