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## The Covid-19 Shopper: Online Shopping

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## Introduction

Shopping for groceries and preparing food are experiences common to most Americans. During the current Covid-19 pandemic, we hypothesize that those activities have changed. The current situation that has resulted from the Covid-19 is unprecedented. People have lived under stay-at-home orders, several places where consumers obtain foods, such as restaurants and schools, closed, food supply chains have been disrupted, processing plants and farms have been disrupted due to Covid-19 outbreaks among workers. And nowhere, at the time of the study, was the pandemic in greater effect than the Northeast states of New York, New Jersey, Connecticut, Massachusetts, and Pennsylvania.

Learning how these experiences have affected consumers in terms of their food shopping and food preparation habits will help guide actions by food industries, policy makers, and institutions immediately to support the welfare of consumers. In addition, this knowledge will add to the existing knowledge of how consumers respond to extreme disruptions and will help guide the industry during future events.

Our research questions are: 1) have shopping and food preparation habits changed since the advent of the Covid-19 lock down? 2) how have shopping and food preparation habits changed since the advent of the Covid-19 lock down? 3) how has the shopping experience changed since the advent of the Covid-19 lock down? and 4) how likely are consumers to resume pre-Covid-19 habits once the pandemic subsides?

This extension bulletin is one in a series of three that examine the results of one survey conducted May 21-26, 2020. Themes of these three bulletins are 1) online grocery shopping, 2) grocery shopping habits, and 3) food preparation habits.

## Review of the Online Food Environment:

The 5-state study region started implementing statewide shutdowns starting with New York State on March 21 with the other states soon following suit. When the survey launched May 21, consumers had been under stay-at-home orders for approximately 2 months (Table 1).

Table 1. Statewide Lockdown Orders

State	Order dates	Link to order	Official name of order
<a href="#">Connecticut</a>	March 23 - May 20	<a href="#">Link</a>	Stay Safe, Stay Home
<a href="#">Massachusetts</a>	March 24 - May 18	<a href="#">Link</a>	Stay-at-home
<a href="#">New Jersey</a>	<a href="#">March 21 - June 9</a>	<a href="#">Link</a>	Stay-at-home
<a href="#">New York</a>	<a href="#">March 20 - June 27</a>	<a href="#">Link</a>	New York State on PAUSE
<a href="#">Pennsylvania</a>	April 1 - June 4	<a href="#">Link</a>	Stay-at-home

Source: [https://ballotpedia.org/States\\_that\\_issued\\_lockdown\\_and\\_stay-at-home\\_orders\\_in\\_response\\_to\\_the\\_coronavirus\\_\(COVID-19\)\\_pandemic,\\_2020](https://ballotpedia.org/States_that_issued_lockdown_and_stay-at-home_orders_in_response_to_the_coronavirus_(COVID-19)_pandemic,_2020)

Before the pandemic, online grocery sales were quickly increasing. Nielsen's Brandbank reported average 2019 online sales as being 4% of total grocery sales (Dunning 2020). Online sales increased throughout the year, and in December of 2019, Brick Meets Click, a consultant group that studies digital effects on the grocery sector, reported that online grocery sales accounted for 6.3% of the total amount spent on groceries in the U.S. (Melton 2019). They predicted online sales to increase to approximately 7.0% of the market in 2020.

In March 2020 society changed. Stay-at-home orders were issued by several states, and although grocery stores remained open as essential businesses, the emergence of the pandemic and consequent stay-at-home orders caused online grocery sales to accelerate sharply. Many consumers expressed their concerns for safety and shopped in the safety of their homes while retailers fast-tracked emerging online shopping operations to meet the demand (Redman, 2020).

The increase in online shopping outpaced retailers' and manufacturers' expectations. As they made decisions about managing the growth in online sales for their products, they were interested in learning more about the online shopping behavior. Who is currently using online grocery shopping, and who are potential users? Will current online shoppers maintain their online shopping spend post-Covid-19; will they demand the same products online; will their expectations for promotions and services change?

## Methodology

We surveyed shoppers in Connecticut, Massachusetts, New Jersey, New York, and Pennsylvania, a region in the U.S. that was one of the most heavily affected at that time by the Covid-19 disease. A survey panel was recruited by Qualtrics, and survey data were collected May 21-26, 2020.

