



United States Department of Agriculture

Healthy Incentives Pilot (HIP)

Interim Report

Nutrition Assistance Program Report
Food and Nutrition Service
Office of Policy Support

July 2013

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United States Department of Agriculture

Food and Nutrition Service, Office of Policy Support

July 2013

Healthy Incentives Pilot (HIP)

Interim Report

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At Abt Associates, Patty Connor played a key role in developing the survey instruments and overseeing data collection activities. Our evaluation partners, Westat, collected and processed all the household data. Susie McNutt led the Westat team along with Crystal MacAllum. Jan Nicholson produced the report. Finally, William Hamilton and Patricia McKinney, our Project Quality Advisors provided guidance and insightful commentary.

Healthy Incentives Pilot (HIP) Interim Report

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Glossary of Acronyms

BEACON	DTA's client-server based eligibility application system
CBOs	Community based organizations
CPs	Community partners
DTA	Massachusetts Department of Transitional Assistance
EBT	Electronic Benefit Transfer
EOHHS	Massachusetts Executive Office of Health and Human Services
EPPIC	Electronic Payment Processing and Information Control (Xerox's EBT system)
FNS	Food and Nutrition Service
HIP	Healthy Incentives Pilot
HoH	Head of household
IECR	Integrated Electronic Cash Register
IRB	Institutional Review Board
JAD	Joint Application Design
MTFVs	Modified targeted fruits and vegetables
NDG	Novo Dia Group
PIN	Personal identification number
POS	Point of sale
RFP	Request for Proposals
SNAP	Supplemental Nutrition Assistance Program
TFVs	Targeted fruits and vegetables
TPP	Third-party processor
USDA	United States Department of Agriculture
WIC	Special Supplemental Nutrition Program for Women Infants and Children

Executive Summary

The Healthy Incentives Pilot (HIP) investigates the impact of making fruits and vegetables more affordable for participants in the Supplemental Nutrition Assistance Program (SNAP). The Food, Conservation, and Energy Act of 2008, authorized funds for pilot projects to determine if financial incentives provided to SNAP recipients at the point of sale increase the consumption of fruits, vegetables, or other healthful foods. On the basis of this legislative authority, USDA's Food and Nutrition Service (FNS) designed the Healthy Incentives Pilot (HIP).

Under HIP, SNAP participants received on their SNAP Electronic Benefit Transfer (EBT) card an incentive of 30 cents for every dollar they spent on targeted fruits and vegetables (TFVs). TFVs included fresh, canned, frozen, and dried fruits and vegetables without added sugars, fats, oils or salt, but excluded white potatoes and 100% fruit juice (the same set of fruits and vegetables eligible for the WIC Fruit and Vegetable Cash Value Voucher). The incentive was capped at \$60 per household per month, a level sufficiently high that few households reached it.

The pilot was implemented by the Massachusetts Department of Transitional Assistance (DTA) in Hampden County. Located in western Massachusetts, the county is a mix of urban, rural, and suburban areas with approximately 55,000 SNAP households. Hampden County has the lowest median household income in the State. Massachusetts, like the rest of the country, is in the midst of an obesity epidemic, and residents in the western region have the highest rates of obesity and related chronic illnesses in the State.

HIP is being evaluated using a rigorous research design. The 55,000 SNAP households in Hampden County were randomly assigned to the HIP group (7,500 households) and the non-HIP group (approximately 47,500 households). The HIP households were divided into three waves of 2,500 households each, to begin the pilot during the first three months of operation. The first wave began receiving the HIP incentive on November 1, 2011, the second wave on December 1, 2011, and the third wave on January 1, 2012. HIP participants were eligible to earn incentives for 12 months, ending in December 2012.

Abt Associates Inc. and its partners, Westat and MAXIMUS conducted the evaluation for the USDA Food and Nutrition Service.

Evaluation Objectives

The overall goal of the Healthy Incentives Pilot evaluation is to assess the impact of HIP on participants' intake of targeted fruits and vegetables. Within this broad goal, FNS identified five specific objectives:

- 1) Assess the causal impact of HIP on fruit and vegetable consumption by SNAP participants, and on other key measures of dietary intake.
- 2) Identify and assess factors that influence how HIP impacts participants.
- 3) Describe the processes involved in implementing and operating HIP.
- 4) Assess the impact on the HIP grantee (the State SNAP agency), the local SNAP agency, and their team of partners (including retailers, State EBT provider, and community organizations).

- 5) Quantify, to the extent possible, the Federal, State, and local administrative and benefit costs of the pilot.

This Interim Report focuses on the first two objectives, providing estimates of fruit and vegetable consumption among HIP and non-HIP participants and other early pilot impacts 4 to 6 months after HIP implementation. The Final Report will address all five research objectives, analyzing the complete set of data collected during the evaluation period.

Design and Data Collection

Evaluation Design

The HIP evaluation study uses a random assignment research design, widely viewed as providing the strongest evidence of causal impact, to compare food intake and other outcomes for SNAP participants. Specifically, households were randomly assigned to participate in HIP, so that comparisons with non-participating households provide a reliable estimate of the impact of HIP.

Households were randomly sampled from both the HIP and non-HIP groups to participate in survey data collection.

Data Collection

Determining impacts on fruit and vegetable consumption required collection of data on dietary intake. We collected this information using 24-hour recall interviews, a widely used, reliable methodology conducted by trained telephone interviewers. Respondents also provided information about their attitudes and preferences for fruits and vegetables, shopping patterns, food expenditures, and household characteristics.

The data collection for the HIP evaluation included one participant survey before HIP implementation (Round 1), one participant survey 4-6 months after implementation (Round 2), and one participant survey 9-11 months after implementation (Round 3). Two rounds of focus groups were also conducted with HIP participants, corresponding to the Round 2 and Round 3 surveys. This Interim Report provides early impact results based on Round 1 and Round 2. The Final Report will include Round 3 data in the analyses.

The evaluation also uses administrative records on SNAP EBT transactions to examine HIP incentive earnings by program participants, focusing on HIP-eligible purchases and the amount of incentives earned.

Findings

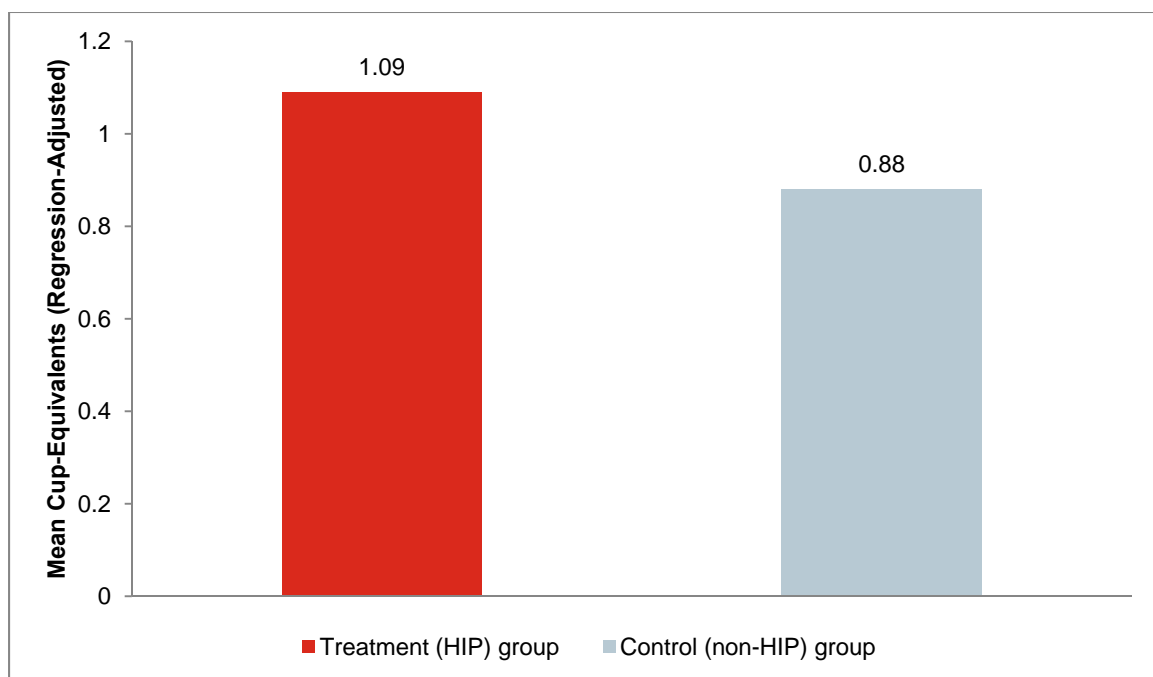
The main goal of the HIP evaluation is to assess the impact of HIP on participants' consumption of targeted fruits and vegetables and we begin the discussion in this section with these results. We then turn to a discussion of how HIP influenced households' expenditures on targeted foods. Finally, we discuss HIP impacts on participant attitudes toward fruits and vegetables. In this section, unless otherwise noted, we discuss only treatment/control differences that are statistically significant at conventional significance levels.

Targeted Fruits and Vegetables

The main impact measure for the HIP evaluation will be the difference in targeted fruit and vegetable intake for HIP and non-HIP participants combining data from Rounds 2 and 3. This Interim Report provides this measure for Round 2 only.

Our interim results indicate that HIP participants (adults aged 16 and older¹) consumed one-fifth of a cup-equivalent more fruits and vegetables per day than did non-participants (ES.1). This represents a difference of 25 percent in consumption over control group members. Approximately 60 percent of the observed difference was due to a difference in consumption of vegetables and 40 percent due to a difference in consumption of fruit.

Exhibit ES.1: HIP Participants Consumed 0.22 Cup-Equivalents More Fruits and Vegetables per Day (lower-bound estimate)



The positive HIP impacts were broadly consistent regardless of employment status, age, presence of children in the household, and amount of the household's SNAP benefit.

Expenditures on Fruits and Vegetables

In evaluating HIP, incentive take-up and HIP/ non-HIP differences in food expenditures are important intermediate variables. The overall effect of HIP is likely to be larger if participants responded to the incentive, purchased more fruits and vegetables, and earned more incentives.

During the first half of HIP operations, SNAP EBT data records show that participating households spent a small share of their SNAP benefits on targeted fruits and vegetables, at least in stores

¹ Respondents aged 16 and 17, which accounted for approximately 6 percent of sampled respondents, were included in the sample as they can be SNAP heads of households and the sample was intended to represent all types of households

participating in HIP. Overall, two-thirds of HIP households (that received SNAP benefits in the month) earned some HIP incentive; the other one-third of households did not earn any incentives in a given month. On average, during March-July 2012, HIP households spent \$12.13 (representing 5.2 percent of their SNAP benefits) on targeted fruits and vegetables in participating stores and earned an average incentive of \$3.64 each month.²

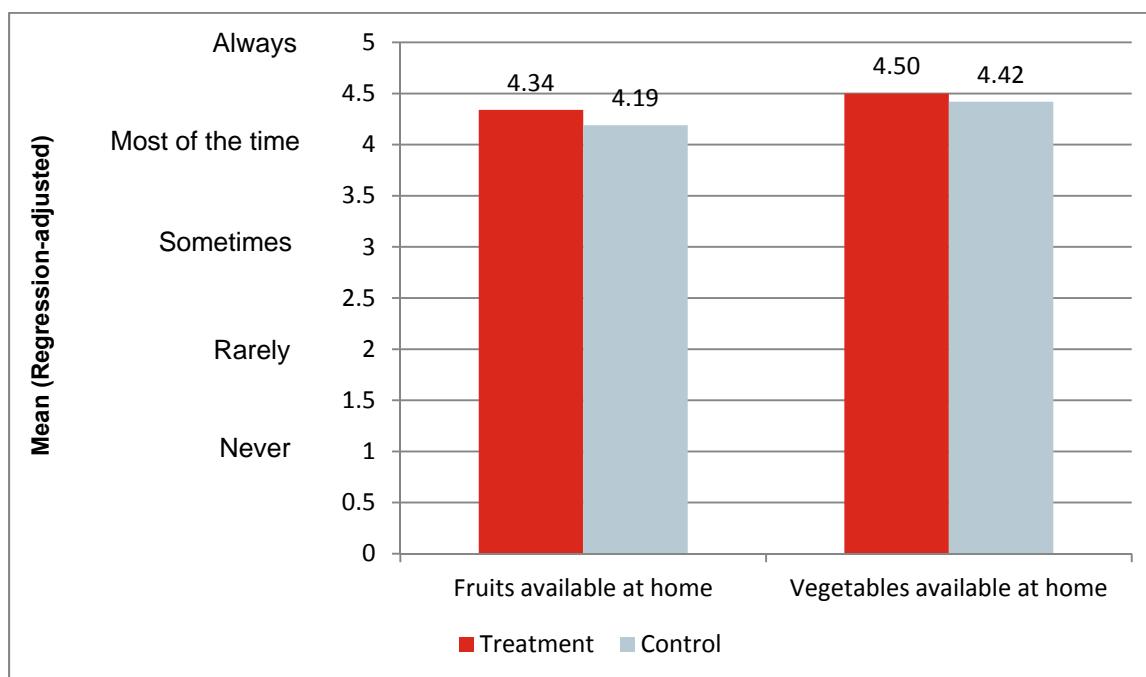
HIP survey respondents reported changes in fruit and vegetable purchasing, saying that they bought larger amounts and a greater variety of fruits and vegetables because of HIP. These households felt that fruits and vegetables had become more affordable due to HIP. Consistent with these responses, self-reported spending on fruits and vegetables was significantly higher for HIP households than non-HIP households.

Knowledge, Attitudes, and Barriers

Attitudes toward and preferences for fruits and vegetables may affect both the level of fruit and vegetable intake and how responsive participants are to the incentive. HIP households had fruits and vegetables available at home more often than did households not participating in HIP (Exhibit ES.2) as reported in the Round 2 survey. Respondents were also asked several other questions about their food preferences and perceived barriers to consuming fruits and vegetables. Survey respondents generally had quite positive attitudes toward fruits and vegetables and did not report overwhelming barriers to their consumption. Generally, HIP and non-HIP households had similar preferences and beliefs.

In order for the HIP incentive to affect purchasing behavior, HIP participants needed to know about the program and understand how it works. Findings from the participant survey suggest that a sizeable minority of HIP participants did not fully understand the pilot program. Forty percent of HIP participants reported that they had not heard about HIP when asked in the Round 2 survey, which occurred 4-6 months after HIP implementation. Forty percent also reported that it was hard or somewhat hard (or they didn't know) to understand how HIP works; a similar percentage said it was hard or somewhat hard (or they didn't know) to remember which fruits and vegetables qualified for the HIP incentive. Focus groups also described difficulties with understanding the pilot.

² The EBT data analyzed for this report are missing approximately 4 percent of HIP households. Missing households do not appear to be different from other households. We expect that complete data will be available for the Final Report.

Exhibit ES.2 HIP Participants More Frequently Had Fruits and Vegetables Available at Home**Conclusions and Next Steps**

Findings from the early implementation phase indicate that HIP had positive impacts on targeted fruit and vegetable consumption of pilot participants. HIP participants consumed one-fifth cup (25 percent) more targeted fruits and vegetables each day than did non-HIP respondents. We compared this HIP impact to the gap between current consumption and the *Healthy People 2020* objectives for total fruit and vegetable intake. The one-fifth cup associated with HIP reduces this “total fruit and vegetable intake gap” by approximately 17 percent. This HIP impact is both statistically significant and large enough to be nutritionally relevant.

This document is explicitly an “Interim Report.” Its main results come from the first post-implementation participant survey (Round 2, which took place 4-6 months after HIP implementation). The Final Report will use results from two participant survey rounds (Round 2 and Round 3, which took place 9–11 months after HIP implementation). That additional round of interviews should contribute to more precise and reliable estimates in the Final Report. It also will indicate response over a longer time frame and provide an indication of whether and how impacts change as the pilot is fully implemented. In addition, further analyses of the shopping patterns of HIP and non-HIP households may help us to better understand how the HIP incentive works, and in particular, the pathways by which HIP impacts fruit and vegetable consumption.

1. Introduction

The Healthy Incentives Pilot (HIP) investigates the impact of making fruits and vegetables more affordable for participants in the Supplemental Nutrition Assistance Program (SNAP). The Food, Conservation, and Energy Act of 2008, authorized funds for pilot projects to determine if financial incentives provided to SNAP recipients at the point of sale increase the consumption of fruits, vegetables, or other healthful foods. On the basis of this legislative authority, USDA's Food and Nutrition Service (FNS) designed the Healthy Incentives Pilot (HIP).

Serving 46.6 million low-income Americans at an annual cost of \$78.2 billion in 2012, SNAP is the nation's largest nutrition assistance program and a cornerstone of the social safety net. The ultimate objectives of SNAP are to prevent food insecurity and hunger and to promote dietary quality. In addition to directly increasing the food purchasing power of program participants, SNAP also provides nutrition education programs to help them improve their diets. USDA's economic models suggest that SNAP benefits lead to substantial increases in economic activity and employment in the food and agriculture sector, with follow-on effects throughout the macro-economy (Hanson, 2010).

Increasing fruit and vegetable intake is one of several leading strategies recommended by U.S. public health authorities for promoting dietary quality (USDHHS, 2010; USDHHS and USDA, 2010). Most U.S. adults fail to meet the Dietary Guidelines for fruit and vegetable intake, and intake shortfalls are comparatively large for low-income Americans and SNAP participants. Improving dietary quality could help serve key national public health objectives for reducing rates of chronic disease and obesity (Healthy People 2020, USDHHS, 2010).

SNAP provides benefits to qualifying households on electronic benefit transfer (EBT) cards, similar to bank debit cards, which allow participants to purchase foods and nonalcoholic beverages through authorized retailers. Under HIP, SNAP participants were offered an incentive of 30 cents for every dollar of expenditures on targeted fruits and vegetables (TFVs) which included fruits and vegetables without added sugars, fats, oils or salt. These are the same set of fruits and vegetables eligible for the Fruit and Vegetable Cash Value Voucher in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)³. For every SNAP dollar spent on TFVs, a HIP household immediately earned an additional 30 cents credited back to its EBT card. The incentive could then be spent on any SNAP-eligible foods and beverages. The incentive was capped at \$60 per household per month, a level sufficiently high that not many households were expected to reach it.

