

**UKCPR**

University of Kentucky  
Center for  
Poverty Research

# Discussion Paper Series

## DP 2016-03

ISSN: 1936-9379

## Variation in Food Prices and SNAP Adequacy for Purchasing the Thrifty Food Plan

Erin Bronchetti

Associate Professor of Economics  
Swarthmore College

Garret Christensen

Fellow

Berkeley Institute for Data Science

Assistant Project Scientist, Berkeley Initiative for Transparency in the Social Sciences

Benjamin Hansen

Associate Professor of Economics  
University of Oregon

Preferred citation:

Bronchetti, E., & Christensen, G., & Hansen, B. (2016). Variation in food prices and SNAP adequacy for purchasing the Thrifty Food Plan. University of Kentucky Center for Poverty Research Discussion Paper Series, DP2016-03. Retrieved [Date] from <http://www.ukcpr.org/research/discussion-papers>.

This project was supported through funding by the U.S. Department of Agriculture, Economic Research Service and the Food Nutrition Service, Agreement Numbers 58-5000-1-0050 and 58-5000-3-0066. The opinions and conclusions expressed herein are solely those of the authors and should not be construed as representing the opinions or policies of the sponsoring agency. We are grateful to USDA-ERS and to UKCPR for generous funding and to staff at NORC and USDA-ERS for support with the FoodAPS data.

Results in this report are preliminary, as data allowing us to link store-level basket prices to FoodAPS respondents by distance from store have only been made available recently. Please contact authors before citing or circulating, as updated results are likely to be available.

University of Kentucky Center for Poverty Research, 234 Gatton Building, Lexington, KY, 40506-0034  
Phone: 859-257-7641; Fax: 859-257-6959; E-mail: [ukcpr@uky.edu](mailto:ukcpr@uky.edu)

[www.ukcpr.org](http://www.ukcpr.org)

## **Abstract**

Whether Supplemental Nutrition Assistance Program (SNAP) benefits are adequate to provide food security for eligible households is an important and timely policy question. While the nominal value of SNAP benefits is fixed across states (except for Hawaii and Alaska), variation in food prices across geographic areas is dramatic, and the real value of SNAP benefits varies widely across the U.S. Our research provides new evidence on geographic variation in the adequacy of SNAP benefits to purchase the Thrifty Food Plan (TFP).

Using multiple methods to estimate the cost of the Thrifty Food Plan (TFP) faced by households across the nation, and several measures of the SNAP benefits available to them, we consistently find that a substantial fraction of SNAP-recipient households receive benefits that are insufficient to purchase the TFP. Our primary estimates indicate that SNAP benefits (plus 30 percent of income) are insufficient for approximately 20-30 percent of households to purchase the TFP. Sufficiency rates increase monotonically as we expand the distance within which the household is assumed to be able to shop. For households who are unable to afford the TFP, average dollar shortfalls between the cost of the TFP and SNAP benefits (plus 30 percent of income) are often as large as \$150 per month. When shoppers are assumed to be able to purchase the TFP at the minimum-cost store in the area, SNAP benefits are sufficient for over 90 percent of households. However, this assumption seems unlikely to hold for many SNAP households.

## Executive summary

### *Objectives*

Our research provides new evidence on the adequacy of SNAP benefits, taking into account geographic variation in local food prices across the U.S. Because SNAP benefits are not indexed to local food prices (except for in Alaska and Hawaii), the real value of SNAP benefits differs widely. In some areas, SNAP benefits may be insufficient to purchase the Thrifty Food Plan (TFP), the USDA's low-cost, nutritious food plan that is the basis for legislated SNAP benefit levels. Using multiple measures of the local TFP cost faced by households in FoodAPS, we calculate the percentage of SNAP recipients and SNAP-eligible households for whom SNAP benefits are adequate to purchase the TFP.

