



COVID-19 Working Paper: Food-Away-From-Home Acquisition Trends Throughout the COVID-19 Pandemic

Keenan Marchesi and Patrick W. McLaughlin

This paper has been published through USDA Economic Research Service's (ERS) COVID-19 Working Paper series. ERS' temporary Working Paper series is designed to publicly release preliminary analyses relevant to the impacts of the COVID-19 pandemic on agriculture, food, the environment, and rural America in a timely manner. ERS' COVID-19 Working Papers have not undergone the review and editorial process generally accorded official ERS publications, but they have been reviewed by ERS economists and social scientists through an expedited review process.

Abstract

The Coronavirus (COVID-19) pandemic and the ensuing policy responses disrupted how consumers in the United States acquired food away from home, and little is known about how they continued to access these goods. This report summarizes national-level trends in dollars U.S. consumers spent from December 2019–February 2020 through April–June 2022 at quick- and full-service restaurants by service mode (on-premise, drive-thru, delivery, and carry-out) and acquisition and ordering method. Results show that while on-premises (eating inside a restaurant) spending fell at quick- and full-service restaurants, spending at full-service restaurants remained much lower than pre-pandemic spending levels. USDA, Economic Research Service researchers found that consumers quickly adapted to other service modes, like delivery or drive-thru, and this offset many of the losses observed in spending at quick-service restaurants. The authors also observed that consumers increased spending via cell phone apps for carry-out and delivery orders at both types of restaurants relative to pre-pandemic spending. In short, while consumers' restaurant spending largely returned to pre-pandemic levels, many of the ways that consumers interacted with quick- and full-service restaurants immediately following the onset of the pandemic remained.

Keywords: COVID-19, Coronavirus, demand shock, food-away-from-home, food acquisition, spending, delivery, apps, The NPD Group, restaurants, third-party delivery, food delivery app

Acknowledgments

The authors thank the following individuals for technical and peer reviews: Abigail Okrent and Monte Vandever, USDA, Economic Research Service (ERS); and Rebecca Nemec, USDA, Office of the Chief Economist. They also thank Lisa Mancino, Debbie Rubas, and Jay Variyam of USDA, ERS, for their comments, and Jana Goldman, Elaine Symanski, and Adele Wilcoxon of USDA, ERS, for editorial and design services. The analysis, findings, and conclusion expressed in the paper should not be attributed to The NPD Group.

About the Authors

Keenan Marchesi and Patrick W. McLaughlin are agricultural economists at USDA, Economic Research Service.

Economic Research Service

www.ers.usda.gov

Use of commercial and trade names does not imply approval or constitute endorsement by USDA.

To ensure the quality of its research reports and satisfy governmentwide standards, ERS requires that all research reports with substantively new material be reviewed by qualified technical research peers. This technical peer review process, coordinated by ERS' Peer Review Coordinating Council, allows experts who possess the technical background, perspective, and expertise to provide an objective and meaningful assessment of the output's substantive content and clarity of communication during the publication's review.

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at [How to File a Program Discrimination Complaint](#) and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer, and lender.

Contents

Introduction	6
Data Description	7
NPD Consumer Reported Eating Share Trends (CREST)	7
NPD Classifications	8
U.S. Bureau of Labor Statistic’s Consumer Price Index Data.	8
Trends in Service Mode	9
Quick-Service Restaurants	9
Full-Service Restaurants	13
Trends in Acquisition Methods	17
Overall Acquisition	17
App Usage.....	25
Discussion and Conclusion	31
References	33
Appendix: Supplemental Figures	34

What Is the Issue?

The U.S. response to the Coronavirus (COVID-19) pandemic often included restrictions that severely limited in-person gatherings and closed or reduced on-premises dining at restaurants. Although food-away-from-home (FAFH) spending at restaurants fell substantially after the onset of the pandemic, restaurants remained an important source of food for U.S. consumers. However, while we know spending at these establishments fell, little is known about how consumers changed acquisition behavior during the pandemic to obtain food from restaurants—for instance, by increasing the use of carry-out or online ordering—and to what extent these changes have persisted to more recent periods. How consumers access food away from home has implications for U.S. consumers' diets during the pandemic. For instance, mobile phone apps focused on food ordering may tend to market unhealthier options or charge fees that effectively raise costs and thus reduce access to FAFH for some low-income consumers. For this study, USDA, Economic Research Service authors summarized national-level trends in FAFH spending from December 2019—February 2020 through April—June 2022 at quick-service (counter service or fast food) and full-service (table service) restaurants by service mode (on-premises, drive-thrus, delivery, and carry-out) and ordering method.

What Did the Study Find?

Consumer spending at quick- and full-service restaurants operating in the United States decreased substantially following the onset of the pandemic (March–May 2020) by 15.4 percent and 51.7 percent, respectively, relative to a year prior. Although spending at both types of restaurants has increased since the initial drop, changes in restaurant spending by service mode that began early in the pandemic have persisted to varying degrees:

- The share of dollars spent on-premises at full-service restaurants (FSRs) out of total FSR dollars shrank from 86 percent in the immediate pre-pandemic period (December 2019–February 2020) to 34 percent at the onset of the pandemic. The share of dollars spent on-premises subsequently rebounded but remained lower than pre-pandemic values as of April–June 2022 at 74 percent.
- The average monthly total dollars spent via delivery at quick-service restaurants (QSRs) nearly doubled during the pandemic, from \$1.6 billion in the immediate pre-pandemic period (December 2019–February 2020) to \$2.9 billion in April–June 2022.
- The share of dollars spent on carry-out using any cell phone app at QSRs nearly doubled from 15 percent in the immediate pre-pandemic period to 29 percent in April–June 2022 and more than doubled at FSRs from 11 percent to 26 percent during the same period.
- Delivery spending via third-party cell phone apps that typically offer food for purchase from a variety of restaurants grew 353 percent at QSRs and 257 percent at FSRs as of April–June 2022, relative to the prior 3 years (pre-pandemic).

In short, while consumers' overall restaurant spending has largely returned to pre-pandemic levels, the shift in acquisition methods seen immediately following the pandemic's onset has persisted to some degree for both QSRs and FSRs. The persistence of some changes reflects the difficulty in attracting consumers back to on-premises dining. This is especially true for FSRs that rely on on-premises dining for most of their business and have seen spending persistently below pre-pandemic levels.

How Was the Study Conducted?

The authors relied on proprietary data from The NPD Group, a U.S.-based market research provider that gathered information each month from consumer surveys on FAFH acquisition habits that span December 2019–February 2020 through April–June 2022, the most recent available data. The authors examined estimates of changes in spending for QSRs and FSRs by service mode and acquisition methods. The authors also used the U.S. Bureau of Labor Statistics Consumer Price Index to provide estimates in real terms (i.e., inflation adjusted), rather than nominal.

Introduction

The COVID-19 pandemic brought about unmatched changes to consumer food spending patterns (Restrepo et al., 2021; Zeballos and Dong, 2022). Many States issued various measures to reduce potential virus spread, such as distancing measures, stay-at-home orders, and mandatory closures of high-risk industries. The restaurant industry, which represented 73 percent of all food-away-from-home (FAFH) expenditures in 2019 (USDA, ERS 2022), faced rolling closures due to public health restrictions or COVID-19 outbreaks among staff.¹ Earlier USDA, Economic Research Service reports examined overall changes in food spending in response to the pandemic and found that U.S. consumers spent 8 percent less on food in 2020 compared to 2019 (Zeballos and Sinclair, 2021). This reflected, in part, decreased spending in the FAFH sector, which was especially severe for full-service restaurants that typically offer table service. Conversely, the drop in spending at quick-service restaurants, the “fast food” restaurant type where customers order and pay at a counter or drive-thru prior to consumption, was far less severe, and nominal spending quickly outpaced previous year trends despite the onset of the pandemic (Marchesi and McLaughlin, 2022).

The authors explore national trends in U.S. consumer spending at quick- and full-service restaurants by looking at how dollars were spent at these types of restaurants in relation to where consumers obtained or received their food. Specifically, the authors examine trends in real dollars spent by service mode (delivery, drive-thru, carry-out, and on-premises) and explore whether there were changes throughout the pandemic in food acquisition methods such as using cell phone apps, ordering through a restaurant’s website, or calling directly to place orders. This research used Consumer Reported Eating Share Trends (CREST) from The NPD Group, which provides national level estimates of nominal dollars spent in the commercial foodservice industry across several demographic dimensions derived from individual consumer surveys collected monthly. Given starkly diverse trends for different restaurant types documented by Marchesi and McLaughlin (2022), the authors looked at spending by service mode at quick- and full-service restaurants rather than the industry.

Understanding how consumers interact with FAFH is increasingly important for a variety of audiences, as the user base for food delivery apps in the United States was expected to grow from about 36 million in 2019 to surpass 50 million by 2023 (Statista, 2020; Statista, 2021). These statistics are important when paired with research into third-party app usage from prior to the pandemic, which found a notable disparity in the healthfulness of foods. For example, the introduction of third-party app availability into a county was associated with a statistically significant rise in the area’s average body mass index (Babar et al., 2021). These findings were supported by other research that investigated the healthfulness of over 1,000 unique restaurants available on a third-party delivery app in two major cities. Using a healthy eating index to evaluate the healthfulness of food offered, the study found that 70 percent of the food could be classified as unhealthy (Partridge et al., 2020).

This report aims to identify broad national trends and give context for the large shifts in consumer food spending related to the pandemic. Research showed some changes in patterns among households throughout the pandemic. For instance, Ellison et al. (2021) found that among a panel of households surveyed repeatedly in March–April 2020, spending on FAFH not only fell but that consumers were shifting expenditures from eating out (or eating inside a restaurant) to take-out. By March 2021, reported FAFH acquisitions via take-out remained a fairly common activity, whereas indoor dining was significantly more common than it was in September 2020 (Ellison et al., 2022). This report provides a nationally representative description of the level of heterogeneity in consumer spending on FAFH among restaurant types and service modes and their fluctuations at a higher frequency throughout the pandemic, relative to the pre-pandemic period when the U.S. economy was operating as “normal.”

¹ FAFH is generally referred to as food that is obtained, though not exclusively, from restaurants, cafeterias, food trucks, and other outlets outside the home (Saksena et al., 2018).

Data Description

This research used Consumer Reported Eating Share Trends (CREST) from The NPD Group (NPD) and the Consumer Price Index from the Bureau of Labor Statistics to convert the nominal estimates to real values.

NPD Consumer Reported Eating Share Trends (CREST)

CREST data are national estimates of the dollar amount spent and the number of visits made at commercial foodservice establishments (restaurants and retail foodservice) along with restaurant types (e.g., full-service or quick-service) and acquisition methods (e.g., on-premises consumption, takeout, and delivery). To produce CREST, NPD conducts online surveys of FAFH acquisition behaviors from a nationally representative consumer panel comprising both FAFH buyers (those who report having one or more meals that were not made at home yesterday) and non-buyers. Specifically, respondents report the dollars spent at each FAFH outlet they visited the previous day. In addition to reporting how much was spent per trip, respondents indicate how they received their food (on-premises, carry-out, drive-thru, or delivery). Respondents who reported that their order was received via carry-out or delivery also reported how they placed their order.

NPD typically collects, on a rolling basis, nearly 70,000 daily surveys per month where respondents are chosen to balance geography, household income, household size, age, and gender. The survey responses are then projected to produce a nationally representative set of estimates. The proprietary projection methodology uses, in part, the U.S. Census Bureau and the U.S. Bureau of Labor Statistics' Current Population Survey to weight respondents according to the total U.S. population and key demographics. In addition, the projection methodology is also calibrated with other NPD assets, such as NPD ReCount,² a database on restaurant locations across the country, and other surveys, to better reflect spending across the FAFH sector.³ CREST does not include standard errors.

The report sample covers December 2019 through June 2022. The measure of estimated dollars spent at restaurants (in billions) is defined as the total amount spent (including any associated tax but excluding tips) on meals, snacks, or beverages for immediate consumption.⁴ Spending estimates are presented as a 3-month rolling average to minimize sampling variance by preserving a sufficient sample size of the underlying survey while being nationally representative. The 3-month rolling average continuously updates average spending in a particular month to include spending in the set for 3 months prior to that point. For example, March 2021–May 2021 spending is an estimate based on average purchases made in March 2021, April 2021, and May 2021. This important point highlights why the timing of spending patterns is slightly lagged.

This report uses 3-month rolling averages to present the overall FAFH spending trends, the share of dollars spent at different restaurant types and across the different service modes, and the percent change relative to 1-, 2-, and 3-years prior. While percent changes relative to 1 year prior provide a clear comparison between pre- and post-pandemic throughout 2020, estimates from 2021 and 2022 were somewhat more complicated. Therefore, the authors provide the percent change relative to 1-, 2-, and 3-years prior for time periods as of 2021 and 2022 to account for seasonality and to provide an understanding of where trends are relative to before the pandemic. Authors typically presented these year-over-year change estimates side by side,

² NPD ReCount provides location and business information on food-away-from-home establishments, such as geographic location, business name, and service style. The NPD Group compiles the data using a variety of publicly available and proprietary data sources, such as chain directories from the business' headquarters, industry literature, and verifications through internet searches and phone calls (Cho et al., 2019).

³ To reduce selection bias, additional adjustment factors are used to improve representativeness and consistency for under-reported groups.

⁴ Immediate consumption varies slightly by the location of acquisition and, in some cases, the timing of consumption. Items purchased at a restaurant are considered immediate consumption regardless of when the items were consumed. Items that are purchased from a retail foodservice venue (e.g., items from a hot bar at a grocery store or drinks from a convenience store) and then eaten within 6 hours of the store visit on the reporting day are considered immediate consumption.

but often, only the changes relative to pre-pandemic, the percent change relative to 2-years prior to 2021 and 3-years prior to 2022, are discussed. Providing all estimates also allows readers to understand changes between the pandemic onset and mid-pandemic, such as comparing March–May 2022 relative to March–May 2020.