The HIP evaluation study uses a random assignment research design, widely viewed as providing the strongest evidence of causal impact. SNAP participants in the pilot site of Hampden County, Massachusetts, were randomly assigned to a HIP group and a non-HIP group. This Interim Report provides early impact estimates on food intake and other outcomes from the HIP evaluation study.

In this chapter, we first discuss the background of the pilot, focusing on the context in which it was developed and providing an overview of the intervention and the pilot site. The second section discusses the research objectives of the evaluation and the third section presents the theory and logic model underlying HIP. The fourth section discusses research on previous nutrition interventions to

³ FNS guidance on minimum requirements and specifications for WIC fruits and vegetables is presented in Appendix E, Exhibit E1.1.

promote fruit and vegetable consumption. The final section provides a guide to the organization of this report.

1.1 Pilot Background

The Federal government's *Healthy People 2020* objectives and the *Dietary Guidelines for Americans (DGA)* emphasize the goal of promoting fruit and vegetable intake in order to reduce the risk of obesity and chronic disease (USDHHS, 2010; USDHHS and USDA, 2010). Epidemiological evidence suggests that fruit and vegetable intake reduces the long-term risk of obesity (He et al., 2004). After controlling for other explanatory factors, increased fruit and vegetable intake is associated with lower rates of heart disease and several cancers, major causes of death in the U.S.

The *Healthy People 2020* objectives seek to increase adult intake of fruits and vegetables from a baseline of 1.3 cup-equivalents per 1,000 calories to 2.0 cup-equivalents per 1,000 calories. The *Dietary Guidelines for Americans, 2010* describe a healthy diet as one that emphasizes fruits and vegetables, along with whole grains and fat-free or low-fat milk and milk products. The MyPlate consumer education graphic encourages Americans to fill half their plate with fruits and vegetables.

Most U.S. adults fail to meet fruit and vegetable intake goals, leading to policy interest in potentially using financial incentives to increase consumption (Dong and Lin, 2009). Data from the National Health and Nutrition Examination Survey (NHANES) in 1999-2002 showed that only 28 percent of adults met the DGA guidelines recommending daily consumption of greater than or equal to 2 servings of fruit. Excluding 100 percent fruit juice, only 18 percent met these guidelines. Similarly, only 33 percent of adults met the DGA guidelines recommending daily consumption of greater than or equal to 3 servings of vegetables. Excluding fried potatoes, only 28 percent met these guidelines. Comparing these results to previous NHANES estimates from 1976-1980, there was no evidence of improvement over the years (Casagrande et al., 2007). Based on 2009 surveillance data with a different outcome variable (the number of times daily that each food was consumed), 32.4 percent of adults had fruit at least twice daily, and 26.3 percent of adults had vegetables at least three times daily (Grimm et al., 2012).

Fruit and vegetable intake falls short particularly for low-income Americans and participants in SNAP (Guthrie et al., 2007). Based on 2009 surveillance data, low-income adults, with household income below 130 percent of the federal poverty standard, were less likely to have fruit at least 2 times daily or vegetables at least 3 times daily, compared with adults with household income above 400 percent of the federal poverty standard (Grimm et al., 2012). An Abt Associates study estimated Healthy Eating Index component scores for SNAP participants and nonparticipants, based on their fruit and vegetable intake reported in NHANES. Each component score was reported as a percentage of the recommended food intake quantity. The fruit component score was 50 percent of the recommendation for SNAP participants, 66 percent of the recommendation for income-eligible nonparticipants, and 74 percent of the recommendation for higher-income nonparticipants. The vegetable component score was 58 percent of the recommendation for SNAP participants, 64 percent of the recommendation for income-eligible nonparticipants, and 66 percent of the recommendation for higher-income nonparticipants (Cole and Fox, 2008). With earlier data from the Continuing Survey of Food Intake by Individuals (CSFII), Wilde, McNamara, and Ranney (2000) found that, compared with eligible non-participants, SNAP participants had higher intake of added sugars and total fats, but not fruits and vegetables.

The Healthy Incentives Pilot

Massachusetts was selected to implement HIP through a competitive application process in August, 2010. The State was selected based on its comprehensive pilot application that included very thorough and strong design, implementation, staffing and management plans. The State's management plan included significant support from community partners and a wide variety of retailers and farmers markets that accept EBT.

Hampden County has the lowest median household income in the State and residents in western Massachusetts have the highest rates of obesity and related chronic illnesses in the State. The site is self-contained, which means that most shopping occurs within the area. Thus households have ample opportunities to earn incentives, allowing for a strong test of the intervention. Although studying HIP in a single site limits the ability to generalize the findings to the national context, the compelling offsetting advantage is that this approach permits the evaluation to have a strong random assignment research design.

HIP was rolled out in three waves; one-third of households began earning HIP incentives November 1, 2011, the second and third waves began participating December 1, 2011 and January 1, 2012, respectively. HIP participants were able to earn incentives for 12 months, ending in December 2012.

1.2 Research Objectives

The Healthy Incentives Pilot is being evaluated using a rigorous research design in which SNAP participants in Hampden County were randomly assigned to a HIP group and a non-HIP group. The overall goal of the evaluation is to assess the impact of HIP on participants' intake of fruits and vegetables. Within this broad goal, FNS identified five specific objectives:

- 1) Assess the causal impact of HIP on fruit and vegetable consumption by SNAP participants, and on other key measures of dietary intake.
- 2) Identify and assess factors that influence how HIP impacts participants.
- 3) Describe the processes involved in implementing and operating HIP.
- 4) Assess the impact on the HIP grantee (the State SNAP agency), the local SNAP agency, and their team of partners (including retailers, State EBT provider, and community organizations).
- 5) Quantify, to the extent possible, the Federal, State, and local administrative and benefit costs of the pilot.

The main impact measure for the study is the difference in fruit and vegetable intake for HIP and non-HIP participants identified in Objective 1. This report focuses on the first two objectives, providing estimates of fruit and vegetable consumption among HIP and non-HIP participants and other early pilot impacts 4-6 months after HIP implementation. The data collection for the HIP evaluation included one participant survey before HIP implementation (Round 1), a second participant survey 4-6 months after implementation (Round 2), and a third participant survey 9-11 months after implementation (Round 3). This Interim Report provides initial exploratory analyses based on a limited number of outcome variables for Round 2 alone (descriptive statistics and some control variables in the analysis use data from the baseline period). The Final Report will provide confirmatory estimates of the difference in fruit and vegetable intake for the HIP and non-HIP

respondents, based on combined data from Rounds 2 and 3. The Final Report will also examine additional outcomes and include analyses to better understand the process by which HIP affected participants.

This Interim Report is the second report produced for the evaluation. The first report was the Early Implementation Report (Bartlett, et al., 2013), which focused on the third objective, documenting the process involved in implementing HIP. That report described development activities from pilot inception to March 2012 when HIP was fully operational. Chapter 3 of this Interim Report provides an overview of pilot implementation, based on the Early Implementation Report. The Final Report will address all five research objectives, analyzing the complete set of data collected during the evaluation period.

The HIP evaluation is being conducted by Abt Associates; the research team also includes Westat and MAXIMUS.

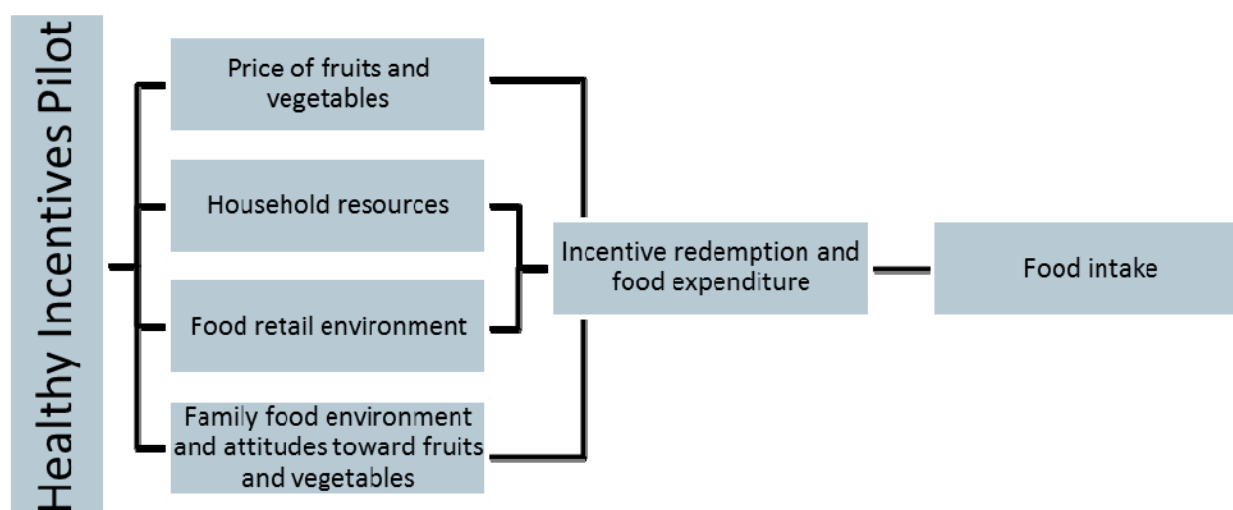
1.3 Theory and Logic Model

The Healthy Incentives Pilot could, in principle, affect food intake in at least four ways (Exhibit 1.1). It could:

- Reduce the effective price of fruits and vegetables,
- Increase financial resources for SNAP households,
- Improve the availability of fruits and vegetables in the food retail environment, and
- Influence participant attitudes toward fruits and vegetables.

If the incentive contributes to changes in any of these variables, this could lead households to purchase more targeted fruits and vegetables. An increased amount of fruits and vegetables in the household could in turn affect food intake, notably consumption of fruits and vegetables.

Exhibit 1.1: Logic Model Describing the Potential Effect of HIP on Changes in Food Intake



Reducing the Price of Fruits and Vegetables

The HIP incentive is similar to a price reduction by means of a rebate. Through HIP, a participant at a food retailer's cash register pays an unchanged posted price for targeted fruits and vegetables, but the incentive essentially makes the targeted fruits and vegetables 30 percent less expensive. The participant's EBT card is immediately credited with additional benefits based on the amount of targeted fruit and vegetable purchases. These additional resources increase the total amount of SNAP benefits available for the month.

An economic measure called a price elasticity gives the percent change in spending that occurs in response to a one percent change in price. Based on price elasticity estimates from Andreyeva, Long, and Brownell (2010), a 30 percent price decline would be expected to generate an increase of very roughly 20 percent in food spending. Assuming that consumers change their food intake in proportion to changes in their food spending, this provides an approximate estimate of the expected percentage change in food intake. Taking current per-adult consumption to be about 1.3 cup-equivalents per day (USDHHS, 2010), this effect would generate approximately one-quarter of a cup-equivalent in increased fruit and vegetable intake.⁴ The HIP evaluation study is designed with sufficient statistical power to detect a HIP/non-HIP difference of 0.25 cup-equivalents or larger; thus we will be able to detect impacts of the size predicted by the elasticity estimates. Of course, there are substantial differences between HIP and a simple price discount. HIP may influence fruit and vegetable intake through other important mechanisms beyond changing the household's food resources, as suggested in the logic model above.

Increasing Household Resources

HIP also may affect fruit and vegetable intake by increasing the household's resources available for food spending. Previous research suggests that this "income effect" on fruit and vegetable spending is fairly small. Frazão et al. (2007) provide two types of evidence for this view. First, they cite Consumer Expenditure Survey evidence that fruit and vegetable spending remains fairly constant across income categories. Second, they use older econometric estimates of the effect of increases in SNAP benefits. These estimates indicate that food spending increases by between 17 and 47 cents for each dollar of increased SNAP benefits (Fraker, 1990). Given that fruit and vegetable spending is approximately 12 percent of all food spending, these estimates suggest that fruit and vegetable spending could be expected to increase by between 2 and 5.6 cents for each dollar of HIP incentive earned. Thus, the price effect (discussed in the previous paragraph) is expected to be more important than the effect of increasing household resources.⁵

Improving the Availability of Fruits and Vegetables in the Food Retail Environment

A substantial literature has investigated the lack of access to healthy foods in low-income neighborhoods (U.S. Department of Agriculture, 2009). Neighborhoods that are predominantly lower income and minority may have fewer supermarkets or longer distances to supermarkets (Chung and

⁴ Calculation: 1.3 cups x 20% increase = 0.26 cups.

⁵ This conclusion applies to participants who do not reach the incentive cap. Economic theory suggests that the price effect on marginal additional fruit and vegetable purchases would be zero for participants who reach the incentive cap, but that possibility is purely hypothetical in this pilot. As noted in Chapter 5, fewer than 10 participant households reached the incentive cap.

Myers, 1999; Morland et al., 2002), but it is unclear whether these differences hinder most SNAP participants in acquiring fruits and vegetables. Most low-income people in the United States shop at supermarkets and are reasonably satisfied with their level of food retail access (U.S. Department of Agriculture, 2009). In a sample of SNAP participants, Rose and Richards (2004) studied the association between fruit and vegetable consumption and distance from the retailer where a respondent purchased most food. Greater distance was associated with significantly lower fruit consumption (and with lower vegetable consumption in the sample, but the vegetable results were not statistically significant).

HIP effects could be influenced by the surrounding food marketing environment. The converse is also possible. There has been recent interest in whether changes to major nutrition assistance programs could encourage food retailers serving low-income areas to supply more fruits and vegetables. With data from Connecticut, before and after the implementation of new WIC packages that included a voucher for fruit and vegetable purchase, Andreyeva et al. (2012) found increases in a basket of healthy foods (heavily weighted toward fruits and vegetables) supplied by food retailers in low-income neighborhoods. The HIP evaluation collected administrative data identifying the retailers where SNAP benefits were spent and survey data with the respondents' own assessment of access problems for purchasing fruits and vegetables. The Final Report will use these data to examine where HIP and non-HIP households shopped.

Attitudes toward Fruits and Vegetables

Food choices also depend on more proximal variables, such as attitudes, preferences, behavioral intentions, and self-efficacy (Larson and Story, 2009). Analysis of the National Cancer Institute's Food Attitudes and Behaviors (FAB) survey found that respondents who were aware of the U.S. fruit and vegetable promotion campaign ("5 a day") were more likely to consume the recommended number of servings (Erinosho et al., 2012). Previous research has also found some positive effects on fruit and vegetable intake from interventions that encouraged several healthy behavioral choices in worksites and health centers (Sorensen et al., 2007). HIP is designed primarily as a financial incentive, but the pilot necessarily included significant outreach to the randomly selected HIP participant group. Outreach materials provided information about participating retailers and described the qualifying targeted fruits and vegetables (see Chapter 3). The full HIP impact estimates reflect any effects on attitudes toward or preferences for fruits and vegetables, in addition to the main effects of the financial incentive. The HIP evaluation study collected multiple measures of participants' attitudes toward and exposure to fruits and vegetables.

Factors that Could Influence the Magnitude of HIP Impacts

Based on this theory and logic model, it is possible to describe factors that could influence the magnitude of HIP impacts.

- **Incentive redemption and food expenditure.** In the HIP evaluation study, food expenditure is the leading vehicle by which HIP is expected to influence food intake. The overall effect of HIP is likely to be larger if participants understood the nature of the incentive, responded to the incentive, purchased more fruits and vegetables, and earned more incentives. Hence, HIP incentive claiming and HIP/non-HIP differences in food expenditures are important intermediate variables in this study.

- **HIP implementation and retailer enrollment.** The pilot's impact is expected to be larger if a higher percentage of retailers in the pilot area participate. For retailers, participation in HIP was voluntary, but extensive outreach efforts were undertaken to encourage participation. As more retailers participate, the effect on the food environment is likely to be greater, and more participants are likely to perceive that the effective price of targeted fruits and vegetables has really been lowered in the retailers where they most frequently shop.
- **Attitudes toward fruits and vegetables.** Participants' attitudes toward fruits and vegetables may affect both the level of fruit and vegetable intake and the responsiveness of fruit and vegetable intake to incentives. Even if participant attitudes were fixed, HIP could have greater effects on intake for participants with more favorable attitudes toward fruits and vegetables.

1.4 Previous Research

There is a large literature on interventions and policies to increase fruit and vegetable intake. Some previous interventions focused on nutrition education or awareness campaigns designed to influence attitudes toward fruits and vegetables. Other research has explored the effect of prices on fruit and vegetable spending, and a small number of previous interventions included a financial component. The HIP evaluation is distinct from all of this previous literature, because it provides the first random assignment impact estimates for a financial incentive that is administered directly through SNAP using the EBT card. The previous research does, however, provide some context for understanding the new results in this Interim Report.

An international literature review of 44 studies found that results differed based on characteristics of both the intervention and the target population (Pomerleau et al., 2005). Few of these studies included a monetary incentive or coupon, but they give some indication of the effect sizes that have been found with other approaches. For example, in general population interventions, positive effects ranged from 0.2 to 0.6 servings per day (one serving is equivalent to approximately ½ cup-equivalents of fruit or vegetables). In interventions for smaller focused communities, such as African American churches, the positive effects were larger, ranging from 0.7 to 1.4 servings per day. Similarly, interventions for adults with low income tended to have larger effects, ranging from 0.42 to 1.1 servings per day. A review of 22 studies of interventions to influence fruit and vegetable intake recorded positive effects in 17 studies, but no effect in another 5 studies (Government Accountability Office, 2008). Interventions with greater intensity, such as face-to-face education and counseling, are more effective but have substantially higher costs.

Some research has investigated the effects of prices on fruit and vegetable spending. There is clear evidence that price matters in other areas of health promotion (e.g., on smoking see Jha et al., 2006; more broadly, see Horgan and Brownell, 2002). With respect to food consumption, Andreyeva, Long, and Brownell (2010) review evidence on the impact of food prices on broad food categories. Their estimates are in terms of elasticities. For fruits they estimate a price elasticity of 0.70 (90% confidence interval: 0.41-0.98) and for vegetables 0.58 (90% confidence interval: 0.44-0.71). These results are broadly consistent with other recent work.