### *Methods*

Using FoodAPS and FoodAPS-GC data, along with food basket costs estimated by Gundersen et al. from store-level IRI data to approximate the TFP, we calculate the respondent's cost of food in several ways:

- basket cost at the primary store at which the respondent reports shopping
- basket cost at the alternate store at which the respondent reports shopping
- the mean, median, and minimum basket cost in the respondent's county
- the mean, median, and minimum basket cost at stores within an X-mile radius of the respondent's census block centroid (where X = 20, 10, 5, 3.4, 2.5)
- the mean, median, and minimum basket cost at the X stores nearest to the respondent's census block centroid (where X = 5, 2, 1)

Our primary estimates compute the fraction of SNAP-recipient households for whom self-reported SNAP benefits received (plus 30 percent of income) are sufficient to purchase the TFP. For SNAP-eligible households, we compute sufficiency rates by simulating the potential SNAP benefit to which the

household is entitled, using information on household income, expenses, family size and composition. We also calculate the average dollar shortfall (i.e., the gap between TFP cost and benefits plus 30 percent of income) for households for whom SNAP is insufficient.

### **Results and policy implications**

Our evidence indicates that geographical variation in food prices may render SNAP benefit levels inadequate for a sizeable fraction of households to purchase the TFP, despite the fact that this bundle of foods provides the basis for legislated SNAP benefit levels. Using fairly conservative assumptions about where households are able to shop, our estimates suggest this fraction may be on the order of 20-30 percent. An open question is whether SNAP benefits are also overly *generous* in areas with relatively low food prices. If so, one interpretation of our results would be that SNAP benefit levels should be more directly indexed to local food prices.

## Introduction

The Supplemental Nutritional Assistance Program (SNAP, or formerly, Food Stamps), is one of the largest forms of government assistance in the United States. Both caseloads and program costs peaked at the time of our study (2012-2013), with more than 1 in every 7 Americans participating the program, and annual program costs exceeded 80 billion dollars (Bartfeld et al. 2015). A substantial body of literature has demonstrated that SNAP significantly reduces food insecurity in recipient households (Yen et al. 2008; Nord and Golla 2009; Mykerezzi and Mills 2010), and leads to short- and long-run improvements in outcomes like health, education, and economic self-sufficiency, particularly for those who receive benefits as children.<sup>1</sup> Despite the program's successes, food insecurity remains a problem for more than one-fifth of households with children in the U.S. Even among SNAP-recipient households, the rate of food insecurity remains quite high, at over fifty percent (Coleman-Jensen et al., 2014).

Dramatic differences in local food prices across the country can generate wide variation in the *real* value of SNAP benefits, since benefit levels are legislated nationally and are not separately indexed to the regional price of food (except for in Alaska and Hawaii). Data from the Quarterly Food at Home Price Database (QFAHPD) show that regional food prices vary from 70-90 percent of the national average at the low end to 120-140 percent at the high end (Todd et al. 2010; Todd, Leibtag, and Penberthy 2011). Not surprisingly, households in market areas with higher food prices are more likely to be food insecure (Gregory and Coleman-Jensen, 2013).

This study explores the degree to which SNAP benefits are adequate for households to purchase the Thrifty Food Plan (TFP). The TFP is a food plan constructed by the USDA to represent a nutritious diet at a minimal cost and is used as the basis for legislated maximum SNAP benefit levels. Whether SNAP

---

<sup>1</sup> See Hoynes and Schanzenbach (2015) for a review of SNAP and other food assistance programs and their impacts.

benefits are sufficient to purchase the TFP in a SNAP recipient's area will depend on the food prices the individual faces. Using new data from the FoodAPS and FoodAPS-Geography Component data sets, we are able to account for variation in local food prices at a much tighter geographical level than has been possible in prior research. Rather than rely on regional food price indices, we use multiple methods to estimate the cost of the TFP faced by SNAP-recipient households and SNAP-eligible households at the stores where they are likely able to shop, as well as at the stores where they report shopping.