NPD Classifications

NPD defines quick-service restaurants (QSRs) as those that typically specialize in a particular type of food (e.g., hamburger, pizza, chicken, etc.) and generally have a service style where customers order and pay at a counter or drive-thru prior to eating. QSRs can be perceived as fast-food/take-out establishments. Full-service restaurants (FSRs) typically offer table service and include midscale, casual dining, and fine dining restaurants.⁵

For each eating occasion, respondents are asked to report what type of service they used when dining out. However, responses are still based on the respondent’s interpretation of each type of service; therefore, the authors provide their understanding of these choices:

- On-premises dining service (dining-in)—sitting down at a restaurant, placing an order, and consuming the meal at the restaurant.
- Carry-out service—either placing an order at the restaurant, calling ahead or placing an order digitally (online or via cell phone app), picking it up at the restaurant, and consuming it elsewhere.
- Drive-thru service—placing and picking up an order via the drive-thru lane and window that typically allows consumers to stay in their car and receive their food from a restaurant employee to be consumed elsewhere (at home, in car, etc.).⁶
- Delivery service—orders placed via phone call, cell phone app, or online that are delivered to a specified location by a third-party courier or a restaurant employee.

Respondents who report a meal was ordered for carry-out or delivery are asked to report the method used to place the order. Respondents can indicate the use of a telephone (a landline or a cell phone), a restaurant-specific website or app, or a third-party app.⁷ NPD provides several options as well as a miscellaneous option. When authors refer to a restaurant-specific or third-party cell phone app, the use of the associated webpage on a computer or a web browser on a cell phone was included. For carry-out, if a telephone, restaurant website, or app is not specified, the order was considered to have been placed in person.⁸

U.S. Bureau of Labor Statistic’s Consumer Price Index Data

NPD provides nominal changes in expenditures that consumers report. However, given the notable increase in prices since the onset of the pandemic, authors used the food-away-from-home consumer price indices

⁵ What distinguishes fine dining restaurants from midscale casual dining is a tendency to serve alcohol and accept reservations. Neither of the FSR types generally make counter service or take-out a primary focus of their business model.

⁶ Drive-thru reporting for FSRs might differ from what one traditionally considers as a drive-thru. Drive-thru to one consumer could be car-side delivery, where consumers park close to the restaurant and a staff member brings the food to their car to be consumed outside the restaurant. Other consumers could view this as carry-out.

⁷ Rather than investigate a single third-party app, authors combined all available options in the NPD database and refer to that as a “third-party app” choice.

⁸ In the absence of a selection for how an order was placed for delivery, the same category that was used for default carry-out orders was used, resulting in some responses coded as in-person. This typically represents a relatively small share of total delivery responses, no more than 4 percent. Therefore, they are not included in this analysis when discussing delivery spending from restaurants, as in-person delivery is unlikely and cannot be adequately understood in the context of delivery.

published monthly by the U.S. Bureau of Labor Statistics to adjust for inflation.⁹ The authors used CPIs specific to full- and quick-service restaurants and applied the corresponding adjustments where applicable. Further, given that the CREST values are measured on a 3-month rolling average, the authors generated a CPI that was calculated similarly. The authors first generated a consumer price index for each category with January 2020 as a base period to adjust for inflation since pre-pandemic. Then, a 3-month rolling average consumer price index was calculated to correspond with the 3-month sample in NPD. Then, the nominal 3-month rolling average values provided by NPD were adjusted for inflation by dividing the nominal value by the newly calculated consumer price index. The authors used these real (inflation adjusted) values for all analyses.

Trends in Service Mode

Since the pandemic started, restaurants of all types experienced notable changes in the service modes consumers used to acquire food. The trends in traffic and spending and service modes differed by restaurant type. Full-service restaurants experienced larger and more sustained decreases than quick-service restaurants (Marchesi and McLaughlin, 2022).¹⁰

Quick-Service Restaurants

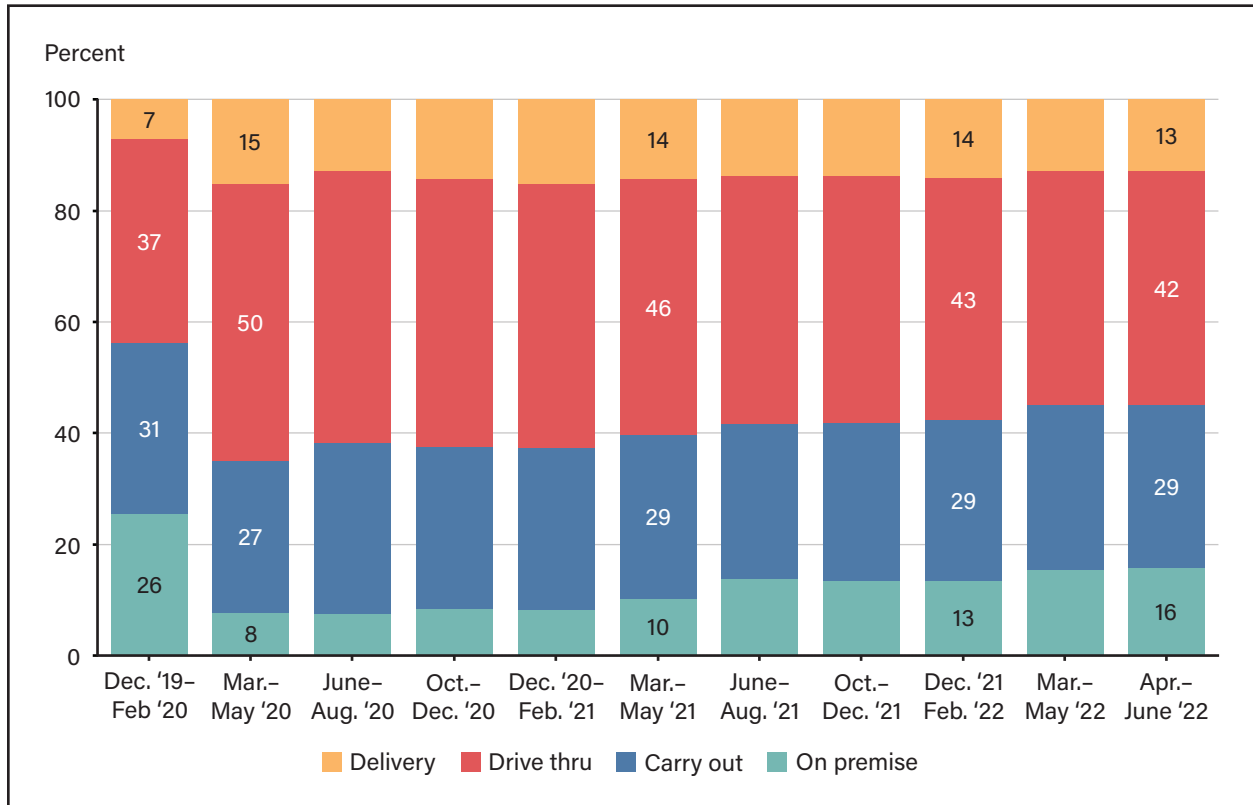
In line with the total decline immediately after the onset of the pandemic, on-premises and carry-out spending at QSRs declined by all observed measures. The share of dollars spent on-premises at QSRs immediately before the pandemic (December 2019–February 2020) dropped from 26 percent of total QSR spending to 8 percent in the first observable period of the pandemic, March–May 2020 (figure 1).

⁹ The authors used the non-seasonally adjusted values for FAFH. The specific codes correspond to series ID CUUR0000SEFV (food away from home in U.S. city average, all urban consumers, not seasonally adjusted), CUUR0000SEFV01 (full-service meals and snacks in U.S. city average, all urban consumers, not seasonally adjusted), and CUUR0000SEFV02 (limited (quick) service meals and snacks in U.S. city average, all urban consumers, not seasonally adjusted).

¹⁰ To facilitate comparisons to Marchesi and McLaughlin (2022), appendix figures A-1 and A-2 provide average total real (inflation adjusted) spending levels and year-over-1-, 2-, and 3-years prior at both quick- and full-service restaurants, respectively, from December 2019–February 2020 through April–June 2022.

Figure 1

Monthly share of average total dollars spent at quick-service restaurants by service mode, December 2019–June 2022

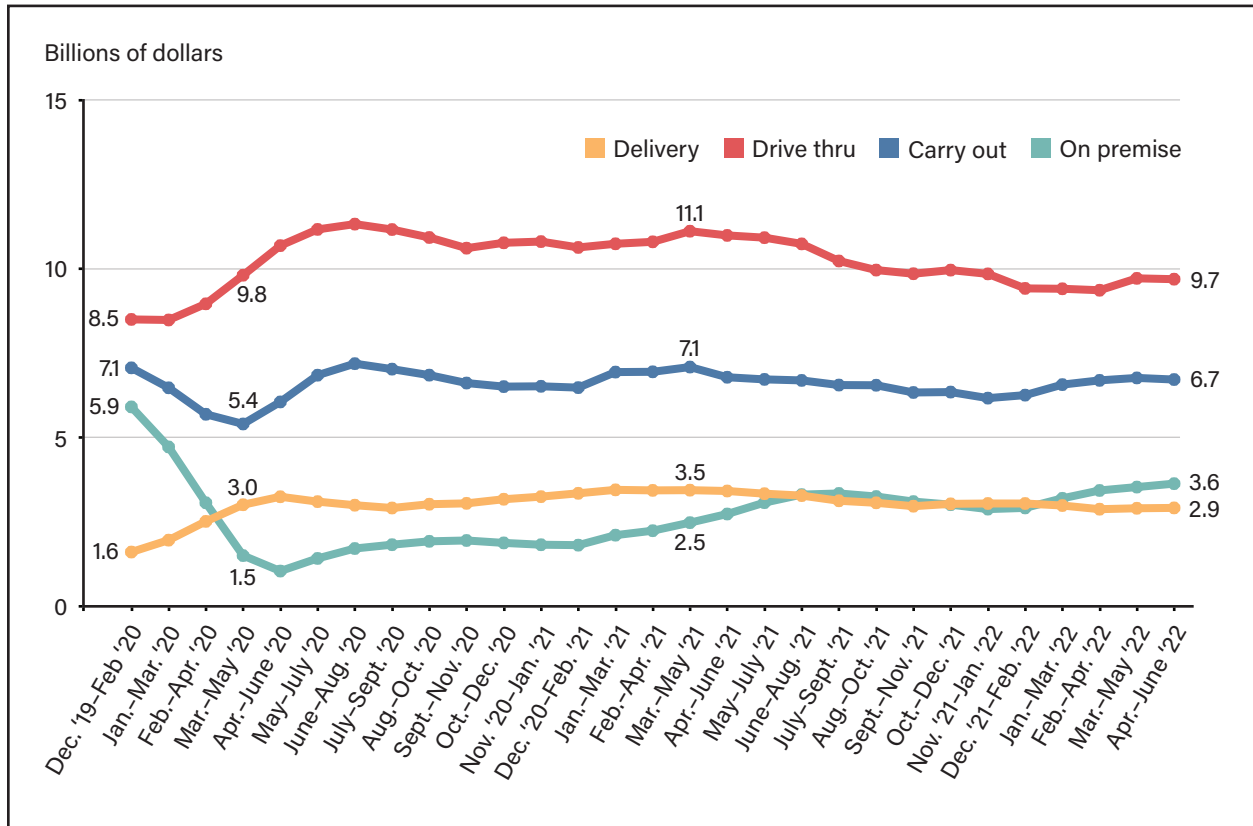


Note: Results based on 3-month rolling average of total real dollars spent during the time period listed. Sums may not add to 100 because of rounding. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

On-premises average spending fell from \$5.9 billion in December 2019–February 2020 to \$1.5 billion in March–May 2020 (figure 2), a nearly 76-percent decrease in both quarter-to-quarter and year-over-year terms (figure 3). Carry-out spending also fell during this time but much less severely, dropping from \$7.1 billion to \$5.4 billion, or 31 percent to 27 percent in terms of spending shares. Year-over-year spending on carry-out was about 26 percent lower than a year prior, notably less severe than on-premise.

Figure 2
Monthly average total dollars spent at quick-service restaurants by service mode, December 2019–June 2022

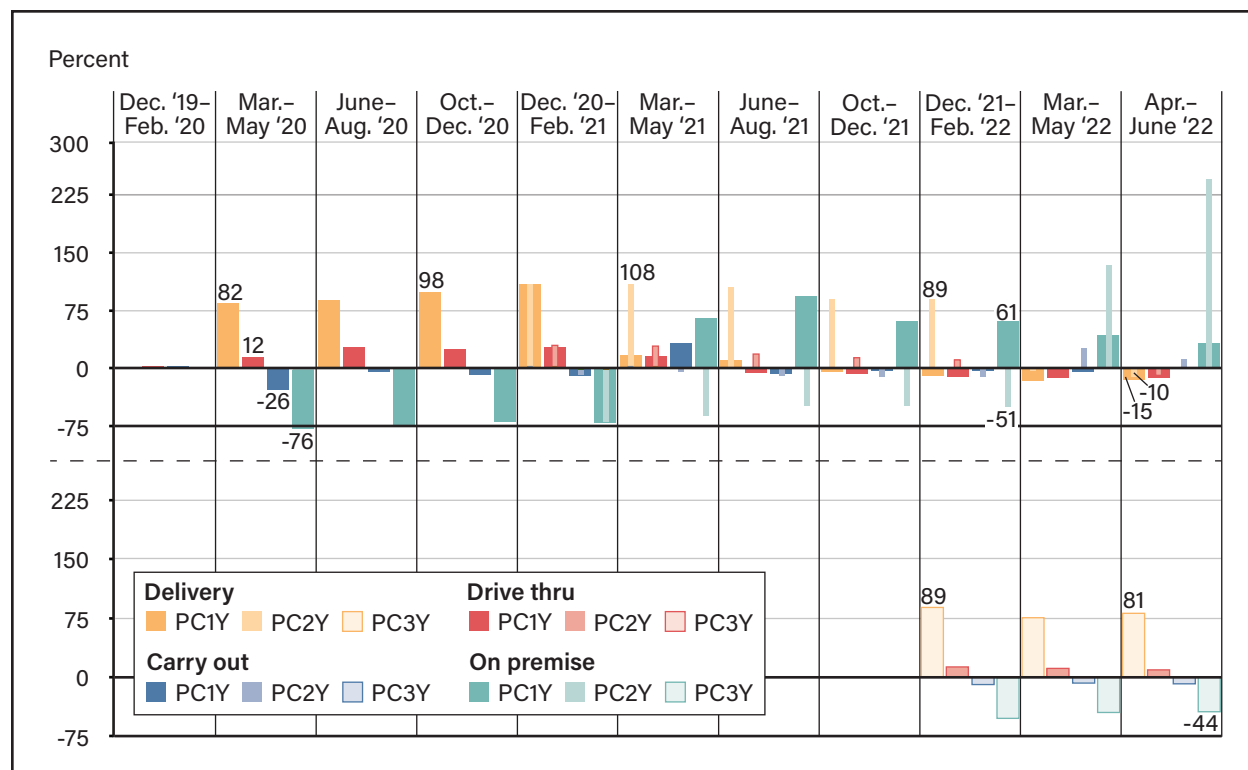


Note: Results based on 3-month rolling average of total real dollars spent during the time period listed. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Figure 3

Percent change in monthly average total dollars spent compared to 1, 2, and 3 years prior at quick-service restaurants, by service mode, December 2019–June 2022



PC1Y = Percent change relative to 1 year ago. PC2Y = Percent change relative to 2 years ago. PC3Y = Percent change relative to 3 years ago.

