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Abstract

A notable shift toward online grocery shopping is occurring. To examine the prevalence and frequency of online grocery shopping, the methods of receiving groceries purchased online, and the primary motivators prompting U.S. consumers to buy groceries online, this report uses nationally representative data from the USDA, Economic Research Service's 2022 Eating and Health Module of the American Time Use Survey. The analysis reveals that about one in five individuals who usually do any grocery shopping in their household purchased groceries online at least once in the past month. Shoppers more likely to buy groceries online than their counterparts and who shopped online more frequently were female, ages 15–24, non-Hispanic White, married or partnered, from a household with young children, more educated, income ineligible for SNAP benefits, or frequently did the grocery shopping in their households. Pickup and delivery options were chosen almost equally, and more than two in five online grocery shoppers cited time constraints as the main reason the shoppers chose to buy groceries online. Examining the drivers of online grocery shopping can inform program, policy, and retailer decision-making—given the potential for online grocery shopping to improve food access, foster healthier purchases, and alter the food retail landscape.

Keywords: online grocery shopping, prevalence, frequency, Eating and Health Module, American Time Use Survey

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Contents

USDA Economic Research Service
U.S. DEPARTMENT OF AGRICULTURE

A report summary from the Economic Research Service *September 2024*

Who Shops for Groceries Online?

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What Is the Issue?

U.S. consumers source the majority of daily calorie intake from home-prepared meals, but there is a rising trend in online grocery shopping among them. This surge gained momentum in 2020 because of social-distancing guidelines and stay-at-home orders issued in response to the Coronavirus (COVID-19) pandemic, and projections indicate continued growth. The expansion of online grocery shopping can impact the food retail landscape, food access, and purchase decisions. Previous research has indicated that preparing food at home tends to be healthier. USDA plays an important role in developing and promoting dietary guidelines, and has a goal to expand access to healthy foods that are essential to optimal health and well-being. The report presents the prevalence and frequency of online grocery shopping, methods of receiving groceries purchased online, primary motivators for U.S. consumers to purchase groceries online, and the consumer characteristics that change the participation and frequency of online grocery shopping.

What Did the Study Find?

In 2022, 19.3 percent of individuals aged 15 and older who were usually involved in at least a little of the grocery shopping in their household engaged in online grocery shopping at least once in the past month. Among those online shoppers, similar percentages opted for grocery pickup (49.1 percent) and home delivery (48.7 percent). The remaining 2.3 percent reported they evenly split obtaining groceries via pickups and deliveries. The top three reasons for shopping online that were named by respondents were:

- Time constraints (40.5 percent);
- Convenience (10.6 percent); and
- Physical safety concerns (6.6 percent).

Among nononline shoppers, the top three main reasons for not buying groceries online that were named by respondents were:

- Liking being able to see and touch products in person (47.4 percent);
- Not having access to the technology to place an order (5.2 percent); and
- Higher prices online (4.3 percent).

The report also found several large and statistically significant differences in online grocery shopping participation and frequency. These differences include: by age group, gender, presence of other household members, race/ethnicity, educational attainment, income eligibility for SNAP benefits, and how often respondents shop for groceries for their household. For example, online shopping participation was more likely among:

- Individuals aged 15–24 compared with those ages 55 and older (16 percentage points);
- Women compared with men (4 percentage points);
- People with a spouse or partner present versus unpartnered people (3 percentage points);
- Households with children under the age of 18 versus childless households or households with older children (4 percentage points);
- Non-Hispanic White shoppers versus non-Hispanic Black shoppers (4 percentage points) and other non-Hispanic shoppers (6 percentage points);
- People with a bachelor's degree versus those without a high school education (13 percentage points);
- Income ineligible SNAP nonparticipants versus income eligible SNAP nonparticipants (4 percentage points); and
- Individuals who did a lot or all the grocery shopping in the household versus those who did a little or some of the grocery shopping in the household (3 percentage points).

How Was the Study Conducted?

In this report, USDA, ERS researchers analyzed data on individuals aged 15 and older from the USDA's 2022 Eating and Health Module of the American Time Use Survey to achieve two objectives. First, the study generated nationally representative estimates of the prevalence of online grocery shopping in the past month, the frequency with which shoppers purchased groceries online, the methods by which shoppers received groceries purchased online, and the main reasons why shoppers bought groceries online versus in person. Second, USDA, ERS researchers performed a regression analysis to identify the socioeconomic characteristics that predict online grocery shopping participation and frequency in the past month.

Who Shops for Groceries Online?

Introduction

The landscape of grocery shopping in the United States has undergone a profound transformation, partly catalyzed by the Coronavirus (COVID-19) pandemic. Three contributing factors have driven this shift. First, the implementation of social-distancing guidelines and stay-at-home orders that were issued by government authorities in early 2020 to reduce the spread of the novel coronavirus caused an immediate shift in grocery sales toward online retailers. According to market research company Insider Intelligence, online grocery sales in the United States grew from $62 billion in 2019 to $96 billion in 2020—an increase of 55 percent (eMarketer Editors, 2021). Online retailers were attractive to U.S. consumers during the pandemic because the retailers offered a safe and convenient way to purchase groceries, which could either be picked up curbside or delivered to homes with minimal contact. Second, to boost food access among low-income U.S. residents during the pandemic, USDA rapidly expanded a 2019 Online Purchasing Pilot that allowed Supplemental Nutrition Assistance Program (SNAP) beneficiaries to buy food online with SNAP benefits.[1] Finally, the pandemic triggered a substantial and persistent shift toward remote work (Barrero et al., 2023), resulting in increased time spent on preparing and consuming food at home (Restrepo & Zeballos, 2020; Restrepo & Zeballos, 2022).

Although the public health emergency associated with the pandemic ended, U.S. consumers appear poised to continue spending some of their food dollars online. An analysis by Insider Intelligence (now eMarketer, Inc.) indicated that online grocery sales amounted to almost 9 percent of total grocery sales in 2020 and forecasted to reach 15 percent in 2026 (Droesch, 2022). Given the recent surge in digital grocery sales in the United States and the associated potential health benefits and improved food access for U.S. consumers, understanding the current prevalence and predictors of online grocery shopping is important for USDA, given USDA's role in developing and promoting the Dietary Guidelines for Americans report and USDA's goal to expand access to healthy foods that are essential to optimal health and well-being.