We then use information on households' SNAP benefits to determine the fraction of households for whom benefits (plus 30 percent of income) are sufficient to purchase the TFP.<sup>2</sup> For households for whom benefits are found to be insufficient, we also compute the average dollar shortfall between the cost of the TFP and SNAP benefits (plus 30 percent of income).

### **Methods and data**

Our samples include (1) FoodAPS respondent households who report receiving SNAP benefits in the past month<sup>3</sup> ("SNAP recipients"), and (2) FoodAPS households who are simulated to be eligible for SNAP, according to models constructed by USDA-ERS ("SNAP eligibles"). The first goal of our research is to link each respondent in these samples to information on what it would cost the household to purchase the TFP from local stores. We use store-level "basket prices," calculated by the teams at the University of Illinois and the University of Florida from IRI scanner data, and link these to FoodAPS respondents using the FoodAPS-GC data. Throughout, we use the Illinois/Florida team's variable,

---

<sup>2</sup> For SNAP recipients, we use both self-reported benefit levels plus 30 percent of income (separately for gross and net income, calculated using family size and potential deductions) and maximum benefit entitlements (calculated using only family size). For SNAP-eligible households who do not take up benefits, we use simulated levels of benefits, as well as maximum benefit for family size.

<sup>3</sup> See section 2.3.4 of the data documentation at [http://www.ers.usda.gov/datafiles/FoodAPS\\_National\\_Household\\_Food\\_Acquisition\\_and\\_Purchase\\_Survey/In\\_person\\_interviews/Initialcodebook.pdf](http://www.ers.usda.gov/datafiles/FoodAPS_National_Household_Food_Acquisition_and_Purchase_Survey/In_person_interviews/Initialcodebook.pdf), May 26, 2016 version, as the SNAP recipient variable (SNAPNOWHH) includes a correction for matching self-reports to state administrative data.

*low\_basket\_price* as our measure of TFP cost.<sup>4</sup> In some ways, this is a conservative approach, in that it assumes that within each TFP food category, SNAP households purchase low-priced items. Additionally, the basket prices may include “variety bias” in that stores that do not sell particular items included in the Thrifty Food Plan do not include a price estimate for that item, thus under-estimating the true cost of the TFP at that store. To the extent this is true, it would bias our estimates towards finding high rates of SNAP sufficiency.

We create multiple measures of TFP cost faced by the respondent, each of which involve different assumptions about how and where respondents shop. Specifically, we analyze the adequacy of SNAP benefits to purchase the TFP, using the following measures of TFP cost:

- basket cost at the primary store at which the respondent reports shopping
- basket cost at the alternate store at which the respondent reports shopping
- the average of the basket costs at the primary and alternate store
- the mean, median, and minimum basket cost in the respondent’s county
- the mean, median, and minimum basket cost at stores within an X-mile radius of the respondent’s census block centroid (where X = 20, 10, 5, 3.4, 2.5)
- the mean, median, and minimum basket cost at the X stores nearest to the respondent’s census block centroid (where X = 5, 2, 1)

Once we have estimated the cost of the TFP for each respondent using the several definitions above, we

---

<sup>4</sup> The basket price data specifically does not refer to its basket prices as the “Thrifty Food Plan.” The prices are calculated using all items in a food category from a store, including high-price items and thus may not be representative of the purchases made by low-income SNAP households. However, the Illinois/Florida team has constructed two TFP-cost variables, *basket\_price* and *low\_basket\_price*. The first takes the median price-per-pound for each TFP category, multiplies that price by the quantity (in pounds) prescribed for the TFP, and sums across TFP categories. The latter makes the same calculation, but calculates the median price-per-pound only among items in the lowest quintile of prices for that TFP category. We employ the latter measure throughout our analysis, both because the assumption that SNAP households buy low-priced items seems reasonable, and because it would tend to bias us away from finding SNAP benefits to be insufficient to purchase the TFP.

compare these to the household's resources, using two different measures of the resources available for purchasing food: (1) SNAP benefits plus 30 percent of net income, and (2) Maximum legislated SNAP benefits for household size.<sup>5</sup> Sufficiency rates are calculated simply as the fraction of households for which the measure of resources exceeds the TFP cost measure, given the household's size.