Note: Selected periods presented to highlight periods pre- and immediately after onset of the pandemic. Periods were selected to reflect changes as the pandemic progressed and then follow-up periods, covering the same months but in the following years. Results based on 3-month rolling average of total real dollars spent during the time period listed compared to the same period 1, 2, or 3 years prior. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

The decline in on-premises and carry-out spending led to increases in delivery and drive-thru spending at QSRs. Drive-thru accounted for 50 percent of QSR spending as of March–May 2020 compared to 37 percent in December 2019–February 2020, retaining the largest share and growing to represent the majority of sales (figure 1). Delivery, previously accounting for the smallest share of QSR spending, more than doubled from 7 percent in December 2019–February 2020 to 15 percent in March–May 2020. Despite significant decreases in QSR spending overall, average drive-thru spending increased from \$8.5 billion in December 2019–February 2020 to \$9.8 billion in March 2020–May 2020. Delivery increased from \$1.6 billion to \$3.0 billion during the same period (figure 2). This amounted to a 12-percent increase in drive-thru spending and an 82-percent increase in delivery spending compared to the same time 1 year before (figure 3). Thus, the decrease in QSR spending for on-premises consumption and carry-out service offset an increase in drive-thru and delivery. This suggests that demand for FAFH at QSRs remained high, and consumers looked for alternatives to limit in-person interactions.

As of April–June 2022, both drive-thru and delivery spending remained higher than prior to the onset of the pandemic in terms of total spending (\$9.7 billion and \$2.9 billion, respectively) and share of dollars spent (42 percent and 13 percent, respectively). While there is a slight downward trend in spending since their respective

peaks, some evidence suggests they remain prominent and could be permanent. For instance, spending on delivery was about 15 percent lower compared to mid-pandemic (April–June 2021), and it remained about 81 percent higher compared to pre-pandemic levels (April–June 2019).

Consumer spending on-premises remained well below pre-pandemic levels between December 2021–February 2022 and April–June 2022, further supporting evidence of a persistent shift in overall behavior. Despite total on-premises spending trending upward since the onset of the pandemic, the share of QSR spending remained down; 13 percent of total spending as of December 2021–February 2022, equivalent to \$2.9 billion spent and 16 percent of total spending as of April–June 2022, equivalent to \$3.6 billion spent. Changes relative to spending levels at various points throughout the pandemic tell a similar story. On-premises spending as of December 2021–February 2022 was about 51 percent lower compared to 2-years prior (pre-pandemic). However, it was about 61 percent higher compared to 1-year prior (mid-pandemic), highlighting how consumers shifted away from this option since the pandemic. As of April–June 2022, on-premises spending remained 44 percent lower than it was pre-pandemic (relative to April–June 2019), though these are improvements relative to mid-pandemic (up 33 percent relative to April–June 2021) and post-onset (up over 225 percent relative to April–June 2020).

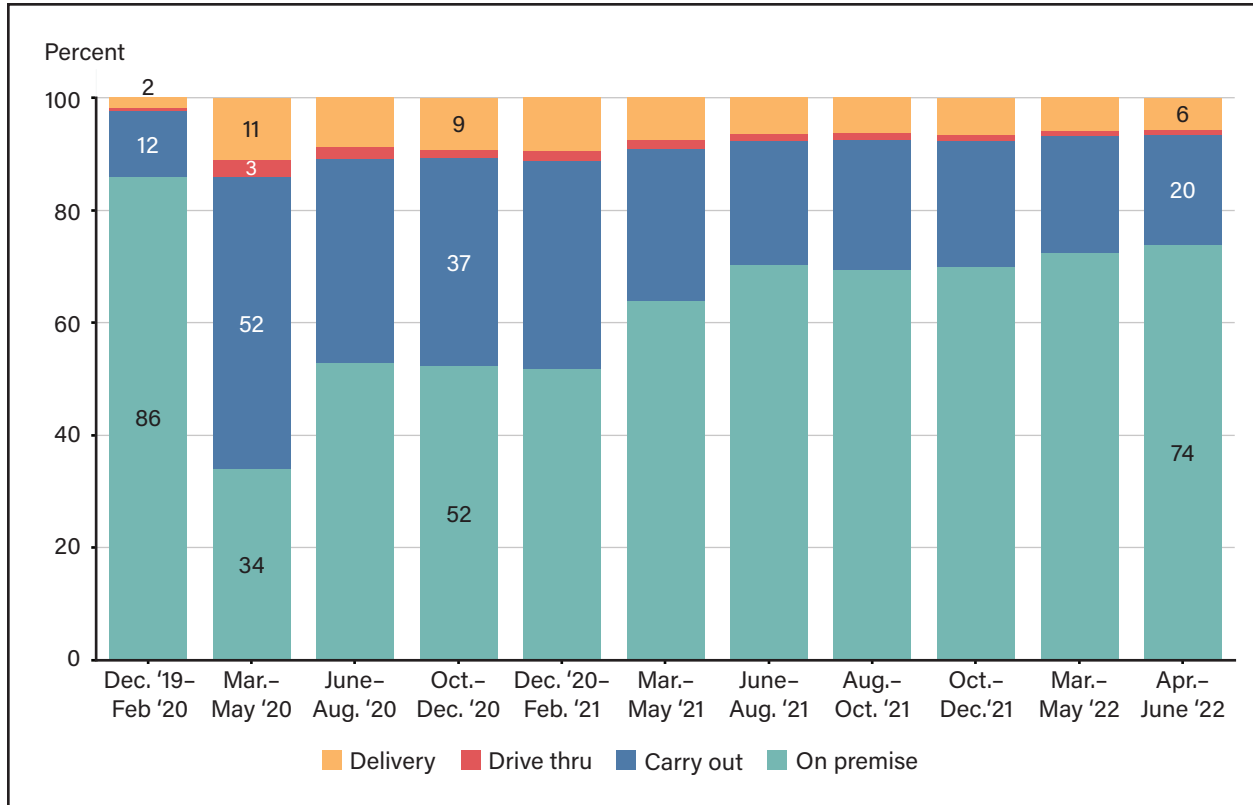
Taken together, these statistics suggest that a combination of pandemic-related restrictions and consumer caution likely led to changes in service modes that featured reduced in-person interactions that may persist. QSRs' pre-pandemic infrastructure may have allowed the sector to continue to meet consumer demand and subsequently helped buffer QSR from some losses FSRs experienced.

Full-Service Restaurants

FSR spending shifted away from being dominated by on-premises dining to carry-out, delivery, and drive-thru throughout the pandemic. For instance, 86 percent or \$12.1 billion of FSR spending on average was on-premises during December 2019–February 2020. These numbers fell to 34 percent and \$2.4 billion for March 2020–May 2020 (figures 4 and 5). Basically, the onset of the pandemic forced FSRs that remained open to nearly abandon their primary business model of table service or relegate it to a relatively small contributor to revenue.

Figure 4

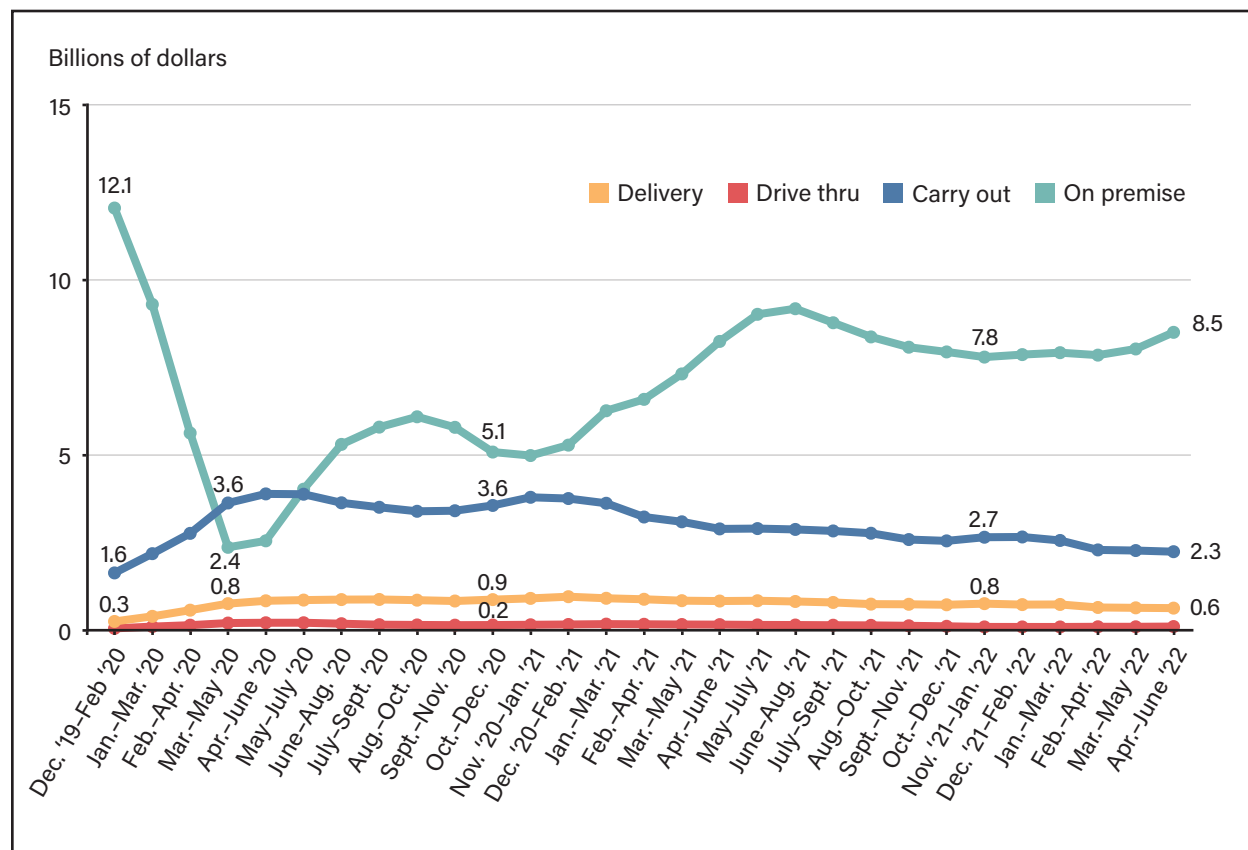
Monthly share of average total dollars spent at full-service restaurants by service mode, December 2019–June 2022



Note: Results based on 3-month rolling average of total real dollars spent during the time period listed. Sums may not add to 100 because of rounding. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Figure 5
Monthly average total dollars spent at full-service restaurants by service mode, December 2019–June 2022



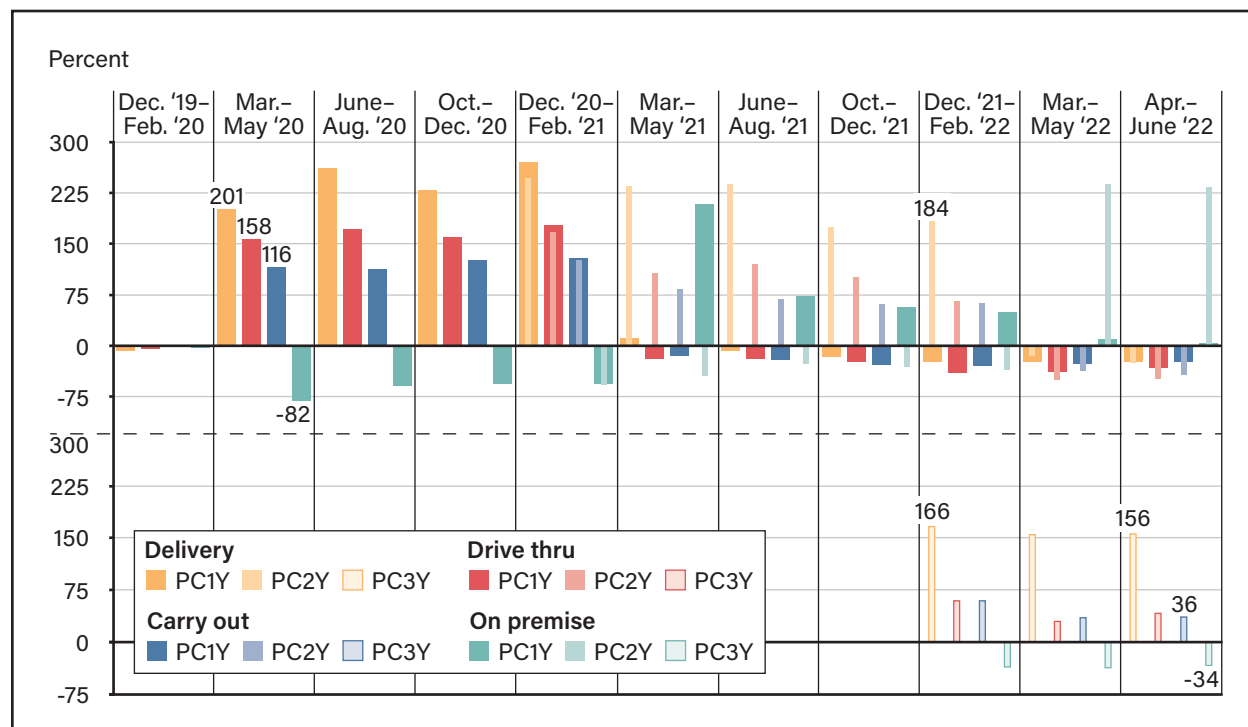
Note: Results based on 3-month rolling average of total real dollars spent during the time period listed. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

To compensate, FSRs diversified their service modes and, as a result, saw a large change across the distribution of dollars consumers spent via other service modes. For instance, 52 percent of FSR spending took place via carry-out during March–May 2020, compared to 12 percent in December 2019–February 2020. This amounted to \$3.6 billion in average spending during March–May 2020, which was up from \$1.6 billion from December 2019–February 2020. Compared to the year prior (March–May 2019), this increase was 116 percent more in carry-out spending (figure 6).