Respondents self-described the type of area in which they lived as being rural, urban, or suburban, with 26.7% indicating that they lived in a rural area, 37.2% from a suburban area, and 36.2% from an urban area (Table 1). The Census Bureau has definitions for urban and rural areas. Using these definitions, 87.3% of the population in the five state region surveyed lives in urban areas and 12.7% in rural areas. Therefore, our survey over represents the rural population in the region.

Table 1. Respondents Living in Urban versus Rural Areas

	% Urban or Suburban	% Rural
Respondents	73.4	26.7
5-state weighted average <sup>1</sup>	88.3	12.7

<sup>1</sup> Iowa Community Indicators Program

## Demographics

Responses to the demographic questions in the survey are presented in Table 2. One psychographic question was included to try to provide additional strength to the analyses. This question asked respondents about how much information or news they follow about covid-19. The purpose of the question was to describe to what degree respondents were worried about the

disease and, therefore, how they might be changing their normal shopping and food preparation habits.

Table 2. Respondent Demographics

Variable	Description	% of respondents
Primary shopper	I am solely or primarily responsible for grocery shopping	69.2
	I typically do at least one-half of the grocery shopping	26.0
	I typically do some, but less than one-half of the grocery shopping	4.2
	I typically do not do any grocery shopping	0.3
	Don't know or am not sure	0.3
Current Employment	I am still employed at the rate of employment prior to the Covid-19 crisis	37.2
	I am still working but not as much as prior to the Covid-19 crisis	13.9
	I am currently furloughed	7.8
	I became unemployed after the Covid-19 crisis hit and am not receiving unemployment	4.7
	I am currently on unemployment due to the Covid-19 crisis	7.2
	I am currently retired	18.5
News regarding Covid-19	Other, please describe	10.7
	I follow as much information about Covid-19 as I can	29.4
	I follow information about Covid-19 every day	44.2
	I follow information about Covid-19 on occasion	23.3
	None, I do not follow information about Covid-19	2.8
Marital status	Single	38.9
	Married	55.1
	Other	6.0
Household	Household size (number)	2.6
Children	Number of children under 18 (number)	0.55
Education	Less than High School	1.0
	High School/GED	20.4
	Some College	16.7
	2-Year College Degree	9.5
	4-Year College Degree	30.1
	Graduate/Professional degree	22.3
Ethnicity	Asian	5.3
	Black/African	6.5
	Caucasian	81.2
	Hispanic/Latinx	5.0
	Indigenous American	0.4
	Pacific Islander	0.3
	Prefer not to answer	0.4

Variable	Description	% of respondents
	Please let us know your preference (describe)	1.0
Household income in 2019 before taxes	I prefer not to say	3.6
	Less than \$20,000	10.6
	\$20,000 - \$39,999	15.4
	\$40,000 - \$59,999	15.1
	\$60,000 - \$79,999	17.2
	\$80,000 - \$99,999	10.8
	\$100,000 - \$119,999	6.3
	\$120,000 - \$139,999	5.1
	\$140,000 - \$159,999	5.1
	\$160,000 - \$179,999	2.3
	\$180,000 - \$199,999	2.9
	\$200,000 or greater	5.5

## RESULTS: Online Shopping

Respondents reported a large increase in the percent of groceries purchased online "normally", from before Covid-19, to "currently", from 8.4% to 21.1% (Table 3). This was an increase of 152%. This increase is counter balanced by the decrease in the proportion of grocery purchases from in-store from 85.3% to 72.4%. Other shopping methods, such as direct from farm, remained similar.