USDA research suggests that increasing total resources or resources targeted to food in general may have only a modest effect on fruit and vegetable spending for low-income Americans. Stewart and Blisard (2008) estimated income elasticities showing the percentage change in spending for several

food products in response to a change in income. For example, for middle-income households a 10 percent change in income was associated with a 1.3 percent change in beef spending, a 1.3 percent change in fruit spending, and a 1.0 percent change in vegetable spending. For low-income households, a 10 percent change in income was associated with a 2.5 percent change in beef spending, but no statistically significant change in fruit or vegetable spending. The study did not directly measure the effect of increasing SNAP benefits, but the authors anticipated a similar pattern. Stewart and Blisard concluded that there may be a hierarchy of demand, in which fruits and vegetables start out as a comparatively low priority for low-income Americans, but become a higher priority as the budget constraint is relaxed at somewhat higher income levels. Based on this evidence, it was suspected that price interventions could have larger effects than would increasing resources alone (Guthrie et al., 2007).

Previous research on direct financial incentives includes some research on WIC fruit and vegetable vouchers and some interventions in farmers market and worksite settings. Herman et al. (2008) randomly assigned WIC mothers to one of two intervention groups (vouchers for grocery stores or vouchers for farmers markets) or a control group as part of a program offering fruit and vegetable vouchers. Fruit and vegetable consumption increased substantially and significantly in both voucher groups but not in the control group, with changes sustained 6 months after the voucher program ceased. Average increases in fruits and vegetables were 2.4 servings for the farmers market voucher group and 0.9 servings for the supermarket voucher group, where one serving is equivalent to approximately ½ cup-equivalents of fruit or vegetables. A post hoc analysis of correlates of fruit and vegetable intake showed that changes in consumption differed across ethnic groups and for fruits versus vegetables.

An evaluation of a farmers market nutrition program in Michigan included separate groups of participants who received different combinations of coupons and education. The coupon-only group showed increased fruit and vegetable consumption, but the maximum impact was for nutrition education and coupons together (Government Accountability Office, 2008). The actual economic value of the vouchers in most of this research has been fairly small on a monthly basis.

Another controlled study with non-random assignment investigated the effects among over 500 low-income women of a multi-component program, including nutrition education combined with farmers market coupons (worth \$20) on fruit and vegetable consumption (Anderson et al., 2001). The coupon only group had the highest intake of fruits and vegetables.

French and colleagues have published several reviews (French, 2003, 2005; French et al., 2001, 2004) and conducted studies of interventions (Jeffery et al., 1994; French et al., 1997) to increase fruit and vegetable consumption, and have identified lower pricing as a successful strategy, singly or in combination with education and cafeteria improvements in school and worksite settings. Significant increases in fruit consumption on the order of 0.2 to 0.6 servings per day have been observed in studies they reviewed that used reduced prices for fruits and vegetables at schools and in worksite cafeterias, while such strategies have been less successful in changing vegetable consumption.

The extent to which these findings are applicable to the HIP demonstration project will depend on several factors: the similarity of the intervention (dollar equivalent amounts for vouchers, the ability to use them in the same types of outlets); differences between the populations (e.g., inclusion in WIC of higher-income households than are found in SNAP, as well as WIC categorical eligibility factors); and the sample demographics.

1.5 Organization of the Report

This Interim Report is organized as follows:

- Evaluation design, data, and methods (Chapter 2),
- HIP implementation and retailer enrollment (Chapter 3),
- Family food environment and attitudes toward fruits and vegetables (Chapter 4),
- Impact on expenditures (Chapter 5),
- Impact on fruit and vegetable consumption (Chapter 6), and
- Conclusions (Chapter 7).

The main chapters in the body of this report are closely connected to the leading factors that could influence the magnitude of HIP impacts discussed above and presented in the logic model. The primary empirical outcome for this study is fruit and vegetable intake. HIP/non-HIP differences in food intake are likely to stem from HIP's impact on food spending and incentive redemption. These intermediate impacts in turn depend on participant attitudes and on HIP implementation, retailer enrollment, and the quality of the food retail environment.

2. Evaluation Design, Data, and Methods

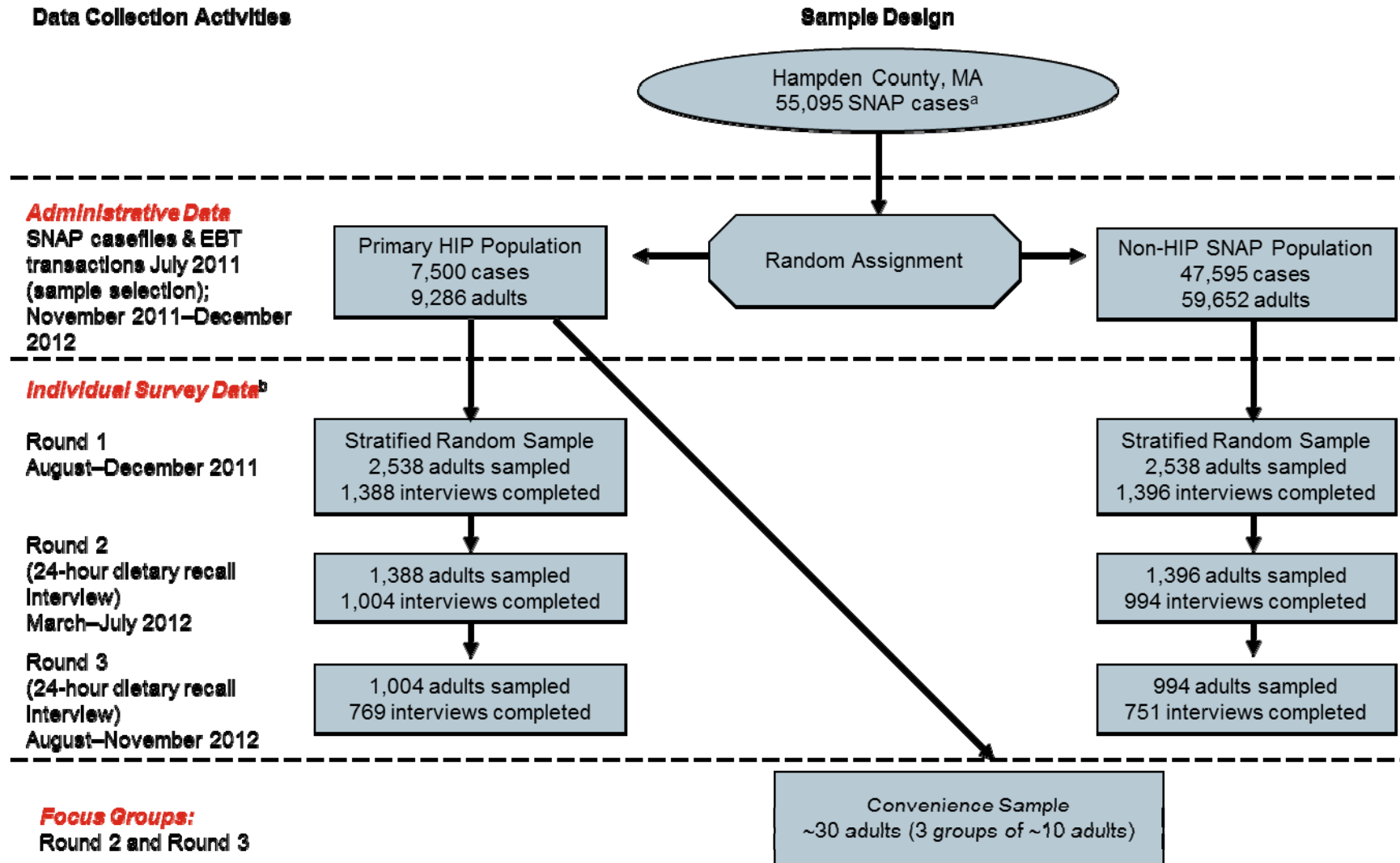
A rigorous research design was critical to assessing the impact of HIP on participants' intake of fruit and vegetables. Random assignment, the “gold standard” for assessing causal impacts, was used to select households to participate in HIP and to select individual household members to participate in the evaluation. This assured that any measured differences between the HIP and non-HIP groups can be attributed to the program rather than to factors like seasonal patterns or household preferences. To measure dietary intake we used 24-hour recall interviews, the approach used in most major national nutrition studies. Both of these approaches – random assignment and 24-hour recall interviews – are complicated and resource-intensive, but they give the best possible assurance that the evaluation results will be meaningful and unbiased.

These methods serve to address the numerous challenges to accurately measuring the impact of HIP. How much fruit and vegetables a household consumes depends on a wide array of factors, ranging from seasonal patterns of food availability to cultural preferences to the household's daily work and school schedule. The research design must therefore find a way to isolate the effects of HIP from these other factors. Adding to the challenge is the difficulty of knowing exactly what the household eats, since household members may eat in a variety of locations throughout the day and do not eat the same foods every day. The evaluation used the most reliable known strategies to deal with these challenges.

Exhibit 2.1 provides an overview of the evaluation design, showing the sampling process as it occurred at the different stages of the study. Data collection activities associated with each sample are noted to the left of the figure. As described in Section 2.2, dietary intake data, using 24-hour recall interviews were collected at two points during HIP implementation.

The first section of this chapter describes the random assignment process in which households were sampled to participate in HIP and given the opportunity to earn incentives for the purchase of targeted fruits and vegetables. The second section discusses random sampling for participant survey data collection, including sample sizes and response rates. It also discusses the types of data collected from participants that are used for the descriptive and impact analysis included in this Interim Report. The third and fourth sections discuss the administrative data used in the analysis, including EBT transaction data and SNAP case file data. The fifth section discusses participant focus groups that were conducted to provide qualitative detail to assist in interpreting the findings. The sixth section provides an overview of the analytic methodology used in the report, including an overview of the construction of participant sample weights. The seventh section examines the baseline characteristics of HIP and non-HIP households and of the survey sample. The eighth and final section examines attrition from SNAP over the early implementation period.

Exhibit 2.1: Evaluation Design Overview

^aExcludes child only cases; households that sign over benefits to treatment facility^bSurvey response rates 63%-84%; see Exhibit 2.3 for detailed calculations.

2.1 Random Assignment Research Design

The random assignment of eligible SNAP participant households to HIP and non-HIP status was central to the evaluation design and HIP operations. DTA provided administrative case file records containing all households and persons on SNAP in Hampden County as of mid-July, 2011.⁶ We randomly selected 7,500 SNAP households (containing 9,286 persons) to participate in HIP. DTA notified these households, provided specially marked EBT card sleeves to identify them as HIP participants, and offered training on HIP procedures. The remaining 47,595 eligible SNAP households in Hampden (containing 59,652 persons) were not selected to earn the HIP incentive.

To ensure that the HIP (treatment) and non-HIP (control) groups were balanced or similar, we used a blocked random assignment design.⁷ Tests on the samples after random assignment confirmed that they were similar with respect to key participant characteristics. Additionally, HIP households were randomly divided into three groups, corresponding to the three waves DTA established to enroll participants in HIP.⁸ Non-HIP households were also divided into three waves to facilitate participant survey sampling. The final sizes by wave for the HIP and non-HIP groups are presented in Exhibit 2.2.

Exhibit 2.2: Households and Persons in the HIP and non-HIP Sampling Frames by Wave

	HIP group				Non-HIP group			
	Wave 1	Wave 2	Wave 3	Total	Wave 1	Wave 2	Wave 3	Total
Number of households	2,500	2,500	2,500	7,500	15,865	15,865	15,865	47,595
Number of adults	3,091	3,090	3,105	9,286	19,952	19,792	19,908	59,652

Once DTA generated the Hampden County SNAP case extract file of HIP-eligible households, these households remained in the HIP universe for the duration of the pilot; no additional households were added to the pilot.

2.2 Participant Survey

We collected three rounds of data on sampled participants:

⁶ The evaluation sought to estimate the impact of HIP on adult food intake, so child-only cases were not eligible for HIP. Furthermore, only households that did their own shopping were eligible for the evaluation. SNAP participants who sign over their benefits to a residential or treatment facility were not eligible. DTA excluded these households prior to providing the file. Homeless participants who retained the use of their own benefits remained eligible for the study.

⁷ We created 12 household-level blocking cells defined by three levels of geography (Springfield; Chicopee/Holyoke; and remainder of Hampden County), two levels of household size (1-person and 2-or-more-person), and two genders for head of household (male-headed and female-headed). See Appendix A for additional details about sampling.

⁸ DTA staggered enrollment in HIP over three months for ease of implementation. Prior to each wave's start date, HIP households received several mailings describing HIP. See Chapter 3 for additional details.

- Round 1: baseline or pre-implementation data were collected prior to HIP implementation. Data collection extended from August to December 2011.
- Round 2: early implementation data were collected when households had been earning HIP incentives for 4-6 months. Data collection occurred between March and July 2012.
- Round 3: late implementation data collection occurred when households had been earning HIP incentives for 9-11 months. The data collection period began in August and was completed in November 2012.

In this section, we discuss participant sampling and data collection activities for the Round 1 and 2 surveys as these are the data used in this report. The Final Report will include analysis of Round 3 data and we will discuss details of the Round 3 survey in that report.

Participant Survey Sampling

The survey samples, equally distributed between the HIP and non-HIP groups, were selected using a stratified random assignment procedure. The stratification variables were the same ones used in the random assignment of households to the HIP and non-HIP groups. Among the HIP and non-HIP groups, an equal number of respondents were selected from each of the three waves. Sampled respondents were aged 16 and older and only one respondent was selected per household.⁹

After completion of participant sampling, each household received a HIP flag or indicator identifying it as one of the following four groups:

- HIP household, non-survey group
- HIP household, survey group
- Non-HIP household, survey group
- Non-HIP household, non-survey group

These flags were applied to all members of the original households in the HIP universe. As household composition and program participation changed over time, “following rules” determined by DTA had implications both for HIP operations and for survey sampling. The SNAP case was tied to the head of household and therefore, the HIP flag and the HIP incentives were also tied to this individual.¹⁰

⁹ Approximately 6 percent of sampled respondents were aged 16-17. This group was included in the sample as they can be SNAP heads of households and the sample was intended to represent all types of households.

¹⁰ If the original head of household (HoH) left the SNAP household, DTA closed that SNAP case. Other household members could form a new case, but that new case did not get the HIP flag and thus did not earn HIP incentives even if its prior flag was a HIP case. Similarly, if a member of a HIP household other than the original HoH left the household, that person was not given a HIP flag and was not eligible to earn HIP incentives. In such cases, the household with the original HoH retained the HIP flag and HIP incentives. The SNAP case also could close without any changes in household composition. Regardless of how a SNAP case closed, if the SNAP case reopened with the original HoH, the household once again received the HIP flag and resumed earning HIP incentives.

We randomly sampled 2,538 SNAP recipients from both the HIP and non-HIP households to participate in the Round 1 survey. This sample size was chosen so that a large enough sample would remain for Rounds 2 and 3 to achieve the desired level of precision after accounting for participants who left SNAP, and thus were ineligible for the survey, or who became non-respondents in the later rounds.¹¹ The target sample was designed to be able to detect a post-implementation HIP/non-HIP difference in targeted fruit and vegetable intake of 0.25 cup-equivalents of fruits and vegetables per day. This amount is roughly equivalent to the probable difference that we estimated based on economic theory, so the target sample sizes were expected to be adequate.

The Round 1 survey was fielded in three waves, corresponding to the three waves of implementation. Prior to fielding each round, we used DTA's SNAP case file data to exclude respondents who were no longer participating in SNAP. Exhibit 2.3 shows the number of participants sampled and the number who remained on SNAP at the beginning of the survey wave and were thus eligible to participate in the survey.

Exhibit 2.3: Sample Sizes, Eligible Respondents, Completed Surveys and Response Rates: HIP and non-HIP Households by Survey Round

	Number sampled	Number on SNAP at time of survey	Number of surveys completed	Response rate
HIP group				
Round 1	2,538	2,208	1,388	63%
Round 2	1,388	1,194	1,004	84%
Non-HIP group				
Round 1	2,538	2,183	1,396	64%
Round 2	1,396	1,201	994	82%

All respondents who completed the Round 1 survey were eligible for the Round 2 survey. As with the baseline survey, the Round 2 survey was fielded in three waves. While each wave had been eligible to earn incentives for 4-6 months at the time of the survey, given some EBT systems issues that occurred near the start of HIP implementation, most households had 3 months of experience with a fully operational pilot.¹² Similar to the baseline survey, prior to the start of Round 2, respondents who were no longer receiving SNAP benefits were dropped from the sampling frame.¹³

In order to estimate usual intake distributions for fruit and vegetable consumption, we drew a 10 percent subsample of respondents who completed the Round 2 survey and conducted a second dietary intake interview. Because a single 24-hour dietary recall measures consumption at one point in time, which may not accurately represent longer-term average intake, the preferred method for estimating "usual intake" is to conduct a second interview for a subset of the study participants.¹⁴

¹¹ See Appendix A for details on sampling procedures and assumptions.

¹² See Chapter 3, Section 3.2 for details of the EBT systems issues.

¹³ See Section 2.8 for a discussion of the rationale for interviewing only households on SNAP at the time of the survey.

¹⁴ The Final Report will include analyses based on usual intake estimates for Rounds 2 and 3 and will describe the methodology in detail.

Participant Survey Instruments

The participant survey included two modules, one to be completed by the sampled participant and the other by the household's primary shopper. In most cases (78 percent) these were the same person. Survey topics, by module, are presented in Exhibit 2.4. Where possible, we used validated questions from other surveys.

Exhibit 2.4: Participant Survey Topics, by Round

Survey Topics	Round 1 Survey (Baseline)	Round 2 Survey (4-6 months after implementation)	Round 3 Survey (9-11 months after implementation)
Sampled Participant Module			
Respondent characteristics	✓		
Attitudes, perceptions, and barriers to consuming fruits and vegetables	✓	✓	✓
Fruit and vegetable consumption screener (frequency and quantity)	✓	✓	✓
Exposure to nutrition education		✓	✓
24-hour dietary recall		✓	✓
Primary Shopper Module			
Household characteristics	✓	✓	✓
Participation in nutrition assistance programs	✓		
Family food environment	✓	✓	✓
General shopping patterns	✓	✓	✓
Food expenditures	✓	✓	✓
Experiences participating in HIP		✓	✓

The Round 1 survey established a baseline for all measures except the outcome measures based on the 24-hour recall, which was not included in Round 1. The random assignment design uses differences between the HIP and non-HIP groups to measure the impact of the program and thus does not require baseline outcome measures.