This report uses data on U.S. residents aged 15 and older who participated in the USDA's 2022 Eating and Health Module (EHM) of the USDA's American Time Use Survey (ATUS) to achieve two primary objectives. The first objective is to provide nationally representative estimates of the prevalence of online grocery shopping in the past month, the frequency with which groceries were purchased online, the methods by which groceries purchased online were received, and the main reasons for choosing online over inperson shopping. The second objective is to provide an analysis of the socioeconomic determinants of online grocery shopping participation and frequency. The information in this report lays the foundation for future research involving grocery shopping in the online marketplace and serves to inform food policymakers and program developers as they consider the implications of the recent shift toward online grocery shopping purchases.

[1] USDA's SNAP Online Purchasing Pilot program, which was mandated by the 2014 Farm Bill, allows SNAP participants to shop and pay for groceries online from SNAP-authorized retailers. This pilot began in April 2019 with one participating State (New York) and quickly expanded in the months after the start of the COVID-19 pandemic. There were 5 other participating States by early April 2020 and, by late September 2020, 45 States and Washington, DC, were participating in the pilot. In June 2023, Alaska became the final State to make it possible for SNAP beneficiaries to redeem benefits online (Jones, 2021).

Data

In 2006, USDA, Economic Research Service (ERS) began collecting data to supplement the analysis on time use and eating patterns through the USDA, ERS-developed Eating and Health Module (EHM) of the American Time Use Survey (ATUS). The EHM was sponsored by USDA, ERS as a nationally representative supplement to the ATUS in 2006–08, 2014–16, and 2022–23 and has featured a wide array of information. This information includes: secondary eating, height and weight, physical activity, self-assessed diet quality and health status, USDA food assistance program participation, grocery shopping, and meal preparation. In 2022, the EHM captured (for the first time) nationally representative data concerning the prevalence of U.S. residents who reported shopping for groceries online in the past month, the frequency with which they shopped for groceries online, the methods by which groceries purchased online were received, and the main reasons why groceries were purchased online versus in person.[2]

The EHM data indicate that, in 2022, nearly 9 out of 10 individuals aged 15 and older (87.2 percent) reported they usually grocery shop for their household at least a little, either online or in person. The analysis in this report focuses on these grocery shoppers, who reported that they usually did "a little," "some," "a lot," or "all" of the grocery shopping in their household.[3] Figure 1 presents the percentages of grocery shoppers aged 15 and older who engaged in online grocery shopping at least once in the past month. Overall, approximately one in five grocery shoppers (19.3 percent) purchased groceries online at least once in the last 30 days.[4] The prevalence of online grocery shopping varied across sociodemographic groups. For instance, the share of prime working-age individuals aged 25–54 who reported shopping online in the past month (24.8 percent) was more than two times higher than the corresponding share of individuals aged 55 and older (11.3 percent). Compared with shoppers who reported doing "a little" or "some" of the grocery shopping (i.e., "nonfrequent grocery shoppers"), online shopping participation was 3.4 percentage points higher among those who reported doing "a lot" or "all" of the grocery shopping in their household (i.e., "frequent grocery shoppers"). The share of employed individuals who reported shopping online in the past month was about 6.7 percentage points higher than the corresponding share of unemployed individuals (21.6 percent versus 14.9 percent).

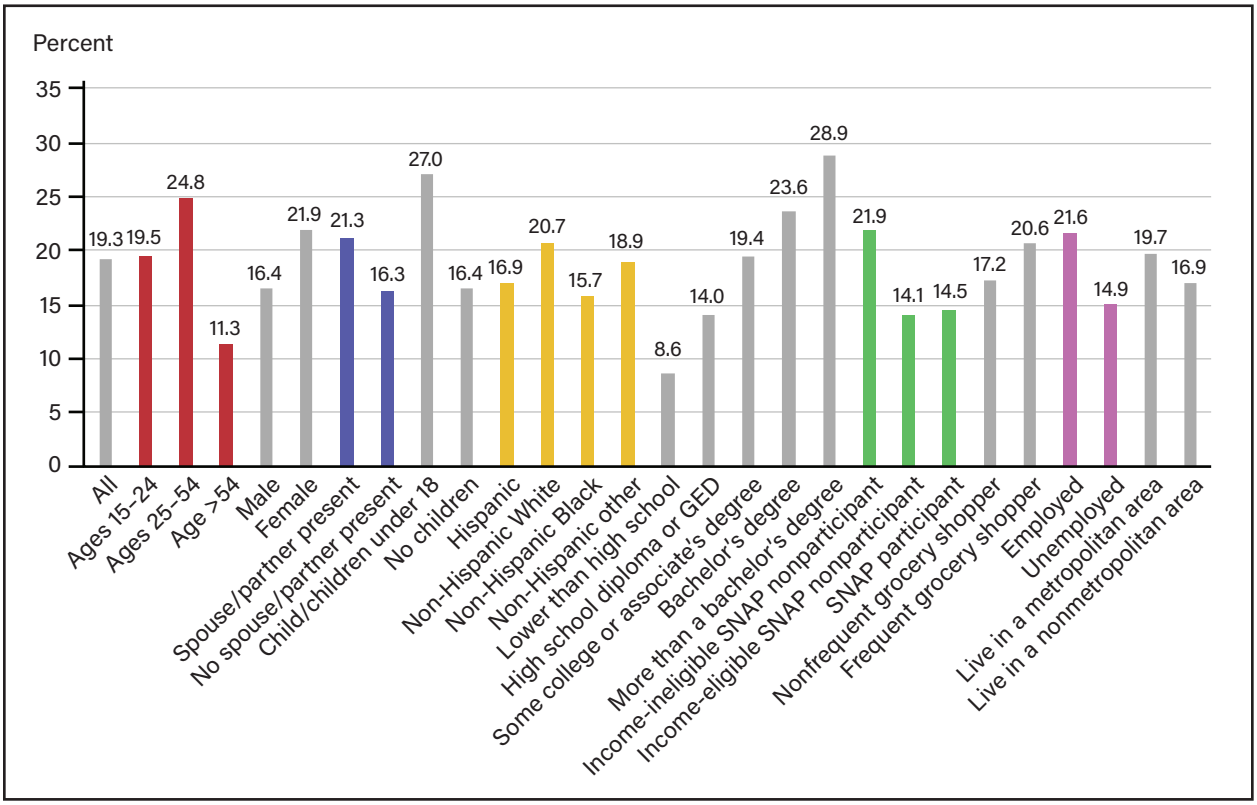
[2] For a full list of the EHM survey questions, please visit the Documentation web page within USDA, ERS's Eating and Health Module web page.