Table 3. Percent of Groceries Purchased from Different Retail Types, Normally and Currently

	A physical store <sup>1</sup>	Ordered online and either picked-up or delivered <sup>2</sup>	Farmer direct <sup>3</sup>	Other
Normally, before Covid-19	85.3%	8.4%	4.3%	1.9%
Currently	72.4	21.1	4.1	2.5

<sup>1</sup> such as a supermarket or other grocery store

<sup>2</sup> such as Kroger, Walmart, Instacart, Shipt, AmazonFresh, Fresh Direct, Peapod, etc

<sup>3</sup> such as farm stand, farmers market, CSA, online farm store, etc

The total increase in online purchases was a result of:

- an increase in online users, from 30.8% of respondents to 45.5%, and
- an increase in the amount purchased online by "normal" online users, 59.2% of those who normally purchased online, increased their online grocery purchases

## Who was shopping online for groceries before Covid-19:

Respondents from our five-state region reported 8.4% of their groceries were purchased online prior to Covid-19. This number is between the number reported by Bricks and Clicks and that reported by FMI, and we feel the responses from our survey of the region to be valid.

We observe the demographics of online shoppers pre-Covid-19 and during Covid-19 in Table 4, including possible differences by gender, location, and age as well as others.

Table 4. Demographics of Online Shoppers, Selected Variables

	Number of respondents	Pre-Covid-19 (% of groceries online)	During Covid-19 (% of groceries online)
All	780	8.4	21.1
Population density:			
Rural	208	5.3	17.2
Suburban	290	6.0	17.3
Urban	282	13.1	27.9
Gender:			
Male	349	12.4	25.8
Female	430	5.2	17.1
Age:			
18-34	185	10.0	22.9
35-64	433	9.5	22.0
65 or older	160	3.5	15.7
No Response	2	0.0	87.5
Employment:			
Employed	398	10.6	24.7
Unemployed	154	10.1	23.8
Retired	144	2.5	13.7
Others (home-makers, students, disabled, etc.)	83	4.8	11.9
No Response	1	0.0	0.0
Consumers of Covid-19 news:			
None+On Occasion	204	8.2	15.9
EveryDay+AsMuch	574	8.5	23.0
NoResponse	2	0.0	0.0
Children under 18			
Present		13.9	30.1
Not present		5.7	16.7
Marital status			
Married		9.3	23.9
Single		7.6	18.2
Other		5.0	14.4

But simple frequencies like those reported in the table can be misleading. Therefore, a regression analysis was used to untangle the numerous variables that could influence the amount of

groceries purchased online and to determine which variables are statistically significant. We used OLS (ordinary least squares) to examine which consumers were associated with greater purchasing online pre-Covid-19. The regression estimates are shown in Table 5.

Before Covid-19, those who purchased more groceries online were:

- urban
- male
- younger than 65
- respondents with children under 18

Income was not significant in explaining greater online grocery purchases pre-Covid-19.

Table 5. Regression Estimates for Percent of Groceries Ordered Online, Pre-Covid-19

Variable	Estimate	Std. Error	t-ratio
Intercept	6.788***	1.761	3.854
Higher-educated	0.275	1.277	0.216
Income	1.876	1.260	1.489
Rural	-0.947	1.466	-0.646
Urban	5.696***	1.349	4.224
Female	-5.312***	1.168	-4.546
18 - 34 years old	-0.398	1.448	-0.275
65 years old or older	-3.243*	1.509	-2.148
Child(ren)	5.314***	1.334	3.983
Married	0.059	1.326	0.044
R-squared	0.136		

Single, double, and triple asterisks (\*, \*\*, \*\*\*) indicate significance at a 10%, 5%, and 1% level.

### Who shopped online shopping during Covid-19:

As reported above, more people started using online shopping after Covid-19 struck and stay-at-home orders were issued (30.8% of respondents pre-Covid-19 to 45.5% during Covid-19). Were these additional consumers the same demographic as previous users, or did the pandemic provide incentive to consumers in different demographics to use online grocery shopping?

A logit model was used to analyze which respondents started using online shopping during the pandemic in the spring 2020 (regression estimates shown in Table 6). Respondents new to online grocery shopping during the Covid-19 pandemic this spring were somewhat different to those who shopped online prior to Covid-19, and more likely to be those:

- those with 4-years or more of college,
- female
- married



Table 6. Regression Estimates for New Online Grocery Shoppers, during Covid-19

Variable	Estimate	Std. Error	t-ratio
Intercept	-2.774***	0.481	-5.770
Higher-educated	0.582*	0.234	2.483
Income	-0.242	0.231	-1.048
Rural	0.226	0.260	0.869
Urban	-0.022	0.243	-0.090
Female	0.815***	0.222	3.662
18 - 34 years old	0.257	0.258	0.995
65 years old or older	-0.207	0.344	-0.602
Employed	-0.034	0.349	-0.097
Unemployed	0.114	0.382	0.298
Retired	0.249	0.450	0.554
COVID-19 Information	0.071	0.235	0.304
Child(ren)	0.129	0.238	0.541
Married	0.524*	0.242	2.169
Log-likelihood value	-324.088		

Single, double, and triple asterisks (\*, \*\*, \*\*\*) indicate significance at a 10%, 5%, and 1% level.

