



Food and Nutrition Administration
U.S. DEPARTMENT OF AGRICULTURE

Food-At-Home Purchases by Supplemental Nutrition Assistance Program (SNAP) Households in 2023

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Executive Summary

Background

The Supplemental Nutrition Assistance Program (SNAP) is the largest nutrition assistance program in the United States. Program administrative data, however, does not currently provide information on the foods acquired by program participants. The 2016 *Foods Typically Purchased by SNAP Households* report addressed this gap using 2011 point-of-sale (POS) data from a leading US grocery retailer, but more recent data is needed to understand current trends. The purpose of this study is to describe the foods and beverages purchased by SNAP households using the most current data available and compare these purchasing patterns to those of non-SNAP households.

Methods

The United States Department of Agriculture (USDA) Food and Nutrition Administration (FNA) analyzed 2023 food-at-home purchase data reported by 51,891 households participating in the Circana Consumer Network Panel, reflecting approximately \$875 million in reported food-at-home spending. From this dataset, FNA identified 7,307 SNAP households based on the reported use of SNAP benefits as a payment method during the calendar year. FNA classified all other households not reporting the use of SNAP benefits as a payment method during the calendar year as non-SNAP households regardless of SNAP eligibility.

Consistent with the 2016 *Foods Typically Purchased by SNAP Households* report, this report compares SNAP households to all non-SNAP households rather than to income eligible non-participants. The objective of this report is descriptive rather than causal: to situate SNAP household purchasing patterns within the broader food-at-home market. Comparing SNAP households to the full non-SNAP population (for instance, rather than an income-controlled non-SNAP comparison group) provides context for understanding how the purchasing patterns of SNAP households align with or diverge from those of other consumers, without implying that any observed differences are attributable specifically to SNAP participation.

FNA calculated weighted expenditure shares for SNAP and non-SNAP households using the Circana product categorization system, which is provided to USDA organized by department, aisle, category, and product. FNA calculated and compared weighted expenditure shares between SNAP and non-SNAP households and identified areas of similarity and difference between the groups.

Results

At the department level, the largest difference between SNAP and non-SNAP households was in the produce department, which includes fresh fruits and vegetables. Non-SNAP households allocated a larger share of their total purchases to produce than SNAP households. By contrast, SNAP households devoted larger shares of their expenditures to the beverages and frozen departments than non-SNAP households.

The aisles with the highest expenditure shares were broadly similar for both groups including dairy (which includes eggs), fresh fruits, fresh vegetables, meals, and carbonated soft drinks. SNAP households allocated a smaller percent of their expenditures to fresh fruits and fresh vegetables compared with non-SNAP households, while allocating a larger percent to carbonated soft drinks, frozen meals, processed meat, and juices.

Expenditure shares for both SNAP and non-SNAP households for each department, aisle, category, and product with sufficient sample size are available as an online supplement.* Comparisons between expenditure shares of SNAP and non-SNAP households should not be construed as measuring the effect of SNAP participation, since differences between the groups are confounded by several other factors, including income.

Discussion

The 2023 Circana Consumer Network Panel data is the most current data available for USDA to understand SNAP and non-SNAP household purchasing patterns. However, the data has limitations including reliance on self-reporting, systematic underreporting of food purchases with variation by food category, and the underlying nonrandom sample, as well as potential interaction between these factors, which may limit the reliability of the estimates. While expenditure shares provide a streamlined mechanism for understanding the types of foods households typically purchased, they simultaneously reflect multiple constructs (e.g., volume of purchases, average prices, and spending on other categories), which complicates the interpretation of comparisons across SNAP and non-SNAP households. Additionally, this analysis is descriptive and should not be used to establish or imply any causal relationship between SNAP participation and food-at-home spending.

The results of this analysis suggest that SNAP households allocate a larger share of their food-at-home spending to beverages and a smaller share to fruits and vegetables than non-SNAP households. These results are generally consistent with the findings of the 2016 *Foods Typically Purchased by SNAP Households* report. However, comparisons to the previous report are complicated by differences in classification systems and confounded by structural differences between retail- and household-based data.

Conclusion

SNAP and non-SNAP households exhibited broadly similar patterns in expenditure shares, though there are some differences that are consistent with previous analyses. These findings are based on the most current available data from 2023. Future analyses will monitor trends over time by repeating this analysis annually when new data becomes available.

* The online supplement is available via Ag Data Commons at: <https://doi.org/10.15482/USDA.ADC/32108596>

Acronyms and Abbreviations

ERS	Economic Research Service
FDR	False Discovery Rate
FNA.....	Food and Nutrition Administration
OCE	Office of the Chief Economist
POS	Point-of-Sale
SNAP	Supplemental Nutrition Assistance Program
UPC	Universal Product Code
USDA.....	United States Department of Agriculture

1 Introduction

The Supplemental Nutrition Assistance Program (SNAP) is the largest nutrition assistance program in the United States, providing benefits to millions of low-income households to help them purchase food. While SNAP administrative data captures the value of benefits redeemed at each vendor, they do not capture information on the foods and beverages for which participants redeem their benefits. This gap limits the ability to assess how SNAP benefits are used and to evaluate the program's impact on diet quality and health outcomes.

To help address this gap, the United States Department of Agriculture (USDA) published the 2016 *Foods Typically Purchased by SNAP Households* report (Garasky, et al. 2016). This report used calendar year 2011 point-of-sale (POS) data from a leading grocery retailer to describe food purchasing patterns among SNAP households and all other households (i.e., non-SNAP households). That report offered insights into the types of foods acquired by SNAP participants and how these patterns compared to non-SNAP households. Specifically, the 2016 report found that there were no major differences in expenditure patterns between SNAP and non-SNAP households, that less healthy items were common for both groups, and expenditures were highly concentrated in a handful of food categories. SNAP maximum allotments, food purchasing behaviors, retail environments, and product availability have evolved significantly since 2011. Analyses of more current data is needed to reflect recent trends and inform policy decisions aimed at improving diet quality and health outcomes.

This new report, developed by the USDA Food and Nutrition Administration (FNA), builds on the 2016 analysis by examining food-at-home purchases made by SNAP and non-SNAP households using data from calendar year 2023.

As with the 2016 report, the primary objectives of this study are: (1) to describe the foods and beverages purchased by SNAP households using the most current available data, and (2) to compare these purchasing patterns to those of all other households. Consistent with the 2016 report, this report is purely descriptive and does not attempt to measure the effects of SNAP participation. This report should not be misunderstood as establishing causal relationships related to SNAP participation.

Although this report addresses the same scope as the 2016 report, USDA does not currently have access to analogous data to those used previously (i.e., POS data with information on methods of payment). Retail scanner data currently available to USDA has been used for other policy-relevant analyses, but it does not contain the necessary information to differentiate between purchases made with SNAP benefits versus other payment methods or between purchases made by SNAP households versus non-SNAP households. Instead, this analysis uses household-based scanner data, which enables differentiation by method of payment reported by households rather than collected by retailers. Self-reported method of payment, as is available in Circana Consumer Network Panel data, is less reliable than the majority tender recorded in POS data. In both cases, however, there is risk of misclassification because entire transactions are assigned a single method of payment despite true transactions having the potential to involve multiple methods (e.g., both cash and SNAP benefits). FNA cautions against comparisons between the findings presented in this report and the 2016 report due to structural differences in the underlying data.