Figure 6

Percent change in monthly average total dollars spent compared to 1, 2, and 3 years prior at full-service restaurants, by service mode, December 2019–June 2022



PC1Y = Percent change relative to 1 year ago. PC2Y = Percent change relative to 2 years ago. PC3Y = Percent change relative to 3 years ago.

Note: Selected periods presented to highlight periods pre- and immediately after onset of the pandemic. Periods were selected to reflect changes as the pandemic progressed and then follow-up periods, covering the same months but in the following years. Results based on 3-month rolling average of total real dollars spent during the time period listed compared to the same period 1, 2, or 3 years prior. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

However, the increase in carry-out spending (\$2 billion) was only roughly 20 percent of the concurrent decrease (\$9.7 billion) for on-premises dining. While growth in spending was large in both delivery and drive-thru spending in percentage terms—201 percent and 158 percent, respectively, compared to March–May 2019—each mode's share of spending remained small compared to other modes at 11 percent and 3 percent. Drive-thru FSR spending was virtually non-existent before the pandemic and became a new, although rarely used, option.

As restrictions loosened and consumers returned to FSRs, on-premises spending increased, most recently (as of April–June 2022) reaching \$8.5 billion in average total spending—equivalent to 74 percent of FSR spending. Despite seeing a decrease relative to the first period following the onset of the pandemic, carry-out and delivery spending remained far more common than they were pre-pandemic. The share of dollars spent rose over 50 percent for carry-out and tripled for delivery. While consumers were spending less on delivery than they did immediately following the onset of the pandemic, they continued to spend double what they were prior to the pandemic, highlighting that some consumers who used delivery to interact with FSRs generally continued to do so. Further evidence is that delivery spending remained about 156 percent higher than pre-pandemic (relative to April–June 2019) and only about 25 percent and 24 percent lower

than following the onset (relative to April–June 2020) and mid-pandemic (April–June 2021), respectively. Similarly, consumers continued to choose carry-out. While overall carry-out spending levels fell from a peak of about \$3.6 billion to \$2.3 billion as of April–June 2022, they were still roughly 36 percent higher than pre-pandemic spending (April–June 2019). This highlights that many consumers continued to choose alternative methods such as carry-out or delivery, as evidenced by higher share and spending levels, despite the return of on-premises options.

Trends in Acquisition Methods

Spending at QSRs and FSRs shifted from on-premises dining toward “to-go” service modes like carry-out and delivery during the pandemic. Spending across acquisition methods used for carry-out and delivery—telephoning the restaurant, ordering in person, and ordering through a cell phone app or associated website changed as well.

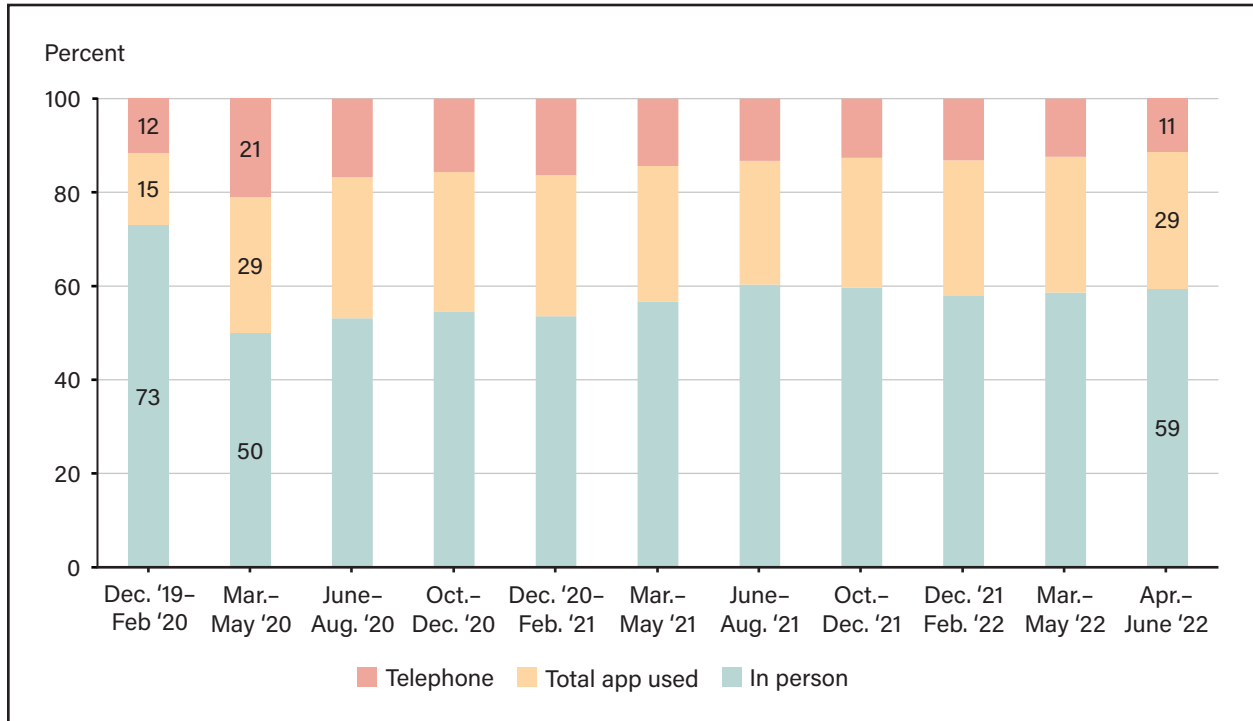
Broadly defined, app usage is a category of all apps available in the NPD database for respondents to choose from. It includes those specific to a restaurant or a third-party app designed to offer multiple restaurant options. Restaurant apps, also known as restaurant-to-consumer apps, often allow consumers to order ahead for pick-up and may offer home delivery when a store employee brings food to the consumer. Third-party apps, or platform-to-consumer apps, typically offer similar restaurant-specific benefits (delivery, order ahead for pick-up) but also act as a marketplace where all nearby options are presented; the app management employs couriers to deliver meals. Sometimes memberships are also available for third-party apps that provide various benefits like discounts to some restaurants or reduced fees or free delivery.

Overall Acquisition

Prior to the pandemic (December 2019–February 2020), in-person ordering was the most common acquisition method for carry-out orders at both QSR and FSRs, but the share of dollars spent fell with the onset of the pandemic (March–May 2020). For example, the share of carry-out spending at QSRs fell from 73 percent prior to the pandemic to 50 percent following the onset of the pandemic (figure 7a). Meanwhile, the share of app-based and telephone orders experienced pronounced growth from 15 percent and 12 percent prior to the pandemic to 29 percent and 21 percent at the onset, respectively. In-person ordering was still somewhat common at QSRs but was severely limited at FSRs at the onset of the pandemic, representing 20 percent of all carry-out spending, whereas it represented 50 percent before the pandemic (figure 7b). Subsequently, ordering by telephone and cell phone apps increased to 55 percent and 25 percent, respectively.

Figure 7a

Monthly share of average total dollars spent at quick-service restaurants on carry-out by acquisition method, December 2019–June 2022

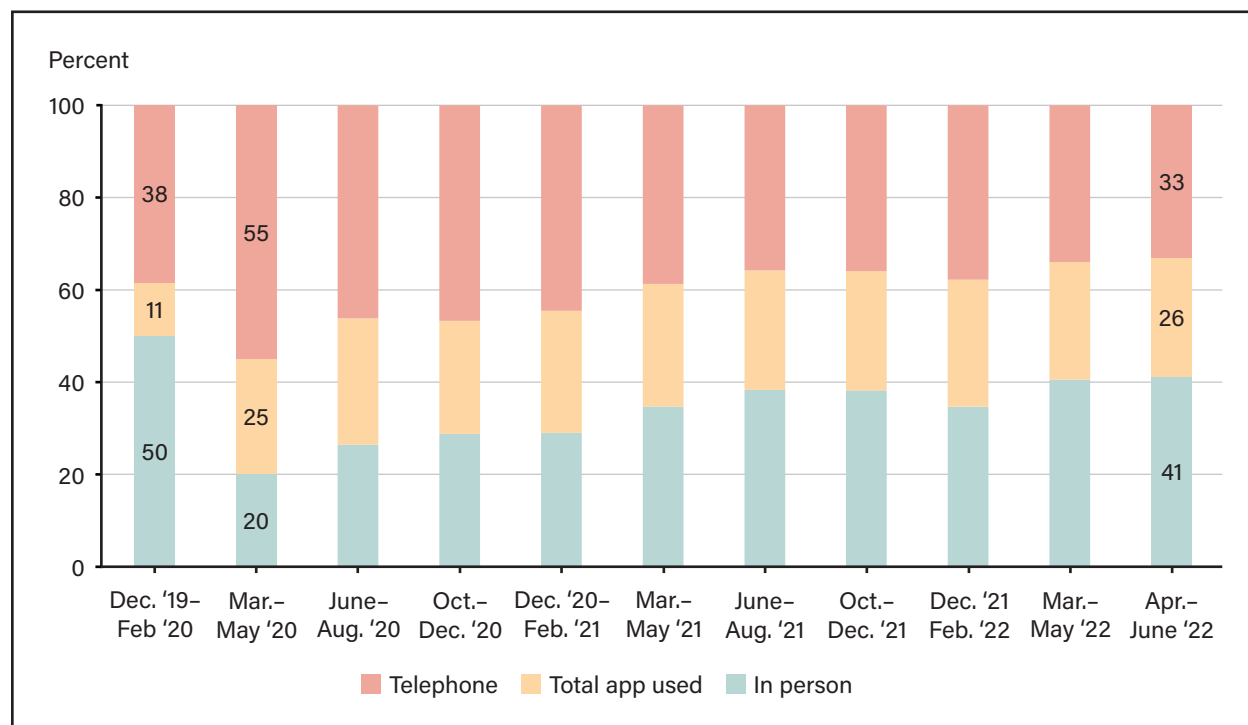


Note: Results based on 3-month rolling average of total real dollars spent during the time period listed. Sums may not add to 100 because of rounding. Data current as of February 2023. Telephone refers to all call in orders placed using a cell phone or a landline.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Figure 7b

Monthly share of average total dollars spent at full-service restaurants on carry-out by acquisition method, December 2019–June 2022



Note: Results based on 3-month rolling average of total real dollars spent during the time period listed. Sums may not add to 100 because of rounding. Data current as of February 2023. Telephone refers to all call in orders placed using a cell phone or a landline.

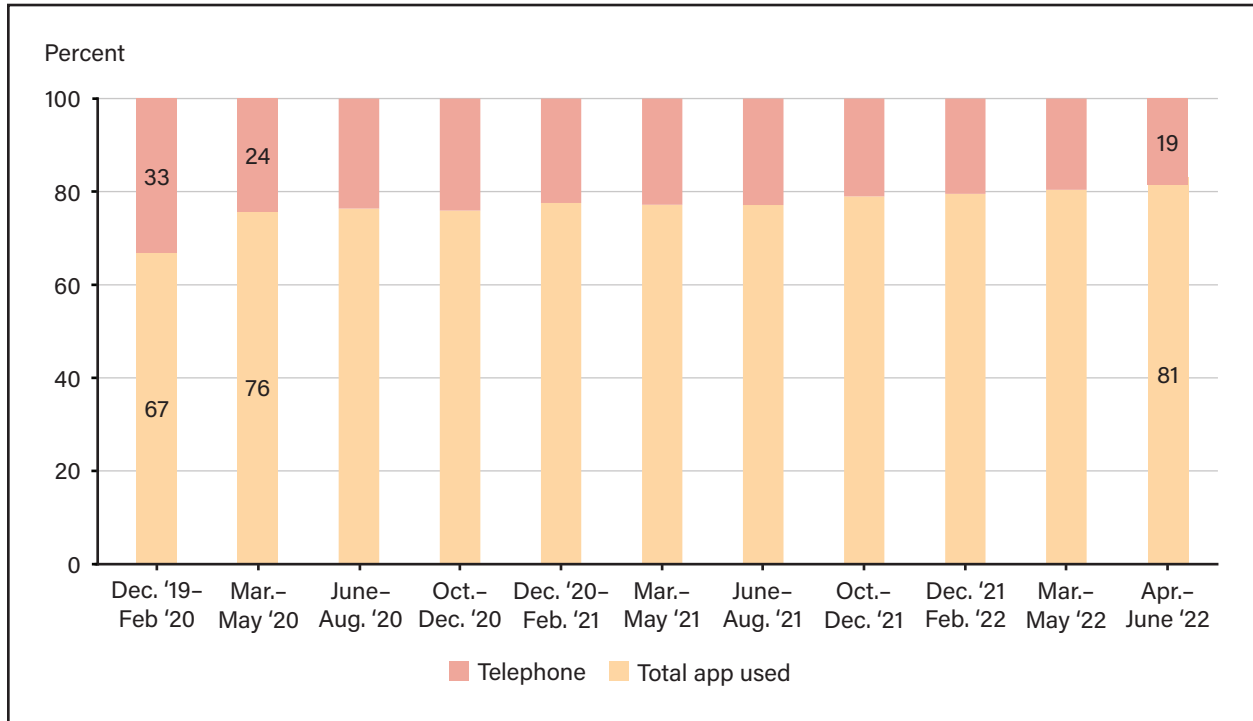
Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

As of April–June 2022, the share of in-person carry-out spending at both QSRs and FSRs has increased modestly—about 59 percent and 41 percent, respectively—since the initial drop off from March–May 2020. At both types of restaurants, cell phone apps largely retained their gains from early in the pandemic, about 29 percent and 26 percent of spending at QSRs and FSRs. While not the predominant acquisition method at either restaurant type, this increased share could suggest that consumers continue to enjoy the convenience of cell phone apps introduced into the FAFH space, such as quick pick-up of food, potential promotions, or access to previously unknown restaurants.

