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Where Do Americans Usually Shop for Food and How Do They Travel To Get There? Initial Findings From the National Household Food Acquisition and Purchase Survey

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Where Do Americans Usually Shop for Food and How Do They Travel To Get There? Initial Findings From the National Household Food Acquisition and Purchase Survey

Michele Ver Ploeg, Lisa Mancino, Jessica E. Todd, Dawn Marie Clay, and Benjamin Scharadin

Abstract

The National Household Food Acquisition and Purchase Survey (FoodAPS) is the first survey to collect unique and comprehensive data about food purchases and acquisitions for a nationally representative sample of U.S. households. This report compares shopping patterns of (1) Supplemental Nutrition Assistance Program (SNAP) households to low- and higher income nonparticipant households, (2) participants in the Special Supplemental Nutrition Assistance Program for Women, Infants, and Children (WIC) to nonparticipants, and (3) food-insecure to food-secure households. SNAP participating and food-insecure households are less likely to drive their own car to do their primary food shopping and more likely to get rides from someone else or walk, bike, or take public transit. However, these differences in transportation mode do not translate into differences in the types of stores used for grocery shopping among SNAP and food-insecure households. Also, many households bypass the store that is closest to them to shop at another store. For example, among SNAP households, the nearest store was, on average, 2.0 miles from the household, but the store primarily used for grocery shopping was, on average, 3.4 miles from the household. Similar patterns hold for WIC participating and food-insecure households and for households that use someone else's car or other forms of transportation to get to the grocery store.

Keywords: FoodAPS, food expenditures, food shopping patterns, Supplemental Nutrition Assistance Program (SNAP), Special Supplemental Nutrition Assistance Program for Women, Infants, and Children (WIC), food security

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Errata

On September 13, 2016, ERS revised the categorization of households with members categorically eligible for WIC to exclude households where the only categorically eligible member was a child age 5. These children were incorrectly included previously; imputed income measures were also used as these measures became available since the report’s release; revised survey weights were also used to update all estimates in the report. Because of these changes, all of the estimates in the report have been revised. However, the results were not numerically or substantively different after these revisions were made, with one exception—the result that WIC participants were more likely to use supercenters as their primary store was no longer statistically significant. The text has been adjusted to reflect all of these changes.

The results from EIB-138 were used in three ERS Charts of Note dated March 23, 2015; July 15, 2015; and August 11, 2015; and an Amber Waves Feature article “Most U.S. Households Do Their Main Grocery Shopping at Supermarkets and Supercenters Regardless of Income” dated August 3, 2015. For all but the August 11, 2015, Chart of Note, changes in estimates were not numerically or substantively different. In the August 11, 2015, Chart of Note, the difference between WIC participants’ and nonparticipants’ choice of supercenters as their primary stores was no longer statistically significant.



Find the full report at www.ers.usda.gov/publications/eib-economic-information-bulletin/eib138

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What Is the Issue?

Food shopping patterns of food assistance program participants and other low-income households are of great policy interest because there is concern these households may not have enough resources to consume a healthy diet. Some low-income households may not have access to a full-service grocery store or other sources of healthy and affordable food. These households may either have to travel farther to access food, and perhaps, shop less frequently, or rely more on smaller stores with fewer affordable and healthy options. The National Household Food Acquisition and Purchase Survey (FoodAPS) is the first survey to collect comprehensive data about household food purchases and acquisitions, both for at-home and away-from-home consumption, and for a sample that is nationally representative and representative of SNAP participating and other low-income households. This report summarizes estimates of the types of food stores at which respondents shop, the usual mode of transportation they use to get to their primary food store, and average distances from home to the nearest and primary retail outlets. These estimates are examined overall and for three sets of subgroups:

- SNAP and three non-SNAP income groups (equal to or above Federal poverty threshold (FPL), 185% FPL, >185% FPL);
- WIC and categorically eligible nonparticipants in two income groups (<=185% FPL, >185% FPL);
- Food-insecure and food-secure households.

What Did the Study Find?

The vast majority of households, 88 percent, use their own vehicle to get to the store where they do their main grocery shopping. The percentage of SNAP and food-insecure households who use their own vehicle to get to the grocery store is lower.

- While 95 percent of higher income, nonparticipating households (above 185 percent of the Federal poverty line) use their own vehicle to get to the store where they usually shop for groceries, only 66 percent of SNAP households use their own vehicle. About 21 percent of SNAP households use someone else's car or ride with someone else, compared with 2 percent of higher income households. Another 13 percent of SNAP households walk, bike, or take public transit or a shuttle to the store.

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- Similarly, 92 percent of food-secure households use their own vehicle to get to their primary food store but only 69 percent of food-insecure households use their own vehicle.
- Eighty-six percent of WIC participating households use their own vehicle to do their grocery shopping. This is less than the share of higher income, nonparticipating households that use their own vehicle (98 percent).

Despite differences in transportation modes, households do not necessarily shop at the store that is closest to them.

- Overall, households are, on average, 2.2 miles from the nearest SNAP-authorized supermarket or supercenter, but their usual store is 3.8 miles away.
- Even households that do not drive their own vehicle to shop for groceries tend to shop around. Those who usually walk, bike, or take public transit or another mode of transportation shop at stores farther from their house than the nearest store. These households are, on average, 0.5 mile from the nearest SNAP-authorized supermarket or supercenter, but do their primary shopping at a store that is 0.9 mile away, on average.
- SNAP households are, on average, just under 2 miles from the nearest SNAP-authorized supermarket or supercenter but travel 3.3 miles, on average, to the store where they do their primary shopping. About 89 percent of households do their primary grocery shopping at supermarkets or supercenters. The types of stores used for food shopping do not vary by SNAP or WIC participation or food security status.

How Was the Study Conducted?

This report uses FoodAPS data on the types of stores Americans visit to conduct their primary and secondary (or alternate) food shopping, the travel mode used to get to those stores, and the distance to those stores and other stores near the household. Primary and alternative food shopping stores are categorized into four categories: (1) supercenters, other mass merchandise stores, and club stores; (2) supermarkets, large grocery stores, and commissaries; (3) smaller stores that include convenience stores and pharmacies; and (4) unknown store types. Travel modes are classified as (1) a vehicle owned by a household member; (2) a vehicle owned by someone outside of the household; and (3) walk, bike, public transit, shuttle, or other type of travel mode. The straightline distance from each household to the primary store was estimated using geocoded data on store and household locations. Similarly, distances from the household to the nearest SNAP-authorized supermarket or supercenter were also estimated using geocoded information on SNAP-authorized supermarket and supercenters. This information was used to compare the distances traveled to the primary shopping store relative to the distance to the nearest store. Estimates are presented for the total U.S. population and by subgroups of interest: (1) SNAP participants compared with nonparticipants of different income levels, (2) WIC participants compared with nonparticipants of different income levels, and (3) food-insecure compared with food-secure households.

The FoodAPS is a nationally representative survey of non-institutionalized households in the continental United States and for four subpopulations: SNAP participants and nonparticipating households in three income groups—income less than the Federal poverty threshold (FPL) for family size, between 1.0 and 1.84 of FPL, and greater or equal to 1.85 of FPL. FoodAPS is unique in that it contains data on food-at-home and food-away-from-home purchases and foods acquired for free, collects item expenditures and quantity data, and includes rich data about the sample households. The survey includes data on where foods are purchased and acquired—the types of food retailers, how far away the retailers are from the respondent’s home, and information on other food retailers in the neighborhood. The survey’s design also provides a unique source of information on low-income and SNAP households. Administrative data on SNAP participation and purchases with SNAP were linked to the survey responses to improve the quality of collected data. A total of 4,826 households, comprising 14,317 individuals, participated. Data were collected from April 2012 to January 2013.