Consistent with the FNA Clearance Procedures for the Release of Scientific Products,^{*} the project team submitted a description of this analysis' scope and a peer review recommendation to the FNA Peer Review Panel, which concurred that the project did not constitute influential scientific information but that peer review was recommended. This report, including the final methodology and results, was subject to comprehensive, independent peer review by staff at FNA, the USDA Economic Research Service, and the USDA Office of the Chief Economist prior to publication, and feedback from reviewers was incorporated into the final report.

2 Methods

2.1 Data

FNA analyzed data from the Circana Consumer Network Panel, a household panel that provides food-at-home purchases reported by tens of thousands of households using handheld scanners and mobile applications. The data includes detailed product characteristics linked to each purchase, as well as household demographics. USDA has acquired annual data from Circana since 2008 and has previously documented these proprietary

^{*} More information on the FNA Clearance Procedures for the Release of Scientific Products is available at: <https://www.fna.usda.gov/ops/clearance-procedures>

data in detail, including comparisons of food expenditures provided by the data to other sources and the data's statistical properties (Muth, et al. 2016; Sweitzer, et al. 2017).

The most current available data as of August 2026, representing calendar year 2023, includes over 130,000 households. 60,263 households reported sufficient purchase data to be included in the “static panel” as defined by Circana.* Further, 51,891 of the static panel households reported random weight products (e.g., produce, meat, and bakery items) and therefore make up the “random weight static panel.” Circana provides two sets of analytic weights intended to improve the representativeness of estimates derived from both the static panel and the random weight static panel. It is unclear whether households in the static panel but not in the random weight static panel did not report random weight products because they did not purchase any such products or because they purchased them but elected not to report them.

Distributions of household characteristics are provided in Table 1. Certain household characteristics differed meaningfully between the three unweighted samples (e.g., the static panel and random weight static panel contain a smaller proportion of households headed by individuals aged 35 years or younger). Applying the weights provided by Circana appear to play a crucial role in adjusting for these differences. The static sample and random weight static sample were generally similar in their distribution of household characteristics.

FNA chose to use the random weight static panel and the associated analytic weights provided by Circana for this analysis. It is possible that using this subset may skew results to reflect a higher proportion of expenditures on items like fruits and vegetables, which are commonly purchased in random weight forms. However, FNA preferred this to using the full static panel, which has a higher risk of misrepresenting households that purchased random weight items but did not report these purchases, potentially because of the greater burden associated with reporting them compared to that of uniform weight items. FNA performed sensitivity analyses of this decision. It had minimal impact on the results versus the alternative of using the full static panel, and the expenditure shares are robust to this variation in the underlying household sample (see the Appendix for additional information).

* For inclusion in the static panel, Circana requires that households report purchases at least once every 4 weeks for 80 percent of reporting periods, or 11 of the 13 four-week reporting periods during the year and meet minimum average levels of weekly spending (e.g., \$25 for 1-person households, \$35 for 2-person households, and \$45 for 3-or-more person households). More information on the construction of the static panel is available from Muth, et al. 2016.

Table 1. Weighted and Unweighted Distributions of Household Characteristics by Subsample in the 2023 Circana Consumer Network Panel

Household Characteristic	Full Panel: Unweighted	Static Panel: Unweighted	Static Panel: Weighted	Random Weight Static Panel: Unweighted	Random Weight Static Panel: Weighted
Number of households	140,015	60,263	60,263	51,891	51,891
Household size					
1 person	22.6	26.5	26.6	25.8	26.6
2 person	36.4	42.6	33.0	43.7	33.1
3-4 person	29.7	23.6	29.4	23.6	29.3
5+ person	11.3	7.2	11.0	6.9	11.0
Age of household head					
<35 years	17.1	4.3	18.0	3.8	17.9
35-44 years	24.9	14.0	17.2	13.2	17.2
45-64 years	39.4	46.9	37.7	46.8	37.8
65+ years	18.5	34.7	27.0	36.2	27.1
Annual household income					
<\$15,000	12.3	6.4	7.6	5.5	7.1
\$15,000-\$34,999	19.0	16.9	17.0	16.4	17.4
\$35,000-\$69,999	28.8	31.1	24.7	31.0	24.6
\$70,000+	39.9	45.6	50.8	47.1	50.9
Ethnicity					
Non-Hispanic	87.1	88.7	86.3	90.1	86.4
Hispanic	12.9	11.3	13.7	9.9	13.6
Race					
Black	13.2	12.1	12.7	12.1	12.7
Non-Black	86.8	87.9	87.3	87.9	87.3
Presence of children					
Yes	30.5	18.5	29.9	18.0	29.8
No	69.5	81.5	70.1	82.0	70.2

2.2 Identification of SNAP Households

To identify SNAP households within the data, FNA employed the annual SNAP payment indicator approach described previously by ERS (Gregory 2025). This method classifies households based on the reported use of SNAP benefits as a payment method during the calendar year. Households reporting any transactions with SNAP benefits in calendar year 2023 were classified as SNAP households while all other households not reporting the use of SNAP benefits as a payment method during the calendar year—including both those appearing eligible and those appearing ineligible to participate in SNAP—were classified as non-SNAP households. This method was selected because it provides a more stable and inclusive measure of participation compared to monthly indicators (i.e., classifying households as SNAP vs non-SNAP each month based on the reported use of SNAP benefits in any transaction that month), which have been shown to meaningfully underreport SNAP participation. While this approach ensures that households with intermittent participation are included, it does not distinguish between short-term and continuous participants and relies on self-reported method of payment information, which may introduce reporting bias.

Despite these limitations, the annual SNAP payment indicator represents the best available approach for examining consumer purchase behavior of SNAP households in Circana panel data. 7,307 households (14.1 percent) in the Circana Consumer Network Panel were classified as SNAP households, as they reported a food purchase using SNAP benefits at any point during calendar year 2023. The remaining 44,584 households (85.9 percent) were classified as non-SNAP households, as they did not report any food purchases using SNAP benefits at any point during calendar year 2023.

Distributions of household characteristics in the random weight static panel for SNAP and non-SNAP households are provided in Table 2. As expected, certain household characteristics differed meaningfully between the two samples, especially the proportion of households with annual incomes below \$15,000. Consistent with Table 1, applying the weights provided by Circana meaningfully adjusts the distribution of household characteristics. FNA performed sensitivity analyses of the decision to incorporate the weights and found that although the household characteristics for both groups were impacted by the application of weights, they generally influenced the results for non-SNAP households but had minimal impact on the results for SNAP households (see the Appendix for additional information).

Table 2. Weighted and Unweighted Distributions of Household Characteristics by SNAP Participation in the 2023 Circana Consumer Network Random Weight Static Panel

Household Characteristic	SNAP Households: Unweighted	SNAP Households: Weighted	Non-SNAP Households: Unweighted	Non-SNAP Households: Weighted
Number of households	7,307	7,307	44,584	44,584
Household size				
1 person	27.1	26.4	25.6	26.6
2 person	29.5	21.3	46.0	35.4
3-4 person	30.0	33.9	22.6	28.4
5+ person	13.3	18.3	5.8	9.5
Age of household head				
<35 years	6.3	24.9	3.4	16.5
35-44 years	21.8	24.0	11.8	15.9
45-64 years	51.2	37.0	46.0	38.0
65+ years	20.6	14.2	38.7	29.7
Annual household income				
<\$15,000	18.7	22.2	3.4	4.1
\$15,000-\$34,999	30.2	29.9	14.2	14.9
\$35,000-\$69,999	29.5	25.5	31.2	24.4
\$70,000+	21.5	22.4	51.3	56.7
Ethnicity				
Non-Hispanic	85.4	80.3	90.9	87.6
Hispanic	14.6	19.7	9.1	12.4
Race				
Black	22.2	22.4	10.4	10.8
Non-Black	77.8	77.6	89.6	89.2
Presence of children				
Yes	32.5	44.7	15.6	26.8
No	67.5	55.3	84.4	73.2

2.3 Food Categories

The Circana Consumer Network Panel provides information on transactions at the Universal Product Code (UPC)* level. Analyses to address this report's research questions are best conducted after aggregating similar UPCs because UPC-level data can be highly granular and fragmented, making it difficult to identify meaningful patterns. Aggregating reported purchases reduces noise from brand-specific or package size variations and provides a clearer view of overall spending behavior.