[3] The remaining individuals aged 15 and older (or 12.8 percent of the 2022 EHM sample) reported that they usually did "none" of the grocery shopping in the household.

[4] Respondents were not asked whether online grocery orders in the past month were one-time or subscription-based purchases. Therefore, it is not possible to determine the share of online grocery shoppers who made recurring online purchases.

Figure 1

Percentage of grocery shoppers aged 15 and older who shopped for groceries online at least once in the past month, by sociodemographic characteristics



SNAP = Supplemental Nutrition Assistance Program.

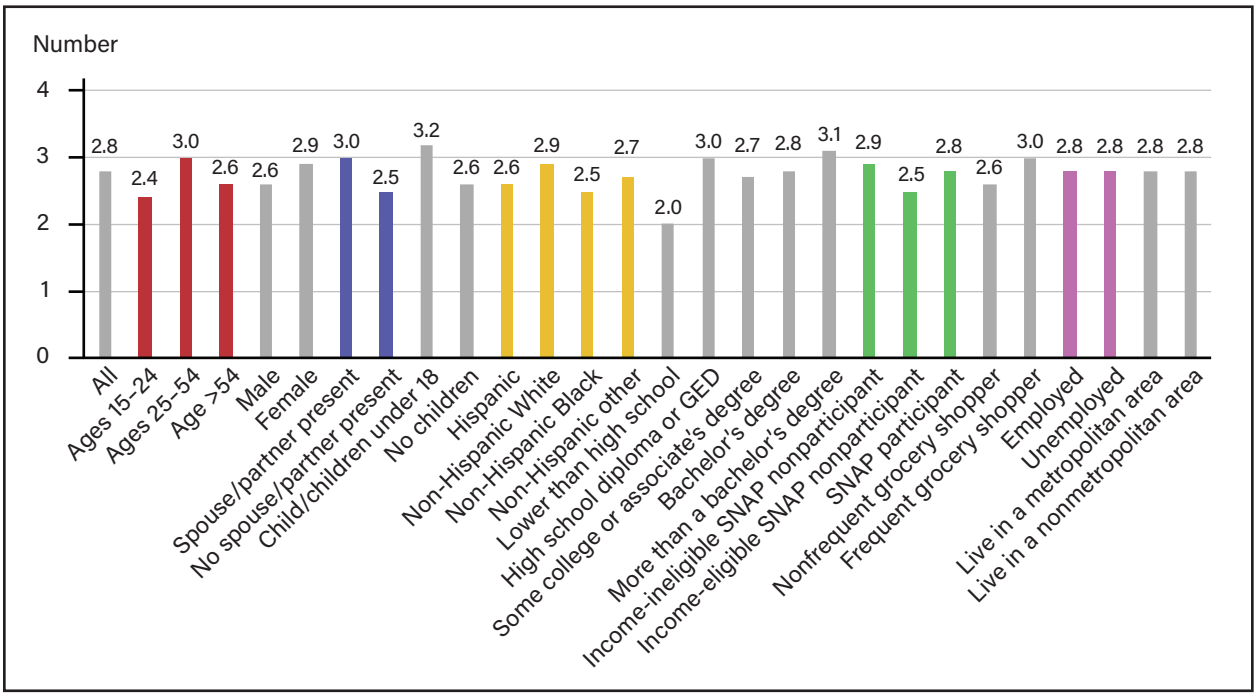
Note: Survey weights were used to compute nationally representative estimates.

Source: USDA, Economic Research Service calculations using data from the U.S. Bureau of Labor Statistics' 2022 American Time Use Survey and the Eating and Health Module.

Figure 2 delves into the frequency of online grocery shopping among those individuals who had shopped online for groceries at least once in the past month. Overall, online grocery shoppers bought groceries online an average of 2.8 times in the past month. The frequency of online shopping varied across sociodemographic groups, too, but to a lesser extent than did the prevalence rates. On average, people with children under the age of 18 years in the household had the highest online grocery shopping frequency (3.2 times), and people whose terminal education was below a high school diploma or GED had the lowest (2.0 times).

Figure 2

Frequency that grocery shoppers aged 15 and older shopped for groceries online at least once in the past month, by sociodemographic characteristics



SNAP = Supplemental Nutrition Assistance Program.

Note: Survey weights were used to compute nationally representative estimates.

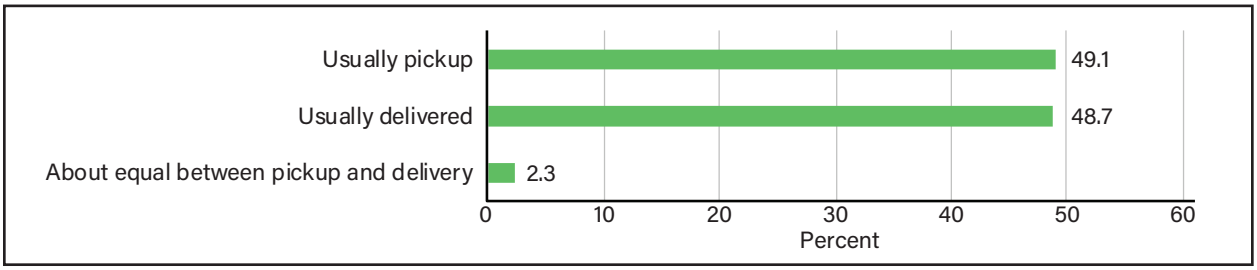
Source: USDA, Economic Research Service using data from the U.S. Bureau of Labor Statistics' 2022 American Time Use Survey and the Eating and Health Module.