Where Do Americans Usually Shop for Food and How Do They Travel To Get There? Initial Findings From the National Household Food Acquisition and Purchase Survey

Background

The National Household Food Acquisition and Purchase Survey (FoodAPS) is a comprehensive, nationally representative survey of food purchases and acquisitions and shopping behaviors of U.S. households (Economic Research Service, 2015). The FoodAPS collects detailed information on purchases and acquisitions for 1 week, along with information about the sociodemographic characteristics, food shopping patterns, diet/health knowledge, and economic well-being of sampled households. The survey was designed to provide information for key policy-relevant questions regarding food spending and shopping decisions. For example, how do the food choices of households that receive Supplemental Nutrition Assistance Program (SNAP) benefits compare with food choices of other low-income households? What is the role of food store access and affordability on food shopping behavior and food choices? How is food security associated with SNAP participation, consumer shopping strategies, food store access, food prices, and the local food environment? And how does diet and nutritional knowledge shape food choices?

This report presents initial findings from the FoodAPS survey on three key questions:

1. *How do shoppers travel to their main store and how far do they travel to get there?*
2. *In what type of store (eg., supermarket, mass merchandiser, convenience store) do U.S. households typically shop for groceries?*
3. *Do store and travel mode differ by participation in food assistance programs or food security status?*

Food shopping patterns of food assistance recipient, food-insecure, and other low-income households are of special interest because many of these households may have insufficient resources to consume a healthy diet. Travel modes and distances are important because access to healthy and affordable food may depend on proximity to food retailers and whether the household has a vehicle or other means to get to a food retailer.

Information about food shopping patterns is not typically collected in nationally representative household level surveys. Two surveys have examined this information for subpopulations of interest. The National Food Stamp Program Survey of 1996 surveyed SNAP and low-income households and found that almost 90 percent of respondents primarily shopped at supermarkets and those who did not tended to shop at neighborhood grocery stores (Ohls et al., 1999). Since that survey, supercenters such as Wal-Mart and Super-Target have grown in their share of grocery retail sales (Senauer and Seltzer, 2010), and many smaller stores such as dollar stores and pharmacies now carry more food items.

A more recent study by Mabli (2014) examined two cohorts of SNAP participants: one that had just entered SNAP and one that had been participating for about 6 months. This study examined where these two groups did most of their shopping, but did not make comparisons with higher income, nonparticipating households. The study separately considered “discount stores”¹ like Wal-Mart, Target, and K-mart from supermarkets. About three-quarters of SNAP participants used supermarkets for their main shopping, 11-14 percent used discount stores, and less than 1 percent used convenience stores (Mabli, 2014). Several recent regional or local studies have examined shopping behavior of low-income populations and made comparisons with other income groups (Smith et al., 2009; Sohi et al., 2014), but no recent national-level comparisons have been made.

The Mabli (2014) and Ohls et al. (1999) studies also examined how SNAP and/or low-income nonparticipants traveled to shop for groceries. Mabli found that just over half of SNAP participants use either their own car or someone else’s car. The Ohls study found that about 44 percent used a car (either their own or someone else’s), 31 percent got a ride from someone else, 18 percent walked or took the bus, and the remainder used other forms of transportation. This study also found that income-eligible and near-eligible nonparticipant households were much more likely to drive to the store than SNAP participants (71 percent for income-eligible and 86 percent for near-eligible households).

Ohls et al. and Mabli also found that SNAP participants did not always shop at the store nearest them. On average, SNAP households lived 1.8 miles from the nearest supermarket but the average participant traveled 4.9 miles to shop for groceries (Ohls et al., 1999). Mabli (2014) estimated that the median distance to the nearest supermarket, supercenter, or large grocery store for SNAP households was 0.7 mile, but that the median self-reported distance traveled to buy groceries was 3.0 miles. It is likely that households choose stores based on characteristics other than proximity.

¹This terminology is used by Mabli (2014). Our terminology and classification of stores will differ as explained below.

Data and Methods

The FoodAPS survey collected detailed information about food acquisitions from all sources by all household members over the course of 7 days. A total of 4,826 households completed the survey. The primary respondent (PR) for each household—the main food shopper or meal planner—provided information about the household and individuals in the household through two in-person interviews. These interviews collected demographic and other information about the household related to food purchases, intake, and diet/health.

This report uses interview data along with data on distances to food stores from the respondents' homes that were collected and processed after the interviews. During the interview, the PR reported the store at which the household did most of its food shopping and the typical mode of transportation used to get to that store. Respondents were also asked if they used an additional alternate store regularly for grocery shopping. Primary and alternate stores are classified into three categories of food retailers: supercenters and other mass merchandisers, such as Wal-Mart or Super-Target, which we refer to as supercenters² and club stores such as Costco's or BJ's; supermarkets, commissaries, and other large grocery stores; and smaller grocery stores, specialty retailers (for example, farmers' markets, bakeries, and ethnic food stores), and other food retailers including convenience stores, pharmacies, and dollar stores. A fourth category includes stores that we are unable to identify, locate, or classify. Although there can be substantial variety in the range of products offered at stores within each of these types, these classifications differentiate stores by both the assortment (depth and breadth) of food products available in each store and the range of nonfood items commonly sold in each store grouping.³ For example, supercenters are typically stores that carry a full range of groceries found at supermarkets, but also have large mass merchandise sections. Supermarkets, commissaries, and large groceries carry a full range of groceries and may carry a limited selection of mass merchandise. Stores in the "other" category are a variety of types ranging from pharmacies to convenience stores to seafood shops. These stores typically do not sell a full range of grocery items. Since the difference in offerings often influence food purchase behavior, we use the classifications to help determine whether any of the subgroups of interest differ in their use of these store types.

Information about the store name and location was also collected, when possible, and was used to estimate the Euclidean (straightline) distance to the primary store from each surveyed household. Similarly, the locations of all SNAP-authorized stores were geocoded and distances from the households to the nearest SNAP supermarket or supercenter were also estimated.⁴ In this report, we use the Euclidean distance to the household's primary store and to the nearest SNAP-authorized supermarket or supercenter. Euclidean distance estimates may not reflect the distance needed to actually drive or walk to a store on a street network. However, Euclidean distance is used because it gives more standardized estimates of distance than estimates based on driving and walking routes. We focus on the nearest supermarket or supercenter because these represent the two most commonly used types of stores for most grocery shopping and because they have a full variety of all major grocery departments.

²Not all mass merchandisers are supercenters. However, we are unable to differentiate supercenters from all other mass merchandisers in FoodAPS.

³For a broader discussion of differences in retail store types, see Leibtag et al. (2010).

⁴At this time, distances to all stores—whether or not they are authorized to accept SNAP—have not yet been calculated.

The FoodAPS sample

FoodAPS data are unique in that they are designed to be representative of SNAP households and nonparticipant households in three income groups: those with incomes below 100 percent of Federal poverty thresholds (FPL), 100 percent of FPL but less than 185 percent of FPL, and at or above 185 percent of FPL. The SNAP and low-income nonparticipant groups are oversampled to allow analysis of food spending and shopping patterns specifically for these groups, which is not possible with other surveys or data collection efforts.

In addition to analyzing the full sample, we also divide the sample into subgroups based on income and SNAP participation status; income and participation in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); and food security status. SNAP participation status in the prior 30 days is determined by both survey responses and matches to administrative records. For respondents who consented to have SNAP administrative records matched to their survey responses (97.5 percent of the sample), the administrative record was used to determine participation status in the case of any discrepancy.⁵ For the 122 households who did not consent, the survey response is used to determine participation status. Nonparticipants are then divided into three groups based on their monthly household income relative to Federal poverty thresholds. We modified the classification of non-SNAP households into income groups by including households with income equal to 100 percent of FPL in the lowest income group and households with income equal to 185 percent of FPL in the middle group. We also ran our analysis without modifying the classification of non-SNAP households. The point estimates are similar and qualitative results do not differ. These results are available upon requests.

WIC participation is based on first identifying if there is a member of the household who is categorically eligible for WIC and then on self-reported current WIC participation. The non-WIC comparison groups include those households that contain at least one member who is categorically eligible for WIC (a child under age 5 or a woman who is pregnant) and are divided by income relative to the FPL.⁶ The first non-WIC group has household income that is at or below 185 percent of the FPL, which is the household income eligibility threshold for WIC, and the second non-WIC group has income above 185 percent of the FPL.