Various food categorization systems have previously been applied to Circana data to provide classifications that align with food groups used in other research and policy contexts, but there is often a significant lag between when new Circana data is made available to USDA and when categorization systems are implemented, preventing FNA from employing them for this analysis. Rather than delay analysis until links to the ERS Food Purchase Groups[†] or the Purchase to Plate Crosswalk[‡] become available for current Circana data, FNA elected to use the categorization system provided by Circana.

Circana data provided to USDA includes detailed information on each of the nearly 1.5 million unique UPCs as well as a hierarchical categorization system that partitions UPCs into groups to streamline aggregated analyses.[§] This product classification system is intended to align with the organization of grocery stores with hierarchical levels that include department, aisle, category, and product. However, this system has limitations for the purposes of this analysis. Because the hierarchy is based on retail merchandising and product placement rather than dietary guidance, food groups, or nutrient content, the resulting classifications do not always correspond to intuitive groupings. In addition, some department, aisle, category, and product labels may be confusing or unintuitive when interpreted outside the context of the full Circana hierarchy. FNA did not alter Circana's categorization system because retaining the source classification preserves consistency with the underlying data, avoids introducing subjective recoding decisions, and supports reproducibility and comparability across analyses. Readers should consult the online supplement** for additional information about the contents of each department, aisle, and category; more detailed descriptions at the product level cannot be

* A universal product code, or UPC, is the barcode printed on most retail products that stores use to identify items when they are scanned at checkout. It provides a unique numeric code for each product, which allows purchases to be tracked accurately across brands, sizes, and packaging.

† ERS Food Purchase Groups are a categorization system developed by ERS to facilitate analyses of food purchase data. The groups are designed to support research on the economic determinants of food consumption, diet quality, and health outcomes. ERS Food Purchase Groups categorize foods by ingredients, nutritional content, convenience to the consumer, and store aisle. For more information, see: Sweitzer et al. 2024, available at: <https://doi.org/10.32747/2024.8754865.ers>

‡ USDA develops links between the Circana product dictionary and USDA food composition databases via the Purchase to Plate Crosswalk, enabling food purchases to be categorized by food codes from these databases and subsequently by Thrifty Food Plan Market Basket Categories. For more information on the development of the Purchase to Plate Crosswalk, see: <https://www.ers.usda.gov/data-products/purchase-to-plate>

§ Department, aisle, category, and product information for approximately 150 perishable items reported by Consumer Network Panel participants were not classified according to Circana's most current classification system in the data available to USDA. FNA imputed this information to make it consistent with the rest of the 2023 product dictionary. Without this imputation step, there would be systematic underreporting of fruits, vegetables, cheese, meat, poultry, and seafood.

** The online supplement is available via Ag Data Commons at: <https://doi.org/10.15482/USDA.ADC/32108596>

provided because doing so would require disclosing identifiable brand- and/or UPC-level information, which is inconsistent with Circana's disclosure requirements.

Because the system is designed to reflect where foods are typically available for purchase in the retail environment rather than by food group or how foods are typically consumed, similar foods may be spread across several different classifications. For example, fresh fruits are found in the produce department while shelf stable fruits (i.e., canned/bottled), frozen fruits, and fruit juices are found in the general food, frozen, and beverages departments, respectively. Another example is seafood, in which fresh fish are found in the seafood department and canned fish are found in the general food department. Alcoholic beverages (i.e., the liquor department as defined by Circana) were excluded from the analysis, but other foods and beverages potentially not eligible for SNAP redemption may still be present.

2.4 Food Expenditures and Expenditure Shares

FNA calculated total reported annual food-at-home expenditure shares by department, aisle, category, and product for SNAP and non-SNAP households using the subset of 2023 Circana Consumer Network Panel described above. For each household, FNA summed all reported expenditures by department, aisle, category, and product across the calendar year, transforming the longitudinal data into a cross section encompassing the entire year. FNA then summed expenditures across all households within each department, aisle, category, and product weighted by the analytic weights provided by Circana separately for SNAP and non-SNAP households. FNA calculated the aggregate expenditure shares for SNAP and non-SNAP households by dividing each weighted department-, aisle-, category-, and product-level expenditure sum by the total weighted expenditures for SNAP and non-SNAP households, respectively. FNA calculated expenditures and expenditure shares in the aggregate rather than at the household-level for consistency with the 2016 *Foods Typically Purchased by SNAP Households* report.

FNA calculated expenditures across all payment methods rather than stratifying by payment type (e.g., to arrive at results descriptive of transactions involving SNAP benefits, exclusively) to account for the potential fungibility of SNAP benefits, to ensure comparability between SNAP and non-SNAP households, and because SNAP utilization is underreported in Circana Consumer Network Panel data (Gregory 2025). Aggregating across all payment aligns with the approach used in the 2016 *Foods Typically Purchased by SNAP Households* report, which also combined all payment types. FNA conducted sensitivity analyses considering an alternative approach of tabulating only transactions with reported SNAP benefits as the method of payment (see the Appendix for more information). These additional analyses suggest that while SNAP households may allocate their SNAP dollars somewhat differently than their total food-at-home dollars in specific categories, the overall distribution of spending is generally in alignment across the two approaches.

2.5 Statistical Uncertainty

In addition to estimating expenditure share point estimates, FNA aimed to estimate the level of error and uncertainty associated with each point estimate. A challenge in developing these measures of error and uncertainty is that Circana does not provide sufficient survey design information or replicate weights for variance estimation alongside Consumer Network Panel data. To best achieve this goal given the available information, FNA employed a nonparametric bootstrap procedure.

FNA generated 1,000 bootstrap replicate samples by drawing households from the original analysis sample using simple random sampling with replacement. Each of the 1,000 replicates contained the same number of households as the original sample. For each of these replicates, FNA repeated the full analysis, including the application of analytic weights provided by Circana. This process yielded a distribution of 1,000 replicate point estimates for each expenditure share at the department, aisle, category, and product-levels.

The standard deviations of the distributions of these 1,000 replicate point estimates serve as the bootstrap standard errors for each corresponding original point estimate. These standard errors reflect the sampling variability inherent in the Consumer Network Panel and do not account for other potential sources of error or bias, such as those arising from the self-reporting of expenditures, non-random participation in the panel, or the potential misclassification of households' SNAP participation status. As a result, these standard errors are likely underestimated, and therefore the likelihood of type I error (false positives) in subsequent significance testing is elevated.

2.6 Significance Testing and Adjustment for Multiple Comparisons

Estimating the level of error associated with each point estimate as described in the previous section enabled FNA to determine if the observed differences in spending patterns between SNAP and non-SNAP households are statistically significant. For each Circana department, aisle, category and product, FNA tested the null hypothesis that there is no true difference in the expenditure shares between the SNAP and non-SNAP populations. To test this hypothesis, FNA first calculated the difference in the point estimates of expenditure shares between the two groups and the standard error of that difference as the square root of the sum of the squared individual standard errors. To calculate a p-value, FNA first computed a Z-score by dividing the point estimate of the difference by its standard error. FNA then used this Z-score to find the corresponding probability from the standard normal distribution, which represents the likelihood of observing a difference at least this large, in either direction, if there were truly no difference between the groups.