The 2022 EHM data also provide insights into the methods of online groceries receipt, the main reasons why online grocery shoppers bought groceries online, and the main reasons why nononline grocery shoppers did not buy groceries online.

Figure 3 indicates that there is variation in how groceries purchased online were received. Among those who reported shopping online in the past month, the percentage of people who usually picked up their groceries (49.1 percent) and got their groceries delivered (48.7 percent) was similar. The remaining individuals (2.3 percent) reported that they evenly split obtaining their groceries via pickups and deliveries.[5]

[5] A probit regression analysis was performed to investigate the probability of using grocery pickup versus delivery on various socioeconomic characteristics shown in table 1. Results show that the likelihood of preferring pickup is significantly higher among people aged 15–24 (versus those age 55 and up), women (versus men), households with a spousal/partner present (versus households without a spousal/partner present), people with children under the age of 18 in the household (versus childless households or households with older children), non-Hispanic white shoppers (versus Hispanic shoppers and other non-Hispanic shoppers), people with more education (versus those with less education), income-ineligible SNAP nonparticipants (versus income-eligible SNAP nonparticipants and SNAP participants), people who do a lot or all of the grocery shopping in the household (versus those who do little or some of the grocery shopping in the household), and people who live in nonmetropolitan areas (versus those who live in metropolitan areas).

Figure 3
Methods by which online groceries are received

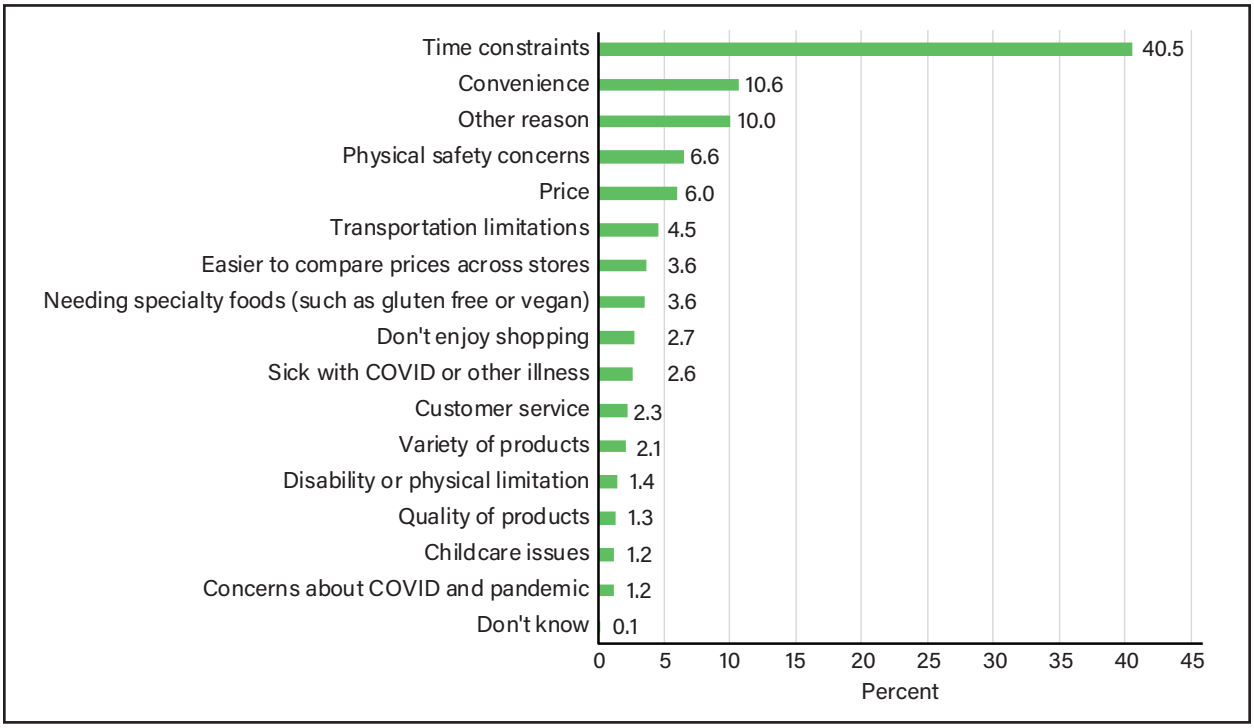


Note: Survey weights were used to compute nationally representative estimates.

Source: USDA, Economic Research Service calculations using data from the U.S. Bureau of Labor Statistics' 2022 American Time Use Survey and the Eating and Health Module.

Online grocery shoppers varied in their indication of the main reason they chose to purchase groceries online (figure 4). More than 2 in 5 grocery shoppers (40.5 percent) cited time constraints as the main reason they purchased groceries online, while just over 1 in 10 (10.6 percent) cited convenience. Product-related reasons (price, easier to compare prices across stores, needing specialty foods, variety of products, quality of products) were primary for 16.6 percent of shoppers. Safety concerns around inperson shopping (physical safety concerns, sick with COVID or other illness, and concerns about COVID) were cited as the main reason by 10.4 percent of shoppers. Finally, 7.1 percent of shoppers cited store access reasons (transportation limitations, disability or physical limitation, and childcare issues) as the primary reason for shopping online.