The Round 2 instrument collected data on most of the same domains as Round 1, except that we did not collect information on respondent characteristics and participation in nutrition assistance programs. Interview time was limited and these measures were not needed for model estimation.¹⁵

Both the Round 2 survey (analyzed for this report) and the Round 3 survey (that will be analyzed for the Final Report) included key outcome domains for the study. The 24-hour dietary recall was conducted using USDA's Automated Multiple Pass Method (AMPM). The AMPM instrument, which

¹⁵ These variables would be endogenous to the outcome measure and therefore would not be proper regressors.

is designed to enhance respondents' ability to recall food consumed during the previous day, is a well-established and frequently used measurement approach. Despite this, one can never completely rule out the possibility that results are influenced by measurement error. The 24-hour approach offers less underreporting of food and nutrient intake than other assessment methods (Subar et al., 2003), minimizes respondent literacy and memory issues, and minimizes respondent burden.

Participant Survey Data Collection

Prior to the beginning of data collection, sampled respondents were sent an advance letter informing them of their selection into the evaluation sample. The letters sent to participants before the baseline or Round 1 survey did not mention HIP, but instead referred to the study as examining how SNAP is working for families in Hampden County. Advance letters were also sent prior to the start of Round 2 and Round 3 data collection.

Participant data were collected through a telephone survey. Spanish-speaking interviewers were available to complete surveys with respondents whose primary language was Spanish. For respondents who could not be reached by phone, we sent field interviewers to respondents' homes.¹⁶ Once they located respondents and gained their cooperation for the interview, field interviewers provided a cell phone that respondents used to complete the interview.

Within each round of the survey, the sample was released in three waves to correspond with the waves DTA established to enroll participants in HIP (November 1, 2011, December 1, 2011, and January 1, 2012, respectively). Round 1 was more challenging to field than the subsequent rounds, because the HIP respondent interviews had to be completed before the beginning of each wave of HIP participation.

Response rates for Rounds 1 and 2 are presented in Exhibit 2.3. Rates were lowest in Round 1, although they increased with each wave. Several natural disasters contributed to the lower than planned response rates in Round 1, including a hurricane, tornado, and early snow storm. Higher than expected incidences of missing or bad phone numbers, Spanish-speaking only cases, and cases that were completed in the field created additional challenges to the first round of data collection. The intensive field methods were designed to address the concern that non-respondents might differ from respondents, such that estimates for respondents would not project to the entire Hampden County SNAP population.¹⁷

As discussed above, in order to estimate usual intake distributions for fruit and vegetable consumption, we drew a 10 percent subsample of respondents who completed the Round 2 survey and conducted a second dietary intake interview. We completed a total of 227 interviews, 106 with respondents in the treatment group and 121 with control group respondents.

¹⁶ The percentage of interviews completed in the field varied by survey round. Field completes were: 58 percent in Round 1, 37 percent in Round 2, and 26 percent in Round 3.

¹⁷ We will conduct a non-response analysis to assess the extent of non-response bias in the Round 1 survey. Results will be included in the Final Report.

2.3 EBT Transaction Data

This report uses EBT transaction data to examine HIP incentive earnings by program participants, focusing on HIP-eligible purchases, the amount of incentives earned, and the percent of HIP households that reached the monthly incentive cap. The EBT vendor for Massachusetts, Xerox, collects and maintains data pertaining to the SNAP EBT transactions. These data show the date and amount that SNAP benefits (monthly as well as any other) were credited, and they show the date, time, amount, and location for each shopping transaction using SNAP benefits. In addition, transaction data for the evaluation period provide information (date, time, amount, store) on HIP-eligible purchases and HIP incentives earned.

We obtained daily EBT transaction data for the full pool of HIP and non-HIP participants in Hampden County. Daily transmission of data helped identify issues in the EBT transaction data in time for the EBT vendor to address them. Abt cleaned the transaction files to remove duplicate transactions and account for any product returns and corrected transactions. Data were transmitted without social security numbers (SSNs), but case file identification numbers were included to allow linking to other administrative data. We compiled the EBT transaction data into one observation per household for each calendar month.

EBT transaction data have a number of restrictions that affect the analyses that can be performed:

- Only purchases made with SNAP benefits are included; purchases made with other forms of payment, such as cash or WIC vouchers are not captured;
- Only HIP purchases at HIP-participating stores earn the incentive; purchases of HIP-eligible items at non-participating retailers do not earn the incentive;
- At HIP participating stores *without* integrated electronic cash registers (IECRs), HIP households needed to identify themselves as HIP participants and HIP-eligible items needed to be separated from other items. HIP incentives were only earned for properly identified purchases.

In this Interim Report, we use transaction data to examine take-up of HIP incentives by participants. We examine transactions beginning in November 2011, when HIP began,¹⁸ though we focus on transactions beginning in January 2012 when all participants were active. We analyzed EBT data through July 2012, the end of the Round 2 participant survey data collection activities.¹⁹

¹⁸ The evaluation research design intended that EBT transaction data would be available beginning two months prior to the HIP implementation. However, it proved difficult to compile EBT data files during the period that preparations for implementation were being completed; transaction files for the pre-implementation period could not be reconstructed.

¹⁹ Data analyzed for the Final Report, will also examine how SNAP redemptions differed at different types of participating and non-participating retailers and will include data through December 2012. Purchases of non-HIP households will also be examined.

2.4 Focus Groups

We conducted two rounds of focus groups with HIP participants to obtain qualitative details on their experiences with HIP. The information from the groups is used to provide additional context for interpreting the participant impact analysis. The first round of focus groups (analyzed for this report) coincided with the Round 2 participant survey and the second round of focus groups (to be analyzed for the Final Report) coincided with Round 3 of the survey.

First round focus group participants shared their perspectives on:

- How they learned about HIP, including the notifications and training received;
- Expectations for the program;
- Experiences using HIP;
- Financial impact on the household;
- Impact on consumption of fruits and vegetables

We conducted three focus groups, two in English and one in Spanish, in April 2012.²⁰ Each group included 8-10 participants. The groups lasted 90 minutes and participants were invited to come 30 minutes early for light refreshments. All focus group members received \$75 for their participation.

Focus group participants were recruited using the case file data utilized for participant sampling. Eligible participants for the first round of focus groups were selected from the sample of survey participants. In addition, group participants had to be active SNAP beneficiaries and to have heard of the HIP program. The goal was to have an equal number of women and men and to include participants of different ages and educational levels, with no more than two individuals per group having a college degree or higher.

The analysis of the focus groups focused on several issues:

- Overall participant understanding of HIP purpose and operation;
- How participants learned about HIP;
- Expectations of families and the extent to which HIP met expectations;
- Changes in willingness to purchase fruits and vegetables; and
- Unexpected outcomes.

2.5 SNAP Caseload Data

DTA maintains information on SNAP households and participants (including demographics, income, contact information, and benefits) in its BEACON eligibility system. This system was used for the initial random assignment of eligible households to HIP and for several additional evaluation purposes:

²⁰ A second round of focus groups was held in October 2012. Information from these groups will be included in the Final Report.

- Survey sampling frame, blocking groups, sorting variables, and demographic analysis variables for the participant survey,
- Updates to contact information and demographic data for participants sampled for Rounds 2 and 3 of the participant survey, and
- Characteristics of HIP and non-HIP households that were matched with monthly EBT transaction data for analysis.

Important demographic variables from the SNAP eligibility system included age of household head, household size, relationships of SNAP household members, number of adults in the household, number and ages of children in the household, presence of an elderly member, employment status and earnings, and presence of unearned income (including for example, SSI and unemployment compensation).

The SNAP caseload data were obtained for all HIP-eligible households in Hampden County receiving SNAP benefits in July 2011 and monthly throughout the evaluation period.

2.6 Analytic Approach

In this section, we describe our analytic approach to estimating the impact of HIP—outcomes with HIP relative to what outcomes would have been without HIP.²¹ We begin by describing the primary outcome of interest—intake of fruits and vegetables earning the HIP incentive. We then describe the regression models we use to estimate impacts on continuous outcomes (such as daily intake of modified targeted fruits and vegetables). We discuss the analysis strategy for binary outcomes (such as having fruit available at home) and other categorical outcomes (such as the degree of agreement with a statement about attitudes toward fruits and vegetables) in the following section. Finally, we discuss the use of survey weights to make sample estimates representative of the SNAP population in Hampden County.

Primary Evaluation Outcome

We are explicitly interested in estimating the impact of HIP on intake of targeted fruits and vegetables (TFV), the foods qualifying for the HIP incentive. However, it is not possible to precisely measure TFV intake using standard 24-hour dietary recall interview methods and food codes. The issue is that standard dietary coding schemes identify the form in which a food was *consumed*, while whether a food qualifies for the HIP incentive depends on the form in which the food was *purchased*. Our approach to this issue was to develop a measure which we call modified targeted fruits and vegetables (MTFV) as the primary outcome of interest for the evaluation. The definition of this measure and the reasons for the approach are discussed in detail in Chapter 6.

The research questions require analyses of impacts on a large number of outcomes in addition to MTFV. When we estimate a large number of impacts, it is likely that some of them will appear to be

²¹ The approach estimates the impact of being assigned to the HIP group and therefore eligible to receive the HIP incentive on purchases of targeted fruits and vegetables relative to being assigned to the non-HIP group and not being eligible to receive the HIP incentive on purchases of targeted fruits and vegetables. For many purposes, this is the policy relevant estimate as we cannot force people to use the benefit; all we can do is offer them the benefit. Thus, the analysis estimates the impact of being offered the HIP incentive.

significant even if there is no true treatment effect (Schochet, 2009). Our approach to this “issue of multiple comparisons” was to specify one confirmatory outcome—modified targeted fruit and vegetable (MTFV) intake, pooled²² across all interviews—prior to analyzing the data, such that no further multiple comparison adjustment would be needed. All other analyses are considered exploratory.

This confirmatory outcome cannot be computed until we have Round 3 data. For this Interim Report, we treat MTFV pooled across all Round 2 interviews (including the 24-hour dietary recall interview and the second dietary recall interview collected on a 10 percent subsample) as though it was the study’s confirmatory outcome.²³

Regression-adjusted Differences between HIP and non-HIP Groups

The impact analyses presented in this report are based on regression-adjusted differences between the HIP and non-HIP groups. While a simple comparison of mean outcomes for respondents in the HIP and non-HIP groups would yield valid estimates of the impact of HIP, we use a regression-adjustment approach to improve the precision of impact estimates by controlling for some portion of the variation in observed outcomes. In other words, we compare the average outcomes (e.g. MTFV intake) for HIP participants and non-HIP participants after accounting for a variety of other characteristics in order to more precisely present the impact of HIP.

The characteristics we account for (i.e., covariates included in all the regressions) are:

- Stratification/ blocking variables used in the sampling, which include indicators of household residential location, size and composition of household, and gender and age of household head;
- Demographic characteristics of respondents, including gender, age, and race/ethnicity; and
- Baseline fruit and vegetable consumption derived from questions on frequency and quantity of specific types of fruits and vegetables consumed in the week prior to the survey.

For outcomes in which the same survey question was asked in Round 1, such as attitudes toward fruits and vegetables, the analysis includes the Round 1 response as an additional control in the regression. Analysis of dietary intake data also included covariates indicating whether the recall was the first or second recall and respondents’ assessment of whether their reported intake was usual.²⁴

²² By pooling, we mean that we included all of the observations—both the main interviews for the entire sample and the 10 percent subsample interviews (that will be used for the usual intake computations). To account for two observations for some individuals, we “cluster” the data (i.e., we use the cluster option in Stata).

²³ Pooling or stacking all the Round 2 interviews is the most efficient use of the data and provides a natural way to combine responses for individuals with varying numbers of interviews. For the Interim Report, we did not use the 10 percent subsample to conduct usual intake analysis; this will be done for the Final Report.

²⁴ Appendix D, Exhibit D.1 presents the complete list of covariates used in the regressions and how they were defined; it also presents means and standard errors for all covariates.

Estimated coefficients were then combined with observed covariate values to compute regression-adjusted means, or averages for the HIP and non-HIP participants that account for other characteristics (e.g. demographic characteristics).

Our strategy for reporting statistical significance in the exhibits and in the text discussion is as follows:

- In the exhibits, we use asterisks to indicate statistical significance: $*p < .10$; $**p < .05$; and $***p < .01$.
- In the text discussion we consider p-values lower than 0.05 as statistically significant and discuss those results. We consider p-values of 0.05 or higher as indicating a lack of proven relationship and thus we do not discuss these results in the text.

Analysis of Binary and Categorical Outcomes

Many of the secondary outcomes analyzed in this report are either binary (e.g., yes/no) or categorical (e.g., strongly disagree/disagree/neither agree nor disagree/agree/strongly agree) variables. As with continuous variables, we present results that are adjusted to account for sample members' characteristics at baseline. In the body of the report, we present analyses based on linear probability and linear regression models as they are more easily interpretable. We also analyzed the outcomes using logistic and ordered logistic regression models and present the models in Appendix E. The results from both types of models are similar.

In all analyses presented in this report, binary outcome variables are coded so that 1= "yes" and 0= "no". Each outcome is regressed on a HIP participation indicator and other explanatory variables (described above). The results show the effect of HIP participation on the probability of saying "yes" to the question.

Categorical outcomes analyzed in this report include items such as the degree of agreement with a particular statement about, for example, nutrition attitudes. These outcomes were coded into 5-point Likert scales, with higher values indicating greater levels of agreement. Just as in the binary case above, the outcome is regressed on the HIP participation indicator and the other explanatory variables. The resulting coefficient estimates provide a straightforward description of the direction of HIP's impact on these outcomes (e.g., whether HIP participants more strongly agree or more strongly disagree with a particular statement than do non-HIP participants).²⁵

Survey Weights and Clustering

All analyses using participant survey data were weighted to provide estimates of the SNAP population in Hampden County. Weights were constructed to account for the sampling design and survey non-response. See Appendix B for a detailed discussion of how the weights were constructed.

The analysis uses all available Round 2 interviews. As noted in Section 2.2, for approximately 10 percent of the sample, we conducted a second dietary recall interview in order to allow estimation of usual intake. We include these interviews in our analysis. We address the resulting non-independence by clustering on household.

²⁵ The coefficients cannot, however, be interpreted numerically as a scale score because one cannot assume that each categorical response is one unit different from the next.

2.7 Sample Description

The analyses in the Interim Report use two samples, one a subset of the other. As discussed above, all SNAP households in Hampden County were randomly assigned to either the HIP or non-HIP evaluation group. Our EBT analysis (presented in Chapter 5) includes all of the approximately 55,000 SNAP households in the county. The participant survey samples were then drawn from among the HIP (treatment) and non-HIP (control) groups. The data collected on this smaller sample are used for the descriptive and impact analyses. In this section, we present descriptive statistics for both samples and compare the characteristics of the treatment and control groups.

Hampden County SNAP Participants

In this section, we use data from SNAP caseload files to describe the universe of SNAP participants in July 2011, when random assignment to HIP occurred prior to HIP implementation. SNAP caseload data show (Exhibit 2.5) that just under half of SNAP household heads were Hispanic and that Spanish was spoken in one-quarter of all households. SNAP household heads were 43 years old on average and half were disabled. Most recipients (80 percent) lived in private residences and seven percent were homeless. One-third of households included children and just over ten percent of households included elderly members.

Although the SNAP population in Hampden County differs from the national SNAP population on some of these factors, the location was selected by Massachusetts due to its mix of urban, rural, and suburban areas which contain two of the lowest income cities in the State. Hampden County is racially diverse, has the lowest median household income and the highest poverty rate in the State. Residents in the western region of Massachusetts have the highest rates of obesity and related chronic illnesses in the State.

In terms of income and benefits in July 2011, average income was \$806, and a majority (60 percent) of SNAP household heads had some form of unearned income: SSI (32 percent); Social Security (27 percent); Temporary Assistance to Needy Families (TANF) (13 percent); and unemployment compensation (5 percent). The average SNAP benefit was \$258 in July 2011.

As expected, due to the random assignment design, no significant differences emerged between the treatment and control groups in these reported characteristics. An overall F-test indicated that there was no difference ($p = .556$) between treatment and control groups overall at baseline.

Exhibit 2.5: Characteristics of SNAP Households in Hampden County: July 2011

Variable	Total (proportion)	Treatment (proportion)	Control (proportion)	P-value
Race/ethnicity of head				
Hispanic	0.44	0.43	0.44	[0.722]
Non-Hispanic white	0.37	0.37	0.37	[0.714]
Non-Hispanic black	0.13	0.13	0.13	[0.325]
Non-Hispanic other	0.07	0.07	0.07	[0.930]
Spanish spoken in household	0.22	0.22	0.22	[0.925]
Age of head				
16-30	0.28	0.28	0.28	[0.388]
31-40	0.21	0.21	0.21	[0.700]
41-54	0.26	0.26	0.27	[0.243]
Over 54	0.25	0.25	0.25	[0.946]
Mean age (years)	43	43	43	[0.601]
Household head disabled	0.50	0.50	0.50	[0.974]
Household head U.S. citizen	0.96	0.96	0.96	[0.370]
Household composition				
Elderly in household	0.12	0.12	0.12	[0.348]
Children in household	0.36	0.37	0.36	[0.636]
No elderly or children in household	0.51	0.51	0.51	[0.870]
Housing type				
Private	0.80	0.80	0.80	[0.369]
Public	0.14	0.14	0.14	[0.358]
Other	0.06	0.06	0.06	[0.860]
Household is homeless	0.07	0.07	0.07	[0.990]
Monthly household gross income^a				
\$0	0.24	0.23	0.24	[0.321]
\$1-\$787	0.26	0.27	0.26	[0.104]
\$788-\$1,082	0.25	0.25	0.25	[0.941]
\$1,083 or higher	0.25	0.25	0.25	[0.459]
Mean income (\$)	\$806	\$804	\$807	[0.714]
Types of income received by head				
SSI	0.32	0.32	0.33	[0.823]
Social Security	0.27	0.27	0.27	[0.774]
TANF	0.13	0.13	0.13	[0.905]
Unemployment compensation	0.05	0.05	0.05	[0.167]
Other unearned income	0.60	0.60	0.60	[0.241]
SNAP monthly benefit amount				
\$161 or less	0.25	0.26	0.25	[0.230]
\$162-\$200	0.39	0.39	0.39	[0.679]
\$201-\$349	0.10	0.11	0.10	[0.254]
\$350 or higher	0.25	0.24	0.25	[0.123]
Mean benefit (\$)	\$258	\$255	\$259	[0.076]*
Sample size	55,095	7,500	47,595	
F-value ^b		.93		
P-value		0.573		

Two-sided t-test: *p<0.1, **p<0.05, ***p<0.01

^a Includes earned and unearned income.^b Variables included in F-test, but not shown in table: Baystate combined application project (CAP) status for SSI recipients; recertification type (semiannual reporting, recertification, other)

Source: DTA SNAP Caseload Data

Participant Survey Sample

The participant survey sample included equal numbers of HIP and non-HIP respondents. The sample used for the analyses presented in this Interim Report included respondents who completed both the Round 1 and the Round 2 surveys. In this section, we present the baseline characteristics (pre-HIP implementation) of the analysis sample. Data come from both the DTA caseload files and the participant survey (primary shopper module). Some baseline characteristics are measured at the household-level and others pertain to the individual survey respondent (collected in the primary shopper module) or to the head of the sampled household.