We use 30 percent of income because SNAP benefit amounts are designed with the assumption that recipient households spend 30 percent of their income on food. Additionally, SNAP benefits are calculated by subtracting 30 percent of net income from the maximum legislated benefit, where net income is calculated by adjusting gross income according to deductions for costs associated with housing, earnings, dependent care, medical expenses, child support payments, and other transfer program deductions. We use household-level and person-level data to estimate the amount of these deductions and impute the household's net income. Given the statutory definition of benefit levels, these two estimates would be identical with perfect reporting, but in practice they are not.

After determining the fraction of SNAP households for whom SNAP benefits (plus 30 percent of income) are insufficient to purchase the TFP, we present a measure of the extent of insufficiency for these households. Specifically, we compute the average dollar shortfall between the cost of the TFP and the household's benefits (plus 30 percent of income). Finally, we compare the average characteristics of households for whom SNAP is and is not sufficient to purchase the TFP.

## **Results**

For the purposes of this report, we have condensed our main results into three tables. Table 1 displays SNAP sufficiency rates for SNAP-recipient and SNAP-eligible households for different measures of the TFP cost faced by the household. Sufficiency rates are somewhat low for households to

---

<sup>5</sup> For completeness, sufficiency levels (as well as dollar amount of the shortfall) have also been calculated using 30% of gross income in lieu of net income. Results are available upon request. Sufficiency rates are higher using gross income, though this is more than households are expected to contribute under current law.



purchase the TFP at the stores at which they report shopping. SNAP benefits allow 63-76 percent of households to afford the TFP at their primary stores (i.e., the store at which they report doing the most shopping). Households could do slightly better purchasing the TFP at their alternate store or the store nearest their census block centroid, with sufficiency rates around 70-80 percent and 69-78 percent, respectively. We note that these estimates ought to be viewed cautiously, as the sample sizes decrease substantially when we employ these TFP cost measures. This is because, for example, of the 1444 FoodAPS households who receive SNAP benefits, only 719 of them list a primary store that is also observed in the IRI data from which TFP cost measures are constructed.

On the other hand, essentially all FoodAPS respondent households are able to be linked to a store in their counties, so we view the estimates that rely on county-level TFP-cost measures as fairly robust. It is reassuring that these sufficiency rate estimates are of similar magnitude to the others we calculate. These estimates indicate that SNAP benefits are likely to be insufficient for about 20 to 30 percent of relevant households to purchase the TFP. When we examine SNAP sufficiency rates by varying the *distance* within which we assume assuming that households can shop to purchase the TFP, sufficiency rates are of similar magnitudes and monotonically increase with the distance the household is assumed to be able to travel to shop. For example, assuming households face the mean TFP cost within a 3.4-mile radius of their census block centroid (the mean distance households report traveling to shop), we find that SNAP is sufficient for 63 to 75 percent of recipient households to purchase the TFP. When that radius is extended to 20 miles, sufficiency rates for recipient households range from 71 to 78 percent.

Sufficiency rates are, of course, highest when we allow shoppers to purchase the TFP at the *minimum*-cost store within a given distance. While sufficiency rates often exceed 90 percent when shoppers are assumed to purchase the TFP at the lowest-cost store in their area, we note that it is unlikely

that most shoppers are actually able to identify and travel to such a store.<sup>6</sup>

Finally, comparing sufficiency rates based on maximum SNAP benefit levels for households SNAP-recipient and SNAP-eligible households, we find that sufficiency rates are somewhat lower among SNAP-eligibles. A puzzling result is that the difference in sufficiency rates between net income and maximum benefits seems to be larger for eligible households than for recipient households. It is hard to know whether this is due to a characteristic of eligible households, or is merely an artifact of the simulation of benefits and eligibility.