Figure 4
Main reason shoppers chose to purchase groceries online

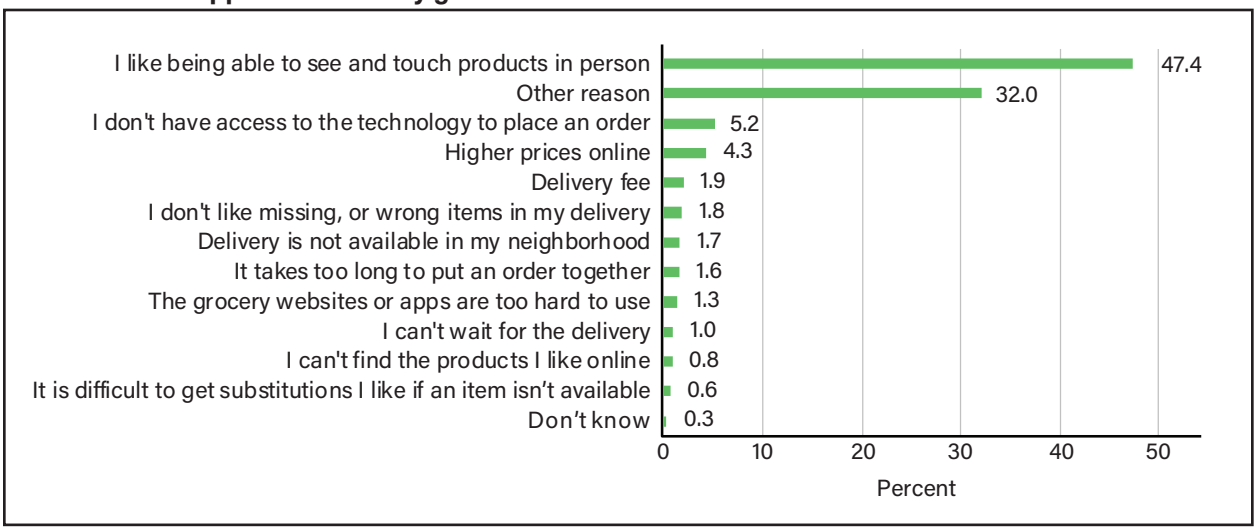


Note: Survey weights were used to compute nationally representative estimates.

Source: USDA, Economic Research Service calculations using data from the U.S. Bureau of Labor Statistics' 2022 American Time Use Survey and the Eating and Health Module.

Nononline grocery shoppers also showed variation as to the main reason why they did not buy groceries online (figure 5). Nearly half of nononline grocery shoppers (47.4 percent) said that they like being able to see and touch products in person. Nearly one-third of respondents (32 percent) selected "other reason" as their response. The other top five named reasons were not having access to the technology to place an order (5.2 percent), higher prices online (4.3 percent), delivery fee (1.9 percent), and not liking missing or wrong items in orders (1.8 percent).

Figure 5
Main reason shoppers did not buy groceries online



Note: Survey weights were used to compute nationally representative estimates.

Source: USDA, Economic Research Service calculations using data from the U.S. Bureau of Labor Statistics' 2022 American Time Use Survey and the Eating and Health Module.

Methods

A primary objective in this report is to analyze the socioeconomic determinants of past-month online shopping behaviors. Table 1 provides descriptive statistics summarizing various sociodemographic characteristics of grocery shoppers, both overall and broken down by whether they shopped for groceries online in the past month. The data reveal significant disparities among those who shopped online in the past month and those who did not. For instance, while 66.6 percent of online grocery shoppers were aged 25–54, only 48.1 percent of nononline grocery shoppers were in those prime working years. Given the existence of the large statistically significant differences, all socioeconomic characteristics listed in table 1 are controlled for in a later analysis of the determinants of past-month online shopping behaviors.

Table 1

Descriptive statistics, grocery shoppers aged 15 and older, 2022 Eating and Health Module (EHM), overall and by past-month online shopping participation

Variable name (percent)	All	Bought groceries online in the past month	Did not buy groceries online in the past month	Difference
Ages 15–24	12.0	12.1	11.9	0.2
	(0.422)	(1.461)	(0.534)	
Ages 25–54	51.7	66.6	48.1	**18.5**
	(0.327)	(1.500)	(0.528)	
Age >54	36.3	21.2	39.9	**-18.7**
	(0.282)	(1.242)	(0.470)	
Male	47.1	40.0	48.8	**-8.8**
	(0.369)	(1.756)	(0.510)	
Female	52.9	60.0	51.2	**8.8**
	(0.369)	(1.756)	(0.510)	
Spouse/partner present	58.7	65.0	57.2	**7.8**
	(0.685)	(1.718)	(0.792)	
No spouse/partner present	41.3	35.0	42.8	**-7.8**
	(0.685)	(1.718)	(0.792)	
Child/children under 18	26.8	37.5	24.2	**13.3**
	(0.394)	(1.338)	(0.482)	
No children	73.2	62.5	75.8	**-13.3**
	(0.394)	(1.338)	(0.482)	
Hispanic	17.6	15.4	18.1	-2.7
	(0.260)	(1.514)	(0.428)	
Non-Hispanic White	62.1	66.6	61.0	**5.6**
	(0.515)	(1.814)	(0.651)	
Non-Hispanic Black	11.9	9.6	12.4	**-2.8**
	(0.242)	(0.896)	(0.321)	
Non-Hispanic other	8.5	8.3	8.5	**-0.2**
	(0.454)	(0.845)	(0.530)	
Lower than high school	11.3	5.1	12.8	**-7.7**
	(0.551)	(1.049)	(0.662)	
High school diploma or GED	26.8	19.4	28.5	**-9.1**
	(0.487)	(1.489)	(0.610)	
Some college or an associate's degree	22.0	22.2	22.0	0.2
	(0.592)	(1.301)	(0.645)	
Bachelor's degree	23.7	28.9	22.4	**6.5**
	(0.552)	(1.477)	(0.657)	
More than a bachelor's degree	16.3	24.4	14.3	**10.1**
	(0.490)	(1.352)	(0.530)	

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Income-ineligible SNAP nonparticipant	65.8	74.8	63.6	**11.2**
	(0.665)	(1.617)	(0.739)	
Income-eligible SNAP nonparticipant	25.1	18.3	26.7	**-8.4**
	(0.661)	(1.374)	(0.751)	
SNAP participant	9.1	6.8	9.6	**-2.8**
	(0.413)	(0.945)	(0.471)	
Nonfrequent grocery shopper	38.9	34.7	39.9	**-5.2**
	(0.684)	(1.738)	(0.778)	
Frequent grocery shopper	61.1	65.3	60.1	**5.2**
	(0.684)	(1.738)	(0.778)	
Employed	65.1	73.1	63.2	**9.9**
	(0.688)	(1.493)	(0.809)	
Unemployed	34.9	26.9	36.8	**-9.9**
	(0.688)	(1.493)	(0.809)	
Live in a metropolitan area	85.9	87.6	85.5	**2.1**
	(0.687)	(1.140)	(0.734)	
Live in a nonmetropolitan area	14.1	12.4	14.5	**-2.1**
	(0.687)	(1.140)	(0.734)	
Number of observations	6,834	1,329	5,505	

SNAP = Supplemental Nutrition Assistance Program.