Households in the analysis sample contained between two and three people, on average, and just under half were single-member households at baseline (Exhibit 2.6). There were children in approximately 40 percent of households and elderly in just over ten percent of households. Full-time employment was not common in SNAP households. Only 20 percent of households had at least one member that was employed full-time.

Examining participation in other assistance programs, about one-fifth of households received WIC in the month prior to the survey, and almost all households with qualifying children received free school lunch in the week prior to the survey.²⁶ About one-third of households received a monthly SNAP benefit between \$162 and \$200, and almost another third received over \$350 per month.

Comparing the household characteristics of treatment and control groups in our survey sample, the average number of adults was somewhat larger in the control group. No other statistically significant differences emerged at baseline at the 5 percent level (a few differences were significant at the 10 percent level, as would be expected by chance).

Exhibit 2.6: Baseline Characteristics of Households Completing Round 2 Participant Survey, by Treatment and Control Status

	Total Proportion (N)	Treatment Proportion (N)	Control Proportion (N)	P-value	Sample size
DTA SNAP caseload data					1954
<i>Household residence</i>					
Springfield	0.52 (1030)	0.53 (505)	0.52 (525)	[0.698]	
Chicopee or Holyoke	0.25 (505)	0.26 (255)	0.25 (250)		
Hampden County balance	0.22 (419)	0.21 (220)	0.22 (199)		
<i>Persons in household</i>					
Mean (SE)	2.33 (0.04)	2.26 (0.05)	2.35 (0.05)	[0.231]	
<i>Single-member household</i>					
One person in household	0.45 (872)	0.44 (450)	0.45 (422)	[0.822]	
Multiple persons in household	0.55 (1082)	0.56 (530)	0.55 (552)		
<i>Adults in household</i>					
Mean (SE) ^a	1.49 (0.02)	1.42 (0.02)	1.50 (0.03)	[0.023]**	

²⁶ If the interview was conducted during the summer, the respondent was asked about receipt of free school lunch in the prior school year.

	Total Proportion (N)	Treatment Proportion (N)	Control Proportion (N)	P-value	Sample size
Number of adults					
3 or fewer adults in household	0.97 (1918)	0.98 (965)	0.97 (953)	[0.055]*	
4 or more adults in household	0.03 (36)	0.02 (15)	0.03 (21)		
Household composition					
Elderly in household	0.11 (238)	0.11 (129)	0.11 (109)	[0.967]	
Children in household	0.42 (827)	0.43 (398)	0.42 (429)		
No children/elderly	0.46 (889)	0.46 (453)	0.47 (436)		
Monthly SNAP benefit					
\$161 or less	0.24 (498)	0.25 (257)	0.24 (241)	[0.944]	
\$162–\$200	0.31 (592)	0.31 (308)	0.32 (284)		
\$201–\$349	0.14 (272)	0.14 (134)	0.14 (138)		
\$350+	0.31 (592)	0.30 (281)	0.31 (311)		
Participant Survey data (primary shopper module)^c					
Household composition					1849
Persons in household [mean (SE)]	2.87 (0.05)	2.82 (0.05)	2.88 (0.06)	[0.698]	
Children under age 5 [mean (SE)]	0.28 (0.02)	0.32 (0.02)	0.28 (0.02)	[0.076]*	
Children age 5-17 [mean (SE)]	0.83 (0.03)	0.80 (0.04)	0.84 (0.04)	[0.739]	
Adults age 18-64 [mean (SE)]	1.58 (0.03)	1.52 (0.03)	1.59 (0.03)	[0.169]	
Adults age 65 and up [mean (SE)]	0.18 (0.01)	0.18 (0.01)	0.18 (0.01)	[0.924]	
Household employment status (prior week)					1829
Any members full-time employed	0.19 (320)	0.17 (150)	0.19 (170)	[0.327]	
Any members part-time employed	0.13 (255)	0.15 (135)	0.13 (120)	[0.229]	
Any members not employed	0.67 (1261)	0.68 (645)	0.67 (616)	[0.589]	
Program participation					
Received WIC (prior month)	0.18 (335)	0.20 (169)	0.18 (166)	[0.509]	1842
Used food pantry/soup kitchen (prior month)	0.12 (209)	0.10 (101)	0.12 (108)	[0.414]	1841
Received Sr. Nutrition/Meals on Wheels (prior month)	0.02 (32)	0.02 (17)	0.02 (15)	[0.918]	1847
Child received free/reduced price lunch (prior week) ^d	0.87 (702)	0.90 (349)	0.86 (353)	[.] ^b	789

Weighted proportions (unweighted Ns) for categorical variables; weighted means (standard errors) for continuous variables

Chi-square test for categorical variables, t-test for continuous variables; two-sided test: *p<0.1, **p<0.05, ***p<0.01

Due to rounding, reported proportions may not sum to one.

^a Top-coded at 7

^b Missing test statistics because of stratum with single sampling unit

^c “Don't know,” “refused,” “inapplicable,” and “not ascertained” responses in Participant Survey (primary shopper module) data coded as missing

^d Households with qualifying child only

Sources: DTA SNAP Caseload Data (July 2011), Participant Survey (primary shopper module)

Among household heads in our survey sample (Exhibit 2.7), we find that almost three-quarters were female, just over 40 percent were Hispanic and almost one-quarter spoke Spanish in the home. Age varied fairly evenly from between 16 to 30 years old up to 55 years and older. Very few household heads were homeless and a majority lived in private housing. Turning to income and benefits, almost one-fifth of the household heads had no monthly income at baseline, but one-third had a monthly income of over \$1,089; most were receiving unearned income. Most household heads were not receiving TANF, but about one-third were receiving SSI.

Only one significant difference in household head characteristics emerged between the treatment and control groups in our survey sample. Household heads in the treatment group were more likely to receive unemployment compensation than were household heads in the control group. Aside from this difference, heads of households in treatment and control groups were not significantly different.²⁷

Exhibit 2.7: Baseline Characteristics of Household Heads for Respondents Completing Round 2 Participant Survey, by Treatment and Control Status

	Total Proportion (N)	Treatment Proportion (N)	Control Proportion (N)	P-value
Gender				
Male	0.28 (503)	0.27 (257)	0.28 (246)	[0.843]
Female	0.72 (1451)	0.73 (723)	0.72 (728)	
Race/ethnicity				
Hispanic	0.43 (816)	0.42 (401)	0.43 (415)	[0.892]
Non-Hispanic white	0.37 (733)	0.38 (384)	0.37 (349)	
Non-Hispanic black	0.14 (278)	0.14 (134)	0.14 (144)	
Non-Hispanic other	0.07 (127)	0.06 (61)	0.07 (66)	
Primary language spoken in home				
Spanish language	0.22 (426)	0.22 (213)	0.22 (213)	[0.825]
Other language	0.78 (1528)	0.78 (767)	0.78 (761)	
Disability status				
Disabled	0.51 (1036)	0.51 (534)	0.52 (502)	[0.906]
Not disabled	0.49 (918)	0.49 (446)	0.48 (472)	
Citizenship				
US citizen	0.95 (1876)	0.96 (946)	0.95 (930)	[0.302]
Not a US citizen	0.05 (78)	0.04 (34)	0.05 (44)	
Age				
16-30 years	0.23 (407)	0.22 (197)	0.23 (210)	[0.784]
31-40 years	0.23 (459)	0.24 (224)	0.22 (235)	
41-54 years	0.30 (587)	0.29 (292)	0.30 (295)	
55+years	0.25 (501)	0.25 (267)	0.25 (234)	
Homelessness				
Homeless	0.05 (57)	0.04 (23)	0.05 (34)	[0.370]
Not homeless	0.95 (1897)	0.96 (957)	0.95 (940)	
Housing type				
Private	0.80 (1583)	0.81 (807)	0.80 (776)	[0.391]
Public	0.16 (318)	0.16 (152)	0.16 (166)	
Other	0.04 (53)	0.03 (21)	0.04 (32)	

²⁷ For characteristics on sampled respondents and primary shoppers, see Appendix E, Exhibits E2.1–E2.3.

	Total Proportion (N)	Treatment Proportion (N)	Control Proportion (N)	P-value
Monthly household gross income				
\$0	0.18 (345)	0.20 (180)	0.18 (165)	[0.892]
\$1–\$787	0.24 (474)	0.24 (242)	0.24 (232)	
\$788–\$1,088	0.25 (496)	0.24 (246)	0.25 (250)	
\$1,089+	0.33 (639)	0.32 (312)	0.33 (327)	
SSI				
Receiving SSI	0.32 (654)	0.32 (335)	0.32 (319)	[0.725]
Not receiving SSI	0.68 (1300)	0.68 (645)	0.68 (655)	
Social Security				
Receiving Social Security	0.29 (588)	0.28 (306)	0.29 (282)	[0.505]
Not receiving Social Security	0.71 (1366)	0.72 (674)	0.71 (692)	
TANF				
Receiving TANF	0.18 (347)	0.17 (164)	0.18 (183)	[0.338]
Not receiving TANF	0.82 (1607)	0.83 (816)	0.82 (791)	
Unemployment compensation				
Receiving unemployment compensation	0.04 (94)	0.06 (54)	0.04 (40)	[0.046]**
Not receiving unemployment compensation	0.96 (1860)	0.94 (926)	0.96 (934)	
Other unearned income				
Receiving unearned income	0.61 (1234)	0.63 (639)	0.60 (595)	[0.229]
No unearned income	0.39 (720)	0.37 (341)	0.40 (379)	

Weighted proportions (unweighted Ns)

Two-sided chi-square test: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Due to rounding, reported proportions may not sum to one.

Source: DTA SNAP Caseload Data (unweighted N=1954)

Put together, descriptive statistics suggest that characteristics of our survey sample are largely similar to those of the universe of SNAP recipients in Hampden County. Furthermore, the random assignment process appears to have been successful in selecting treatment and control groups who are not significantly different from each other.

2.8 HIP/non-HIP Balance and Attrition Analysis

The previous section has shown that the samples of HIP and non-HIP households were similar at the time of random assignment. Unlike conventional random assignment studies, our design requires the HIP and non-HIP groups also to be similar at subsequent interview waves. The issue is that in a standard random assignment design everyone selected would be interviewed at each wave regardless of any subsequent behavior. However, HIP only applies to those receiving SNAP and SNAP exit is common. At the design stage, we estimated that 27 percent of the sample would exit by the first follow-up interview. Thus, following the standard approach would lead to expensive interviews with many people who were no longer on SNAP—and therefore no longer eligible for the HIP incentive. Without the incentive, we would not expect an impact on their fruit and vegetable consumption.

The net result of following the standard randomization design would have been a requirement for a sample approximately 50 percent larger than the current sample, to include a large enough subsample still on SNAP. That study was not cost feasible.

Instead, the analytic team considered the options and decided to conduct follow-up interviews only with those still on SNAP. This alternative design will yield valid random assignment estimates if either (i) attrition is not related to HIP status; or (ii) any differential attrition can be controlled for with sampling weights.

At the design stage, both of these assumptions seemed plausible. With respect to the first condition, the HIP benefit is relatively small compared to the average monthly SNAP benefit that it seemed unlikely to have a large impact on SNAP exit.²⁸

With respect to the second condition, the SNAP case files contain rich information on the households at baseline (demographics, income, benefits received) which can be used to construct rich sampling weights, which could plausibly control for moderate levels of differential attrition. This is the standard assumption we make when we attempt to follow everyone, but survey follow-up is incomplete (as it almost always is).

Finally, some of these assumptions are testable. The assumption of differential attrition from SNAP is directly testable from the SNAP caseload data. Exhibit 2.8 reports SNAP caseload counts for the survey and non-survey samples within the HIP and non-HIP groups and tests for differential attrition. Our main interest is in the survey samples which were initially composed of equal numbers of those eligible for HIP and not eligible for HIP. Exhibit 2.8 shows that the two groups are quite close in size. In the July 2012 (the most recent month analyzed in this report), they differ by 5 people (from a total in each group of slightly more than 2,000; this represents one-quarter of a percent). In other months, the differences never rise about 1.5 percent (slightly more people in the HIP, than in the non-HIP group). At randomization, the two non-survey groups were of different sizes, but again the ratio of HIP to Non-HIP is stable (at about 10.9 percent). We conclude that the small observed differences are consistent with the assumption that differential attrition will not affect the validity of the research design.

²⁸ Chapter 5 reports that on average households earned HIP incentives of \$3.64 per month, which is relatively small compared to an average monthly SNAP benefit of \$258. In addition, the value to households of additional SNAP dollars is smaller than its cash value.

Exhibit 2.8: HIP/Non-HIP Balance from the SNAP Caseload Files

	HIP, non-survey (1)	HIP survey (2)	Non-HIP survey (3)	Non-HIP, non-survey (4)	Ratio (1):(4)	Ratio (2):(3)
November 2011	1,447	745	733	45,234	3.20%	101.64%
December 2011	2,813	1,458	1,447	41,649	6.75%	100.76%
January 2012	4,150	2,127	2,140	38,280	10.84%	99.39%
February 2012	4,113	2,113	2,109	37,953	10.84%	100.19%
March 2012	4,089	2,100	2,077	37,551	10.89%	101.11%
April 2012	4,015	2,062	2,043	37,034	10.84%	100.93%
May 2012	3,995	2,056	2,026	36,804	10.85%	101.48%
June 2012	3,994	2,040	2,024	36,623	10.91%	100.79%
July 2012	3,959	2,017	2,012	36,287	10.91%	100.25%

In addition, we tested for HIP/non-HIP balance in the baseline characteristics (July 2011) of the SNAP caseload during the month corresponding to the midpoint of Round 2 (May 2012). Exhibit 2.9 reports the results of those tests. There were no significant differences between the treatment and control groups on any of the variables tested, and the joint F-test further shows no evidence of difference between the two groups.²⁹

Exhibit 2.9: HIP/Non-HIP Balance: Baseline Characteristics (July 2011) for Study Participants on SNAP in May 2012

Variable	Total (proportion)	Treatment (proportion)	Control (proportion)	p-Value
Race/ethnicity of head				
Hispanic	0.44	0.45	0.44	[0.378]
Non-Hispanic white	0.36	0.36	0.36	[0.176]
Non-Hispanic black	0.13	0.13	0.13	[0.525]
Non-Hispanic other	0.07	0.07	0.07	[0.998]
Spanish spoken in household	0.23	0.23	0.23	[0.455]
Age of head				
16-30	0.26	0.26	0.26	[0.372]
31-40	0.21	0.21	0.21	[0.489]
41-54	0.27	0.26	0.27	[0.167]
Over 54	0.27	0.26	0.27	[0.895]
Household head disabled	0.53	0.54	0.53	[0.635]
Household head U.S. citizen	0.96	0.96	0.96	[0.331]
Household composition				
Elderly in household	0.13	0.13	0.13	[0.524]
Children in household	0.38	0.38	0.38	[0.892]
No elderly or children in household	0.49	0.49	0.49	[0.763]
Housing type				
Private	0.80	0.80	0.80	[0.521]
Public	0.15	0.15	0.15	[0.275]
Other	0.05	0.05	0.05	[0.546]

²⁹ Appendix E, Exhibit E2.4 shows the balance test for HIP and non-HIP participants' characteristics in May 2012 who were SNAP participants in May 2012. Results similarly suggest no overall difference between the groups.

Variable	Total (proportion)	Treatment (proportion)	Control (proportion)	p-Value
Household is homeless	0.06	0.05	0.06	[0.806]
Monthly household gross income				
\$0	0.21	0.21	0.21	[0.495]
\$1-787	0.27	0.28	0.27*	[0.067]*
\$788-1,082	0.27	0.27	0.27	[0.936]
\$1,083 or higher	0.25	0.24	0.25	[0.190]
Types of income received by head				
SSI	0.36	0.36	0.36	[0.906]
Social Security	0.30	0.30	0.30	[0.962]
TANF	0.14	0.14	0.14	[0.929]
Unemployment compensation	0.04	0.04	0.04	[0.357]
Other unearned income	0.63	0.64	0.63	[0.203]
SNAP monthly benefit amount				
\$160 or less	0.25	0.26	0.25	[0.234]
\$161-\$200	0.38	0.38	0.38	[0.538]
\$201-\$349	0.11	0.11	0.11	[0.454]
\$350 or higher	0.26	0.25	0.26	[0.301]
Sample size	45,955	6,204	39,751	
F-value ^a		0.87		
P-value ^a		0.658		

Two-sided t-test: *p<0.1, **p<0.05, ***p<0.01

^a Variables included in F-test, but not shown in table: Baystate combined application project (CAP) status for SSI recipients; recertification type (semiannual reporting, recertification, other)

Source: DTA SNAP Caseload Data

In summary, by necessity, this study adopted a non-standard strategy of only following households who remained on SNAP. We examined the implications of that decision by analyzing attrition from both the HIP and non-HIP groups over time and examining HIP/non-HIP balance on a number of characteristics both at the sampling stage and 4-6 months after HIP implementation. All of these tests indicated that the HIP and non-HIP groups have remained balanced over time. Thus, we conclude that it is reasonable to interpret the evaluation results as one would interpret a conventional random assignment study that followed everyone randomized.