While there was some heterogeneity in how dollars were spent on carry-out between QSR and FSRs, little variation existed between the two for delivery (figures 8a and 8b). The share of dollars spent on delivery orders placed via cell phone apps was about twice as common as telephone orders as of December 2019–February 2020 at both restaurant types. As the pandemic continued, there was a rise in the share of dollars spent through cell phone apps, representing at least 80 percent of all delivery orders as of April–June 2022 at both restaurant types.

Figure 8a

Monthly share of average total dollars spent at quick-service restaurants on delivery by acquisition method, December 2019–June 2022

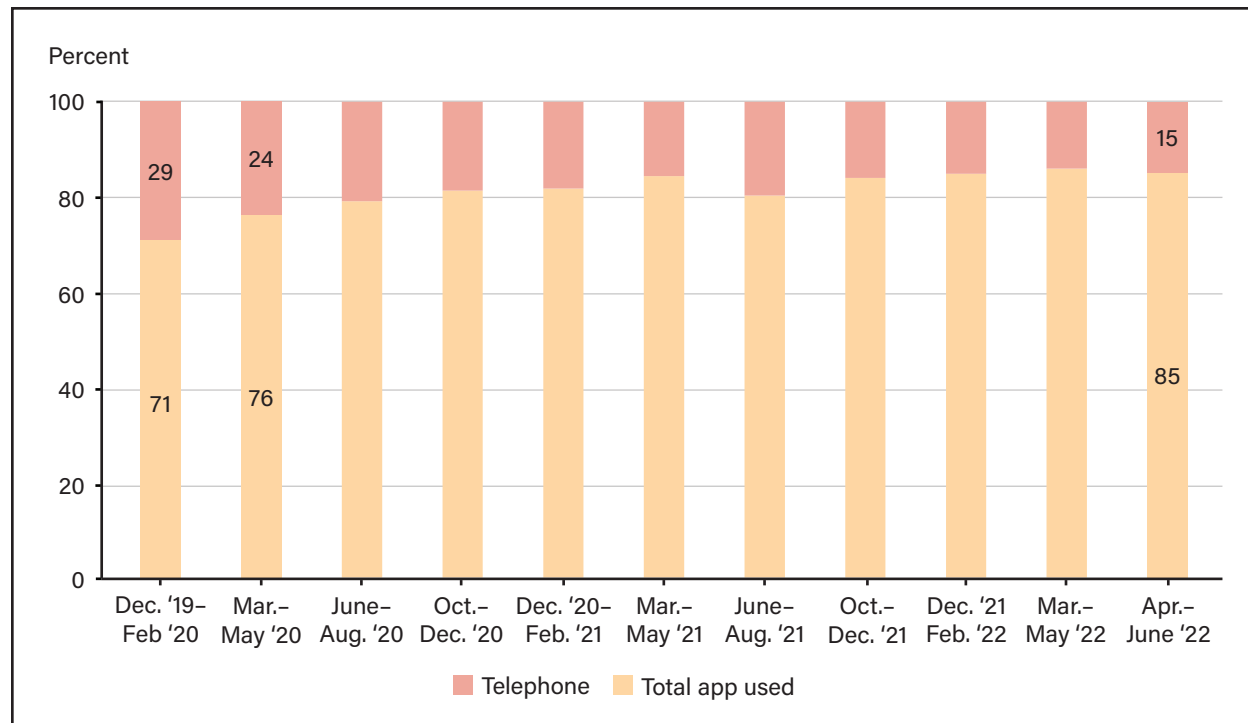


Note: Results based on 3-month rolling average of total real dollars spent during the time period listed. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Figure 8b

Monthly share of average total dollars spent at full-service restaurants on delivery by acquisition method, December 2019–June 2022



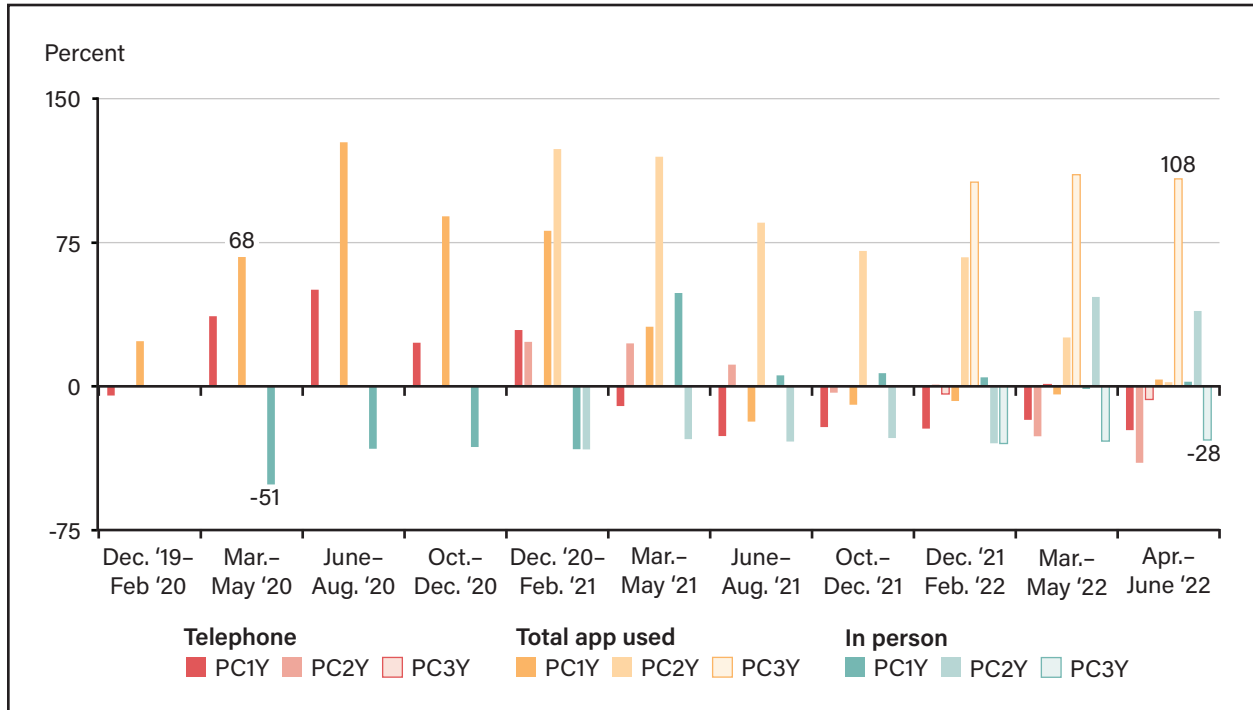
Note: Results based on 3-month rolling average of total real dollars spent during the time period listed. Data current as of February 2023. Telephone refers to all call in orders placed using a cell phone or a landline.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Carry-out and delivery spending at QSR and FSRs experienced similarities in comparisons to years prior by acquisition method. Cell phone app spending on carry-out, which saw a notable increase in the share of dollars spent at the onset of the pandemic (March–May 2020), also saw year-over-year increases of 68 percent at QSRs (figure 9a) and 371 percent at FSRs (figure 10a). In-person carry-out spending fell at QSRs relative to a year prior (51 percent) despite the large share of dollars spent that period (50 percent of total carry-out dollars spent at QSRs were from in-person orders). In contrast, in-person spending was only 17 percent lower at FSRs. This was likely because in-person carry-out represented a larger share of dollars spent at QSRs than FSRs prior to the pandemic and was more readily available. Delivery spending via cell phone apps saw an increase of 108 percent at QSRs (figure 9b) and 249 percent at FSRs (figure 10b).

Figure 9a

Percent change in monthly average total dollars spent on carry-out at quick-service restaurants compared to 1, 2, and 3 years prior, by acquisition method, December 2019–June 2022



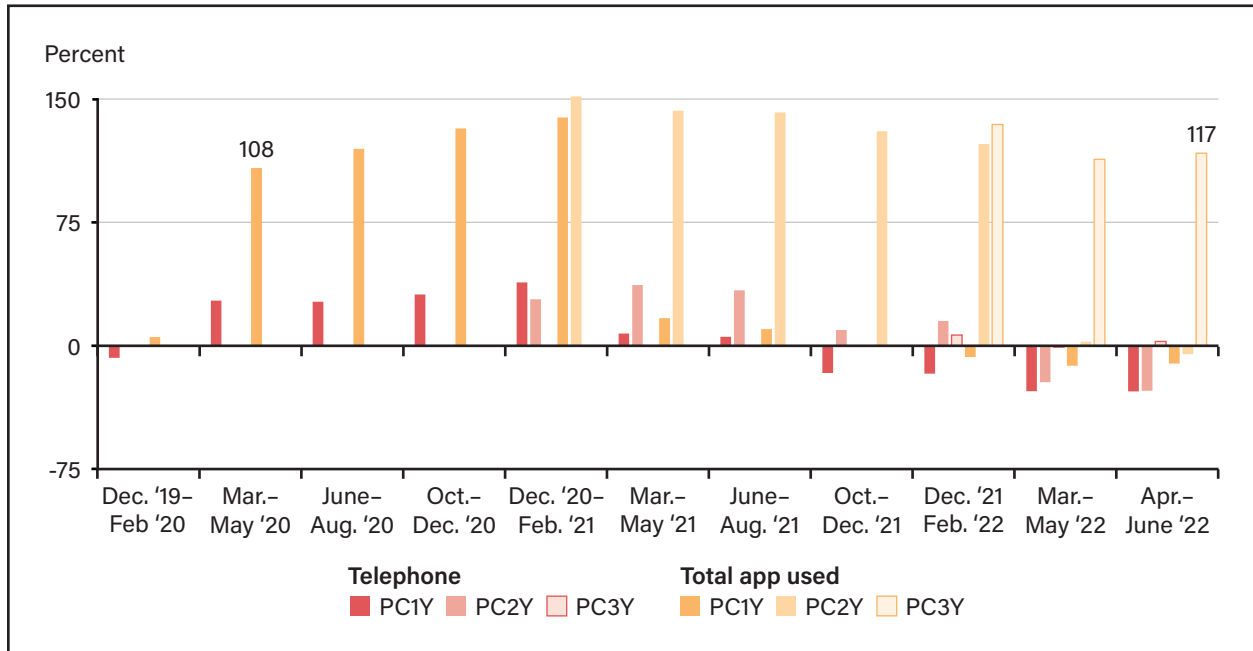
PC1Y = Percent change relative to 1 year ago. PC2Y = Percent change relative to 2 years ago. PC3Y = Percent change relative to 3 years ago.

Note: Selected periods presented to highlight periods pre- and immediately after onset of the pandemic. Periods were selected to reflect changes as the pandemic progressed and then follow-up periods, covering the same months but in the following years. Results based on 3-month rolling average of total real dollars spent during the time period listed compared to the same period 1, 2, or 3 years prior. Telephone refers to all call in orders placed using a cell phone or a landline. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Figure 9b

Percent change in monthly average total dollars spent on delivery at quick-service restaurants compared to 1, 2, and 3 years prior, by acquisition method, December 2019–June 2022



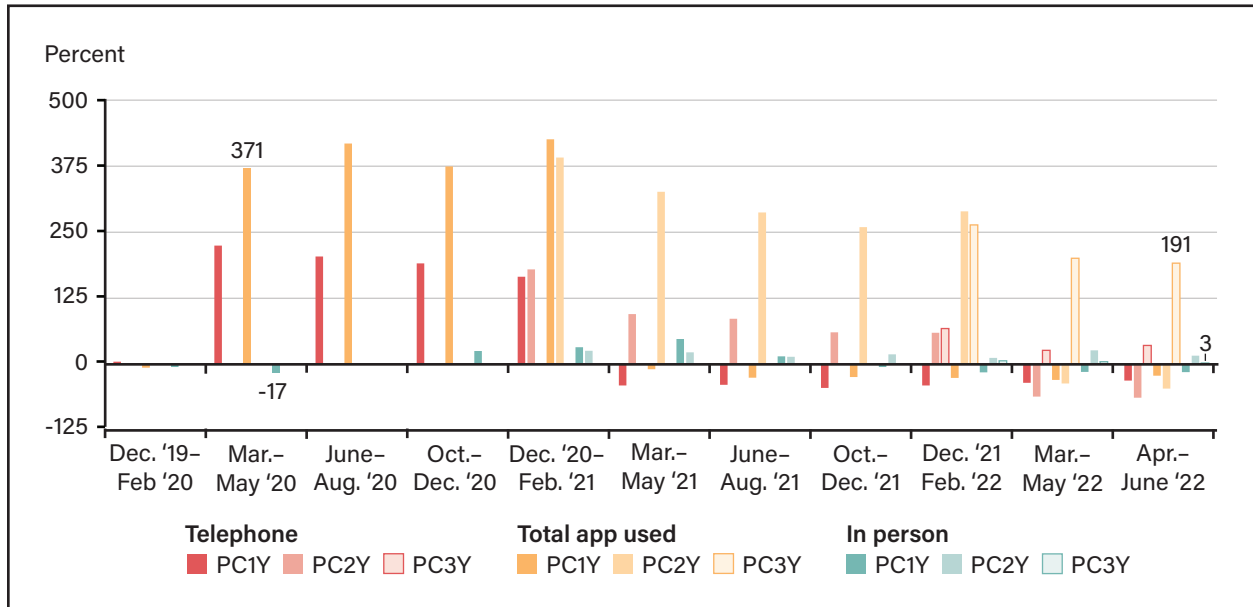
PC1Y = Percent change relative to 1 year ago. PC2Y = Percent change relative to 2 years ago. PC3Y = Percent change relative to 3 years ago.