Food security status is based on the 10 questions used to assess household food security status in USDA's 30-day Adult Food Security Scale.⁷ Those who were scored as having low or very low food security were classified as food insecure, while all other households were classified as food secure.

⁵Over 80 percent of the 1,461 households that reported being current SNAP participants were confirmed to be participants through the administrative match. Of the remaining 19.2 percent that were not confirmed as SNAP participants, 16.4 percent did not match to any administrative data, 1.1 percent were found to be not current participants through the match, and 1.8 percent did not give consent for the match. Over 93 percent of the 3,361 households that reported not being current SNAP participants were either not matched at all to administrative data (89.6 percent) or were confirmed to be nonparticipants at the time of the survey (3.6 percent). The rest of the households that reported not receiving SNAP were either confirmed to be participants through the match (4.0 percent) or did not give consent to administrative matching (2.9 percent).

⁶A total of 1,008 households contained at least one categorically eligible member. This is the base number of households for all WIC-related estimates.

⁷For detailed information on these procedures, see Bickel et al., 2000. Food security means access by all people at all times to enough food for an active, healthy life.

Demographic characteristics, overall and by subgroups

Table 1 presents weighted means of key demographic variables overall and for each subgroup. Means in all tables are weighted using the household weights and all standard errors account for oversampling and the complex survey design of FoodAPS. We only discuss means that differ significantly from the relevant comparison group—SNAP, WIC, or food-insecure households.

Sociodemographic characteristics of the primary respondent (PR) in SNAP households differ from higher income (>185 percent of FPL) nonparticipants on every measure. The primary respondents in SNAP households are younger, on average, than those in non-SNAP households in all income groups by about 5 years or more (table 1). The primary respondent is more likely to be a female compared to non-SNAP households. Except for the lowest income non-SNAP households, SNAP households are also more likely to be non-White, and have less education, on average, than respondents in non-SNAP households. SNAP households are larger than non-SNAP households. The average SNAP household had monthly income relative to the FPL of 1.28, which is greater than the average for nonparticipants with income at or below 100 percent of FPL, similar to the nonparticipants with income between 101 and 185 percent of FPL, but lower than the higher income nonparticipant group.

In terms of survey construction, FoodAPS identified households in which someone received SNAP, but did not try to identify who within each household received SNAP. It is quite likely that some residents living in households identified as part of a SNAP household may not actually share household expenses and earnings. Thus, any income they earn would not be part of the income considered for SNAP eligibility and benefit computation, although it would be counted as household income in the survey. It is also possible that some households contain multiple SNAP units (subgroups within households whose eligibility and benefit levels are determined separately), which would increase both income and household size within the SNAP group. The higher income of SNAP participants may also be due to the combination of longer SNAP certification periods and income volatility or because of the expansion of categorical eligibility, which qualifies many households for SNAP because they receive benefits from other programs such as Supplemental Security Income or Temporary Assistance for Needy Families (TANF).

Finally, the FoodAPS survey asked respondents whether they had regular access to a vehicle when they needed it. SNAP households are significantly less likely to have access to a vehicle than non-SNAP households with incomes above poverty (table 1).⁸

Compared with nonparticipants, a greater share of SNAP households also report being WIC households. SNAP participating households are also more likely to be food insecure than the overall population—45 percent of SNAP households are food insecure. This is lower than the 54 percent found in the annual food security report, estimated using the 2012 Current Population Survey (CPS) data (Coleman-Jensen et al., 2013a). However, the CPS estimate is based on an annual measure of food security, not a 30-day measure. Further, CPS only asked households with incomes at or below 185 percent of the poverty threshold whether they received SNAP, while the FoodAPS survey asked all households. SNAP participation is also severely underreported in the CPS compared with administrative data (Meyer et al., 2009). Because the FoodAPS matched administrative data on SNAP

⁸Lower rates of vehicle ownership among SNAP participants is likely due to lower resource levels in these households and not SNAP vehicle asset rules. By 2010, all but two States excluded the value of at least one vehicle in counting household resources (USDA, Economic Research Service, 2014).

participation, we have more confidence in the estimates of SNAP participation from FoodAPS than from CPS.

Primary respondents from WIC households are slightly younger than those from higher income nonparticipating households with WIC-eligible members—age 33, on average, versus age 35 for nonparticipants (table 1). Greater shares of PRs in WIC households are White and Hispanic compared to all PRs in nonparticipating categorically eligible households. Other than these differences, PRs in WIC households are similar to PRs in nonparticipating WIC households with income at or below 185 percent of poverty. However, PRs in households with WIC participants are more likely to be female and have less education than PRs in higher income nonparticipating categorically eligible households.

Compared to higher income non-WIC households, WIC households are larger, on average, by almost 1 person and have lower mean monthly incomes relative to the poverty thresholds, 170 percent compared with 477 percent for higher income households. However, WIC households have greater mean monthly incomes relative to poverty thresholds than nonparticipating categorically eligible households with incomes at or below 185 percent of poverty. Categorically eligible households may gain eligibility for WIC if they participate in Medicaid, which in many States has income eligibility limits for infants and children that are above 185 percent of FPL. This—along with income volatility and longer certification periods—may translate into higher average monthly income relative to poverty thresholds among WIC households relative to non-WIC low-income households.

A larger share of higher income non-WIC households have vehicle access compared to WIC households. WIC households are more likely than higher income non-WIC households to be SNAP households and to report being food insecure (table 1).

In total, we find that 16 percent of FoodAPS households were food insecure in the prior 30 days, whereas the 2012 Current Population Survey Food Security Supplement estimated the annual total at 14.5 percent (Coleman-Jensen et al., 2013a)—8.2 percent using the 30-day measure (Coleman-Jensen et al., 2013b). The FoodAPS estimate of food insecurity is also greater than the 12.8 percent estimated using the 2012 National Health Interview Survey (NHIS), which also uses a 30-day measure.

Food insecurity estimates may differ for several reasons. First, the CPS questions are administered differently from both FoodAPS and NHIS. In the CPS, households are first asked whether they experienced food-insecure conditions in the prior 12 months; the 30-day questions are asked only if an affirmative response is received. Another possible reason for differences in food security estimates is that the reference periods are not the same. The 30-day CPS measure refers to the 30 days before the interview in a single month in 2012 (i.e., between mid-November and mid-December); the FoodAPS measure refers to the 30 days before the household was interviewed, which was sometime between April 2012 and January 2013; and the NHIS is administered throughout the calendar year and therefore captures all months in 2012.

A third factor in the discrepancy is the unique context in which the questions are asked in FoodAPS—after the household has recorded a week’s worth of information about its food purchases and acquisitions. The CPS survey, by contrast, is conducted with little previous reference to food needs. This focus on food acquisitions could make FoodAPS respondents more aware of their food needs than CPS respondents.