Because this analysis compares hundreds of distinct expenditure shares, a multiple comparisons problem arises. FNA applied a False Discovery Rate (FDR) control method using the Benjamini-Hochberg procedure, which produced an adjusted p-value for each comparison (Benjamini and Hochberg 1995). FNA applied the FDR control procedure separately at the department-, aisle-, category-, and product-levels and separately for

SNAP and non-SNAP households. FNA considered a difference in expenditure share between SNAP and non-SNAP households statistically significant if its FDR-adjusted p-value was less than the alpha level of 0.05. This approach ensures that among all comparisons with significant differences, no more than 5 percent are expected to be false discoveries.

It is important to note that statistical significance, even after implementing FDR control, does not automatically imply practical significance. Due to the large sample sizes in this analysis and the aforementioned risk of type I error, some differences may be statistically significant yet small in absolute terms. Consequently, the interpretation of results should consider both the statistical significance of a finding and the real-world magnitude of the difference. Additionally, differences observed in the aggregate expenditure shares, even those that are statistically significant, should not be interpreted as establishing or implying any causal relationship between SNAP participation and household food expenditure patterns.

2.7 Aligning with Circana Disclosure Requirements

The final step was to ensure that the results of the analysis did not inappropriately disclose identifiable information for any household or UPC. Per USDA's contractual agreement with Circana, all analysis results based on fewer than three households or fewer than three UPCs must be excluded from reporting.

FNA identified the number of unique households reporting purchases as well as the number of unique UPCs underlying each expenditure share by department, aisle, category, and product for SNAP and non-SNAP households separately. Any instance of an expenditure share based on fewer than three households or fewer than three UPCs was excluded from reporting. A total of 159 products (12.9 percent) were excluded from reporting to align with disclosure requirements, reflecting approximately 0.01 percent of expenditures reported by both SNAP and non-SNAP households.* The departments with the highest concentration of suppressed results were the frozen department (38 products), the deli department (36 products) and the meat department (23 products).

Prior to publication, this report and the accompanying online supplement were reviewed by Circana, who confirmed that the content aligned with the disclosure requirements.

3 Results

Expenditure shares by department and aisle, as defined by Circana, for SNAP and non-SNAP households as well as differences in percentage point terms are provided in Table 3 and Table 4, below. Because the results

* In the online supplement, these instances can be identified where the expenditure share is missing but the household sample size and the UPC sample size are greater than zero.

cover a large number of categories (272) and products (1,232), it is not practical to list them all in this report. Instead, FNA provides the full set of category- and product-level- results in the online supplement*.

3.1 Distribution of Aggregate Expenditures by Department

This section summarizes how SNAP and non-SNAP households allocated their total food-at-home spending across Circana departments. The general food department was the top department by expenditure share for both SNAP and non-SNAP households, which may be driven by the large volume of products Circana has mapped to this department. Point estimates of overall expenditure shares were similar across groups, with some differences. The produce department, which is made up of fresh fruits and vegetables, showed the largest difference between groups, with non-SNAP households allocating 19.4 percent of their total purchases in this department compared to 14.0 percent by SNAP households. SNAP households devoted 14.3 and 13.3 percent of their expenditures to the beverages and frozen departments, respectively, compared to 11.3 and 11.2 percent by non-SNAP households. See Table 3.

Table 3. Distribution of Aggregate Expenditures by Department as Defined by Circana and SNAP Participation Status

Department as Defined by Circana	Expenditure Share: SNAP Households (SE)	Expenditure Share: Non-SNAP Households (SE)	Difference (SE)
General food	29.8 (0.15)	29.6 (0.08)	0.3 (0.17)
Beverages	14.3 (0.18)	11.3 (0.11)	3.0 (0.20)*
Produce	14.0 (0.21)	19.4 (0.11)	-5.5 (0.24)*
Frozen	13.3 (0.14)	11.2 (0.05)	2.1 (0.15)*
Refrigerated	12.8 (0.11)	13.0 (0.05)	-0.3 (0.12)*
Meat	7.7 (0.08)	6.9 (0.03)	0.8 (0.09)*
Bakery	5.1 (0.05)	4.8 (0.02)	0.3 (0.06)*
Deli	2.7 (0.05)	3.4 (0.02)	-0.7 (0.05)*
Seafood	0.2 (<0.01)	0.3 (<0.01)	-<0.1 (0.01)*

Notes:

SE = standard error; SNAP = Supplemental Nutrition Assistance Program.

Expenditure shares are rounded to one decimal. Differences were calculated using unrounded expenditure shares and then rounded to one decimal. Unrounded values are available in the online supplement.

* Difference is statistically significant ($p < 0.05$) after FDR adjustment.

* The online supplement is available via Ag Data Commons at: <https://doi.org/10.15482/USDA.ADC/32108596>

3.2 Distribution of Aggregate Expenditures by Aisle

This section summarizes how SNAP and non-SNAP households distributed their food-at-home spending across Circana aisles. The aisles with the highest expenditure shares were broadly similar for both groups including dairy (which includes eggs), fresh fruits, fresh vegetables, meals, and carbonated soft drinks. SNAP households allocated a smaller percent of their expenditures to fresh fruits and fresh vegetables compared with non-SNAP households, while allocating a larger percent to carbonated soft drinks, frozen meals, processed meat, and juices. See Table 4.

Table 4. Distribution of Aggregate Expenditures by Aisle as Defined by Circana and SNAP Participation Status

Aisle as Defined by Circana	Expenditure Share: SNAP Households (SE)	Expenditure Share: Non-SNAP Households (SE)	Difference (SE)
Dairy	10.9 (0.10)	11.4 (0.04)	-0.5 (0.11)*
Fresh fruit	7.1 (0.17)	10.0 (0.08)	-2.8 (0.19)*
Fresh vegetables	6.8 (0.11)	9.4 (0.06)	-2.6 (0.12)*
Meals	6.1 (0.06)	5.6 (0.03)	0.5 (0.07)*
Carbonated soft drinks	5.9 (0.13)	4.1 (0.04)	1.8 (0.14)*
Frozen meals	5.4 (0.10)	4.3 (0.04)	1.1 (0.10)*
Processed meat	4.9 (0.07)	4.4 (0.03)	0.5 (0.07)*
Snacks	4.9 (0.06)	5.3 (0.03)	-0.4 (0.06)*
Condiments & sauces	3.9 (0.04)	4.1 (0.02)	-0.1 (0.05)*
Baking	3.8 (0.06)	3.8 (0.02)	<0.1 (0.06)
Candy	3.0 (0.05)	2.8 (0.02)	0.3 (0.05)*
Bakery center store breads & rolls	2.8 (0.03)	2.9 (0.02)	-<0.1 (0.04)*
Fresh meat	2.8 (0.05)	2.5 (0.02)	0.3 (0.05)*
Cookies & crackers	2.4 (0.04)	2.5 (0.02)	-<0.1 (0.04)
Coffee & tea	2.4 (0.05)	2.5 (0.02)	-0.1 (0.05)*
Frozen desserts	2.3 (0.04)	2.2 (0.02)	<0.1 (0.04)
Water	2.0 (0.05)	1.8 (0.02)	0.2 (0.05)*
Juices	1.9 (0.04)	1.3 (0.01)	0.6 (0.05)*
Breakfast	1.8 (0.03)	1.7 (0.01)	<0.1 (0.04)
Deli prepared foods & meals	1.5 (0.04)	1.6 (0.02)	-0.2 (0.04)*
Ethnic	1.4 (0.03)	1.4 (0.01)	<0.1 (0.03)
Frozen fruits & vegetables	1.4 (0.03)	1.3 (0.01)	<0.1 (0.03)*
Sports/energy drinks	1.4 (0.09)	0.9 (0.09)	0.5 (0.13)*
Frozen processed meat	1.3 (0.04)	0.8 (0.01)	0.4 (0.04)*
Refrigerated beverages	1.2 (0.04)	1.0 (0.01)	0.2 (0.04)*