Next, Table 2 contains estimates of the average dollar shortfall for both recipient and eligible households for whom SNAP is found to be insufficient. This is calculated using the difference between the benefits plus (30 percent of) income and the cost of the TFP, or between maximum SNAP benefits and the cost of the TFP.<sup>7</sup> We discussed previously that the sufficiency rates exhibit largely the expected pattern of decreasing as the shopping region gets smaller and smaller around the household. The size of the gaps sometimes exhibit a similar pattern, though the rule holds much less tightly. This is not surprising given that the size of the gap is an average only for the households who cannot afford the TFP (i.e., excluding households with surplus benefits or exactly equal to TFP cost), and the number of these households changes with each calculation.

For example, when we compute TFP cost as the mean among stores within certain mile radii, the average gap (using SNAP plus 30 percent of net income) goes from \$159 at 20 miles to \$153 at 3.4 miles, but then back down to \$155 for a 2.5-mile radius. (As expected, the number of households for whom there is a gap decreases monotonically from 318 to 292.) Using maximum benefits yields a different story: the average

---

<sup>6</sup> Also recall that we are already imposing the assumption that within any given store, shoppers purchase TFP items with prices in the lowest quintile of prices for that TFP category.

<sup>7</sup> These gaps, in addition to the sufficiency rates shown previously, are estimated using the nationally representative survey design, but the large majority of mean estimates of gaps contain singleton observations within strata, so standard errors cannot be calculated.

dollar shortfall estimates are much smaller, and bounce around between \$34 and \$40. Shopping at the minimum-cost store within radii exhibits a monotonic increase in the size of the dollar shortfall, from \$84 in a 20-mile radius to \$103 in a 2.5-mile radius (using SNAP plus 30 percent of net income).

One pattern that does seem to hold strongly is that gaps for eligible household are significantly lower than for recipient households, especially when using SNAP plus net income as opposed to maximum benefits. While recipient households have gaps in the range of \$150 using net income, eligible households have gaps less than half that size. This could be a result of using a simulated measure of SNAP benefits, however. When comparing gaps using maximum benefits across the board, recipient and eligible households for whom SNAP is insufficient to afford the TFP have rather similar average dollar shortfalls.

While the absolute dollar amounts we have calculated may be of importance to policy makers, the size of these gaps relative to household's income and benefits is likely what is important to the households themselves. For the sake of illustration, consider SNAP-recipient households who cannot afford the TFP at mean area prices and face an average dollar shortfall of around \$150. These households generally receive \$200 to \$250 in SNAP benefits per month, and report earned income of \$800 to \$1200 and total income of \$1400 to \$2100. Thus, the shortfalls are greater than half of the amount of benefits received, or over 10% of earned income and perhaps 5-10% of total income.

Lastly, Table 3 compares the characteristics of recipient and eligible households, across households for whom SNAP benefits are sufficient versus insufficient to purchase the TFP. Not surprisingly, SNAP-recipient households with benefits insufficient to purchase the TFP are significantly more likely to live in high food price areas and more likely to reside in metropolitan areas. In the case of SNAP-eligible households, they are also more likely to be low food security households, and appear to have larger families ( $p=0.11$ ). Households with insufficient benefits are generally no more likely to have earned income, face trouble paying bills, contain elderly family members, or reside in specific census regions.

## Discussion and conclusions

This study provides new descriptive evidence on the adequacy of SNAP benefits to purchase a low-cost, nutritious diet as specified by the Thrifty Food Plan, which is the basis for legislated SNAP benefit levels. Acknowledging that a given amount of SNAP benefits will buy less food in areas with high food prices, we estimate the fraction of SNAP households that are able to purchase the TFP at *local* prices. Using newly available FoodAPS data to answer this question, we account for geographic variation in local food prices in much finer detail than has previously been possible.