Table 1

FoodAPS sample characteristics, overall and for selected subgroups

	Overall	SNAP participation income group				WIC participation/eligibility and Income			Food security status	
		SNAP participants	Non-SNAP, income <= 100% FPL	Non-SNAP, income 101-185% FPL	Non-SNAP, income >185% FPL	WIC HH	Non-WIC, income < 185% FPL	Non-WIC, income >185% FPL	Food insecure	Food secure
Primary respondent characteristics										
Age (mean)	49.78 (0.34)	45.91 (1.00)	52.00 (1.95)	53.28 (1.12)	49.75 (0.39)	32.86 (0.67)	33.52 (0.65)	34.78 (0.51)	46.16 (0.88)	50.47 (0.33)
Female (share)	0.68 (0.01)	0.73 (0.02)	0.66 (0.04)	0.66 (0.03)	0.67 (0.01)	0.86 (0.02)	0.86 (0.03)	0.77 (0.03)	0.69 (0.02)	0.67 (0.01)
White (share)	0.76 (0.01)	0.59 (0.03)	0.64 (0.04)	0.75 (0.03)	0.81 (0.01)	0.65 (0.04)	0.56 (0.06)	0.76 (0.04)	0.63 (0.03)	0.79 (0.01)
Black (share)	0.13 (0.00)	0.28 (0.03)	0.22 (0.04)	0.15 (0.02)	0.09 (0.01)	0.18 (0.03)	0.29 (0.06)	0.07 (0.02)	0.21 (0.02)	0.11 (0.00)
Asian/Hawaiian/Pacific Islander (share)	0.04 (0.00)	0.01 (0.00)	0.04 (0.02)	0.03 (0.01)	0.05 (0.01)	0.02 (0.01)	0.01 (0.01)	0.07 (0.02)	0.03 (0.01)	0.04 (0.00)
Other or multiple races (share)	0.07 (0.01)	0.11 (0.02)	0.09 (0.03)	0.07 (0.01)	0.05 (0.01)	0.14 (0.02)	0.13 (0.05)	0.10 (0.03)	0.13 (0.02)	0.05 (0.01)
Hispanic (share)	0.13 (0.00)	0.24 (0.02)	0.26 (0.03)	0.15 (0.02)	0.09 (0.00)	0.38 (0.05)	0.25 (0.04)	0.14 (0.02)	0.24 (0.02)	0.11 (0.00)
Less than high school education (share)	0.10 (0.01)	0.26 (0.02)	0.32 (0.04)	0.14 (0.02)	0.04 (0.01)	0.28 (0.03)	0.23 (0.04)	0.02 (0.01)	0.24 (0.02)	0.07 (0.01)
High school diploma or GED (share)	0.25 (0.01)	0.36 (0.02)	0.23 (0.03)	0.36 (0.02)	0.21 (0.02)	0.25 (0.03)	0.30 (0.04)	0.12 (0.02)	0.32 (0.02)	0.23 (0.01)
Some college education (share)	0.33 (0.02)	0.30 (0.01)	0.31 (0.03)	0.35 (0.03)	0.34 (0.02)	0.40 (0.03)	0.38 (0.05)	0.37 (0.05)	0.31 (0.02)	0.34 (0.02)
Bachelor's degree or more education (share)	0.32 (0.02)	0.08 (0.01)	0.13 (0.02)	0.15 (0.02)	0.42 (0.02)	0.07 (0.01)	0.09 (0.02)	0.49 (0.04)	0.13 (0.02)	0.36 (0.02)
Household characteristics										
Size (mean)	2.42 (0.01)	2.90 (0.06)	2.03 (0.08)	2.22 (0.08)	2.39 (0.02)	4.57 (0.11)	4.42 (0.16)	3.86 (0.09)	2.53 (0.05)	2.40 (0.02)
% monthly income relative to poverty threshold (PIR)	381.75 (11.61)	128.16 (6.11)	65.48 (2.70)	144.62 (1.21)	498.03 (16.14)	170.12 (7.09)	107.74 (5.15)	476.79 (30.94)	169.68 (5.84)	421.99 (13.71)
Car access	0.89 (0.01)	0.67 (0.02)	0.67 (0.04)	0.84 (0.03)	0.96 (0.01)	0.82 (0.02)	0.81 (0.05)	0.98 (0.01)	0.73 (0.02)	0.92 (0.01)
SNAP participant (share)	0.14 (0.00)	--- n/a ---				0.52 (0.03)	0.52 (0.04)	0.03 (0.01)	0.39 (0.02)	0.09 (0.00)
Non-SNAP, income <=100% FPL (share)	0.05 (0.00)	--- n/a ---				0.05 (0.01)	0.07 (0.01)	n/a	0.13 (0.01)	0.09 (0.00)
Non-SNAP, income 101-185% FPL (share)	0.13 (0.01)	--- n/a ---				0.15 (0.02)	0.41 (0.04)	n/a	0.19 (0.02)	0.11 (0.01)
Non-SNAP income >185%FPL (share)	0.69 (0.01)	--- n/a ---				0.28 (0.03)	n/a	0.97 (0.01)	0.29 (0.02)	0.76 (0.01)
WIC HH	0.04 (0.00)	0.15 (0.01)	0.04 (0.01)	0.05 (0.01)	0.02 (0.00)	--- n/a ---			0.07 (0.01)	0.03 (0.00)
Non-WIC, income< 185% FPL	0.02 (0.00)	0.10 (0.01)	0.04 (0.02)	0.08 (0.01)	0.00 (0.00)	--- n/a ---			0.06 (0.01)	0.02 (0.00)

Continued—

Table 1

FoodAPS sample characteristics, overall and for selected subgroups—continued

	Overall	SNAP participation income group			WIC participation/eligibility and Income			Food security status		
		SNAP participants	Non-SNAP, income <= 100% FPL	Non-SNAP, income 101-185% FPL	Non-SNAP, income >185% FPL	WIC HH	Non-WIC, income < 185% FPL	Non-WIC, income >185% FPL	Food insecure	Food secure
Non-WIC, income >185% FPL	0.07 (0.01)	0.02 (0.00)	0.00 (0.00)	0.00 (0.00)	0.10 (0.01)	--- n/a ---			0.03 (0.01)	0.08 (0.01)
Food insecure (share)	0.16 (0.01)	0.45 (0.02)	0.42 (0.04)	0.24 (0.02)	0.07 (0.01)	0.30 (0.04)	0.37 (0.05)	0.07 (0.03)	--- n/a ---	
Observations	4,826	1,581	346	851	2,048	461	271	276	1,344	3,482

Note: SNAP = Supplemental Nutrition Assistance Program. WIC = Special Supplemental Nutrition Assistance Program for Women, Infants, and Children. FPL = Federal poverty threshold. a = Estimate suppressed for disclosure purposes. n/a = not applicable. Weighted means reported; standard errors are in parentheses. Sample size = 4,826 households unless otherwise noted. N=4,818 for age; N=4,406 for PIR; for SNAP participants N = 1,400 for PIR; for nonSNAP with PIR<=100%, N = 436 for age and 356 for PIR; for nonSNAP with PIR of 101-185%, N=881 for age and 808 for PIR; for nonSNAP with PIR>185%, N=1,920 for age and 1,842 for PIR; for WIC households, N=460 for age and 406 for PIR; for nonWIC with PIR<=185%, N=265 for PIR; for nonWIC with PIR>185%, N=241 for PIR; for food insecure households, N=1,341 for age and 1,225 for PIR; for food secure households, N=3,477 for age and 3,181 for PIR. Total number of households for WIC groups is 1,008 based on all households with a categorically eligible household member (i.e., a child under age 5 or a pregnant woman). Faded text indicates estimate is not different from relevant reference group (SNAP participants, WIC participants, food insecure). Otherwise, estimates are different than relevant reference group with p-value ≤ 0.10.

Source: USDA, Economic Research Service estimates using data from the National Food Acquisition and Purchase Survey (FoodAPS) collected April 2012-January 2013.

Primary FoodAPS respondents in food-insecure households are younger, more likely to be Hispanic, Black or “other” race; less likely to be White or Asian; and less educated than PRs of households that are food secure (table 1). Food-insecure households are larger than food-secure households and have average income relative to the FPL that is less than half of the average for food-secure households. Food-insecure households are less likely to have access to a vehicle and are more likely to participate in SNAP and/or WIC.

FoodAPS Data

The FoodAPS survey was funded by USDA's Economic Research Service and USDA's Food and Nutrition Service. The survey was designed and conducted by Mathematica Policy Research, Inc (MPR). FoodAPS is nationally representative of non-institutionalized households in the continental United States and also representative of four subgroups: SNAP participants, and nonparticipant households in three income groups (income below the Federal poverty line (FPL) for household size; incomes equal to or greater than 100 percent of the FPL but less than 185 percent; and income greater than or equal to 185 percent of the FPL). The sample of households was selected through a multi-stage sample design with coverage in the contiguous United States and oversampling of SNAP-participating and other low-income households. A stratified sample of 50 Primary Sampling Units (PSUs), defined as counties or groups of contiguous counties, was selected using probability proportional to size (PPS) selection. Within each of the 50 sampled PSUs, 8 secondary sampling units (SSUs) comprised of a census block group or a group of contiguous block groups, were selected. Sampled addresses within these SSUs were then screened to determine if the household was eligible to participate. A total of 4,826 households, containing 14,317 individuals participated in the survey. Data were collected from April 2012 to January 2013.