Aisle as Defined by Circana	Expenditure Share: SNAP Households (SE)	Expenditure Share: Non-SNAP Households (SE)	Difference (SE)
Shelf stable vegetables	1.0 (0.02)	1.2 (<0.01)	-0.1 (0.02)*
Frozen meat	1.0 (0.03)	0.8 (0.01)	0.2 (0.03)*
Bakery center store desserts/sweet snacks	0.9 (0.02)	0.6 (<0.01)	0.3 (0.02)*
Shelf stable fruit	0.8 (0.02)	0.8 (0.01)	-<0.1 (0.02)*
Frozen seafood	0.7 (0.02)	0.8 (<0.01)	-<0.1 (0.02)
Frozen snacks	0.7 (0.02)	0.5 (<0.01)	0.2 (0.02)*
Baby food	0.7 (0.07)	0.4 (0.05)	0.3 (0.09)*
Deli cheese	0.6 (0.02)	0.9 (<0.01)	-0.3 (0.02)*
Refrigerated dough	0.6 (0.02)	0.5 (<0.01)	<0.1 (0.02)*
Bakery center store morning bakery	0.6 (0.02)	0.4 (<0.01)	0.2 (0.02)*
Drink mixes	0.5 (0.01)	0.4 (<0.01)	<0.1 (0.02)*
Bakery perimeter desserts/sweet snacks	0.4 (0.01)	0.4 (<0.01)	<0.1 (0.01)
Frozen baked goods	0.4 (0.01)	0.4 (<0.01)	<0.1 (0.01)*
Deli entertaining	0.4 (<0.01)	0.5 (<0.01)	-0.2 (0.01)*
Fresh seafood	0.2 (<0.01)	0.3 (<0.01)	-<0.1 (0.01)*
Bakery perimeter morning bakery	0.2 (<0.01)	0.2 (<0.01)	<0.1 (<0.01)
Non-fruit drinks	0.2 (0.01)	0.2 (<0.01)	<0.1 (0.01)*
Deli meat	0.2 (<0.01)	0.3 (<0.01)	-<0.1 (<0.01)*
Bakery perimeter breads & rolls	0.2 (<0.01)	0.2 (<0.01)	-<0.1 (<0.01)*

Notes:

SE = standard error; SNAP = Supplemental Nutrition Assistance Program.

Expenditure shares are rounded to one decimal. Differences were calculated using unrounded expenditure shares and then rounded to one decimal. Unrounded values are available in the online supplement.

Aisles with expenditure shares of less than 0.1 percent for both SNAP and non-SNAP households are not presented in this table but are available in the online supplement.

* Difference is statistically significant ($p < 0.05$) after FDR adjustment.

4 Discussion

4.1 Limitations

Several limitations should be considered when interpreting the findings from this analysis. Specifically, these limitations relate to (1) potential misclassification of households' SNAP participation status, (2) potentially limited representativeness of the SNAP households in this data, and (3) systematic differences between survey respondents and the general population.

First, there is risk of misclassification of households as SNAP or non-SNAP because payment method in this data is based on self-reported information rather than administrative records or POS transaction data. It is plausible that the data contains households truly participating in SNAP that are misclassified as non-SNAP households in this analysis due to mis- or non-reporting of payment methods. It is also plausible that truly non-participating households could be misclassified as SNAP households if payment methods were incorrectly reported as SNAP when a different payment method was truly used.

Second, previous investigation of SNAP households in Circana Consumer Network Panel data by ERS found that the Circana Consumer Network Panel SNAP sample has higher incomes and meaningfully different household composition (e.g., fewer households that include an elderly person, fewer single-adult households) than the SNAP population (Gregory 2025). Higher incomes in the Circana Consumer Network Panel SNAP sample also means that these households are likely to receive less in SNAP benefits than the SNAP population on average, further limiting the representativeness of this sample to the general SNAP population. ERS' estimates of total monthly food-at-home expenditures by SNAP households using this data are also meaningfully lower than those based on the Consumer Expenditure Survey.

Third, the Circana Consumer Network Panel is a self-selected, non-probability sample. Although Circana provides projection factors that weight the static panel to align with Census targets, this static subsample is also nonrandom because inclusion is based on the quantity of data reported. Respondents in the static panel may have systematically different food purchasing behaviors than the general population in ways that the weights cannot account for, which potentially limits the applicability of findings drawn from this data to the general population.

4.2 Estimating the Distribution of SNAP Redemptions

There is currently no direct source of information on how SNAP benefits are allocated across specific food groups or categories. This gap limits the ability to assess how SNAP benefits are used and to evaluate the program's impact on diet quality and health outcomes. Because direct observation of item level SNAP redemptions is not presently possible, a reliable proxy for estimating how benefits may be distributed across food categories would be of benefit. The food-at-home expenditure shares calculated for SNAP households in this analysis provide that proxy and can be combined with administrative data on total SNAP redemptions to

approximate the amount of SNAP benefits spent on each department, aisle, category, and product.

Appropriate use of these estimates with administrative redemption data requires a year-specific approach. The 2023 results presented in this report reflect a period shaped by temporary policy changes, such as Emergency Allotments and Pandemic EBT, which may have affected SNAP households' food-at-home purchasing patterns by increasing benefit availability. As a result, these 2023-specific estimates may have limited applicability to later years with different benefit levels and policy conditions.

Using total food-at-home expenditure shares as proxies for SNAP-specific expenditure shares has important limitations. Recent evidence suggests that SNAP households may treat SNAP benefits as only partially fungible with cash income, often engaging in mental accounting that allocates SNAP dollars toward certain types of purchases differently than cash income (Hacioglu-Hoke 2025; Hastings and Shapiro 2017). As a result, total food-at-home expenditure shares may not perfectly map onto the distribution of SNAP redemptions. FNA conducted sensitivity analyses considering an alternative approach of tabulating only transactions with reported SNAP benefits as the method of payment (see the Appendix for more information). These additional analyses suggest that while SNAP households may allocate their SNAP dollars somewhat differently than their total food-at-home dollars in specific categories, the overall distribution of spending is generally in alignment across the two approaches.

4.3 Comparisons Between SNAP and Non-SNAP Households

This analysis describes expenditure shares by SNAP and non-SNAP households in the aggregate across calendar year 2023 as well as the difference between expenditure shares of these two groups across Circana departments, aisles, categories, and products. Differences observed in the aggregate expenditure shares, even those that are statistically significant, should not be interpreted as establishing or implying any causal relationship between SNAP participation and household food expenditure patterns. Consistent with the 2016 analysis, this report compares SNAP households to all non-SNAP households rather than to income eligible non-participants. The objective of this report is descriptive rather than causal: to situate SNAP household purchasing patterns within the broader food-at-home market. Comparing SNAP households to the full non-SNAP population (for instance, rather than an income-controlled non-SNAP comparison group) provides context for understanding how the purchasing patterns of SNAP households align with or diverge from those of other consumers, without implying that any observed differences are attributable specifically to SNAP participation.