At present we use the cost of the food basket ignoring the specific week in which the basket cost was calculated and the week in which the respondent was surveyed. We are also only able to link respondents to basket prices from stores in the IRI data, which in some cases makes for small sample sizes. Further work with the local basket price data may provide additional insights and change our estimates slightly, especially for estimates based on proximity to census block group centroid.

Our main findings indicate that a substantial share (on the order of 20 to 30 percent) of SNAP-recipient households face TFP prices that are too high to be purchased with SNAP benefits plus 30 percent of income. Sufficiency rates increase monotonically as we expand the distance within which the household is assumed to be able to shop. For households who are unable to afford the TFP, average dollar shortfalls between the cost of the TFP and SNAP benefits (plus 30 percent of income) are often as large as \$150 per month.

On the other hand, when shoppers are assumed to be able to purchase the TFP at the *minimum*-cost store in a 20-mile radius, SNAP benefits are sufficient for nearly all recipient households to do so. Whether it is reasonable to assume that households are able to identify and travel to the minimum TFP-cost store in their areas is an open question.

A related question that we have not yet explored is whether SNAP benefits are also overly *generous* in areas with relatively low food prices. If so, one interpretation of our results would be that SNAP

benefit levels should be more directly indexed to local food prices. Even without directly tying benefit levels to local food prices, policy makers could better adjust SNAP benefits for local food prices by increasing the generosity of existing deductions for costs associated with housing, earnings, child care, and medical care, all of which are likely to correlate positively with local food price.

## References

- Bartfeld, Judith, Craig Gundersen, Timothy Smeeding, and James Ziliak. 2015. *SNAP Matters: How Food Stamps Affect Health and Well-Being*. Stanford University Press.
- Coleman-Jensen, Alisha, Mark Nord, Margaret Andrews, and Steven Carlson. 2014. "Household Food Security in the United States in 2011." United States Department of Agriculture, Economic Research Service. Accessed February 19. <http://www.ers.usda.gov/publications/err-economic-research-report/err141.aspx#.UwUzBV5kK-0>.
- Gregory, Christian A., and Alisha Coleman-Jensen. 2013. "Do High Food Prices Increase Food Insecurity in the United States?" *Applied Economic Perspectives and Policy* 35 (4): 679–707. doi:10.1093/aep/ppt024.
- Hoynes, Hilary W., and Diane Whitmore Schanzenbach. 2015. "U.S. Food and Nutrition Programs." Working Paper 21057. National Bureau of Economic Research. <http://www.nber.org/papers/w21057>.
- Mykerezi, Elton, and Bradford Mills. 2010. "The Impact of Food Stamp Program Participation on Household Food Insecurity." *American Journal of Agricultural Economics* 92 (5): 1379–1391.
- Nord, M., and M. Golla. 2009. "Does SNAP Decrease Food Insecurity? Untangling the Self-Selection Effect. USDA." United States Department of Agriculture, Economic Research Service.
- Todd, Jessica E., Ephraim Leibtag, and Cortney Penberthy. 2011. "Geographic Differences in the Relative Price of Healthy Foods." United States Department of Agriculture, Economic Research Service. <http://books.google.com/books?hl=en&lr=&id=4qm5sgn3u20C&oi=fnd&pg=PP5&dq=todd+qfahpd&ots=UPHWMF7gnM&sig=6wOvjI4JceZtjJ-d7S111pPJm2w>.
- Todd, Jessica E., Lisa Mancino, Ephraim S. Leibtag, and Christina Tripodo. 2010. "Methodology behind the Quarterly Food-at-Home Price Database." United States Department of Agriculture, Economic Research Service. <http://ideas.repec.org/p/ags/uerstb/97799.html>.
- Yen, Steven T., Margaret Andrews, Zhuo Chen, and David B. Eastwood. 2008. "Food Stamp Program Participation and Food Insecurity: An Instrumental Variables Approach." *American Journal of Agricultural Economics* 90 (1): 117–132.