In the screening process, the main food shopper or meal planner was identified as the primary respondent (PR). The PR was asked to complete two in-person interviews and to call the study's telephone center for three brief telephone interviews regarding food acquisition events over the course of 1 week. Each household member age 11 and older was asked to track and report all food acquisitions during the 1-week period in specially prepared booklets. The PR and other adult food books included pages to report details for both food-at-home (blue pages) and food-away-from-home (red pages) acquisitions, while the youth books—for children age 11 to 17—included only food-away-from-home reports. The PR was responsible for recording food acquisitions by members under age 11.

When filling out their food books, participants were asked to distinguish between “food and drinks brought into the home” and “meals, snacks, and drinks you got outside the home.” Acquisition details include location, date, and payment types. Households were also asked to scan barcodes on packaged foods and save their receipts from stores and restaurants. For food-at-home items that cannot be scanned, such as variable-weight items purchased by the unit or pound (e.g., a head of lettuce or individual apples), the respondents could scan barcodes from a specially designed food barcode book. When the food was not listed, respondents are asked to write item details in the blue pages. For FAFH, respondents were asked to save their receipts and record any details they could and then report details about each dining event during the three telephone calls during the survey week.

Considerable post-processing was done to compile and resolve inconsistencies in the event and item-level information provided through the scanner, telephone calls, and on survey books and receipts. Item-level expenditure and quantity information was collected directly from the receipt. When the receipt was unreadable, or not provided, item expenditure was imputed when sufficient information about the item was available. For foods obtained for free, the market value was also imputed when possible.

Nutrient values were also obtained for FAH and FAFH foods by matching to the USDA Food and Nutrient Database for Dietary Studies or the USDA National Nutrient Database for Standard Reference. Supplementary information about the local food environment was also compiled. This component—known as the FoodAPS Geography Component—includes various measures of food access and food prices in and surrounding the PSUs and SSUs.

Mode of Transportation to Primary Food Store

During the FoodAPS, the primary respondents (PR) are asked how they usually get to the store where they do most of their food shopping (referred to as the primary store). Seven preset categories and open-ended responses are grouped into three categories: (1) drive own car; (2) use someone else's car or get a ride from someone; and (3) other (includes walking, public transportation, taxi, and bicycle). Table 2 summarizes the share of households that use each of the three modes of transport to their primary store, for the full sample and for each SNAP/income group, WIC/income group, and for food-secure and food-insecure households.

Most food shoppers, even low-income food shoppers, use their own vehicle to travel to the grocery store. Overall, 88 percent of households use their own car, 6 percent use someone else's car or ride with someone else, and 6 percent use other forms of transportation.⁹ There is, however, significant variation in the primary mode of transportation used to get to food retailers among the subgroups of interest. Generally, those with fewer resources—SNAP participants and food-insecure house-

Table 2

Mode of transportation to primary food store, overall and by subgroup

	Mode of transportation to primary store		
	Own vehicle	Someone else's car	Walk, bike, public transit, shuttle, delivery, other
Overall	0.88 (0.01)	0.06 (0.00)	0.06 (0.01)
SNAP participant (share)	0.66 (0.02)	0.21 (0.02)	0.13 (0.02)
Non-SNAP, income <=100% FPL (share)	0.62 (0.04)	0.19 (0.04)	0.19 (0.05)
Non-SNAP, income 101-185% FPL (share)	0.84*** (0.02)	0.09*** (0.02)	0.07*** (0.01)
Non-SNAP income >185%FPL (share)	0.95*** (0.01)	0.02*** (0.00)	0.03*** (0.01)
WIC household	0.86 (0.02)	0.07 (0.01)	0.07 (0.02)
Non-WIC, income< 185% FPL	0.84 (0.05)	0.12 (0.05)	0.05 (0.01)
Non-WIC, income >185% FPL	0.98*** (0.01)	0.01*** (0.01)	0.01*** (0.01)
Food insecure	0.69 (0.03)	0.17 (0.02)	0.14 (0.02)
Food secure	0.92*** (0.01)	0.04*** (0.00)	0.04*** (0.01)

Note: SNAP = Supplemental Nutrition Assistance Program. WIC = Special Supplemental Nutrition Assistance Program for Women, Infants, and Children. FPL = Federal poverty threshold. ***Different from relevant reference group (SNAP participants, WIC participants, food insecure) within travel mode with p<0.01. Some totals do not sum to 1 due to rounding. Weighted means reported; standard errors are in parentheses.

Source: USDA, Economic Research Service estimates using data from the National Food Acquisition and Purchase Survey collected April 2012-January 2013.

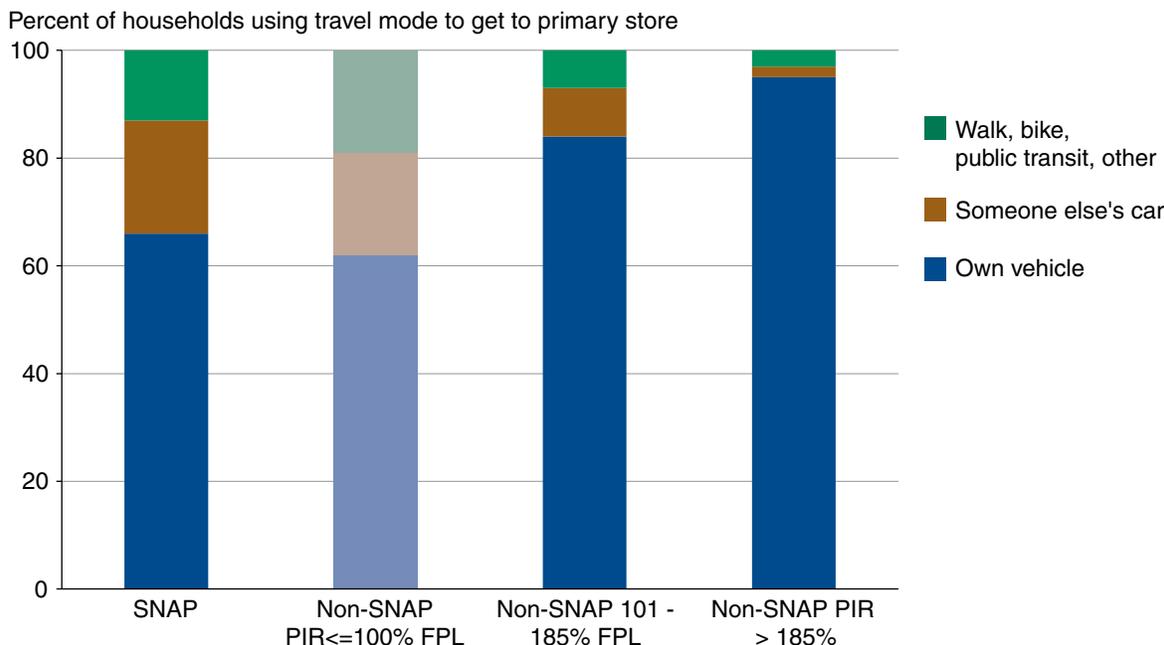
⁹Total does not sum to 100 due to rounding.

holds—are less likely to use their own vehicle than households with more resources, although even then the majority use their own vehicle. SNAP households are much less likely to drive their own vehicle to the store (66 percent) than nonparticipants with incomes above the poverty threshold (84-95 percent) and more likely to get a ride in someone else’s vehicle than all nonparticipants (fig. 1). Nonparticipants with incomes at or below the poverty level also are less likely to use their own vehicle for grocery shopping (62 percent), but this difference is not statistically significant from SNAP households.

SNAP participants tend to rely on someone else to drive them to the store: 21 percent of SNAP participants, compared with 9 percent of nonparticipants with incomes between 101 and 185 percent of poverty and 2 percent of higher income nonparticipants (table 2). SNAP participants are also more likely to walk, bicycle, or take public transit or a shuttle (13 percent) than both groups of nonparticipants with incomes above the poverty level. These estimates may partially reflect that SNAP and low-income households are more likely to live in densely populated cities where walking and public transportation may be viable modes of transportation to nearby stores.¹⁰ But they may also indicate that SNAP participants lack means and thus face greater barriers to food shopping.