FNA conducted a sensitivity analysis to assess the extent to which the expenditure shares for non-SNAP households would have differed had they been limited to households with reported SNAP-eligible annual incomes (see the Appendix for more information). Overall, the sensitivity analysis suggests that there is substantive heterogeneity of spending patterns within the non-SNAP sample: in this case, by income. It also further reinforces that comparisons between expenditure shares of SNAP and non-SNAP households should

not be construed as measuring the effect of SNAP participation, since differences between the groups are confounded by several other factors, including income.

While expenditure shares provide a streamlined mechanism for understanding the types of foods households typically purchased, they simultaneously reflect multiple constructs, which complicates the interpretation of comparisons across SNAP and non-SNAP households. For instance, the results of this analysis indicate that non-SNAP households allocated a larger share of their food spending to the produce department, which contains fresh fruits and vegetables, than did SNAP households (19.4 compared to 14.0 percent, respectively; see Table 1). This difference may be driven by some combination of: (1) SNAP households purchasing a relatively lower volume of fresh fruits and vegetables, (2) SNAP households purchasing fresh fruits and vegetables at relatively lower average prices, and/or (3) SNAP households spending relatively more on other forms of fruits and vegetables (e.g., frozen, canned, dried) or all other foods outside the produce department.

4.4 Comparisons to Previous Analyses

The methods used in this analysis differ from those employed in the 2016 *Foods Typically Purchased by SNAP Households* report in several ways. The previous report was based on POS transaction data provided by a leading grocery retailer. In contrast, this analysis uses household-level, self-reported data. Circana household-level data provides information on fewer total transactions and unique households than did the POS data, but it has the advantage of being more recent and reflecting transactions at a wider range of retailers.

Another important distinction between the two approaches is how SNAP transactions were identified. The POS data used in the 2016 report provided information on the majority method of payment (referred to as “majority tender” in that report) in each transaction whereas Circana household-level data provides self-reported methods of payment for each transaction. Self-reported method of payment, as is available in Circana Consumer Network Panel data, is less reliable than the majority tender recorded in POS data. In both cases, however, there is risk of misclassification because entire transactions are assigned a single method of payment despite true transactions having the potential to involve multiple methods (e.g., both cash and SNAP benefits).

The definition of SNAP participation differs between the two studies. While both methods classified household SNAP participation based on reported SNAP benefit utilization in the transaction data, the 2016 report classified households on a monthly basis, while this analysis uses an indicator based on reported use of SNAP at any point in the year. All else equal, an annual indicator carries higher risk of misclassifying non-participants as participants in part because all households that truly participated for only a portion of the year will be classified as participants for the entire year. Conversely, a monthly indicator carries higher risk of misclassifying participants as non-participants in part because SNAP households might elect not to use benefits or they may use benefits but not report their use to Circana in a particular month despite truly participating in the program during this time.

Finally, Circana Consumer Network Panel data has previously been shown to underestimate food-at-home expenditures compared to government surveys, with variation in the extent of this underestimation by food category (Sweitzer, et al. 2017). Food categories such as sugar and other sweets, other dairy products, and miscellaneous foods presented relatively modest underestimates, or over-estimates for certain income groups. Whereas food categories like fish and seafood, fresh fruits, eggs, and fresh vegetables presented relatively more extreme underestimates. In general, food categories containing a larger proportion of random weight items (i.e., those not labeled with a barcode that can be scanned) are more likely to be underreported because of the additional burden placed on survey respondents in reporting these purchases. The 2016 report, which analyzed POS data rather than survey-based data, was not subject to this specific type of underreporting.

Because of these methodological differences, direct comparisons between the results of this analysis and those of the 2016 report should be made with caution and should not be interpreted as estimates of changes over time in household food purchasing patterns.

5 Conclusion

This report used 2023 Circana Consumer Network Panel data to describe food-at-home purchases reported by SNAP and non-SNAP households. Using the annual SNAP payment indicator to classify participation and applying Circana’s analytic weights, FNA estimated expenditure shares across departments, aisles, categories, and products as defined by Circana. Purchases were aggregated across all payment methods to reflect household-level spending behavior and FNA examined results only where disclosure requirements were met. Because the analysis is cross-sectional and based on self-reported data from a non-probability sample, findings should be interpreted as descriptive rather than causal.

Overall, SNAP and non-SNAP households exhibited broadly similar patterns in expenditure shares, yet several meaningful differences were observed. SNAP households allocated relatively more of their spending to beverages, and relatively less to fruits and vegetables compared with non-SNAP households. These differences are generally consistent with those observed in the 2016 *Foods Typically Purchased by SNAP Households* report. However, direct comparisons are complicated by differences in data sources, classification systems, and methods for identifying SNAP transactions. These results represent the best available proxy for estimating how SNAP benefits may be distributed across food categories.

Future analyses will monitor trends over time by repeating this analysis annually when new data becomes available.

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7 Appendix: Alternative Approaches and Sensitivity Analyses

This appendix describes alternative methodological approaches that FNA could have employed in this analysis and the extent to which these methodological decisions may have influenced the results. FNA conducted the following four sensitivity analyses described in this appendix: (1) analyzing the full static panel (versus the random weight static panel), (2) not weighting the analysis, (3) restricting the non-SNAP sample to households with SNAP-eligible incomes, and (4) restricting the SNAP sample to transactions reported as using SNAP benefits. For each alternative approach described in the sections below, this appendix provides results at the department level, with results at the aisle-, category-, and product-levels available in the online supplement.* FNA compared results for every member of the Circana product classification system for which results were available for the two approaches being compared; as a result, the number of comparisons performed varies by sensitivity analysis. FNA did not examine the potential interactions of various combinations of these alternative approaches.

7.1 Household Sample

FNA conducted a sensitivity analysis to assess the extent to which the choice of household sample (i.e., the random weight static panel versus the full static panel) affected the results. In addition to the analysis described above with the random weight static panel, FNA repeated the same analysis using the full static panel and associated analytic weights provided by Circana. FNA calculated differences between the two sets of results and assessed statistical significance using p-values adjusted for multiple comparisons via the FDR procedure (see Methods for more information).

FNA made 1,317 comparisons between the two approaches for SNAP households, none of which were significantly different. FNA made 1,386 comparisons between the two approaches for non-SNAP households, 8 of which (0.8 percent) were significant. Overall, this sensitivity analysis suggests that the decision to use the random weight static panel had minimal impact on the results versus the alternative of using the full static panel and that the expenditure shares are robust to this variation in the underlying household sample.

* The online supplement is available via Ag Data Commons at: <https://doi.org/10.15482/USDA.ADC/32108596>

Table 5. Distribution of Aggregate Expenditures by Department as Defined by Circana and Choice of Household Sample for SNAP Households

Department as Defined by Circana	Random Weight Static Panel Expenditure Share: SNAP Households (SE)	Full Static Panel Expenditure Share: SNAP Households (SE)	Difference (SE)
General food	29.8 (0.15)	30.1 (0.15)	-0.2 (0.21)
Beverages	14.3 (0.18)	14.8 (0.18)	-0.5 (0.25)
Produce	14.0 (0.21)	13.4 (0.21)	0.5 (0.30)
Frozen	13.3 (0.14)	13.4 (0.14)	-0.1 (0.20)
Refrigerated	12.8 (0.11)	12.7 (0.11)	<0.1 (0.15)
Meat	7.7 (0.08)	7.5 (0.08)	0.2 (0.12)
Bakery	5.1 (0.05)	5.1 (0.05)	<0.1 (0.07)
Deli	2.7 (0.05)	2.6 (0.04)	<0.1 (0.06)
Seafood	0.2 (<0.01)	0.2 (<0.01)	<0.1 (0.01)

Notes:

SE = standard error; SNAP = Supplemental Nutrition Assistance Program.