3. HIP Implementation

HIP implementation may influence the pilot's outcomes in several ways. As Chapter 1 indicated, HIP impacts depend on the project's success in recruiting retailers, implementing new EBT processing methods, and informing participants. Many difficult aspects of implementation went smoothly, but this chapter does describe several technical challenges and the methods used to correct them. Most major retailers chose to participate, but some did not. Extensive outreach was provided for HIP participants, and yet many participants appeared not to understand the direct link between the amount of fruits and vegetables purchased and the incentive earned. The implementation issues discussed in this chapter shed light on HIP's impacts on participant experiences, fruit and vegetable spending and incentive earning, and fruit and vegetable consumption discussed in Chapters 4-6.

The first section of this chapter provides an overview of HIP implementation, focusing on activities that were central to development of the pilot, particularly as it affected participants. The second section examines several implementation issues that could potentially affect participants' understanding of HIP or could create confusion about how to earn incentives. The discussion in these sections is drawn from the Healthy Incentives Pilot (HIP) Early Implementation Report (Bartlett et al., 2013), which provides additional detail. The third section discusses HIP participants' awareness and understanding of HIP, as reported in the survey. The fourth section presents information on their reported experiences and satisfaction with HIP. The final section discusses how the implementation and early participant experiences might affect the pilot's impact on participants, as presented in Chapters 4-6.

3.1 HIP Implementation

The Healthy Incentives Pilot is an innovative and complex project. Planning and implementing HIP was a difficult undertaking, requiring DTA's coordination of several different entities to work together to ensure the pilot was up and running in 15 months. While the implementation process posed many challenges, DTA succeeded in implementing the pilot on schedule.

Implementation of HIP required extensive preparations that began with FNS' design of the pilot concept and continued with DTA's submission of a grant application in December 2009. Pilot implementation activities accelerated in August 2010 when FNS selected Massachusetts to operate HIP. The planning and implementation phase extended until November 1, 2011 when HIP operations began and the first SNAP participants began earning incentives. The pilot was rolled out to participants in three waves, beginning November 1, 2011, December 1, 2011, and January 1, 2012.

Key planning and implementation activities included:

- Assembling the team, including the hiring of DTA personnel;
- Designing and implementing EBT system changes;
- Recruiting retailers to participate in HIP; and
- Developing training materials and notifications for HIP participants.

Effectively executing and managing these activities was crucial to the pilot's success. The rest of this section discusses these key activities, describing the organizations that were involved, and highlighting successes and challenges.

HIP Development and Project Management

FNS understood from the beginning that a successful pilot project would involve multiple entities, from local SNAP offices to national retail chains to the SNAP EBT system processor. Indeed, HIP is a complex undertaking, involving many different types of interactions among a wide variety of entities. Managing the number and type of stakeholders involved in HIP, as well as the system changes required, was a substantial undertaking, thus presenting numerous challenges.

Seven organizations or groups played key roles in developing and implementing HIP.

- **USDA's Food and Nutrition Service (FNS)**, the federal agency responsible for SNAP.
- **Massachusetts Executive Office of Health and Human Services' (EOHHS) Department of Transitional Assistance (DTA)**, the State Agency responsible for SNAP and therefore HIP.
- **Xerox** (formerly Affiliated Computer Systems), the State EBT provider in Massachusetts, operates HIP as part of the EBT system.
- **Third-party processors (TPPs)** contract with retailers (with integrated electronic cash registers) to provide EBT data processing services.
- **Novo Dia Group (NDG)**, an EBT technology services and consulting company, hired by DTA to coordinate system design and testing activities for retailers and TPPs.
- **Hampden County retailers**, recruited by DTA to participate in HIP, ranging from large grocery chains to small stores and farmers markets. Retailers with integrated electronic cash register (IECR) systems contracted with their technology partners to modify their store systems for HIP.
- **Community partners (CPs)**, local and regional non-profit organizations or community-based organizations (CBOs), State and city agencies, medical centers, religious organizations, libraries, and higher education institutions.

HIP Systems Design and Modifications

In order for HIP to operate, information and financial systems were adapted to accommodate new tasks that go beyond standard operating procedures for SNAP. Software was developed, pre-tested, and rolled out on a tightly coordinated schedule. EBT system modifications were necessary to identify when an incentive is earned, calculate the incentive amount to credit HIP clients, and draw down HIP funds from the Federal Reserve Bank to pay retailers for food purchases.

FNS initiated the system design process in October 2008 and prepared high level HIP design requirements prior to conducting the HIP grant application process. More detailed development began after FNS awarded the HIP demonstration grant to Massachusetts in August 2010. Xerox had primary responsibility for managing the HIP EBT system design process and processing HIP transactions. Xerox reviewed and discussed the HIP implementation requirements with the DTA HIP team at an initial start-up meeting in September 2010. In December 2010, Xerox led the Joint Application Design (JAD) sessions, which included DTA, FNS, Novo Dia Group, and the Abt evaluation team.

These sessions identified the detailed requirements and rules for HIP, and the necessary modifications to the different systems. Based on the requirements, Xerox and DTA produced the design documents to guide these modifications and the changes to be made by retailers and TPPs.

HIP implementation required substantial system modifications by each of the major partners in EBT operations. The following modifications took place during the spring and summer of 2011:

- DTA modified its SNAP eligibility system, BEACON, to support the random assignment of HIP participants, their identification in the system, the transmission of participant status to the EBT system, and the generation of notices to HIP households.
- Xerox modified its EBT processing system, EPPIC, as well as its system for automated and staffed customer service, and the software for EBT-only point-of-sale (POS) terminals, used by smaller independent retailers.
- Retailers used specifications provided by Xerox to modify their integrated electronic cash register (IECR) systems to comply with HIP transaction processing requirements. All three TPPs modified their systems to pass HIP messages between the retailer IECR system and the EBT processing system.

As modifications were completed for each system affected by HIP, team members and technical staff conducted comprehensive testing. The key tests were the User Acceptance Test for the changes to EPPIC and the retailer acceptance tests, which involved both retailer and TPP systems. With the exception of one convenience store chain, the TPPs and IECR retailers were ready for the November 1, 2011 HIP “go live” date.

Retailer Recruitment and Training

DTA recognized early that retailer participation would be critical to the success of the pilot. If HIP is to have any influence over food intake, SNAP participants must be able to find and access participating authorized retailers.

All SNAP-authorized retailers selling HIP targeted fruits and vegetables were eligible to participate in HIP, as one of the pilot’s goals is to test this approach to point-of-sale incentives in all of the environments in which SNAP currently operates. In Hampden County, 472 retailers were eligible to participate. Eligible retailers are of different types:

- Supermarket and superstore chain retailers—large retailers that serve the highest percentage of SNAP households and account for a substantial majority of SNAP redemptions.
- Grocery stores and specialty stores—local stores that have a smaller market share, but may provide ethnically diverse foods and serve households without easy access to large supermarkets.
- Convenience stores—used frequently by SNAP households for small purchases of both food and non-food items. Although many of them do not carry a wide selection of fruits and vegetables, those that carried any HIP fruits and vegetables were eligible to participate in HIP.
- Farmers markets—provide locally-grown fresh fruits and vegetables in season, typically operating between May and November.

DTA began to identify and recruit a targeted group of retailers while preparing its application. Once Massachusetts was selected to operate HIP, the agency used direct outreach to retailers and indirect outreach through other State agencies and food retailer coalitions. The community partners also played a substantial role, helping to recruit both large and small retailers.

Large retail chains and smaller independent stores required different recruitment strategies, mainly because the approach and access to the individuals who could make the decision about participating in HIP differed. DTA worked directly with chain retailers who initially expressed interest in HIP, to make the necessary system modifications, and continued efforts to recruit other chain retailers, working through corporate headquarters.

As the pilot moved forward, DTA sent letters to all SNAP-authorized retailers asking them to participate in HIP and held information sessions for interested retailers. The response from smaller independent retailers to this outreach was low, and DTA determined that a strategy relying on in-person contact was needed. DTA hired a retailer liaison to both recruit and train retailers. After this hire, the main recruitment method for independent retailers became in-person store visits. Store visits (generally made without an appointment) focused on explaining HIP and what was required of participating retailers. It required approximately five visits for a retailer to commit to HIP, significantly more effort than originally anticipated.

As of November 1, 2011, when implementation began, 71 stores were participating in HIP. Exhibit 3.1 shows the distribution of HIP-eligible retailers and HIP participating retailers in Hampden County by store type. While overall, only 15 percent of retailers were participating in HIP, 63 percent of supermarkets and 28 percent of superstores were participating. These two types of stores account for the vast majority (79 percent) of Hampden County SNAP redemptions. Convenience stores, while numerous, tend to carry very few eligible items and account for only 9 percent of SNAP redemptions in the county. An additional 20 percent of eligible retailers were grocery stores and specialty stores; approximately 20 percent of them were participating in HIP. In Hampden County, 12 percent of SNAP redemptions occur in these types of stores.

DTA continued recruiting efforts after HIP implementation and, as a result, an additional 8 stores began accepting HIP as of February 1, 2012. Additionally, 16 farmers markets/farm stands/mobile markets joined HIP in spring/summer 2012.³⁰

As of the end of July, while only 20 percent of eligible stores were participating in HIP, administrative data show that SNAP redemptions in these stores were 50 percent of total Hampden County SNAP redemptions. Thus, while the overall number of stores participating in HIP is relatively low, those stores that are participating are used by SNAP households for a substantial portion of their SNAP purchases. This suggests that households' access to HIP participating stores is greater than is suggested by simply looking at the number of HIP participating stores.

³⁰ An additional seven stores, four of which are fairly large independent retailers that use integrated electronic cash registers, began participating in HIP October 1, 2012. The addition of these stores did not affect participants during the first follow-up round of data collection.

Exhibit 3.1: Hampden County Retailers: Eligible for HIP and Participating in HIP

Store type (% of total Hampden County SNAP redemptions) ^a	Number eligible for HIP (% eligible for HIP)	Retailers participating as of November 1, 2011		Retailers participating as of July 31, 2012	
		Number (%)	Percent of eligible retailers	Number (%)	Percent of eligible retailers
Supermarkets (23%)	16 (3.4%)	10 (14.1%)	62.5%	10 (10.5%)	62.5%
Superstores (56%)	29 (6.1%)	8 (11.3%)	27.6%	8 (8.4%)	27.6%
Grocery stores and food specialty stores ^b (12%)	93 (19.6%)	19 (26.8%)	20.4%	22 (23.2%)	23.7%
Convenience stores ^c (9%)	318 (67.1%)	34 (47.9%)	10.7%	39 (41.1%)	12.3%
Farmers markets ^d (<1%)	18 (3.8%)	N/A	N/A	16 (16.8%)	88.9%
Total	474 (100%)	71 (100%)	15.0%	95 (100%)	20.0%

^a July 2011.

^b Includes small, medium, and large grocery; fruits/vegetable specialty; meat specialty; seafood specialty.

^c Includes convenience store and combination grocery/other.

^d Includes farmers markets and direct marketing farmers that began operating in summer 2012.

Source: Retailer list received from DTA. Exhibit includes only stores located in Hampden County. Several chain retailers implemented HIP in 13 stores located outside Hampden County, notably in neighboring counties in Massachusetts and Connecticut.

Notification and Training of HIP Participants

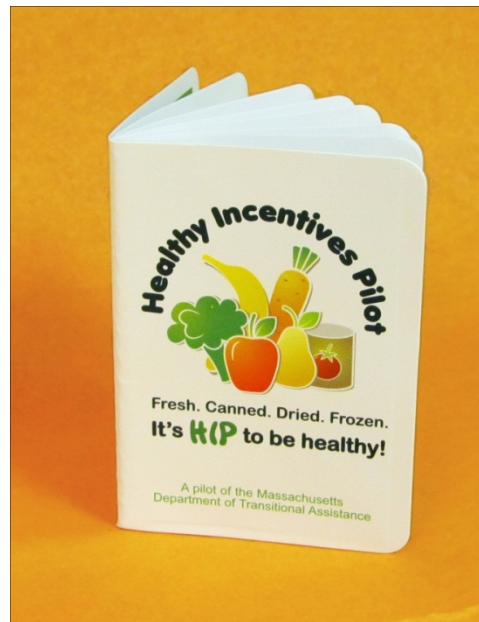
For HIP to influence food purchases and diet quality, it was recognized in advance that HIP participants must understand the purpose of the pilot, be able to locate retailers, and identify and purchase targeted HIP fruits and vegetables.

DTA and its partners put considerable effort into the notification and training of the HIP participants, including the development of user-friendly materials as well as a schedule and process to disseminate those materials in a series of mailings.

Prior to each wave's HIP start date, three consecutive mailings were sent to participants. Each mailing contained a notification letter and a subset of training materials. Materials were translated into Spanish, Russian, and Vietnamese. A "Babel Card," or note alerting participants in twenty-one languages that the materials in the envelope were important and related to benefits, and encouraging them to bring the materials to a bi-lingual friend or relative to be translated was also included. The three mailings included:

- The first notification letter, sent about three weeks prior to each wave's HIP start date, informed participants that they had been selected to participate in HIP, and relayed information about the purpose of HIP, the selection process, the option of declining to participate, and the start date. An initial calendar of training sessions was included with this letter.
- The second notification letter, sent about two days after the first, explained the incentive. A more extensive subset of training materials was included with this letter: a HIP brochure, guidelines for HIP-eligible fruits and vegetables, a list of participating retailers, and a list of frequently asked questions.
- The third notification letter, sent several days prior to the HIP start date, explained that when shopping at retailers where they had to separate their SNAP items from other purchases, participants would need to identify themselves as HIP participants in order to earn their incentive. A HIP EBT card sleeve (shown in Exhibit 3.2), which contained information on eligible foods and could be used as a means of identifying oneself as a HIP participant, was included with this letter.

Exhibit 3.2: HIP Card Sleeve



Throughout the pilot, DTA prepared additional mailings, designed to keep participants updated on pilot activities. Some mailings were designed to improve participant understanding of the program and to promote HIP. All notifications were translated into Spanish, Russian and Vietnamese. In early February 2012, HIP participants received an updated list of retailers that included those who joined HIP as of February 1st. A second interim mailing was sent in mid-June, containing:

- A colorful brochure describing HIP and its benefits in simple terms (Exhibit 3.3). This brochure was specifically designed to improve participant awareness and understanding of HIP;
- An updated list of retailers, including participating chain retail stores outside of Hampden County; and
- A list of participating farmers markets.³¹

³¹ Participants received two additional mailings after July 31st. Since these mailings were sent after the participant data collection for this interim report was completed, we do not discuss them in this report.

Exhibit 3.3: Brochure from Interim Mailing (2 of 6 panels)

DTA provided over 140 voluntary training sessions for HIP participants between October 2011 and February 2012, beginning shortly before the system went live until about four months afterward. These sessions were intended to help HIP participants understand HIP and how it can benefit their households. The main elements were to explain how the financial incentive works and which foods were eligible for the HIP incentive. Despite the significant efforts that went into developing HIP training, approximately 100, or 1.3 percent of eligible HIP participants, attended training sessions. Based on their experience, DTA had hoped to provide meals, childcare, or transportation to help encourage attendance at trainings, but FNS policies did not permit the provision of these services with federal grant funding. However, the trainings were well received by those who attended.

DTA developed a number of resources to support HIP participants including a dedicated HIP 800 call line, email address, and website. The HIP call line has been the most used resource. Approximately 500 calls were received during the first six months of the pilot from the 7,500 HIP participant households (approximately 6.7 calls per 100 HIP households). The greatest proportion of questions related to how the HIP incentive operates. In addition, community partner organizations served as an informational and referral resource for HIP clients, providing translation and interpretation support, as needed.

3.2 HIP Implementation Challenges

HIP implementation presented several challenges during the period between November 1, 2011 when the first group of participants began earning incentives and July 31, 2012 when data collection for the first round of follow-up data analyzed in this report was completed. Some of these challenges were technical, resulting from the EBT and retailer systems related changes that were made to implement HIP. Others arose during the course of recruiting retailers and educating SNAP participants selected to participate in HIP. In this section, we focus on the challenges that could affect HIP participants'

understanding of the program and their ability to earn incentives, thereby potentially affecting the impact of HIP on desired participant outcomes.

Technical Systems Issues

The first technical issue arose at the beginning of December 2011 just as the second wave of HIP participants began earning incentives. A third party processor (TPP) used by two of the four chain retailers operational at the time inadvertently removed the HIP transaction processing code when making an unrelated software change. As a result, HIP participants did not earn incentives for about 45 days during December 2011-January 2012. Together, these retailers had a total of eleven participating stores, four in Hampden County and seven outside of it. The TPP corrected the problem within a month of its detection, and HIP functionality was restored by mid-January. DTA subsequently credited the HIP incentives earned by the 1,140 households affected by the outage.

The second technical challenge arose early in 2012 and involved two chain retailers' failure to maintain accurate and updated computerized lists of HIP-eligible items. An ongoing task for IECR retailers is to update their databases to maintain complete lists of HIP-eligible items. When new HIP-eligible food items are added to the retailers' inventory, they must be flagged in the database for the IECR system. HIP participants reported that they were not earning incentives when purchasing certain targeted fruits and vegetables. The issue was remedied fairly quickly; the last reported problem occurred in mid-February. DTA and Novo Dia Group worked with retailers during the remainder of the pilot to ensure that their product databases were routinely updated as new food items were added.

Retailer Participation

DTA recognized the importance of ensuring that HIP participants had easy and adequate access to retail stores in which they could earn incentives, and staff spent considerable effort recruiting retailers, both chain stores and independent stores. As is true across the country, most SNAP benefits in Hampden County are redeemed in supermarket/superstore chain stores and DTA was able to recruit all but one of the major chains in Hampden County. The chain that declined to participate has a significant presence in Hampden County. Without this chain, participating supermarkets/superstores represented just 40 percent of HIP-eligible supermarkets/superstores. Had this retailer participated, approximately 70 percent of supermarkets/superstores would have been participating in HIP. DTA, with support from FNS and several community partners made substantial efforts to recruit this retailer. In the end, the retailer and its TPP determined that they were unable to commit the resources necessary to meet pilot deadlines. Thus, accessibility of these types of stores was somewhat limited.

Participant Understanding of HIP

DTA put considerable effort into developing participant notification and training materials, working to design brochures and other information that were easy to understand and that fit within the evaluation design parameters. Because HIP was designed to test the effect of a financial incentive, materials needed to inform participants about the program but could not include nutrition education information. In addition, it was not possible to use signage about HIP (e.g. signs on buses) that would be visible and possibly confusing to control group members.