Note: Survey weights were used to compute nationally representative coefficient estimates and appropriate standard errors. Standard errors are in parentheses. A difference is bolded if it is statistically significantly different from zero (p-value < 0.10).

Source: USDA, Economic Research Service using data from the U.S. Bureau of Labor Statistics' 2022 American Time Use Survey and the Eating and Health Module.

As shown in table 1, there are many socioeconomic differences between grocery shoppers who shopped for groceries online in the past month and those who did not. In this report, a multivariate analysis was conducted because there was overlap in some of the characteristics—such as being a younger adult and having children under 18—so it is important to isolate the impact of each characteristic, holding all others constant. Therefore, to simultaneously control for various socioeconomic characteristics, the following probit regression model was specified to analyze online grocery shopping participation:

$$P[ONLINE_i = 1|X_i, DIARYDAY_i, DIARYMONTH_i, STATE_i, UR_i] = \varphi(\alpha_0 + X_i'\alpha_1 + DIARYDAY_i\alpha_2 + DIARYMONTH_i\alpha_3 + STATE_i\alpha_4 + UR_i\alpha_5),$$

where *ONLINE* is a binary variable indicating that individual *i* either shopped (=1) or did not shop (=0) for groceries online in the past month; *X* is a vector collecting a variety of individual, household, and residential characteristics: age group, gender, presence of a spouse or partner, presence of household children under age 18, race/ethnicity, education level, SNAP participation and income eligibility, grocery shopping frequency, employment status, and metropolitan area residence status; *DIARYDAY* is a fixed effect for the time diary day of *i* (to account for variation in responses over a given week); *DIARYMONTH* is a fixed effect for the time diary month of *i* (to account for variation in responses over the year); *STATE* is a fixed effect for the State of residence of *i* (to absorb all time-invariant State characteristics, including permanent State-level differences

in food and health environments);[6] and *UR* is the State-level unemployment rate where individual *i* resides during the month of the interview (to account for effects of State macroeconomy fluctuations on food- and health-related behaviors, such as grocery shopping (Ruhm, 2005)).

To analyze the frequency of online grocery shopping while simultaneously controlling for various socioeconomic characteristics, a two-part regression model was specified. In the first part, an individual's decision to grocery shop online was modeled. In the second part, conditional on the individual deciding to buy groceries online, the individual's choice of the number of times to buy groceries online was then modeled. A two-part model was used because of the presence of many zeros in the dependent variable. That is, the majority of the 2022 EHM respondents did not buy groceries online in the past month, so the distribution of online shopping frequency was positively or right skewed. The first part of the two-part model was a probit model and the second part was a generalized linear model that accounts for the right-skewed distribution of the frequency of online shopping.[7]

Results

In table 2, average marginal effect estimates from the probit regression model of participation (column 1) and the two-part model of frequency (column 2) indicate distinct socioeconomic differences in the likelihood of buying groceries online in the past month and the frequency of online grocery shopping, while controlling for all other socioeconomic factors. In particular, there were large and statistically significant differences by age group, gender, presence of other household members, race/ethnicity, educational attainment, income eligibility for SNAP benefits, and how often respondents shop for groceries for their household. To facilitate the discussion, these findings are dissected based on socioeconomic group.

Age

Compared with individuals aged 15–24 (base group), individuals aged 55 and older were 16 percentage points less likely to shop online for groceries. This difference was quite large relative to the overall online grocery shopping prevalence rate of 19.3 percent. The difference was 83 percent (16.2 percent ÷ 19.3 percent). There was no statistically significant difference between people aged 15–24 and those aged 25–54 in the likelihood of buying groceries online.

Compared with individuals aged 15–24, individuals aged 55 and older engaged in online grocery shopping 0.49 fewer times. This contrast translated into a difference of about 17.5 percent relative to the average online shopping frequency (0.49 times ÷ 2.8 times).

Gender

Men were 4 percentage points less likely than women to report buying groceries online. This contrast was a difference of 21 percent relative to the overall prevalence rate.

When it comes to frequency, men shopped for groceries online 0.16 fewer times than women, or about 6 percent less than women.

[6] The authors controlled for State of residence since the State is the lowest geographic level available for the full sample.

[7] The user-written Stata program twopm was used to estimate the parameters of the two-part model with a probit in the first part and a generalized linear model with a log link function and gamma distribution in the second part (Belotti et al., 2015).

Presence of other household members

The presence of a spouse or a partner increased the likelihood of online grocery shopping by 3 percentage points or 16 percent relative to the overall prevalence rate. Even after controlling for age differences, people with children under 18 in the household were 4 percentage points more likely, or 21 percent of the overall prevalence rate, to have shopped for groceries online than those who did not have young children and teenagers in the household.

Those with a spouse or partner grocery shopped online 0.11 times or 4 percent more than individuals with no spouse or partner present. The estimated effect of the presence of young children and teenagers was larger. Those with children below 18 years of age in the home grocery shopped online 0.22 times more or 8 percent more than individuals with no children below 18 years of age in the home.

Race/ethnicity

There were no statistically significant differences in the likelihood of online grocery shopping between non-Hispanic White shoppers (base group) and Hispanic shoppers. However, there was a statistically significant difference between non-Hispanic White shoppers and non-Hispanic Black shoppers and people of other non-Hispanic races. Compared with non-Hispanic White shoppers, people who identify as non-Hispanic Black and part of another non-Hispanic race were 4 percentage points and 6 percentage points less likely to report buying groceries online, respectively. This difference amounted to 21 percent and 31 percent of the overall prevalence rate, respectively.