Expenditure shares are rounded to one decimal. Differences were calculated using unrounded expenditure shares and then rounded to one decimal. Unrounded values are available in the online supplement.

* Difference is statistically significant ($p < 0.05$) after FDR adjustment.

Table 6. Distribution of Aggregate Expenditures by Department as Defined by Circana and Choice of Household Sample for Non-SNAP Households

Department as Defined by Circana	Random Weight Static Panel Expenditure Share: Non-SNAP Households (SE)	Full Weight Static Panel Expenditure Share: Non-SNAP Households (SE)	Difference (SE)
General food	29.6 (0.08)	29.9 (0.07)	-0.3 (0.10)*
Beverages	11.3 (0.11)	11.6 (0.09)	-0.3 (0.14)*
Produce	19.4 (0.11)	18.9 (0.10)	0.5 (0.14)*
Frozen	11.2 (0.05)	11.3 (0.05)	<0.1 (0.07)
Refrigerated	13.0 (0.05)	13.0 (0.04)	<0.1 (0.06)
Meat	6.9 (0.03)	6.7 (0.03)	0.1 (0.05)*
Bakery	4.8 (0.02)	4.8 (0.02)	<0.1 (0.03)
Deli	3.4 (0.02)	3.3 (0.02)	<0.1 (0.03)
Seafood	0.3 (<0.01)	0.3 (<0.01)	<0.1 (<0.01)

Notes:

SE = standard error; SNAP = Supplemental Nutrition Assistance Program.

Expenditure shares are rounded to one decimal. Differences were calculated using unrounded expenditure shares and then rounded to one decimal. Unrounded values are available in the online supplement.

* Difference is statistically significant ($p < 0.05$) after FDR adjustment.

7.2 Weights

FNA conducted a sensitivity analysis to assess the extent to which the application of analytic weights from Circana intended for the random weight static panel affected the results. In addition to the analysis described above with the analytic weights applied, FNA repeated the same analysis with unweighted data. FNA calculated differences between the two sets of results and assessed statistical significance using p-values adjusted for multiple comparisons via the FDR procedure (see Methods for more information).

FNA made 1,317 comparisons between the two approaches for SNAP households, with 15 differences (1.1 percent) being statistically significant. FNA made 1,386 comparisons between the two approaches for non-SNAP households, with 316 differences (22.8 percent) being statistically significant. Overall, this sensitivity analysis suggests that the decision to apply analytic weights from Circana intended for the random weight static panel affected the results for non-SNAP households but had minimal impact on the results for SNAP households. However, the magnitude of the statistically significant changes for non-SNAP households are modest.

Table 7. Distribution of Aggregate Expenditures by Department as Defined by Circana by Application of Weights for SNAP Households

Department as Defined by Circana	Weighted Expenditure Share: SNAP Households (SE)	Unweighted Expenditure Share: SNAP Households (SE)	Difference (SE)
General food	29.8 (0.15)	29.7 (0.11)	0.2 (0.18)
Beverages	14.3 (0.18)	14.5 (0.13)	-0.3 (0.22)
Produce	14.0 (0.21)	14.0 (0.16)	<0.1 (0.27)
Frozen	13.3 (0.14)	13.1 (0.10)	0.2 (0.17)
Refrigerated	12.8 (0.11)	12.6 (0.08)	0.2 (0.13)
Meat	7.7 (0.08)	7.7 (0.06)	<0.1 (0.10)
Bakery	5.1 (0.05)	5.2 (0.04)	-0.1 (0.07)
Deli	2.7 (0.05)	2.8 (0.04)	-0.2 (0.06)
Seafood	0.2 (<0.01)	0.3 (<0.01)	-<0.1 (0.01)

Notes:

SE = standard error; SNAP = Supplemental Nutrition Assistance Program.

Expenditure shares are rounded to one decimal. Differences were calculated using unrounded expenditure shares and then rounded to one decimal. Unrounded values are available in the online supplement.

* Difference is statistically significant ($p < 0.05$) after FDR adjustment.

Table 8. Distribution of Aggregate Expenditures by Department as Defined by Circana by Application of Weights for Non-SNAP Households

Department as Defined by Circana	Weighted Expenditure Share: Non-SNAP Households (SE)	Unweighted Expenditure Share: Non-SNAP Households (SE)	Difference (SE)
General food	29.6 (0.08)	29.6 (0.05)	-<0.1 (0.09)
Beverages	11.3 (0.11)	11.6 (0.05)	-0.3 (0.12)*
Produce	19.4 (0.11)	19.0 (0.08)	0.4 (0.13)*
Frozen	11.2 (0.05)	11.3 (0.04)	-<0.1 (0.06)
Refrigerated	13.0 (0.05)	12.9 (0.03)	0.2 (0.06)*
Meat	6.9 (0.03)	6.9 (0.02)	-<0.1 (0.04)
Bakery	4.8 (0.02)	4.9 (0.02)	-<0.1 (0.03)*
Deli	3.4 (0.02)	3.4 (0.02)	-<0.1 (0.03)
Seafood	0.3 (<0.01)	0.3 (<0.01)	-<0.1 (<0.01)

Notes:

SE = standard error; SNAP = Supplemental Nutrition Assistance Program.

Expenditure shares are rounded to one decimal. Differences were calculated using unrounded expenditure shares and then rounded to one decimal. Unrounded values are available in the online supplement.

* Difference is statistically significant ($p < 0.05$) after FDR adjustment.

7.3 SNAP-Eligible Incomes

FNA conducted a sensitivity analysis to assess the extent to which the expenditure shares for non-SNAP households would have differed had they been limited to households with reported SNAP-eligible annual incomes. This alternative approach would reduce the sample size of the analysis, but it could potentially improve the fidelity of comparisons between SNAP and non-SNAP households by reducing confounding due to systematic differences in income. In addition to the analysis described above using all households available in the data, FNA repeated the same analysis after restricting to non-SNAP households with reported annual incomes below 130% of the 2023 Federal income poverty levels for the 48 contiguous States and the District of Columbia.* Household incomes in Circana Consumer Network Panel data are reported as ranges (e.g., \$25,000 to \$34,999 per year); FNA estimated household incomes using the midpoint of the reported range (e.g., \$29,999.50 per year). For the highest income category (\$100,000 or more) and the largest household size (8 people or more), FNA used the lower bound of the range (i.e., \$100,000 and 8 people). FNA calculated

* For additional information on SNAP income eligibility standards, see: 7 CFR 273.9(a)

differences between the two sets of results and assessed statistical significance using p-values adjusted for multiple comparisons via the FDR procedure (see Methods for more information).

Of non-SNAP households in the random weight static panel, 3,856 had SNAP-eligible incomes. The distribution of these households' characteristics is provided in Table 9 in comparison to the full non-SNAP sample.