Note: Selected periods presented to highlight periods pre- and immediately after onset of the pandemic. Periods were selected to reflect changes as the pandemic progressed and then follow-up periods, covering the same months but in the following years. Results based on 3-month rolling average of total real dollars spent during the time period listed compared to the same period 1, 2, or 3 years prior. Telephone refers to all call in orders placed using a cell phone or a landline. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Figure 10a

Percent change in monthly average total dollars spent on carry-out at full-service restaurants compared to 1, 2, and 3 years prior, by acquisition method, December 2019–June 2022



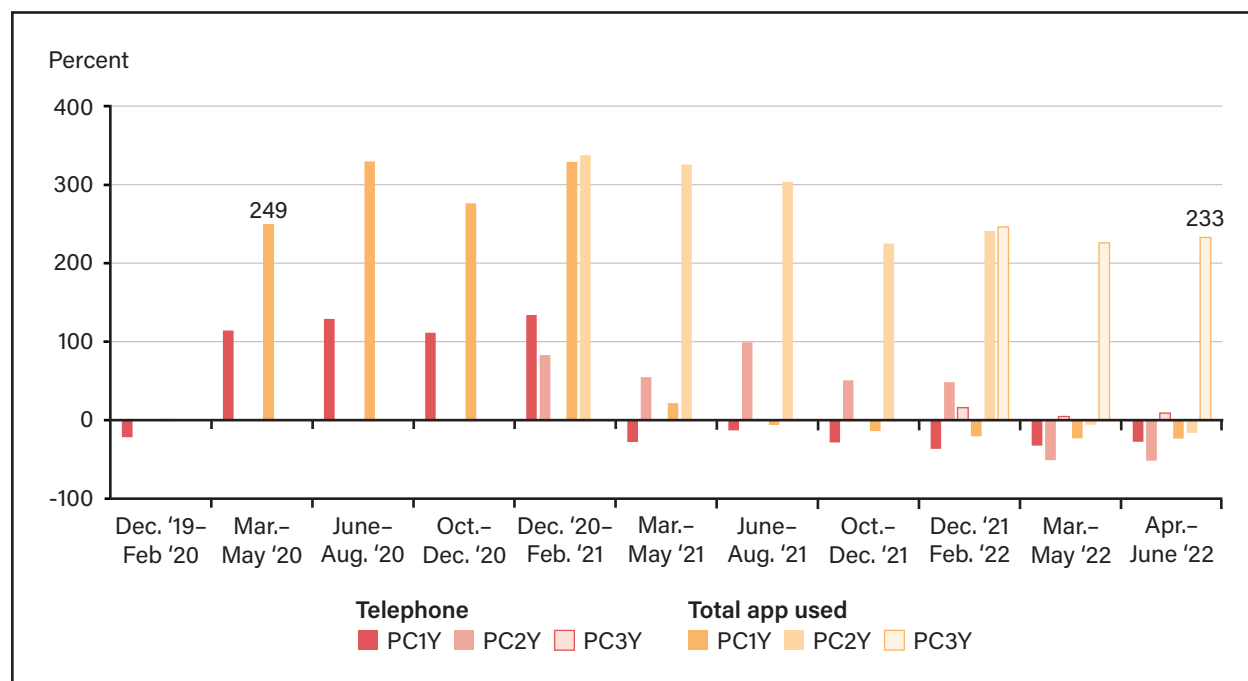
PC1Y = Percent change relative to 1 year ago. PC2Y = Percent change relative to 2 years ago. PC3Y = Percent change relative to 3 years ago.

Note: Selected periods presented to highlight periods pre- and immediately after onset of the pandemic. Periods were selected to reflect changes as the pandemic progressed and then follow-up periods, covering the same months but in the following years. Results based on 3-month rolling average of total real dollars spent during the time period listed compared to the same period 1, 2, or 3 years prior. Telephone refers to all call in orders placed using a cell phone or a landline. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Figure 10b

Percent change in monthly average total dollars spent on delivery at full-service restaurants compared to 1, 2, and 3 years prior, by acquisition method, December 2019–June 2022



PC1Y = Percent change relative to 1 year ago. PC2Y = Percent change relative to 2 years ago. PC3Y = Percent change relative to 3 years ago.

Note: Selected periods presented to highlight periods pre- and immediately after onset of the pandemic. Periods were selected to reflect changes as the pandemic progressed and then follow-up periods, covering the same months but in the following years. Results based on 3-month rolling average of total real dollars spent during the time period listed compared to the same period 1, 2, or 3 years prior. Telephone refers to all call in orders placed using a cell phone or a landline. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Spending patterns as of April–June 2022 compared to years prior further highlight the more persistent shifts in acquisition methods. In-person FSR carry-out spending was nearly the same as pre-pandemic, with only a 3 percent difference, whereas it was still about 28 percent lower at QSRs. Cell phone app orders for carry-out remained popular, with spending 108 percent higher than 3-years prior at QSRs and 191 percent higher at FSRs. App spending on delivery was similarly popular, about 117 percent and 233 percent higher at QSRs and FSRs, respectively, than 3-years prior. These large changes in app usage relative to years prior highlight that despite only a moderate increase in the share of dollars spent overall, a notable shift occurred in spending patterns and methods, particularly for FSRs.

App Usage

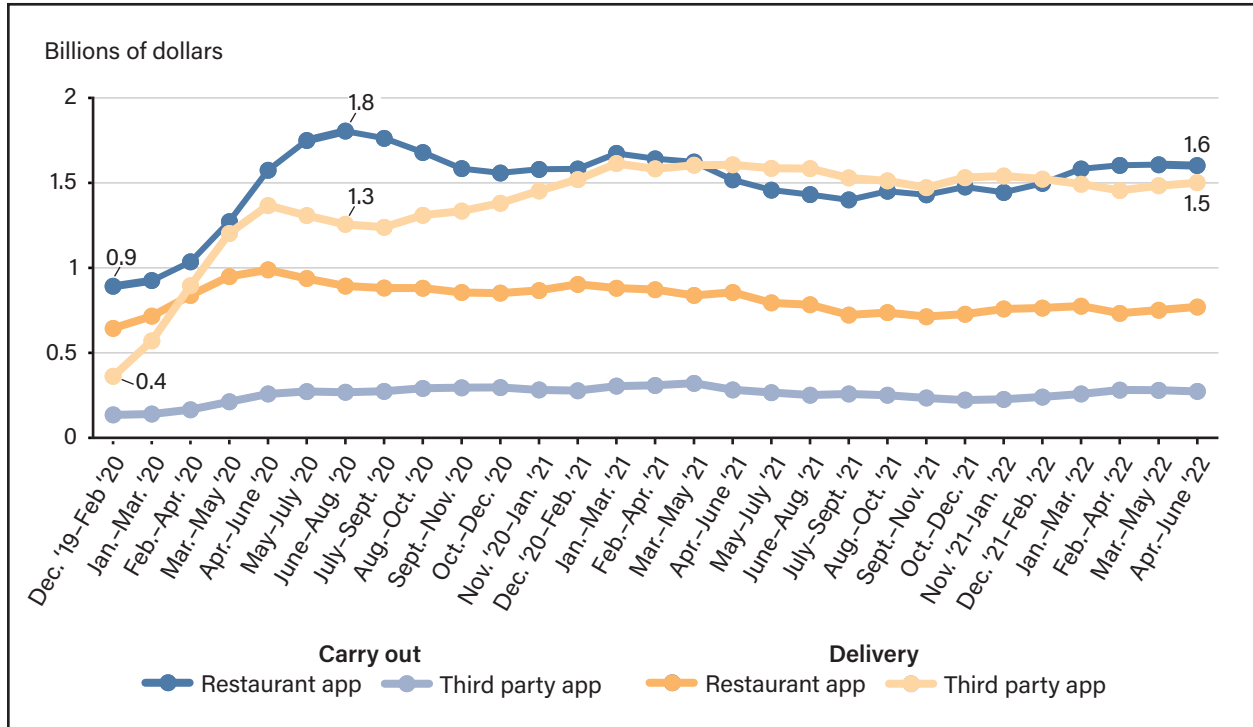
Notable changes were documented in how consumers placed their orders for carry-out and delivery from QSRs and FSRs. Cell phone apps saw increased use since the onset of the pandemic and largely maintained that gain. This gain was driven by a rise in both third-party and restaurant-specific apps; however, heterogeneity existed in how these apps related to acquisition, with both QSRs and FSRs exhibiting similar patterns.

Carry-out spending, specifically via restaurant apps, was the largest contributor to app spending overall at both QSRs and FSRs. There was a notable increase from \$0.9 billion at QSRs and \$0.1 billion at FSRs,

compared to \$1.8 billion and \$0.7 billion as of June–August 2020 (figures 11 and 12) that was not as pronounced for third-party app spending on carry-out. However, third-party app spending was more common for delivery during this time, increasing to about \$1.3 billion and \$0.6 billion at QSRs and FSRs.

Figure 11

Monthly average total dollars spent on carry-out and delivery at quick-service restaurants, by cell phone app type, December 2019–June 2022

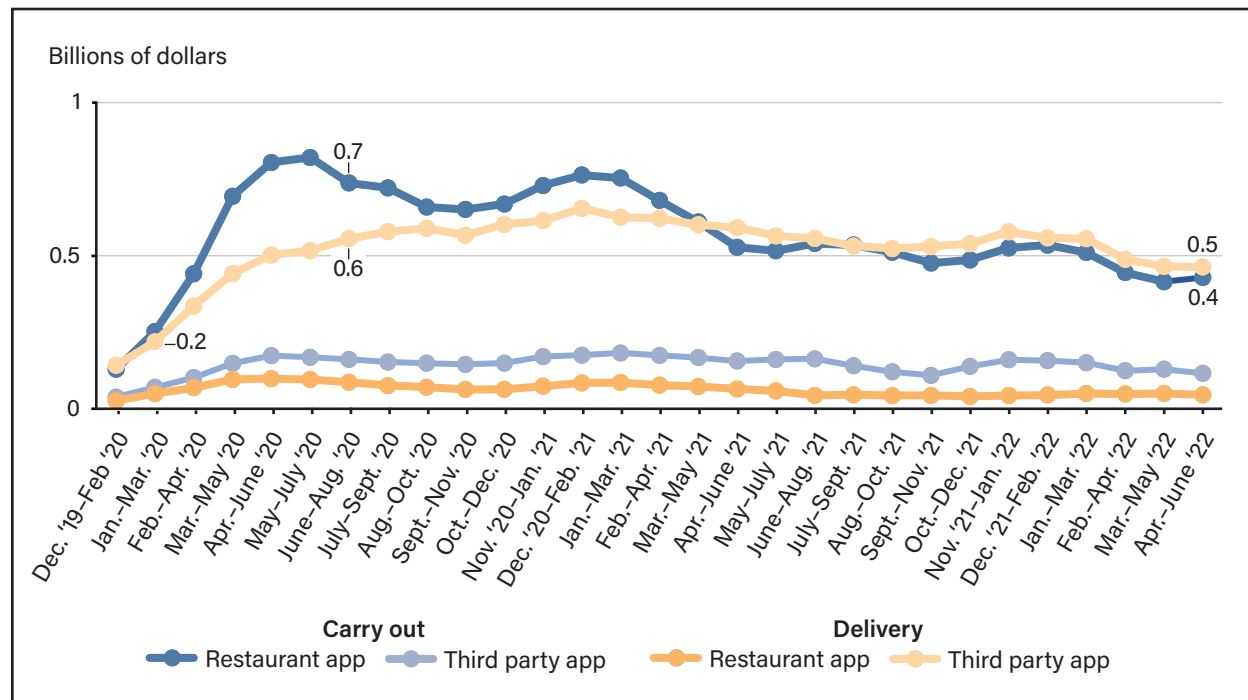


Note: Results based on 3-month rolling average of total real dollars spent during the time period listed. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Figure 12

Monthly average total dollars spent on carry-out and delivery at full-service restaurants, by cell phone app type, December 2019–June 2022



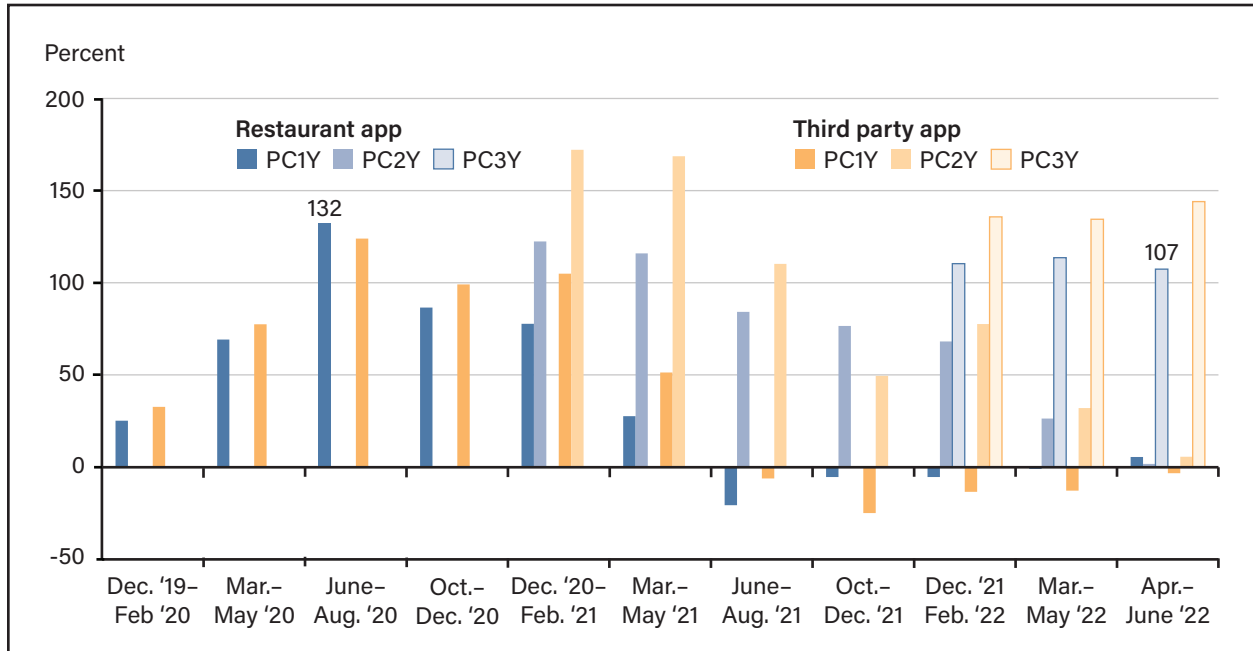
Note: Results based on 3-month rolling average of total real dollars spent during the time period listed. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Changes in total spending levels were more pronounced when compared to the same periods a year prior. As of June–August 2020, carry-out spending via restaurant-specific apps was 132 percent and 499 percent higher at QSRs and FSRs (figures 13a and 14a). Third-party app spending on delivery was 261 percent and 339 percent higher (figures 13b and 14b) relative to a year prior. As of April–June 2022, these two methods continued to see large increases in spending relative to pre-pandemic levels. Carry-out spending via restaurant apps was up 107 percent at QSRs and 299 percent at FSRs. Delivery spending via third-party apps was up 353 percent at QSRs and 257 percent at FSR, relative to pre-pandemic. In more recent periods, absolute spending on carry-out using restaurant-specific apps surpassed spending on delivery via third-party apps at QSRs, but that was not the case for FSRs (figures 11 and 12). Despite increased spending patterns relative to before the pandemic, FSR spending has been trending downward for both carry-out via restaurant apps and delivery through third-party apps, whereas QSR spending seems to have plateaued at higher spending levels. This is likely related to increased on-premises spending observed at FSRs in recent periods, highlighting that despite other options available, on-premises service was still the traditional FSR format.