As for the frequency of online shopping, compared with non-Hispanic White shoppers, the frequency of online shopping was lower for each racial/ethnic minority group. The number of times groceries were purchased online was lower by 0.19 times, 0.18 times, and 0.22 times for Hispanic shoppers, non-Hispanic Black shoppers, and other non-Hispanic shoppers, respectively. These numbers translated into differences of 7 percent, 6 percent, and 8 percent, respectively.

Education

There was a positive education gradient in the likelihood of buying groceries online. Compared with people with less than a high school diploma or GED (base group), those individuals with more education were more likely to report buying groceries online, and the likelihood grew with the level of education. Indeed, people with a high school diploma or GED were 7 percentage points more likely to buy groceries online. Those with some college or an associate's degree were 11 percentage points more likely, those with a bachelor's degree were 13 percentage points more likely, and those with more than a bachelor's degree were 17 percentage points more likely to have shopped online. All of these differences were large relative to the overall prevalence rate of 19.3 percent, ranging from 36 percent for high school graduates or equivalents to 88 percent for people who hold more than a bachelor's degree.

There was also a positive education gradient in the frequency of online shopping. Compared with people without a high school diploma or GED, the frequency of online shopping was higher among people with a high school diploma or GED (0.27 times or 10 percent), people with some college or an associate's degree (0.34 times or 12 percent), people with a bachelor's degree (0.36 times or 13 percent), and people with more than a bachelor's degree (0.55 times or 20 percent).

SNAP participation

No statistically significant difference was found in the past-month online shopping behaviors of SNAP participants versus the base group of nonparticipants who were not eligible for SNAP benefits based on their

income (i.e., above 200 percent of the poverty line). However, income-eligible SNAP nonparticipants were 4 percentage points less likely to buy groceries online than income-ineligible SNAP nonparticipants. Compared with the overall prevalence rate of 19.3 percent, this number (4 percentage points) translated to a difference of 21 percent.

Income-eligible SNAP nonparticipants also had a lower frequency of online shopping. Compared with income-ineligible SNAP nonparticipants, income-eligible SNAP nonparticipants shopped online 0.19 fewer times (or 7 percent).

Grocery frequency

Frequent grocery shoppers (those who are usually responsible for a lot or all the grocery shopping in their household) were 3 percentage points more likely to report buying groceries online, which translated to 16 percent relative to the overall prevalence rate.

When it comes to online shopping frequency, frequent grocery shoppers shopped for groceries online 0.13 more times than nonfrequent grocery shoppers or about 5 percent.

Table 2
Socioeconomic determinants of buying groceries online in the past month

	(1) Shopped for groceries online in the past month	(2) Number of times groceries were purchased online in the past month
Ages 25–54	-0.05	-0.13
	(0.04)	(0.16)
Age >54	-0.16***	-0.49***
	(0.04)	(0.15)
Male	-0.04***	-0.16***
	(0.02)	(0.05)
Spousal/partner present	0.03*	0.11**
	(0.02)	(0.05)
Child/children under 18	0.04***	0.22***
	(0.01)	(0.05)
Hispanic	-0.04	-0.19**
	(0.03)	(0.09)
Non-Hispanic Black	-0.04*	-0.18***
	(0.02)	(0.07)
Non-Hispanic other	-0.06***	-0.22***
	(0.02)	(0.06)
High school diploma or GED	0.07***	0.27***
	(0.02)	(0.07)
Some college or an associate's degree	0.11***	0.34***
	(0.02)	(0.06)
Bachelor's degree	0.13***	0.36***
	(0.02)	(0.06)

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More than a bachelor's degree	0.17***	0.55***
	(0.02)	(0.07)
Income-eligible SNAP nonparticipant	-0.04**	-0.19***
	(0.02)	(0.06)
SNAP participant	-0.02	-0.05
	(0.03)	(0.09)
Frequent grocery shopper	0.03**	0.13***
	(0.02)	(0.05)
Employed	-0.00	-0.06
	(0.02)	(0.06)
Live in a metropolitan area	-0.00	0.02
	(0.02)	(0.06)
State unemployment rate	0.01	0.02
	(0.02)	(0.07)
Observations	6,834	6,834

SNAP = Supplemental Nutrition Assistance Program.

Note: Survey weights were used to compute nationally representative coefficient estimates and appropriate standard errors. Standard errors are in parentheses. Column 1 presents the average marginal effect estimates from the probit regression model of participation, and column 2 presents average marginal effect estimates from the two-part model of frequency. Although coefficient estimates and standard errors are not reported, these regressions also control for diary day fixed effects, diary month fixed effects, and State-of-residence fixed effects.

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Source: USDA, Economic Research Service using data from the U.S. Bureau of Labor Statistics' 2022 American Time Use Survey and the Eating and Health Module.

Discussion

This report reveals that 19.3 percent of grocery shoppers aged 15 and older engaged in online grocery shopping in the past month.[8] A plurality of these online grocery shoppers (40.5 percent) cited time constraints as the main reason the shoppers decided to buy groceries online. Previous research has highlighted the effects of income, prices, and internet access in shaping online grocery shopping behaviors (Duffy et al., 2022; Olumekor et al., 2024; Rummo et al., 2022; Saphores et al., 2021). The current analysis for this report indicates that 6 percent of online shoppers cited price as the main reason they bought groceries online. Nononline shoppers, however, cited delivery fees (1.9 percent), higher prices online (4.3 percent), and lack of access to the technology needed to make online orders (5.2 percent) as the primary reasons they chose to shop for groceries in person.