Table 9. Weighted and Unweighted Distributions of Household Characteristics of Non-SNAP Households by SNAP Eligibility in the 2023 Circana Consumer Network Random Weight Static Panel

Household Characteristic	Non-SNAP Households: Unweighted	Non-SNAP Households: Weighted	Non-SNAP, SNAP-Eligible Households: Unweighted	Non-SNAP, SNAP-Eligible Households: Weighted
Number of households	44,584	44,584	3,856	3,856
Household size				
1 person	25.6	26.6	36.6	38.1
2 person	46.0	35.4	29.7	23.6
3-4 person	22.6	28.4	23.6	25.0
5+ person	5.8	9.5	10.1	13.3
Age of household head				
<35 years	3.4	16.5	4.8	21.3
35-44 years	11.8	15.9	11.0	12.2
45-64 years	46.0	38.0	42.3	32.0
65+ years	38.7	29.7	42.0	34.6
Annual household income				
<\$15,000	3.4	4.1	39.0	39.1
\$15,000-\$34,999	14.2	14.9	56.4	55.2
\$35,000-\$69,999	31.2	24.4	4.7	5.7
\$70,000+	51.3	56.7	0.0	0.0
Ethnicity				
Non-Hispanic	90.9	87.6	83.7	82.6
Hispanic	9.1	12.4	16.3	17.4
Race				
Black	10.4	10.8	9.4	10.9
Non-Black	89.6	89.2	90.6	89.1
Presence of children				
Yes	15.6	26.8	18.5	27.5
No	84.4	73.2	81.5	72.5

FNA made 1,266 comparisons between the two approaches, with 643 differences (50.8 percent) being statistically significant. The magnitude of the significant differences is often substantial. For example, the SNAP-eligible sample allocated 12.2 percent of their food-at-home expenditures to the produce department compared to 19.4 percent in the full non-SNAP sample (see Table 10). FNA also repeated the comparisons presented in the Results section of this report by comparing the expenditure shares of SNAP households to those of non-SNAP households after limiting the non-SNAP sample to those that are SNAP-eligible (see Table 11). Of the 1,266 comparisons between these two samples, only 8 (0.6 percent) were statistically significant. Overall, this sensitivity analysis suggests that there is substantive heterogeneity of spending patterns within the non-SNAP sample: in this case, by income. It also supports discussions earlier in this report that comparisons between expenditure shares of SNAP and non-SNAP households should not be construed as measuring the effect of SNAP participation, since differences between the groups are confounded by several other factors, including income.

Table 10. Distribution of Aggregate Expenditures by Department as Defined by Circana: All Non-SNAP Households vs SNAP-Eligible Non-SNAP Households

Department as Defined by Circana	Expenditure Share: Non-SNAP Households (SE)	Expenditure Share: SNAP-Eligible Non-SNAP Households (SE)	Difference (SE)
General food	29.6 (0.08)	29.9 (0.23)	-0.3 (0.24)
Beverages	11.3 (0.11)	15.4 (0.27)	-4.1 (0.29)*
Produce	19.4 (0.11)	12.2 (0.29)	7.3 (0.31)*
Frozen	11.2 (0.05)	14.1 (0.24)	-2.9 (0.24)*
Refrigerated	13.0 (0.05)	12.8 (0.18)	0.2 (0.19)
Meat	6.9 (0.03)	7.7 (0.14)	-0.8 (0.14)*
Bakery	4.8 (0.02)	5.1 (0.07)	-0.3 (0.08)*
Deli	3.4 (0.02)	2.5 (0.07)	0.9 (0.07)*
Seafood	0.3 (<0.01)	0.2 (0.01)	0.1 (0.02)*

Notes:

SE = standard error; SNAP = Supplemental Nutrition Assistance Program.

Expenditure shares are rounded to one decimal. Differences were calculated using unrounded expenditure shares and then rounded to one decimal. Unrounded values are available in the online supplement.

* Difference is statistically significant ($p < 0.05$) after FDR adjustment.

Table 11. Distribution of Aggregate Expenditures by Department as Defined by Circana: SNAP Households vs SNAP-Eligible Non-SNAP Households

Department as Defined by Circana	Expenditure Share: SNAP Households (SE)	Expenditure Share: SNAP-Eligible Non-SNAP Households (SE)	Difference (SE)
General food	29.8 (0.15)	29.9 (0.23)	-<0.1 (0.27)
Beverages	14.3 (0.18)	15.4 (0.27)	-1.1 (0.32)*
Produce	14.0 (0.21)	12.2 (0.29)	1.8 (0.36)*
Frozen	13.3 (0.14)	14.1 (0.24)	-0.8 (0.27)*
Refrigerated	12.8 (0.11)	12.8 (0.18)	-<0.1 (0.21)
Meat	7.7 (0.08)	7.7 (0.14)	<0.1 (0.16)
Bakery	5.1 (0.05)	5.1 (0.07)	<0.1 (0.09)
Deli	2.7 (0.05)	2.5 (0.07)	0.2 (0.08)
Seafood	0.2 (<0.01)	0.2 (0.01)	<0.1 (0.02)

Notes:

SE = standard error; SNAP = Supplemental Nutrition Assistance Program.

Expenditure shares are rounded to one decimal. Differences were calculated using unrounded expenditure shares and then rounded to one decimal. Unrounded values are available in the online supplement.

* Difference is statistically significant ($p < 0.05$) after FDR adjustment.

7.4 SNAP Transactions

FNA conducted a sensitivity analysis to assess the extent to which the expenditure shares for SNAP households would have differed had they been limited only to transactions reporting SNAP benefits as the method of payment. In addition to the analysis described above using all reported transactions by SNAP households, FNA repeated the same analysis after restricting to transactions reported as using SNAP benefits. FNA calculated differences between the two sets of results and assessed statistical significance using p-values adjusted for multiple comparisons via the FDR procedure (see Methods for more information).

FNA made 1,268 comparisons between the two approaches, with 60 differences (4.7 percent) being statistically significant. Overall, this sensitivity analysis suggests that while SNAP households may allocate their SNAP dollars somewhat differently than their total food-at-home dollars in specific categories, the overall distribution of spending is generally in alignment across the two approaches.

This approach relies on the reported method of payment in Circana Consumer Network Panel data more heavily than the approach that considers all methods of payment, which carries various limitations (see Limitations for more information). However, it serves as an alternative methodology that could be considered when estimating the distribution of SNAP redemptions.

Table 12. Distribution of Aggregate Expenditures by Department as Defined by Circana for SNAP Households: All Methods of Payment vs Reported SNAP Benefit Redemptions

Department as Defined by Circana	Expenditure Share: All Methods of Payment (SE)	Expenditure Share: Reported SNAP Benefit Redemptions (SE)	Difference (SE)
General food	29.8 (0.15)	29.2 (0.15)	0.6 (0.21)*
Beverages	14.3 (0.18)	14.0 (0.18)	0.2 (0.25)
Produce	14.0 (0.21)	13.3 (0.21)	0.7 (0.30)
Frozen	13.3 (0.14)	14.7 (0.14)	-1.5 (0.19)*
Refrigerated	12.8 (0.11)	12.9 (0.11)	-<0.1 (0.15)
Meat	7.7 (0.08)	8.2 (0.08)	-0.5 (0.12)*
Bakery	5.1 (0.05)	4.9 (0.05)	0.2 (0.08)
Deli	2.7 (0.05)	2.3 (0.05)	0.4 (0.06)*
Seafood	0.2 (<0.01)	0.2 (<0.01)	<0.1 (0.01)

Notes:

SE = standard error; SNAP = Supplemental Nutrition Assistance Program.

Expenditure shares are rounded to one decimal. Differences were calculated using unrounded expenditure shares and then rounded to one decimal. Unrounded values are available in the online supplement.

* Difference is statistically significant ($p < 0.05$) after FDR adjustment.

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