The agency, in coordination with FNS, assessed the best way to disseminate the materials, not wanting to overwhelm participants with too much information at one time. In addition, DTA offered numerous training sessions for HIP participants. Despite these efforts, early feedback suggests that,

some participants did not fully understand the pilot. As noted above, participant turnout for training sessions was low. While many at DTA were not surprised by the low turnout, the sessions were a lost opportunity for most participants. Early feedback from training evaluations and from the call line suggests some HIP participants were overwhelmed by the number and content of the initial mailings. Data from participant survey respondents on this topic presented below provides a more comprehensive picture of HIP participants' understanding of the pilot.

3.3 Awareness and Understanding of HIP

In order for the HIP incentive to affect purchasing behavior, HIP participants need to know about the program and understand how it works. In this section, we examine survey participants' awareness and knowledge of HIP to better understand this aspect of HIP implementation. Data are from the primary shopper interviews at the first follow-up interview (Round 2), supplemented with relevant findings from focus groups.

A majority (61 percent) of surveyed HIP participants claimed to have heard of the program (Exhibit 3.4). However, despite substantial efforts of DTA and their partners to notify and train HIP participants, almost 40 percent of HIP participants claimed that they had not heard of HIP 4-6 months after they began participating in the pilot. A lack of awareness was echoed in focus groups by one participant asking what moderators meant by "HIP incentive". As expected, given that no formal attempts were made to inform the control group about HIP, a significantly greater proportion of HIP participants had heard of the program compared to non-HIP participants. Nevertheless, survey results indicate that there were some non-HIP participants who had heard of HIP.

Of those who had heard of HIP, the most common source for learning about HIP was letters. Over 60 percent of the HIP group reported receiving a letter about the pilot. Similarly, in the HIP focus groups, most respondents remembered receiving a letter notifying them of their selection for the HIP program. As one participant indicated, "I got a letter in the mail, they said they picked me randomly." Curiously, both HIP and non-HIP participants claimed to have heard about HIP through letters. Non-HIP participants did not receive any letters or other materials concerning HIP and the advance letters sent prior to the start of the telephone survey did not mention HIP. Perhaps they were confusing HIP communications with notifications from another program. As expected, a greater proportion of HIP participants heard about HIP through letters compared to non-HIP participants.

Of those in both groups who had heard of HIP, non-HIP participants were more likely than HIP participants to have heard of HIP through word of mouth, mostly likely through friends and family participating in the pilot. Non-HIP participants also reported learning about HIP through the media, but again, they may have confused HIP with another program as HIP received little media attention.

Exhibit 3.4: Primary Shopper Awareness of HIP, by Treatment and Control Status: Round 2 Participant Survey

	Total	Treatment	Control	P-value
Ever heard of HIP? (N=1910)				
Yes	0.19 (696)	0.61 (580)	0.12 (116)	[<0.001]***
No	0.81 (1214)	0.39 (380)	0.88 (834)	
If yes, where did you hear about HIP? (N=678)^a				
Letter	0.41 (383)	0.62 (357)	0.24 (26)	[<0.001]***
Handout	0.05 (35)	0.05 (30)	0.05 (5)	[0.775]
Informational pamphlet	0.09 (78)	0.12 (71)	0.06 (7)	[0.083]*
Word of mouth	0.15 (55)	0.05 (30)	0.23 (25)	[<0.001]***
DTA case manager	0.09 (54)	0.08 (43)	0.10 (11)	[0.488]
Community service provider	0.03 (19)	0.03 (16)	0.03 (3)	[0.928]
Westat (firm conducting the survey)	0.04 (31)	0.05 (26)	0.04 (5)	[0.800]
Media (television, newspaper, internet)	0.10 (28)	0.02 (11)	0.16 (17)	[<0.001]***
Other source	0.11 (60)	0.08 (44)	0.14 (16)	[0.027]**

Weighted proportions (unweighted Ns)

Two-sided chi-square test: *p<0.1, **p<0.05, ***p<0.01

"Don't know" responses coded as missing

Due to rounding, reported proportions may not sum to one.

^a Respondents selected all options that applied; proportions therefore sum to more than one

Source: Participant Survey (primary shopper module)

HIP participants did relatively little to seek information about HIP (Exhibit 3.5). While DTA offered more than 140 training sessions between October 2011 and February 2012, only 4 percent of surveyed HIP participants reported that they attended a meeting about how HIP works. As mentioned above, attendance data showed that overall attendance at training sessions was even lower. However, for those who attended, feedback was positive in that almost three-quarters felt that the meeting explained HIP very well, and none who attended felt the meeting did not explain HIP well. This feedback is consistent with participant evaluations completed after the training sessions.

The HIP 800 call line was used by a small percentage of participants. Less than 10 percent of HIP participants called this hotline with questions. Feedback on the hotline, for those who called, was varied. Almost half of HIP participants who called the hotline felt that staff were very helpful in resolving their issues. However, about one-third felt that hotline staff were not helpful or very unhelpful.

Exhibit 3.5: Primary Shopper Attendance at Training and Use of Hotline: Round 2 Participant Survey, HIP-Eligible Households

	Proportion (N)
Did you go to a meeting to learn how HIP works? (N=960)	
Yes	0.04 (44)
No	0.96 (916)
If yes, how well did the meeting explain HIP? (N=44)	
Very well	0.71 (31)
Well	0.22 (10)
Somewhat well	0.07 (3)
Not too well	0.00 (0)
Not at all well	0.00 (0)
Did you call the EBT or HIP hotline with questions or problems in the past month?(N=931)	
Yes	0.07 (64)
No	0.93 (867)
If yes, how helpful were the hotline staff in resolving your issue? (N=62)	
Very helpful	0.44 (27)
Helpful	0.16 (11)
Somewhat helpful	0.08 (5)
Not helpful	0.18 (11)
Very unhelpful	0.14 (8)

Weighted proportions (unweighted Ns)

"Don't know" and "refused" responses coded as missing

Due to rounding, reported proportions may not sum to one.

Source: Participant Survey (primary shopper module)

Despite some lack of awareness of HIP and very little information seeking, survey participants reported having a fairly easy time understanding how HIP works (Exhibit 3.6). More than half (62 percent) of HIP participants who responded to survey questions felt that it was somewhat to very easy to understand how HIP works and to remember which fruits and vegetables earn the HIP incentive. However, one-quarter of participants reported that they did not know how easy or hard it was to understand how HIP worked, indicating some confusion or lack of understanding.

While only about one-third of HIP participants kept track of HIP incentives earned, almost 90 percent of them felt that keeping track of these incentives was somewhat to very easy. It is possible that participants who found keeping track of HIP incentives earned to be difficult, did not in fact, attempt to keep track of them.

In the survey questions in which participants were asked about the ease or difficulty of understanding particular aspects of HIP, participants reported relative ease. However, in focus groups in which participants were asked directly about what they understood about HIP, many participants expressed a general lack of knowledge of how HIP worked, which fruits and vegetables qualified them for the incentive, and how incentives were earned. For example, one focus group participant mentioned, "It doesn't really explain if you have to actually buy the fruit itself or if you can buy it in a canned product or a liquid product. And it doesn't explain if you get the incentive or not when you buy those." The different line of questioning in focus groups revealed a greater lack of understanding than did survey questions, and perhaps in focus groups amongst others who felt similarly, participants also felt more comfortable expressing their lack of understanding.

Exhibit 3.6: Primary Shopper Understanding of HIP: Round 2 Participant Survey, HIP-Eligible Households

	Proportion (N)
How easy or hard has it been to understand how HIP works? (N=965)	
Very easy	0.13 (125)
Easy	0.32 (302)
Somewhat easy	0.17 (171)
Somewhat hard	0.06 (58)
Hard	0.04 (37)
Very hard	0.04 (37)
Don't know	0.24 (235)
How easy or hard is it remembering which fruits and vegetables earn the HIP rebate? (N=963)	
Very easy	0.12 (118)
Easy	0.31 (294)
Somewhat easy	0.19 (185)
Somewhat hard	0.13 (126)
Hard	0.07 (72)
Very hard	0.03 (33)
Don't know	0.14 (135)
How easy or hard is it keeping track of the HIP rebates you earn? (N=307)	
Very easy	0.26 (81)
Easy	0.42 (130)
Somewhat easy	0.21 (62)
Somewhat hard	0.05 (14)
Hard	0.03 (10)
Very hard	0.01 (3)
Don't know	0.02 (7)

Weighted proportions (unweighted Ns)

"Don't know" and "refused" responses coded as missing

Due to rounding, reported proportions may not sum to one.

Source: Participant Survey (primary shopper module)

3.4 Experiences and Satisfaction

This section explores different aspects of primary shoppers' experiences with HIP and their overall satisfaction with the program. Survey results indicated that most participants (65 percent) did not keep track of the HIP incentives they earned, which was consistent with our focus group finding that many participants were unclear on the HIP incentives they had earned. As one participant claimed, "I found out accidentally I got two dollars left." Of the 35 percent of survey participants who did keep track of incentives, however, the majority kept track of the HIP incentive through printed receipts (Exhibit 3.7). Accordingly, over half of participants felt it was very useful to have receipts showing fruit and vegetable expenditures and incentives, and an additional one-third felt these receipts were somewhat useful.

Participants were fairly mixed on how well they felt workers in their grocery stores understood HIP. About 15 percent of participants felt grocery store workers understood HIP very well, but one-fifth felt that they did not understand HIP well at all.

Exhibit 3.7: Primary Shopper HIP Experiences and Utilization: Round 2 Participant Survey, HIP-Eligible Households

	Proportion (N)
Do you keep track of the HIP rebate you have earned? (N=854)	
Yes	0.36 (307)
No	0.64 (547)
If yes, how do you most often keep track of the HIP rebate? (N=289)	
Printed receipt	0.57 (166)
By telephone using computerized system	0.23 (65)
By telephone using live operator	0.05 (11)
Website	0.01 (2)
Other	0.14 (45)
How useful is it to have a receipt showing how much you spend on fruits and vegetables and the rebate you earn each time you shop? (N=835)	
Very useful	0.54 (450)
Somewhat useful	0.32 (268)
Not too useful	0.07 (53)
Not at all useful	0.08 (64)
How well do the cashiers and other workers in the store where you go grocery shopping understand HIP? (N=765)	
Very well	0.17 (126)
Well	0.23 (161)
Somewhat well	0.22 (180)
Not too well	0.19 (140)
Not at all well	0.20 (158)

Weighted proportions (unweighted Ns)

"Don't know" and "refused" responses coded as missing

Due to rounding, reported proportions may not sum to one.

Source: Participant Survey (primary shopper module)

We then asked both HIP (treatment) and non-HIP (control) survey participants about their experiences with the EBT cards (Exhibit 3.8). As expected given the survey protocol, for both HIP and non-HIP participants, the primary shopper, not other household members, used the EBT card most often (90 percent of households). Few respondents (4 percent) experienced any problems with their EBT card or account in the month prior to the survey. The more common problems that were experienced included a lost, stolen, or damaged card, trouble making a purchase, confusion about balance, problems with benefits, and, for HIP participants only, not getting the HIP incentive that was expected. No significant differences emerged between HIP and non-HIP participants in terms of problems experienced with EBT cards.

Exhibit 3.8: Primary Shopper Problems with EBT Card, by Treatment and Control Status: Round 2 Participant Survey

	Total	Treatment	Control	P-value
Who uses the household EBT card most often? (N=1925)				
Primary shopper	0.89 (1717)	0.89 (860)	0.89 (857)	[0.977]
Primary shopper shares with other household member	0.08 (150)	0.08 (76)	0.08 (74)	
Other household member uses most often	0.01 (27)	0.01 (14)	0.01 (13)	
Primary shopper never uses EBT card	0.02 (31)	0.02 (16)	0.02 (15)	
Any problems with your EBT card or account in past month? (N=1925)				
Yes	0.04 (62)	0.02 (24)	0.04 (38)	[0.058]*
No	0.96 (1863)	0.98 (943)	0.96 (920)	
If yes, what kind of problem was it? (N=62)^a				
Lost, stolen, or damaged card	0.22 (11)	0.17 (4)	0.23 (7)	[.] ^c
Forgot PIN	0.06 (3)	0.04 (1)	0.06 (2)	[.] ^c
Trouble making purchase	0.21 (13)	0.20 (5)	0.21 (8)	[.] ^c
Confusion about balance	0.21 (15)	0.26 (6)	0.20 (9)	[.] ^c
Problem with benefits	0.27 (16)	0.22 (5)	0.27 (11)	[.] ^c
Negative attitude from cashier	0.03 (2)	0.04 (1)	0.03 (1)	[.] ^c
Did not get HIP rebate/incentive expected (N=28) ^b	0.27 (7)	0.27 (7)	N/A	

Weighted proportions (unweighted Ns)

Two-sided chi-square test: *p<0.1, **p<0.05, ***p<0.01

"Don't know" responses coded as missing

Due to rounding, reported proportions may not sum to one.

^a Respondents selected all options that applied; proportions therefore sum to more than one

^b Answer option available for HIP participants only

^c Missing test statistics because of stratum with single sampling unit

Source: Participant Survey (primary shopper module)

Finally, to examine HIP participants' satisfaction with the program, we asked primary shoppers if they would like to keep participating in HIP (Exhibit 3.9). Ninety-five percent of respondents indicated that they would like to keep participating in HIP, suggesting overall satisfaction with the program.

Exhibit 3.9: Primary Shopper Satisfaction with HIP: Round 2 Participant Survey, HIP-Eligible Households

Would you like to keep participating in HIP? (N=870)	Proportion (N)
Yes	0.95 (827)
No	0.05 (43)

Weighted proportions (unweighted Ns)

"Don't know" and "refused" responses coded as missing

Due to rounding, reported proportions may not sum to one.

Source: Participant Survey (primary shopper module)

3.5 Discussion

Taken together, the findings from the participant survey suggest that a sizeable minority of HIP participants did not fully understand the pilot. Forty percent of HIP participants reported that they had not heard about HIP when asked in the Round 2 survey, which occurred 4-6 months after HIP

implementation. Forty percent also reported that it was hard (or they didn't know whether it was easy or hard) to understand how HIP works; a similar percentage said it was hard (or they didn't know whether it was easy or hard) to remember which fruits and vegetables qualified for the HIP incentive. Most (60 percent) of HIP participants did not attempt to keep track of the incentives they earned each month. Focus group results indicate that issues with understanding the pilot may be even more prevalent than indicated in survey results.

DTA expended considerable resources developing participant notifications, training materials, and providing training sessions. Despite these efforts, few HIP participants availed themselves of training sessions. Few trainings were offered in the evening or on weekends and some stakeholders interviewed suggested that more participants might have attended if some trainings were held after work and school hours. In retrospect, some DTA staff interviewed suggested that simpler notification materials may be more effective and that alternate means of communicating with participants, such as through social media, should be considered. Focus groups also revealed some literacy issues among HIP participants, suggesting that more visual media may also be useful in increasing understanding and awareness of HIP.

The reported lack of understanding about HIP is likely to influence whether HIP participants purchase targeted fruits and vegetables and thus earn any incentive. It is also likely to affect the amount of incentives they earn. To maximize incentive earning, participants have to make sure they purchase targeted fruits and vegetables with their SNAP benefits, that they shop in stores participating in HIP, and that they identify themselves as HIP participants and separate HIP-eligible foods when shopping at stores without electronic cash registers. The analysis of HIP incentive earning is discussed in Chapter 5.

4. Impacts on Family Food Environment and Attitudes toward Fruits and Vegetables

This chapter analyzes the impacts of HIP on the family food environment and personal attitudes toward fruits and vegetables. The participant survey collected multiple measures of participants' attitudes toward and exposure to fruits and vegetables, including:

- Exposure to nutrition education and promotion;
- Family food environment (availability of different types of foods at home);
- Food preferences and beliefs; and
- Perceived barriers to the consumption of fruits and vegetables.

The next four sections of the chapter discuss the impact of HIP on these outcomes. Within each section, the analysis centers on regression-adjusted comparisons of HIP and non-HIP responses from the Round 2 participant survey.³² The outcomes analyzed in this chapter are either binary or categorical outcomes. In the chapter, we present the results of analyses based on linear probability and linear regression models as they are more easily interpretable. Appendix E presents analyses based on logistic and ordered logistic regression models; results are similar to those presented here.

The analysis presented in this chapter describes several significant HIP/non-HIP differences in family food environments and attitudes toward fruits and vegetables. The differences are small, however, and do not suggest that changes in attitudes would act as a major pathway of HIP influence on fruit and vegetable consumption.

4.1 Exposure to Nutrition Education and Promotion

HIP participants were significantly more likely to have heard or seen messages about the importance of eating fruits and vegetables to have a more healthy diet. As shown in Exhibit 4.1, 77 percent of HIP participants compared to 70 percent of non-HIP participants said they had received this type of message in the prior three months.

By contrast, few participants in either group attended formal nutrition education classes or programs, and there was no significant difference across the groups.

³² Appendix E presents baseline responses to all questions analyzed in this chapter. There are few statistically significant differences between the treatment and control groups in these baseline measures.

Exhibit 4.1: Impact of HIP on Self-Reported Exposure to Nutrition Education and Promotion in Past 3 Months, Linear Probability Model^a

	Regression-adjusted mean (S.E.)		Impact			
	Treatment (T)	Control (C)	T-C	[S.E.]	{t-statistic}	(P-value)
Heard or seen messages about fruits & vegetables (N=1811)	0.766 (0.015)	0.696 (0.015)	0.070	[0.021]	{3.301}	(0.001)***
Attended nutrition education class or program (N=1819)	0.101 (0.011)	0.110 (0.010)	-0.009	[0.015]	{-0.634}	(0.526)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Binary outcomes, 1=yes, 0=no, "don't know" responses coded as missing

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

^aAppendix E, Exhibit E4.4 presents the logistic regression model

Source: Participant Survey (respondent module)

4.2 Family Food Environment

Past research has found that having fruits and vegetables in the family food environment is associated with increased consumption. This may occur for several reasons: availability simply facilitates increased consumption; the visibility of food in the home serves as a cue to encourage consumption; and being exposed to a particular food in the home may alter preferences and affect future consumption (Jago et al., 2007). To assess the family food environment, respondents were asked a series of questions about how often fruits and vegetables were available in the home and how often they engaged in various healthy eating practices.