Figure 1

Usual mode of transportation to household’s primary food store by SNAP participation and income-to-poverty status



SNAP = Supplemental Nutrition Assistance Program. PIR = income to poverty ratio.
FPL = Federal poverty threshold.

Notes: Columns with lighter shading indicate that the group’s mean distance did not differ from the mean of SNAP participants in that travel mode group with $p < 0.05$. Some totals do not sum to 100 due to rounding.

Source: ERS estimates using data from the National Food Acquisition and Purchase Survey collected April 2012-January 2013.

¹⁰For example, Wilde et al. (2014) find that low-income populations are, on average, closer to the nearest supermarket, supercenter or large grocery store than higher income populations, largely because low-income people live in more densely populated areas.

Even though SNAP participants are less likely to use their own vehicles than higher income nonparticipants, the estimate that 66 percent use their own car is up significantly from similar estimates made by Ohls et al. (1999) using 1996 data, which showed that 44 percent of SNAP households used their own vehicle to get to their primary food store. Correspondingly, FoodAPS estimates of the share of SNAP households that use other means of transportation to get to the primary store are lower than those found in Ohls et al. The increase in vehicle ownership among SNAP participants between the time period of these two studies may reflect the increase in vehicle ownership among low-income populations in general, which has been partially credited to the relaxation of asset tests for public assistance programs and the expansion of the Earned Income Tax Credit (Baum and Owens, 2010; Goodman-Bacon and McGranahan, 2008; Hurst and Ziliak, 2006; Sullivan, 2006).

The distribution of modes of transportation used by WIC households to travel to their primary food store is closer to overall national estimates. Eighty-six percent of WIC households use their own vehicle to shop for groceries versus 98 percent for nonparticipating households with higher incomes. WIC households are more likely to use alternative forms of transportation than nonparticipating households with incomes above 185 percent of the poverty threshold (table 2).

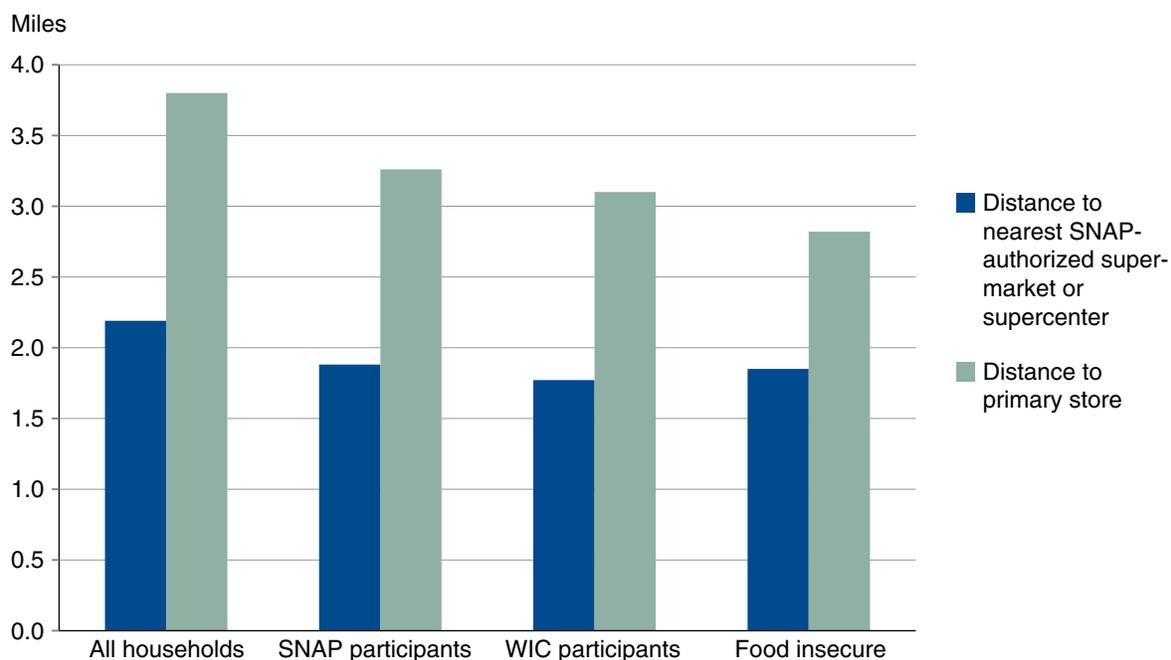
Food-insecure households are less likely to drive their own car to the store than food-secure households and more likely to rely on someone else or alternative forms of transportation. Compared with 92 percent of food-secure households, only 69 percent of food-insecure households use their own car to shop for groceries; 17 percent ride with someone and 14 percent use alternative forms of transportation (versus just 4 percent of food-secure households).

Distance to Nearest and Primary Stores

The average household bypasses the store that is nearest them and shops at a store that is farther away. For all households, the nearest supermarket or supercenter is, on average, 2.19 miles away, but their primary store is 3.80 miles away (fig. 2). Relative differences in the average distance to the nearest store and the average distance to the primary store are fairly consistent across the program participation, income, and food security subgroups as well. For example, the average SNAP participant is 1.88 miles from the nearest supermarket or supercenter, but travels 3.26 miles to their primary store for food shopping. These estimates are not far from those reported by Ohls et al. (1999) and Mabli (2014). WIC participants also tend to bypass the closest supermarket (1.77 miles) to do their primary shopping (at a store 3.10 miles away, on average). For food-insecure households, the average distance to the nearest SNAP-authorized supermarket is 1.85 miles, while the average distance to the primary store is 2.82 miles.

Store proximity may be important, but clearly other store attributes—such as price, quality, and selection—affect where households do their primary food shopping. In addition, households may not go directly from home to the grocery store, but instead include food shopping in a chained (multiple-stop) trip away from home or while returning from work or school. The American Time Use Survey indicates that while about 64 percent of grocery shopping trips are directly from home to the store and then back, 28 percent of shopping trips are clustered around other activities and travel to or

Figure 2
Distance to nearest SNAP-authorized supermarket or supercenter and to primary shopping store for selected subgroups



SNAP = Supplemental Nutrition Assistance Program. WIC = Special Supplemental Nutrition Assistance Program for Women, Infants, and Children.

Source: USDA, Economic Research Service estimates using data from the National Food Acquisition and Purchase Survey collected April 2012-January 2013.

from home, while 8 percent of grocery trips are directly from work or clustered with other activities around work (USDA, Economic Research Service, 2009).

Average distances to the nearest store and the household's primary store are similar across SNAP participant groups, WIC participant groups, and food-insecure/secure households. Compared to non-SNAP households above the poverty level, SNAP households are closer to the nearest SNAP-authorized supermarket or supercenter as well as the store they primarily use for grocery shopping (table 3). Similarly, food-insecure households are closer to the nearest SNAP-authorized supermarket or supercenter than food-secure households and are closer to the store they primarily use for grocery shopping.

Access to a vehicle may influence how much choice a household has in where to shop for groceries. Households that own vehicles are likely able to travel farther, while households without vehicles are likely to be more constrained. Table 4 summarizes the mean distance to the household's primary store and the mean distance to the nearest SNAP-authorized supermarket or supercenter by their usual travel mode to get to the store. Regardless of the mode of transportation used to get to the store, households tend to bypass the closest grocery store to shop at a store that is farther away. For

Table 3

Mean distance to the nearest SNAP-authorized store and the primary store households use for grocery shopping, overall and by subgroup

	Distance to nearest SNAP-authorized supermarket/supercenter	Distance to primary store
All households	2.19 (0.26)	3.80*** (0.47)
SNAP participants	1.88 (0.34)	3.26*** (0.41)
NonSNAP, PIR≤100% FPL	1.62 (0.20)	2.95*** (0.32)
NonSNAP, PIR 101-185% FPL	2.50 (0.39)	3.97*** (0.63)
NonSNAP, PIR > 185% FPL	2.23 (0.24)	3.93*** (0.50)
WIC participants	1.77 (0.25)	3.10*** (0.43)
NonWIC, PIR≤185% FPL	1.61 (0.15)	2.92*** (0.25)
NonWIC, PIR > 185% FPL	1.55 (0.17)	3.03*** (0.27)
Food insecure	1.85 (0.30)	2.82*** (0.30)
Food secure	2.25 (0.25)	3.98*** (0.51)

Note: SNAP = Supplemental Nutrition Assistance Program. WIC = Special Supplemental Nutrition Assistance Program for Women, Infants, and Children. FPL = Federal poverty threshold. Excludes the 317 households where the primary store was not identified and geocoded, making distance to the primary store missing. Full sample, SNAP/Income groups, and food secure/food insecure, N=4,509; for the WIC/income groups, N=1081. Weighted means reported; standard errors are in parentheses. ***= mean distance to primary store is different from mean distance to nearest SNAP store, within subgroup (overall, SNAP, WIC, food secure), with p<0.01. **Bold**= mean distance to nearest SNAP store and distance to primary store for subgroup is different from reference group (SNAP, WIC, food secure) with p<0.10

Source: ERS estimates using data from the National Food Acquisition and Purchase Survey collected April 2012-January 2013.