Figure 13a

Percent change in monthly average total dollars spent on carry-out at quick-service restaurants compared to 1, 2, and 3 years prior, by cell phone app type, December 2019–June 2022



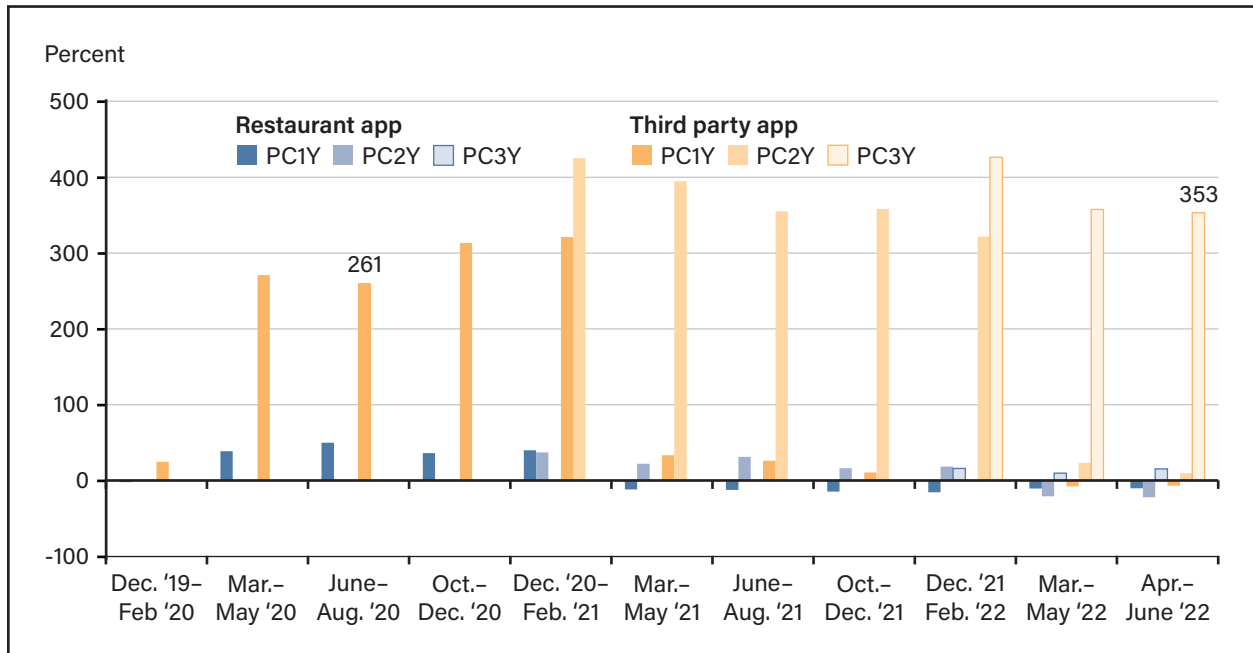
PC1Y = Percent change relative to 1 year ago. PC2Y = Percent change relative to 2 years ago. PC3Y = Percent change relative to 3 years ago.

Note: Selected periods presented to highlight periods pre- and immediately after onset of the pandemic. Periods were selected to reflect changes as the pandemic progressed and then follow-up periods, covering the same months but in the following years. Results based on 3-month rolling average of total real dollars spent during the time period listed compared to the same period 1, 2, or 3 years prior. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Figure 13b

Percent change in monthly average total dollars spent on delivery at quick-service restaurants compared to 1, 2, and 3 years prior, by cell phone app type, December 2019–June 2022



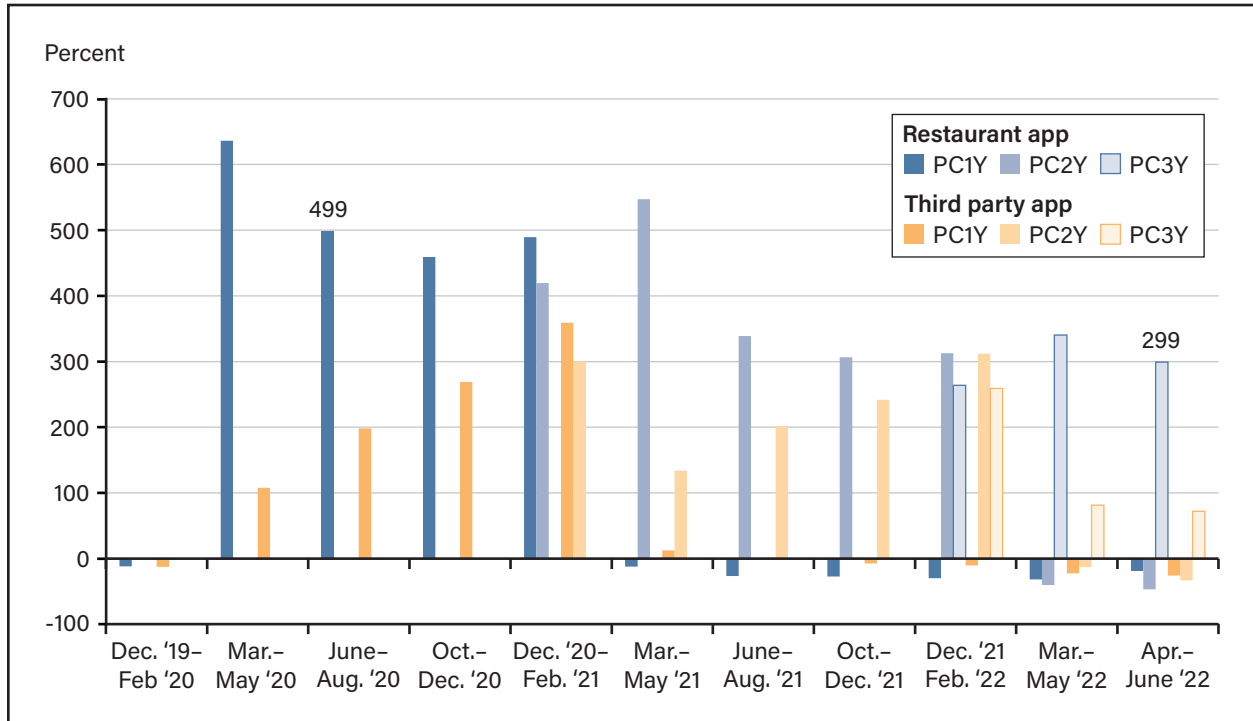
PC1Y = Percent change relative to 1 year ago. PC2Y = Percent change relative to 2 years ago. PC3Y = Percent change relative to 3 years ago.

Note: Selected periods presented to highlight periods pre- and immediately after onset of the pandemic. Periods were selected to reflect changes as the pandemic progressed and then follow-up periods, covering the same months but in the following years. Results based on 3-month rolling average of total real dollars spent during the time period listed compared to the same period 1, 2, or 3 years prior. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Figure 14a

Percent change in monthly average total dollars spent on carry-out at full-service restaurants compared to 1, 2, and 3 years prior, by cell phone app type, December 2019–June 2022



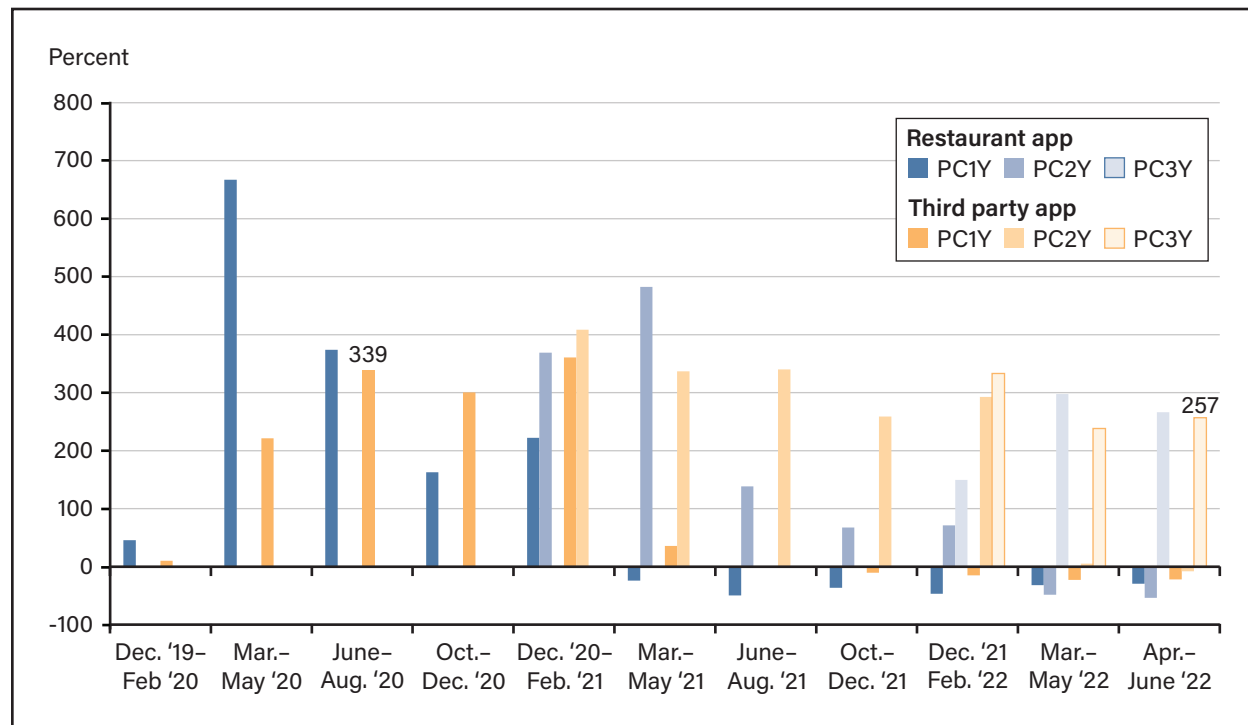
PC1Y = Percent change relative to 1 year ago. PC2Y = Percent change relative to 2 years ago. PC3Y = Percent change relative to 3 years ago.

Note: Selected periods presented to highlight periods pre- and immediately after onset of the pandemic. Periods were selected to reflect changes as the pandemic progressed and then follow-up periods, covering the same months but in the following years. Results based on 3-month rolling average of total real dollars spent during the time period listed compared to the same period 1, 2, or 3 years prior. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Figure 14b

Percent change in monthly average total dollars spent on delivery at full-service restaurants compared to 1, 2, and 3 years prior, by cell phone app type, December 2019–June 2022



PC1Y = Percent change relative to 1 year ago. PC2Y = Percent change relative to 2 years ago. PC3Y = Percent change relative to 3 years ago.

Note: Selected periods presented to highlight periods pre- and immediately after onset of the pandemic. Periods were selected to reflect changes as the pandemic progressed and then follow-up periods, covering the same months but in the following years. Results based on 3-month rolling average of total real dollars spent during the time period listed compared to the same period 1, 2, or 3 years prior. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Different ways that consumers spend at different restaurant types could also be related to the overall way restaurants used the apps. Third-party apps use their own drivers, which provide FSRs the ability to contract out the delivery; if they used their own app for scheduling delivery, it required internal staff to drive the food to consumers. However, QSRs, which had more diversified offerings prior to the pandemic, including delivery, likely only expanded their delivery capabilities by using third-party apps.

Discussion and Conclusion

This report provides a deeper understanding of the changes in consumer expenditures on food-away-from-home meals at quick- and full-service restaurants throughout the COVID-19 pandemic. The authors provided an overview of how total dollars consumers spent by service mode (carry-out, delivery, drive-thru, and on-premises) and restaurant type (quick-service and full-service restaurants) changed throughout the pandemic as well as how expenditure patterns changed across service modalities.

The authors found that, despite a drop in on-premises spending at QSRs, spending by other service modalities, such as drive-thru and delivery, likely buffered the losses faced by those establishments. It could be

argued that pre-pandemic investments in a variety of service modes, as observed by the more equal distribution of dollars spent at QSRs across the service modes prior to the pandemic, contributed to the quicker rebound observed at these establishments. However, future research would be necessary to determine the exact source of the QSR rebound. The wide variety of spending options likely facilitated consumer access at a time when more drastic changes were occurring to the leading service mode for FSRs, which tend to be smaller establishments not associated with a larger chain, which is more common for QSRs.