**Table 1**  
**Sufficiency Rates of SNAP to Purchase the Thrifty Food Plan (TFP)**

	SNAP Recipient Households		SNAP Eligible Households	
	<i>SNAP plus 0.30*Net Income</i>	<i>SNAP Max Benefit</i>	<i>Simulated SNAP plus 0.30*Net Income</i>	<i>SNAP Maximum Benefit</i>
<b><i>TFP Cost Calculation</i></b>				
Primary Store (N=719, 1220)	0.76	0.63	0.91	0.57
Alternate Store (N=549, 850)	0.80	0.70	0.92	0.65
Avg. of Primary and Alternate (N=981, 1641)	0.77	0.69	0.92	0.63
Nearest store (N=853, 1313)	0.78	0.69	0.92	0.62
<b><u>Mean</u></b>				
County (N=1431)	0.77	0.76	0.97	0.67
20-mile radius (N=1325, 2221)	0.78	0.71	0.91	0.68
10-mile radius (N=1275, 2140)	0.78	0.71	0.92	0.67
5-mile radius (N=1186, 1990)	0.76	0.67	0.90	0.60
3.4-mile radius (N=1140, 1920)	0.75	0.63	0.89	0.58
2.5 mile radius (N=1094, 1841)	0.75	0.58	0.88	0.54
5 nearest stores (N=1265, 2101)	0.74	0.62	0.90	0.59
2 nearest stores (N=1069, 1777)	0.76	0.64	0.90	0.58
<b><u>Median</u></b>				
County (N=1431)	0.79	0.74	0.98	0.70
20-mile radius (N=1325, 2221)	0.77	0.64	0.91	0.64
10-mile radius (N=1275, 2140)	0.76	0.65	0.91	0.61
5-mile radius (N=1186, 1990)	0.75	0.64	0.90	0.56
3.4-mile radius (N=1140, 1920)	0.75	0.65	0.90	0.58
2.5 mile radius (N=1094, 1841)	0.75	0.61	0.89	0.54
5 nearest stores (N=1265, 2101)	0.76	0.64	0.90	0.60
2 nearest stores (N=1069, 1777)	--	--	--	--
<b><u>Minimum</u></b>				
County (N=1431)	0.94	1.00	1.00	0.71
20-mile radius (N=1325, 2221)	0.95	1.00	1.00	1.00
10-mile radius (N=1275, 2140)	0.94	0.99	0.99	1.00
5-mile radius (N=1186, 1990)	0.92	0.99	0.99	0.99
3.4-mile radius (N=1140, 1920)	0.91	0.99	0.99	0.99
2.5 mile radius (N=1094, 1841)	0.89	0.99	0.99	0.98
5 nearest stores (N=1265, 2101)	0.89	0.97	0.98	0.95
2 nearest stores (N=1069, 1777)	0.86	0.92	0.97	0.88

Note: Table contains sufficiency rate for SNAP benefits to purchase TFP for SNAP-recipient and SNAP-eligible households. Benefits are self-reported for SNAP-recipient households. Benefits are imputed for SNAP-eligibles using using gross and net income and maximum benefit for family size. All estimates are population weighted.

**Table 2**  
**Average Dollar Shortfalls between SNAP (plus 30% of income) and Cost of the Thrifty Food Plan (TFP)**  
*(Sample: Households for whom SNAP is insufficient to purchase TFP)*