#### Who increased their online purchases during Covid-19:

As reported earlier, 59.2% of respondents, who were already purchasing online, increased their use of grocery shopping online (Table 7). These respondents were:

- those with 4-years or more of college
- urban
- those who consume information about Covid-19 daily.<sup>1</sup>
- with children under 18

<sup>1</sup> This variable was not included in the question about shopping pre-Covid-19, since it would not have been a logical option.

Table 7. Regression Coefficients for Those Who Increased Their Percent of Groceries Ordered Online

Variable	Estimate	Std. Error	t-ratio
Intercept	-2.263***	0.388	-5.826
Higher-educated	0.504**	0.186	2.707
Income	0.301	0.179	1.681
Rural	0.204	0.217	0.940
Urban	0.562**	0.192	2.922
Female	-0.129	0.168	-0.768
18 - 34 years old	0.265	0.208	1.274
65 years old or older	-0.009	0.276	-0.033
Employed	0.136	0.297	0.457
Unemployed	0.312	0.324	0.965
Retired	0.017	0.386	0.043
COVID-19 Information	0.494*	0.194	2.542
Child(ren)	0.452*	0.189	2.393
Married	0.331	0.194	1.711
Log-likelihood value	-449.122		

Single, double, and triple asterisks (\*, \*\*, \*\*\*) indicate significance at a 10%, 5%, and 1% level.

## IMPLICATIONS

The disruptions caused by the changes in grocery purchasing patterns have been extensive, and researchers and industry need to understand the extent of the changes.

We feel shoppers in the five-state region of the U.S. hardest hit by the Covid-19 in the spring of 2020 acted as a bellwether for how shoppers reacted in the rest of the U.S. as the pandemic unrolled. With Covid-19 still prevalent, online grocery shopping is expected to remain higher than pre-Covid-19 levels, even though industry sources indicate that the growth is slowing.

We examined the demographics of those respondents who had been shopping online. We then looked at which respondents were more likely to have increased their online shopping and which respondents were more likely to have started shopping online during the pandemic. The respondents who increased their online shopping during the pandemic shared demographic descriptors with the larger set of those who had already been shopping online pre-Covid-19.

The respondents who started shopping online appear to be different demographically and were more likely to have more than 4 years of college, be female, and be married.

Opportunities to expand the online shopper base continue to exist, especially during the time of the pandemic and as online shopping becomes even more available to the vast majority of consumers. Demographics to target include females and those older than 65.

Beyond targeting specific demographics, retailers can encourage larger online shopping baskets and/or more frequent use of online shopping. According to our survey, of those respondents currently shopping online, only 46.4% of their groceries are being purchased online. Therefore, they are still shopping in-store for 55.4% of their groceries. Given that shoppers are limiting the

number of visits to and reducing the amount of time spent in grocery stores, retailers might want to investigate why online shoppers are not purchasing more of their groceries in this way,

The Food Marketing Institute has suggested ways in which retailers can improve their online shopping (Markenson 2020). These operations include better product selection, faster delivery, easier-to-use websites, more and better product information and more accurate search functionality

Some factors may decrease or stall online shopping. Many retailers and online shopping services charge for picking, handling, or delivery and may place a surcharge on the products themselves. These generally higher cost of online shopping could dampen sales if the country enters a recession.

Can retailers keep their new online shoppers? Most industry experts believe online shopping will remain higher than pre-Covid-19 levels, although it may drop after the pandemic is over (Bitter 2020).

If retailers want to continue or expand their current online presence, they will need to be prepared to manage their online shopping programs innovatively and effectively to maintain sales and customers.

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