Compared to QSRs, FSRs experienced a more pronounced decrease in total spending because of the drop in on-premises options. While consumers interacted with the alternative service modes FSRs offered, these options were not enough to compensate for the decrease in on-premises spending. The authors found that despite on-premises spending recovering in more recent periods, consumers continued to spend via alternative modes, highlighting that there is continued demand for alternative options from FSRs.

The authors found that some heterogeneity existed in acquisition methods between how dollars were spent on carry-out between QSRs and FSRs. For example, spending on telephone orders became increasingly popular at FSRs but only changed early in the pandemic at QSRs. This could be due to a pre-established trend among consumers to call in orders to FSRs, given the lack of alternative methods. Further, the authors found that cell phone apps became an increasingly popular acquisition method for carry-out and delivery at both QSRs and FSRs, with both an increased share of dollars spent and year-over-year comparisons often over 100 percent higher. Specifically, apps designed for orders from one restaurant, or restaurant-specific apps, became increasingly popular for carry-out orders, likely to help reduce fees but maintain the convenience of placing a mobile order. Despite other potential fees, such as tips for the delivery driver, consumers favored third-party apps for delivery, likely due to the improved access to restaurants and potential discounts.

These findings highlight the persistence of “to-go” methods and app usage that could foretell more permanent changes to U.S. consumers’ FAFH acquisitions. For example, apps not only provide delivery or orders, but they also allow restaurants’ ability to advertise to consumers. The “choice architecture” of these apps compared to more traditional menus could possibly alter consumers’ choices of foods. For example, some apps list a restaurant’s most frequently ordered items, which may motivate consumers to choose those items. If these items were less healthy than other options, there could be negative dietary and health consequences.

The trends identified in this report about consumer use of cell phone apps throughout the pandemic, in conjunction with research conducted pre-pandemic, highlight a growing need to understand the implications of the changes in consumption on overall diet quality and food choices. Finally, these findings raise a question about the pandemic and long-term trends in FAFH spending by household income. For instance, if FAFH acquisition effectively became more expensive due to fees from apps or delivery or the time and fuel required to acquire carry-out food, then lower-income consumers may have lost some access to FAFH. Ideally, future research could investigate pandemic FAFH spending, including service modes used by household income strata.

In summary, following the onset of the COVID-19 pandemic, U.S. consumers cut their spending at and visits to restaurants substantially, but over time, they shifted to other service modes that provided reduced in-person interactions. While consumers have been returning to more in-person dining, they continued to spend across delivery and carry-out at levels similar to those observed early in the pandemic. This persistent shift from on-premises dining to “to-go” methods like carry-out and delivery may point to a new normal stemming from the pandemic response for both QSRs and FSRs, although the impact may be unevenly felt. Finally, this descriptive analysis can provide the foundation for future work exploring the pandemic’s long-run impacts on consumer FAFH purchasing behavior, such as the impact of app usage on dietary choices or implications for the local food environment.

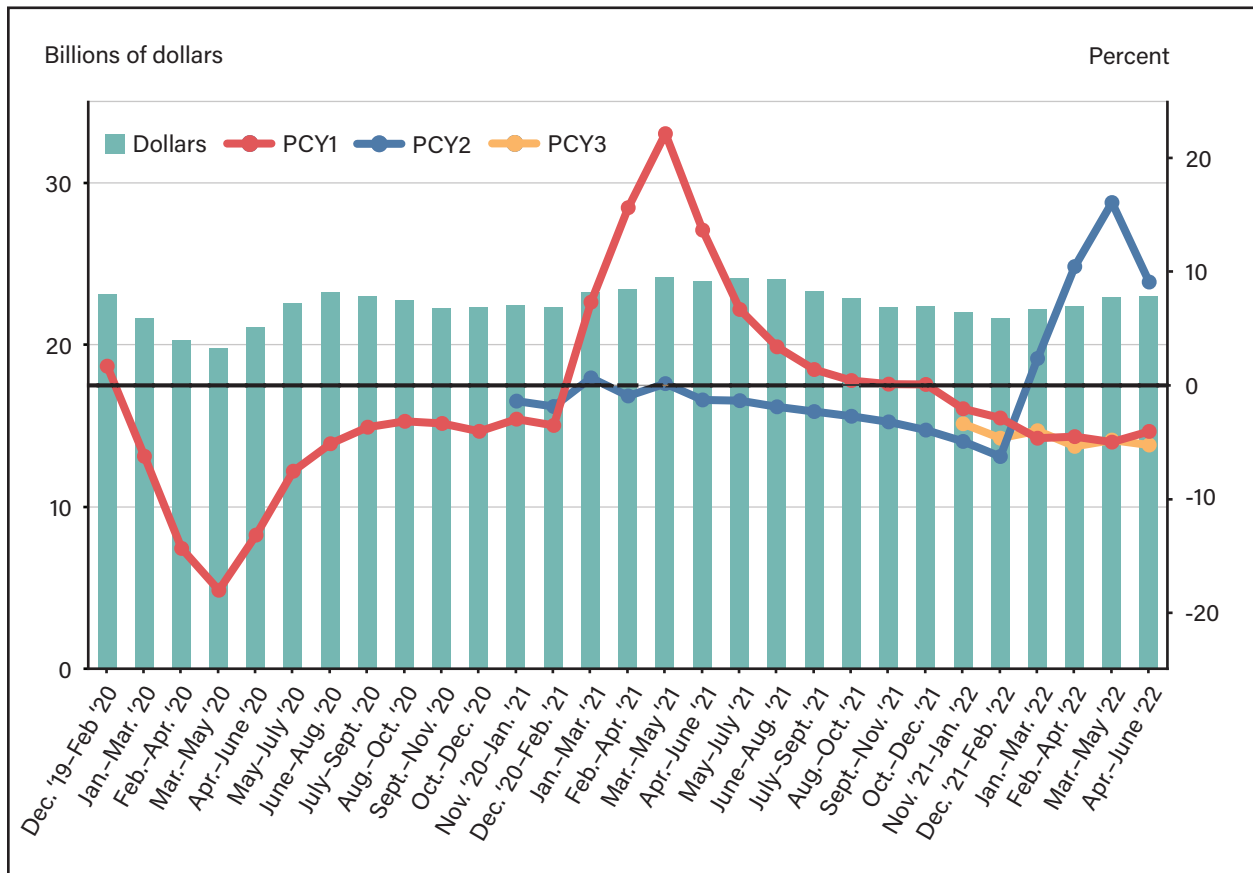
References

- Babar, Y., A. Adeli, and B.N. Greenwood. 2021. “Cooking or Clicking: The Impact of Online Food Delivery Platforms on Domestic Food Preparation.” Working Paper. Available at SSRN 3833938.
- Cho, C., P.W. McLaughlin, E. Zeballos, J. Kent, and C. Dicken. 2019. *Capturing the Complete Food Environment With Commercial Data: A Comparison of TDLinx, ReCount, and NETS Databases*, TB-1953, U.S. Department of Agriculture, Economic Research Service, March 2019.
- Ellison, B., B. McFadden, B.J. Rickard, and N.L. Wilson. 2021. “Examining Food Purchase Behavior and Food Values During the COVID-19 Pandemic,” *Applied Economic Perspectives and Policy*, 43(1), 58–72.
- Ellison B., M. Ocepek and M. Kalaitzandonakes. 2022 “U.S. Household Food Acquisition Behaviors During the COVID-19 Pandemic,” *PLoS ONE* 17(7): e0271522. Available online.
- Marchesi, K. and P.W. McLaughlin. 2022. *COVID-19 Working Paper: The Impact of COVID-19 Pandemic on Food-Away-From-Home Spending*, AP-100, U.S. Department of Agriculture, Economic Research Service, March 2022.
- Partridge, S.R., A.A. Gibson, R. Roy, J.A. Malloy, R. Raeside, S.S., A.C. Singleton, M. Mandoh, A.R. Todd, T. Wang, N.K. Halim, K. Hyun, J. Redfern. “Junk Food on Demand: A Cross-Sectional Analysis of the Nutritional Quality of Popular Online Food Delivery Outlets in Australia and New Zealand,” *Nutrients* 2020, 12, 3107. Available online.
- Restrepo, B.J., M.P. Rabbitt, and C.A. Gregory. 2021. “The Effect of Unemployment on Food Spending and Adequacy: Evidence from Coronavirus-Induced Firm Closures,” *Applied Economic Perspectives and Policy*, 43(1):185–204.
- Statista. 2020. “Restaurant Industry in the U.S.—Statistics & Facts (2020).” Available online.
- Statista. 2021. “Number of smartphone food delivery app users in the United States from 2019 to 2023.” Available online.
- U.S. Department of Agriculture, Economic Research Service. 2022. Food Expenditure Series, U.S. Department of Agriculture, Economic Research Service, Washington, DC.
- Weinstock, L.R. 2021. *COVID-19 and the U.S. Economy*, CRS Report No. R46606, U.S. Congress, Congressional Research Service, May 2021.
- Zeballos, E., and X. Dong. 2022. “The Effect of COVID-19 on Food Sales,” *Applied Economic Perspectives and Policy*. 44(4), 2131-214.
- Zeballos, E., and W. Sinclair. October 2021. “Food Spending by U.S. Consumers Fell Almost 8 Percent in 2020,” *Amber Waves*, U.S. Department of Agriculture, Economic Research Service.

Appendix: Supplemental Figures

Figure A1

Monthly average total dollars spent, and percent change relative to 1, 2, and 3 years prior at quick-service restaurants, December 2019–June 2022



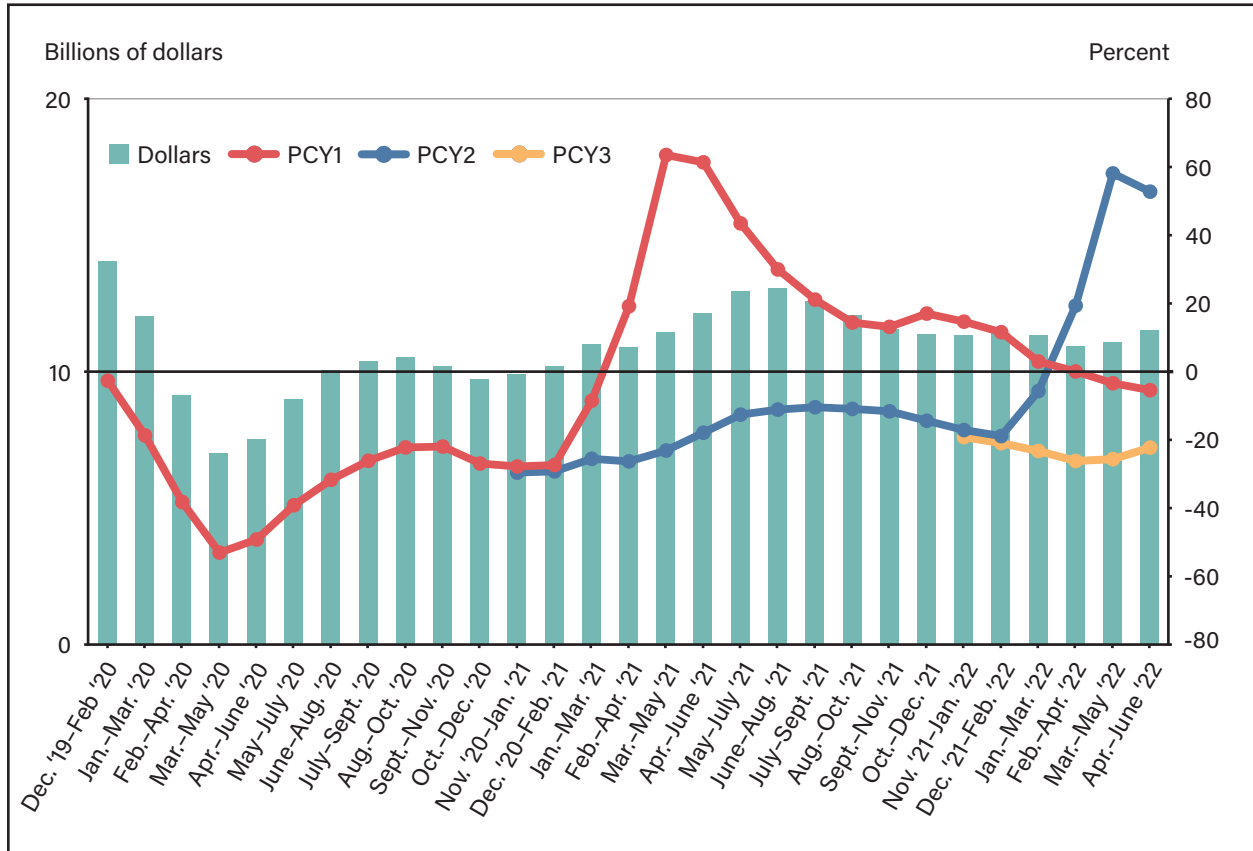
PC1Y = Percent change relative to 1 year ago. PC2Y = Percent change relative to 2 years ago. PC3Y = Percent change relative to 3 years ago.

Note: Billions of dollars are represented by the blue bars and the associated axis on the left. The right axis corresponds to percent change. Results based on 3-month rolling average of total real dollars spent during the time period listed compared to the same period 1, 2, or 3 years prior. Data current as of February 2023.

Source: USDA, Economic Research Service using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.

Figure A2

Monthly average total dollars spent, and percent change relative to 1, 2, and 3-years prior at full-service restaurants, December 2019–June 2022



PC1Y = Percent change relative to 1 year ago. PC2Y = Percent change relative to 2 years ago. PC3Y = Percent change relative to 3 years ago.

Note: Billions of dollars are represented by the blue bars and the associated axis on the left. The right axis corresponds to percent change. Results based on 3-month rolling average of total real dollars spent during the time period listed compared to the same period 1, 2, or 3 years prior. Data current as of February 2023.

Source: USDA, Economic Research Service, using data from the NPD Groups' CREST and Bureau of Labor Statistics Consumer Price Index data.