Table 4

Mean distance to the nearest SNAP-authorized store and the primary store for grocery shopping, overall and by transportation mode to primary store

	Distance to nearest SNAP-authorized supermarket/supercenter	Distance to primary store	Observations
All households	2.19 (0.26)	3.80*** (0.47)	4,509
Own vehicle	2.32 (0.27)	4.02*** (0.49)	3,735
Someone else's vehicle	1.75 (0.47)	3.21*** (0.53)	420
Walk, bike, public transit, other	0.50 (0.11)	0.90*** (0.08)	354

SNAP = Supplemental Nutrition Assistance Program. Excludes the 317 households where the primary store was not identified and geocoded, making distance to the primary store missing. Weighted means reported; standard errors are in parentheses.

*** = mean distance to primary store is different than mean distance to nearest SNAP store, within transportation subgroup, with $p < 0.01$. **Bold** = mean distance to nearest SNAP store or Primary Store is different from those who use their own vehicle with $p < 0.01$.

Source: ERS estimates using data from the National Food Acquisition and Purchase Survey collected April 2012-January 2013.

each of the three modes of transportation, the primary store the household used was about twice as far away as the nearest store, on average (table 4). Even those who walk, bike, or use other transit do not shop at the closest store. For this group, the primary store is, on average, 0.90 mile away, while the nearest SNAP-authorized supermarket or supercenter is 0.50 mile away.

Those who walk, bike, or use other forms of transit tend to shop closest to home—0.90 mile, on average, compared with 4 miles for those who use their own vehicles. They also tend to live much closer to a supermarket or supercenter—0.50 mile to the nearest SNAP-authorized supermarket or supercenter compared with 2.32 miles for those who use their own cars. These households that take other transportation may live in more densely populated areas—for example, residents of dense cities are less likely to own vehicles and are more likely to live closer to food stores. Distances to the primary store and the nearest supermarket or supercenter are similar for those who ride in someone else's car and those who use their own.

Primary and Alternate Food Store Types

Primary and alternate food stores are classified into four categories: supercenters and mass merchandisers and club stores; supermarkets, large grocery stores, or commissaries (which we combine into a single category—“supermarkets”); other retailers, which include all types of stores that are not supermarkets or supercenters; and stores of unknown type.¹¹

Supermarkets and supercenters dominate the shopping of most U.S. households, regardless of their income and other characteristics. Overall, roughly 44 percent of households do their primary grocery shopping at supercenters, while another 45 percent do their primary shopping at supermarkets (table 5). Five percent of households do their main shopping at other retailers. The primary store type is unknown for the other 7 percent of households. Among alternate stores, supercenters and supermarkets comprised the vast majority, though the alternate stores identified by about 27 percent of households could not be classified, suggesting that these stores are less likely to be recognized chain stores.

Both SNAP and food-insecure households shop at the same types of stores as nonparticipating and food secure households. There are few differences for these groups in the type of store identified as an alternate food shopping location, and these are very slight differences in the share using an “other” or unknown store type. SNAP participants were slightly more likely to identify an “other” store as their alternate store than higher income nonparticipants (9 percent compared with 5 percent). Finally, food-insecure households were also slightly more likely to identify an “other” store as their alternate store (9 percent) than food-secure households (6 percent). These differences are small, but indicate that at least some SNAP participants and food-insecure households rely on other retailers.

WIC households are more likely than higher income nonparticipants to identify a supermarket or grocery store as their alternate store type (30 versus 19 percent). WIC participants are also more likely than lower income nonparticipants to identify other store formats as their primary store—3 percent compared with 1 percent. Higher-income nonparticipants are also more likely to identify an unknown alternate store (29 percent versus 19 percent among WIC participants).

¹¹In some cases, the primary respondent did not provide enough information about the primary or alternate store to be able to identify the store or even the type of store.

Table 5

Primary and alternative store type, overall and by subgroup

	Primary store type				Alternate store type			
	Super-centers	Super-markets	Other stores	Un-known	Super-centers	Super-markets	Other stores	Un-known
Overall	0.45 (0.03)	0.44 (0.03)	0.04 (0.01)	0.07 (0.01)	0.39 (0.02)	0.28 (0.02)	0.06 (0.01)	0.27 (0.01)
Observations	2,268	2,058	183	317	1,892	1,376	328	1,230
SNAP participant	0.46 (0.04)	0.43 (0.04)	0.03 (0.01)	0.08 (0.01)	0.37 (0.03)	0.28 (0.02)	0.09 (0.02)	0.26 (0.03)
Non-SNAP, Income <=100% FPL	0.44 (0.04)	0.44 (0.04)	0.06 (0.02)	0.06 (0.02)	0.36 (0.05)	0.29 (0.04)	0.10 (0.03)	0.25 (0.04)
Non-SNAP, Income 101-185% FPL	0.47 (0.03)	0.42 (0.04)	0.04 (0.01)	0.07 (0.01)	0.38 (0.03)	0.28 (0.03)	0.07 (0.01)	0.27 (0.02)
Non-SNAP Income >185%FPL	0.44 (0.03)	0.45 (0.03)	0.04 (0.01)	0.06 (0.01)	0.40 (0.02)	0.28 (0.02)	0.05* (0.01)	0.27 (0.02)
WIC HH	0.52 (0.05)	0.40 (0.04)	0.03 (0.01)	0.06 (0.02)	0.45 (0.04)	0.30 (0.04)	0.04 (0.01)	0.21 (0.03)
Non-WIC, income< 185% FPL	0.41 (0.06)	0.49 (0.05)	0.01** (0.00)	0.09 (0.03)	0.37 (0.03)	0.34 (0.04)	0.05 (0.02)	0.24 (0.04)
Non-WIC, income >185% FPL	0.43 (0.05)	0.46 (0.04)	0.02 (0.01)	0.09 (0.02)	0.45 (0.04)	0.19** (0.03)	0.05 (0.02)	0.31** (0.03)
Food insecure	0.45 (0.03)	0.45 (0.03)	0.05 (0.01)	0.06 (0.01)	0.39 (0.03)	0.26 (0.02)	0.09 (0.02)	0.26 (0.02)
Food secure	0.45 (0.03)	0.44 (0.03)	0.04 (0.01)	0.07 (0.01)	0.39 (0.02)	0.29 (0.02)	0.06* (0.01)	0.27 (0.02)

SNAP = Supplemental Nutrition Assistance Program. WIC = Special Supplemental Nutrition Assistance Program for Women, Infants, and Children. FPL = Federal poverty threshold. *Compares share of store type to SNAP participants (or WIC participants or food insecure) $p < 0.10$; ** $p < 0.05$. For 317 households, the primary store was not identified; for 1,230 households, the alternate store was not identified. Weighted means reported; standard errors are in parentheses.

Source: ERS estimates using data from the National Food Acquisition and Purchase Survey collected April 2012-January 2013.