TFP Calculation	SNAP Recipient Households				SNAP Eligible Households			
	SNAP plus 0.30*Net Income	# of Households	SNAP Max Benefit	# of Households	Simulated SNAP plus 0.30*Net Income	# of Households	SNAP Maximum Benefit	# of Households
Primary Store	\$118	173	\$41	255	\$60	127	\$41	430
Alternate Store	\$155	106	\$49	157	\$48	87	\$45	282
Avg. of Primary and Alternate	\$127	224	\$42	282	\$51	151	\$40	495
Nearest store	\$150	199	\$56	261	\$61	130	\$41	473
Mean: County	\$151	367	\$51	414	\$73	240	\$34	704
Mean: 20-mile radius	\$159	318	\$34	402	\$44	226	\$26	648
Mean: 10-mile radius	\$158	313	\$40	389	\$56	201	\$32	613
Mean: 5-mile radius	\$155	309	\$38	403	\$58	209	\$31	657
Mean: 3.4-mile radius	\$153	306	\$40	431	\$63	212	\$35	717
Mean: 2.5-mile radius	\$155	292	\$40	444	\$61	227	\$36	709
Mean: 5 nearest stores	\$146	326	\$47	488	\$57	247	\$36	759
Mean: 2 nearest stores	\$142	268	\$53	386	\$60	207	\$42	681
Median: County	\$143	337	\$19	380	\$32	197	\$17	649
Median: 20-mile radius	\$139	332	\$18	453	\$29	223	\$20	743
Median: 10-mile radius	\$140	316	\$20	463	\$34	212	\$23	755
Median: 5-mile radius	\$144	307	\$23	445	\$42	203	\$27	762
Median: 3.4-mile radius	\$145	289	\$26	387	\$43	200	\$29	675
Median: 2.5-mile radius	\$149	281	\$29	431	\$47	218	\$31	741
Median: 5 nearest stores	\$144	310	\$33	444	\$48	229	\$31	768
Median: 2 nearest stores	--	--	--	--	--	--	--	--
Minimum: County	\$78	68	\$135	6	\$103	9	\$109	4
Minimum: 20-mile radius	\$84	66	--	0	\$70	4	--	0
Minimum: 10-mile radius	\$91	82	\$11	5	\$48	8	\$12	6
Minimum: 5-mile radius	\$101	94	\$11	5	\$42	9	\$11	7
Minimum: 3.4-mile radius	\$103	104	\$11	5	\$46	12	\$30	12
Minimum: 2.5-mile radius	\$103	115	\$22	7	\$44	15	\$36	17
Minimum: 5 nearest stores	\$112	144	\$25	39	\$52	33	\$31	85
Minimum: 2 nearest stores	\$105	162	\$30	100	\$52	52	\$33	175

Note: Table contains average dollar shortfalls for households that for whom SNAP (plus 30 percent of income) or maximum SNAP benefit is insufficient to purchase the TFP. Benefits are self-reported for SNAP-recipient households. Benefits are imputed for SNAP-eligibles using using gross and net income and maximum benefit for family size. All estimates are population weighted.



**Table 3**  
**Average Characteristics of Households by SNAP Sufficiency**

	SNAP Recipient Households			SNAP Eligible Households		
	No	Yes	p-value	No	Yes	p-value
Family Size	2.78	2.64	0.41	2.52	2.21	0.11
Household has earned income	0.50	0.53	0.60	0.60	0.55	0.20
Household has elderly	0.30	0.27	0.40	0.38	0.37	0.83
Nonmetro area	0.03	0.17	0.01	0.03	0.17	0.02
Metro area	0.97	0.83	0.01	0.97	0.83	0.02
High food security household	0.34	0.32	0.50	0.45	0.50	0.45
Marginal food security household	0.25	0.21	0.25	0.23	0.19	0.14
Low food security household	0.24	0.26	0.59	0.21	0.16	0.08
Very low food security household	0.18	0.21	0.39	0.11	0.16	0.02
Trouble paying bills	0.30	0.28	0.49	0.18	0.17	0.83
High price area	0.88	0.00	0.00	0.90	0.00	0.00
Northeast	0.22	0.09	0.25	0.29	0.09	0.13
Midwest	0.24	0.34	0.33	0.16	0.35	0.05
South	0.33	0.43	0.25	0.32	0.42	0.34
West	0.21	0.14	0.49	0.22	0.14	0.40

Note: Table contains characteristics of households by SNAP sufficiency and a p-value of the test of the difference, separately for SNAP recipients and SNAP eligible HH. Benefits are calculated using maximum benefit for family size. Eligibility is estimated using model 4. All estimates are population weighted.