Despite one in five grocery shoppers embracing online grocery platforms in the past month, there were several large and statistically significant differences by age group, gender, presence of other household members, race/ethnicity, educational attainment, income eligibility for SNAP benefits, and how often respondents take care

[8] Duffy et al. (2022) reported that, in July 2020, 39 percent of their respondents reported that they had shopped online for groceries at some point in the past. The differences with the findings in this USDA, ERS report may be due to the fact that their survey was carried out during the pandemic and their question was not restricted to the "last month."

of grocery shopping for their household.[9] The likelihood of past-month online grocery shopping was higher among people aged 15–24 (versus those age 55 and up), women (versus men), households with a spouse/partner present (versus households without a spouse/partner present), people with children under the age of 18 in the household (versus childless households or households with older children), non-Hispanic White shoppers (versus non-Hispanic Black shoppers and other non-Hispanic shoppers), people with more education (versus those with less education), income-ineligible SNAP nonparticipants (versus income-eligible SNAP nonparticipants), and people who did a lot or all the grocery shopping in the household (versus those who did a little or some of the grocery shopping in the household). These disparities were substantial in magnitude compared with the overall online grocery shopping prevalence rate of 19.3 percent. The smallest of the disparities was between partnered and unpartnered people (3 percentage points), which translated into a 16-percent difference. The largest disparity was between people without a high school diploma or GED and people with more than a bachelor's degree (17 percentage points or 88 percent). There were also large and statistically significant differences in the frequency of online grocery shopping that mirrored those in the participation of online grocery shopping by age group, gender, presence of other household members, race/ethnicity, educational attainment, and whether the respondent was a frequent grocery shopper.

Currently, approximately two-thirds of the daily calorie intake among U.S. consumers stems from purchases made at grocery stores, supermarkets, and other food stores (Lin et al., 2023). A study by Harris-Lagoudakis (2022) found that, compared with instore food purchases, online food baskets allocated more spending toward healthy product categories and were more nutrient dense. Similarly, another study by Huyghe et al. (2017) found that consumers chose fewer unhealthy foods in the online shopping environment than they did in brick-and-mortar stores. Chintala et al. (2023) found that online baskets had fewer items from impulse purchase categories (such as candy, bakery desserts, and savory snacks) than baskets used for inperson shopping. Shopping for groceries online may promote healthier food purchases due to the absence of environmental triggers found inside stores that can lead to unhealthy impulse purchases (Pitts et al., 2018). It is unclear, however, whether shopping online boosts diet quality for everyone. For instance, a prepandemic study found that SNAP participants expressed that they would be unlikely to buy most perishable items, such as fruits and vegetables, if they could use SNAP benefits online (Rogus et al., 2020), while an intrapandemic study found that adults who ordered groceries online were more likely to participate in food assistance programs and report greater diet quality (Avelino et al., 2023). Additional research could be completed on the dietary implications of online shopping behaviors overall and across sociodemographic groups and whether the socioeconomic differences in online shopping behaviors documented in this report are associated with differences in diet quality. In particular, more research comparing shopping behaviors in brick-and-mortar versus online retailers may be warranted, as well as the identification of the characteristics associated with maintaining at least some level of inperson shopping activity.

The recent shift toward online grocery shopping has at least three major implications for food-related policies and programs. First, inasmuch as online shopping can increase access to healthy food, a rise in the popularity of buying groceries online could have implications for food and nutrition security. For instance, Trude et al. (2022) found that online grocery shopping improves food access in underserved low-income communities. Also, Jones et al. (2023) found that the expansion of the SNAP Online Purchasing Pilot program implemented during the early-pandemic period from April 2020 through July 2020 was associated with a decrease

[9] The past-month grocery shopping disparities identified in this report are consistent with disparities in having ever shopped for groceries online that were documented in a recent study (Duffy et al., 2022). Using nationally representative data from July 2020, the authors found that the likelihood to have ever shopped online for groceries was higher among people age 39 or younger, those with more than a college degree, those with higher household incomes, and those with children under 18 years.

in reported household food insufficiency for low-income adults.[10] Understanding who is shopping online and why or why not can help programs identify and remove barriers. In a recent qualitative study, while online SNAP benefit redemption facilitated healthy food access among SNAP participants during the COVID-19 pandemic, delivery fees and other associated charges that are not paid with SNAP benefits still posed a financial hurdle to healthy food purchases (Vedovato et al., 2022). Moreover, barriers to online shopping (such as lack of stable and secure internet access, technology acceptance, and digital literacy) are potential barriers for low-income shoppers (Miller & Arm, 2022; Moran et al., 2021). Second, if online shopping does indeed raise diet quality, as some research suggests (Chintala et al., 2023; Harris-Lagoudakis, 2022; Huyghe et al., 2017), future research may consider if there are policy or programmatic strategies that can capitalize on this market development, as well as research that can identify obstacles that may exist. In addition, some research has found that offering default options or guided assistance has effectively nudged individuals to choose healthier food items when shopping online (Coffino et al., 2020; Coffino et al., 2021; Gustafson et al., 2022). On the other hand, research has found that online retailers do not always disclose nutrition information typically found in brick-and-mortar stores. For instance, Pomeranz et al. (2022) found that, in early 2021, only 46 percent of 10 major food products offered by 9 major U.S. online retailers provided a "Nutrition Facts" label in a clear and legible manner. While U.S. law requires such a label to appear on packaged food labels, the U.S. Food and Drug Administration's regulations do not currently extend to online retailers. Third, the continued expansion of online shopping could ultimately alter the food retail landscape, including changes in physical footprints or the types of products offered for sale in brick-and-mortar stores across the United States.

A major strength of this report is that it harnesses nationally representative data to analyze the prevalence and determinants of online food shopping. However, there are two limitations that open avenues for future research. First, many potentially important determinants of online food shopping are included in the regression analysis, but there may be others that are not captured in the Eating and Health Module (EHM) or American Time Use Survey (ATUS) data. For example, it would be useful for future researchers to consider whether and how much the local food environment impacts online shopping behaviors. Second, the 2022 EHM data show that more than two in five respondents cited time constraints as the main reason they purchased groceries online, but the ATUS does not distinguish between time spent shopping online versus in stores. Future research in this area could estimate how much time is saved by online shopping.

[10] On February 23, 2023, USDA, Food and Nutrition Service (FNS) issued a proposed rule to allow for online ordering among participants of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (USDA, FNS, 2023).

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