Conclusions

This report provides initial findings from FoodAPS on the food shopping patterns of households, comparing patterns across SNAP and WIC participation status, income groups, and food security status. We find that most households use their own vehicles to do their primary grocery shopping. This is true for SNAP participating, WIC participating, and food-insecure households. A smaller share of SNAP and food-insecure households, however, use their own vehicles to shop, while a larger share of these households use someone else's car or walk, bike, or take another form of transit to do their primary shopping. However, this seeming transportation constraint does not affect the types of stores that SNAP participants and food-insecure households use for their primary shopping. SNAP and WIC participating households are similar to nonparticipating households in their use of supermarkets or supercenters for their primary food shopping. The same is true of food-secure and food-insecure households.

Further, most households do not necessarily shop at the supermarket that is closest to them. Even those who do not use personal vehicles tend to travel farther than the nearest supermarket or supercenter. This is true for SNAP households who are, on average, a little under 2 miles from the nearest supermarket or supercenter but travel 3.3 miles, on average, to the store where they do their primary shopping. These findings are consistent with previous studies that find that SNAP households do not necessarily shop at the nearest supermarket. Future work will examine grocery store attributes as well as factors such as time and travel costs that affect where households do their primary food shopping.

Supermarkets and supercenters are the dominant type of store used for grocery shopping, accounting for almost 90 percent of households' primary place for grocery shopping. Among SNAP households, 46 percent do their primary shopping at supercenters while 43 percent use a supermarket. This is fairly consistent with SNAP administrative data that show about 84 percent of benefits are redeemed at supermarkets or supercenters (USDA, 2011).

This report examined three important variables in the FoodAPS data—the types of stores where households usually shop, the transportation mode used to get there, and distances to the nearest grocery store and the store at which households usually shop. These variables were examined for all households and then separately for three key subgroups of interest based on SNAP participation and income, WIC participation and income, and food security status. With FoodAPS data on the items and prices of household food purchases and acquisitions and other key measures of the food retail environment, researchers can explore how food assistance program participation, household resources such as income and vehicles, and access to stores and other aspects of the food environment affect the types of food purchased and acquired, their prices, and other outcomes of interest, such as food security and diet quality.

References

- Baum, C.L., and M.F. Owens. 2010. "The Effect of Vehicle Asset Rules on Vehicle Assets." Department of Economics and Finance Working Paper Series, Middle Tennessee State University, Feb.
- Bickel, Gary, Mark Nord, Cristofer Price, William Hamilton, and John Cook, 2000. *Guide to Measuring Household Food Security, Revised 2000*. U.S. Department of Agriculture, Food and Nutrition Service, Alexandria, VA. March.
- Coleman-Jensen, Alisha, Mark Nord, and Anita Singh. 2013a. *Household Food Security in the United States in 2012*. ERR-173, U.S. Department of Agriculture, Economic Research Service, Sept.
- Coleman-Jensen, Alisha, Mark Nord, and Anita Singh. 2013b. *Household Food Security in the United States in 2012: Statistical Supplement*. AP-061, U.S. Department of Agriculture, Economic Research Service, Sept.
- Economic Research Service, 2015 . FoodAPS National Household Food Acquisition and Purchase Survey, U.S. Department of Agriculture, <http://www.ers.usda.gov/data-products/foodaps-national-household-food-acquisition-and-purchase-survey.aspx> (Accessed 02/03/2015)
- Goodman-Bacon, A., and L. McGranahan. 2008. "How Do EITC Recipients Spend Their Refunds?" *Economic Perspectives* 32(2): 17-32.
- Hurst, Erik, and James P. Ziliak. 2006. "Do Welfare Asset Limits Affect Household Saving? Evidence from Welfare Reform," *Journal of Human Resources* 41(1): 46-71.
- Leibtag, Ephraim, Catherine Barker, and Paula Dutko. 2010. *How Much Lower Are Prices at Discount Stores? An Examination of Retail Food Prices*. ERR-105, .S. Department of Agriculture, Economic Research Service, Sept.
- Mabli, J. 2014. "SNAP Participation, Food Security, and Geographic Access to Food." Prepared by Mathematica Policy Research for the U.S. Department of Agriculture, Food and Nutrition Service, March.
- Meyer, Bruce D., Wallace K.C. Mok, and James X. Sullivan. 2009. "The Underreporting of Transfers in Household Surveys: Its Nature and Consequences." National Bureau of Economic Analysis Working Paper No. 15181. <http://www.nber.org/papers/w15181>.
- Ohls, J.C., M. Ponza, L. Moreno, A. Zambrowski, and R. Cohen. 1999. "Food stamp participants' access to food retailers." Prepared by Mathematica Policy Research for the U.S. Department of Agriculture, Food and Nutrition Service.
- Senauer, B., and J. Seltzer. 2010. "The Changing Face of Food Retailing," *Choices* 25(4).
- Smith, C., J. Butterfass, and R. Richards. 2009. "Environment influences food access and resulting shopping and dietary behaviors among homeless Minnesotans living in food deserts," *Agriculture and Human Values* 27: 141-161.

- Sohi, I., B.A. Bell, J. Liu, S.E. Battersby, and A.D. Liese. 2014. "Differences in Food Environment Perceptions and Spatial Attributes of Food Shopping Between Residents of Low and High Food Access Areas," *Journal of Nutrition Education and Behavior*, Feb 20. pp. S1499 - 4046.
- Sullivan, James X. 2006. "Welfare Reform, Saving, and Vehicle Ownership: Do Asset Limits and Vehicle Exemptions Matter?" *Journal of Human Resources* 41: 72-105.
- U.S. Department of Agriculture, Economic Research Service. 2014. SNAP Policy Database. <http://www.ers.usda.gov/data-products/snap-policy-database.aspx>. (Accessed 02/03/2015)
- U.S. Department of Agriculture, Economic Research Service. 2009. *Access to Affordable and Nutritious Food: Measuring and Understanding Food Deserts and Their Consequences*. Report to Congress, June. <http://www.ers.usda.gov/Publications/AP/AP036/>.
- U.S. Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis. 2011. "Benefit Redemption Patterns in the Supplemental Nutrition Assistance Program." Laura Castner and Juliette Henke. Alexandria, VA.
- Wilde, P.E., J. Llobrera, and M. Ver Ploeg. 2014. "Population Density, Poverty, and Food Retail Access in the United States: An Empirical Approach," *International Food and Agribusiness Management Review* 17(Special Issue A).
- Wilde, P.E., P.E. McNamara, and C. K. Ranney. 1999. "The Effect of Income and Food Programs on Dietary Quality: A Seemingly Unrelated Regression Analysis with Error Components," *American Journal of Agricultural Economics* 81(4): 959-971.

Appendix table

Lower and upper bound estimates of mean income to poverty threshold estimates by SNAP, WIC, and food security groupings

	Overall	SNAP participation income group			WIC participation/eligibility and Income			Food security status		
		SNAP participants	Non-SNAP, Income <= 100% FPL	Non-SNAP, Income 101-185% FPL	Non-SNAP Income > 185% FPL	WIC HH	Non-WIC, income < 185% FPL	Non-WIC, Income > 185% FPL	Food insecure	Food secure
% monthly income relative to poverty threshold (excluding 0's)	403.71 (24.49)	143.16 (6.77)	71.75 (1.71)	147.95 (1.32)	532.29 (32.20)	171.76 (11.32)	106.63 (3.41)	495.48 (54.88)	172.64 (8.62)	445.81 (27.32)
% monthly income relative to poverty threshold (including 0's)	376.87 (22.65)	124.41 (5.84)	60.72 (2.34)	140.67 (1.81)	507.55 (30.36)	158.58 (11.41)	95.81 (4.30)	470.23 (54.15)	155.93 (8.69)	418.74 (25.01)
Observations for estimates that include zeros	4,826	1,581	438	882	1,925	461	389	296	1,344	3,482

SNAP = Supplemental Nutrition Assistance Program. WIC = Special Supplemental Nutrition Assistance Program for Women, Infants, and Children. FPL = Federal poverty threshold. The first row of estimates assume that income reported as zero is missing (upper bound estimate). The second row assumes that income reported as zero is actually zero (lower bound estimate).

Source: ERS estimates using data from the National Food Acquisition and Purchase Survey collected April 2012-January 2013.