Based on survey responses, both the HIP and non-HIP groups commonly have fruits and vegetables at home (Exhibit 4.2). It was slightly less common to have these fruits and ready-to-eat vegetables in the refrigerator or on the counter, which are particularly accessible and visible locations. Similarly, most HIP and non-HIP respondents reported cooking evening meals at home most of the time or always, although they reported sitting down for evening meals somewhat less frequently.

Exhibit 4.2: Impact of HIP on Family Food Environment, Linear Regression Model^a

How often do you...?	Regression-adjusted mean (S.E.)		Impact			
	Treatment (T)	Control (C)	T-C	[S.E.]	{t-statistic}	(P-value)
Have fruit available at home (N=1794)	4.344 (0.026)	4.193 (0.030)	0.151	[0.039]	{3.818}	(0.000)***
Have fruit in refrigerator or on counter† (N=1795)	4.036 (0.030)	3.973 (0.030)	0.063	[0.043]	{1.484}	(0.138)
Have vegetables available at home (N=1797)	4.501 (0.026)	4.418 (0.028)	0.083	[0.039]	{2.159}	(0.031)**
Have ready-to-eat vegetables in fridge or on counter (N=1781)	3.859 (0.038)	3.823 (0.036)	0.036	[0.053]	{0.678}	(0.498)
Have salty snacks at home (chips, crackers) (N=1794)	3.256 (0.039)	3.238 (0.037)	0.018	[0.054]	{0.325}	(0.745)
Have lowfat/nonfat milk at home (N=1784)	3.338 (0.052)	3.294 (0.052)	0.045	[0.074]	{0.603}	(0.546)
Have soft drinks/fruit drinks (not juice) at home (N=1797)	3.160 (0.043)	3.203 (0.044)	-0.042	[0.062]	{-0.685}	(0.493)
Sit down with family at home for evening meals (N=1268) ^b	3.943 (0.042)	3.918 (0.037)	0.025	[0.057]	{0.440}	(0.660)
Cook evening meals at home (N=1794)	4.424 (0.026)	4.382 (0.029)	0.042	[0.039]	{1.079}	(0.281)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Categorical outcomes: 1=never, 2=rarely, 3=sometimes, 4=most of the time, 5=always; “don't know” responses coded as missing

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

^aAppendix E, Exhibit E4.5 presents the ordered logistic regression model; Exhibit E4.6 presents the logistic regression model

^b Asked only in households with more than one member

Source: Participant Survey (primary shopper module)

HIP participation appears to have shifted those aspects of the food environment directly related to fruits and vegetables. HIP participants more frequently had fruit and vegetables available at home than did households not participating in HIP. This was echoed in the focus groups as one participant commented, “Yeah, I definitely started eating more vegetables and fruits, definitely.” Another focus group participant noted that, “My daughter is eating more fruit now. Now she’ll have an apple, orange, grapes. Now she asks for fruit.” There were no significant differences in other measures of the family food environment, such as having fruit and ready-to eat vegetables in the refrigerator or on the counter, on the availability of other food categories, including salty snacks, milk, and soft drinks, or on preparing evening meals at home.

4.3 Food Preferences and Beliefs

Survey respondents were asked several questions about their attitudes toward fruits and vegetables. HIP appears to have little, if any, impact on food preferences and beliefs of SNAP recipients (Exhibit 4.3). While HIP participants appeared slightly more likely than non-participants to agree that they eat enough fruits to keep themselves healthy, the estimated impact had only borderline statistical

significance. Similarly, while HIP participants appeared slightly more likely to agree that they enjoy trying new foods, the estimated impact was only borderline statistically significant.

Exhibit 4.3: Impact of HIP on Food Preferences & Beliefs, Linear Regression Model^a

How much do you agree or disagree that...?	Regression-adjusted mean (S.E.)		Impact			
	Treatment (T)	Control (C)	T-C	[S.E.]	{t-statistic}	(P-value)
I enjoy trying new foods (N=1811)	3.890 (0.026)	3.821 (0.028)	0.069	[0.039]	{1.780}	(0.075)*
I enjoy trying new fruits (N=1810)	3.960 (0.026)	3.931 (0.027)	0.029	[0.038]	{0.758}	(0.449)
I enjoy trying new vegetables (N=1810)	3.708 (0.030)	3.652 (0.031)	0.056	[0.043]	{1.295}	(0.196)
I eat enough fruits to keep me healthy (N=1808)	3.744 (0.031)	3.666 (0.031)	0.078	[0.044]	{1.791}	(0.073)*
I eat enough vegetables to keep me healthy (N=1813)	3.728 (0.032)	3.692 (0.030)	0.036	[0.044]	{0.819}	(0.413)
I often encourage family/friends to eat fruits & vegetables (N=1793)	3.885 (0.029)	3.839 (0.030)	0.046	[0.042]	{1.110}	(0.267)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Categorical outcomes: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree; “don’t know” and “does not apply” responses coded as missing

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

^aAppendix E, Exhibit E4.7 presents the ordered logistic regression model; Exhibit E4.8 presents the logistic regression model

Source: Participant Survey (respondent module)

HIP participants were no more likely than non-HIP participants to report that they like trying new fruits and vegetables, that they eat enough vegetables to keep healthy or that they often encourage family and friends to eat fruits and vegetables.

4.4 Perceived Barriers to Fruit and Vegetable Consumption

The survey examined numerous perceived barriers to fruit and vegetable consumption, including difficulty finding and preparing them, cost and spoilage, and household members disliking fruits and vegetables. Overall, cost and problems eating them before they spoiled were the biggest barriers to fruit and vegetable consumption reported by both the HIP and non-HIP groups (Exhibit 4.4). Focus group respondents noted that the high cost of fruits and vegetables limited their purchases: “Fresh fruits and vegetables are wonderful, but they can be very expensive. You can get a quart of good quality apple juice for the price of two apples. It’s less expensive to buy apple juice.” However, respondents did not report overwhelming barriers to fruit and vegetable consumption in their survey responses.

Exhibit 4.4: Impact of HIP on Perceived Barriers to Fruit & Vegetable (FV) Consumption, Linear Regression Model^a

How much do you agree or disagree that...?	Regression-adjusted mean (S.E.)		Impact			
	Treatment (T)	Control (C)	T-C	[S.E.]	{t-statistic}	(P-value)
Hard to eat vegetables because don't know how to prepare (N=1802)	2.386 (0.036)	2.353 (0.034)	0.032	[0.050]	{0.652}	(0.514)
Hard to eat vegetables because hard to find where I shop (N=1805)	2.185 (0.029)	2.156 (0.028)	0.029	[0.041]	{0.702}	(0.483)
Hard to eat fruits because hard to find where I shop (N=1806)	2.162 (0.028)	2.115 (0.027)	0.048	[0.039]	{1.217}	(0.224)
Don't eat FV as much as would like because cost too much (N=1809)	2.895 (0.036)	2.900 (0.036)	-0.005	[0.050]	{-0.096}	(0.924)
Don't eat FV as much as would like because they spoil (N=1804)	2.780 (0.036)	2.899 (0.035)	-0.119	[0.050]	{-2.374}	(0.018)**
Don't eat FV as much as would like because family dislikes (N=1735)	2.145 (0.029)	2.106 (0.026)	0.039	[0.039]	{0.984}	(0.325)
Don't eat FV as much because I don't like (N=1808)	2.019 (0.025)	2.027 (0.025)	-0.009	[0.036]	{-0.242}	(0.809)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Categorical outcomes: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree; "don't know" and "does not apply" responses coded as missing

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

^aAppendix E, Exhibit E4.9 presents the ordered logistic regression model; Exhibit E4.10 presents the logistic regression model

Source: Participant Survey (respondent module)

HIP affected only one of the seven perceived barriers. HIP participants were significantly less likely than non-HIP participants to agree to a statement that they ate less fruits and vegetables because they spoil. By contrast, there was no significant difference in agreement to a statement about eating less fruits and vegetables because they cost too much.

4.5 Discussion

In two respects, HIP influenced informational and attitudinal variables in a direction that is consistent with the main HIP impacts on fruit and vegetable intake (which will be discussed in Chapter 6).

First HIP increased the probability of having heard or seen messages about fruits and vegetables, while not increasing the probability of participating in a nutrition education class. As discussed in Chapter 3, the HIP group received multiple mailings from DTA about the operation of the HIP program. Several of these mailings had an appealing graphical design and messaging, highlighting fruits and vegetables. The findings suggest that at least some members of the HIP group remembered these messages. By contrast, SNAP nutrition education is voluntary, and there was no difference in

nutrition education programs offered to the HIP and non-HIP groups. Thus, the observed outcomes are consistent with HIP outreach to participants.

Second, HIP increased the probability of having fruits and vegetables available at home. HIP had no such effect for non-targeted foods, whether these foods are commonly identified as more healthful (for example, milk) or less healthful (for example, salty snacks and soft drinks). Again, the observed outcomes appear consistent with the HIP focus on fruits and vegetables rather than other foods.

Given HIP's financial incentive, one might have expected to find that HIP reduced the problem of cost as a reported barrier to fruit and vegetable consumption. However, there was no difference between HIP and non-HIP participants in the probability of agreeing with a statement about not eating fruits and vegetables as much as they would like, due to the cost. Perhaps HIP participants did not reflect upon the price adjustment provided by HIP in answering this question. When asked whether HIP made fruits and vegetables more affordable, 70 percent of HIP respondents replied in the affirmative (see Exhibit 5.7).

5. Fruit and Vegetable Expenditures and Shopping Patterns

HIP was designed to test the effect of a targeted financial incentive at the point of purchase. The incentive is hypothesized to lead families to purchase more fruits and vegetables than they would without the incentive, leading in turn to greater fruit and vegetable intake. If this hypothesized effect occurs, we would expect the size of the effect to be related to the amount of additional fruits and vegetables purchased, and therefore to the amount of HIP incentive earned. Hence, HIP incentive claiming and HIP/non-HIP differences in food expenditures are important intermediate variables in this study.

Most of the analysis in this chapter describes HIP participants' response to the incentive. The first section uses EBT administrative data to examine HIP household purchases of targeted fruits and vegetables (TFVs), focusing on the percent of households making any HIP-eligible purchases in a month, the value of the purchases, and the value of the incentives earned.³³ The second section uses participant survey data to examine HIP households' changes in shopping habits, focusing on self-reported changes in fruit and vegetable purchases due to HIP. The third section examines shopping patterns, including self-reported food expenditures for both HIP and non-HIP households based on participant survey data. The final section discusses the chapter findings.

EBT data analysis shows that, on average, HIP participants spent \$10-\$15 per month on TFVs in stores participating in HIP. A sizeable minority (one-third) did not make any HIP-eligible purchases in any given month at participating stores. Overall, we did not find evidence in the participant survey data that HIP affected general shopping patterns, though HIP participants did report higher expenditures on fruits and vegetables relative to non-participants.

5.1 HIP Purchases and Receipt of HIP Incentives

Using administrative data for the HIP group only, this section analyzes spending patterns and HIP incentives earned between November 1, 2011 and July 31, 2012.³⁴ EBT daily transaction data provide information to allow us to construct measures of HIP purchases and HIP incentives earned:

- **HIP purchases** refer to HIP participant spending of SNAP benefits on TFVs at HIP participating retailers. Thus, purchases of ineligible fruits and vegetables, purchases of eligible items but with a different form of payment, and purchases of eligible items at non-participating retailers are excluded. Additionally, HIP purchases exclude any SNAP purchases of TFVs that are not properly identified by cashiers, which can happen at retailers without Integrated Electronic Cash Registers (IECRs), or that are not correctly recorded by participating retailers as being eligible (this latter problem is believed to be rare for IECR stores, but could be more significant for smaller retailers).

³³ The Final Report will use EBT data for both the treatment and the control groups in order to better examine impacts on spending.

³⁴ The administrative data used for these analyses are missing approximately 4 percent of HIP households. Missing households do not appear to be different from other households. We expect that complete data will be available for the Final Report.

- **HIP incentives** equal 30 percent of HIP purchases up to the \$60 monthly statutory cap and are credited back to the EBT card immediately following the purchase.

As indicated in these definitions of HIP purchases and HIP incentives earned, the information available in the EBT transaction data have a number of restrictions that affect the analyses that can be performed:

- Only eligible purchases made with SNAP benefits are included in the data; purchases made with other forms of payment, such as cash or WIC vouchers are not captured;
- Only purchases of TFVs earn the incentive;
- Only HIP purchases at HIP-participating retailers earn the incentive; purchases of HIP-eligible items at non-participating retailers do not earn the incentive;
- At HIP participating stores *without* IECRs, HIP households need to identify themselves as HIP participants and HIP-eligible items need to be separated from other items. HIP incentives will only be earned for properly identified purchases.

In the first part of the section, we examine the number and percentage of HIP households with any recorded HIP purchases during the month – that is, any purchases that earned the 30 percent incentive. We then analyze the dollar value of HIP purchases and incentives earned during the month, and compare that to total SNAP purchases, to understand the role of fruit and vegetable purchases relative to SNAP purchases or benefits. We present findings separately for each month from November 2011, when HIP was first implemented, through July 2012, the end of the Round 2 data collection period. We highlight findings for the March-July 2012 period as this reflects the months in which Round 2 participant data collection occurred, notably the 24-hour dietary recall interviews that provide the basis for our primary outcome.

The second part of the section examines differences in HIP purchases and incentives earned by subgroups based on household characteristics. Household characteristics were obtained from DTA SNAP caseload data and reflect baseline characteristics, as of July 2011 when random assignment occurred.

HIP Purchases and Incentives Earned

Across the early implementation period, approximately two-thirds of HIP households purchased some TFVs each month and earned the 30 percent incentive (Exhibit 5.1). The percentage of households making HIP-eligible purchases fluctuated during November-January as roll-out occurred and additional households entered the pilot. The statistics for December and January understate the actual amount of HIP purchases somewhat; a technical problem resulted in HIP purchases not being credited during this period in two supermarket/superstore chains. By February, all households were enrolled in the pilot and the technical issues were resolved. While there were some minor fluctuations in the percent of HIP households making TFV purchases during March-July (the period Round 2 data were collected), fully one-third of all HIP households did not make any HIP-eligible purchases each month.

Exhibit 5.1: HIP Households Purchasing HIP-eligible Fruits and Vegetables, by Month

	All HIP households (N)	HIP households with HIP purchases ^d		Reached maximum HIP purchases ^e (N)
		(N)	(Percent of HIP households)	
Nov-2011 ^a	2,192	1,434	65.4%	0
Dec-2011 ^b	4,271	2,378	55.7%	0
Jan-2012 ^c	6,277	3,715	59.2%	2
Feb-2012	6,226	3,892	62.5%	2
Mar-2012	6,189	3,976	64.2%	4
Apr-2012	6,077	4,053	66.7%	6
May-2012	6,051	3,999	66.1%	2
Jun-2012	6,034	3,943	65.3%	2
Jul-2012	5,976	3,922	65.6%	2
Average: March-July 2012			65.6%	

^aWave 1 begins participating^bWave 2 begins participating; percent with HIP purchases somewhat understated due to a technical problem^cWave 3 begins participating; percent with HIP purchases somewhat understated due to a technical problem^dHIP purchases are SNAP expenditures recognized in EBT records as having been spent on target fruits and vegetables, net of returns^eReached the statutory cap of \$60 per household per month or spent all SNAP benefits on eligible items in participating stores.

Source: EBT Daily Transaction Data (missing approximately 4 percent of HIP households)

Descriptive results in Exhibit 5.2 show that the profile of HIP households that earned incentives differed in several respects from that of households that did not earn incentives. Although the sample sizes for this analysis are so large that nearly all differences are statistically significant, only a few appear substantively meaningful. Households that earned incentives tended to have higher SNAP benefit levels, to include children, and to be female-headed.³⁵

³⁵ See also Exhibit 5.6 below, which shows the average monthly percentage of households in each group that earned HIP incentives.

Exhibit 5.2: Baseline Household Characteristics, by whether household earned any HIP incentives in a given month (March–July 2012)

Baseline household characteristics	All HIP households	HIP households that earned an incentive	HIP households that did not earn an incentive	P-Value
Race/ethnicity of head				
Hispanic	44.6%	47.1%	39.8%	[<0.001]***
Non-Hispanic white	35.6%	34.0%	38.5%	[<0.001]***
Non-Hispanic black	13.0%	12.1%	14.7%	[<0.001]***
Non-Hispanic other	6.8%	6.7%	7.0%	[0.324]
Primary language				
Spanish	26.9%	28.5%	23.9%	[<0.001]***
Other	73.1%	71.5%	76.1%	[<0.001]***
Age of head				
16–30	25.5%	26.8%	22.9%	[<0.001]***
31–40	21.2%	22.6%	18.6%	[<0.001]***
41–54	26.5%	24.6%	30.1%	[<0.001]***
Over 54	26.9%	26.1%	28.4%	[<0.001]***
Household head disability status				
Disabled	54.6%	50.8%	62.0%	[<0.001]***
Not disabled	45.4%	49.2%	38.0%	[<0.001]***
Household composition				
Elderly in household	13.4%	12.8%	14.7%	[<0.001]***
Children in household	36.1%	42.8%	23.4%	[<0.001]***
No elderly or children in household	50.5%	44.5%	61.8%	[<0.001]***
Household size (gender of head of household)				
HH Size 2+ (male)	4.9%	5.4%	4.0%	[<0.001]***
HH Size 2+ (female)	40.0%	46.4%	27.7%	[<0.001]***
HH Size 1 (male)	26.6%	21.6%	36.0%	[<0.001]***
HH Size 1 (female)	28.5%	26.6%	32.4%	[<0.001]***
Monthly household gross income				
\$0	21.0%	20.8%	21.4%	[0.192]
\$1–\$787	27.5%	26.9%	28.5%	[0.005]***
\$788–\$1,082	27.7%	26.8%	29.4%	[<0.001]***
\$1,083+	23.8%	25.5%	20.7%	[<0.001]***
Monthly SNAP benefit				
\$1–\$160	27.0%	23.5%	33.7%	[<0.001]***
\$161–\$200	37.2%	33.6%	44.0%	[<0.001]***
\$201–\$349	11.0%	12.8%	7.4%	[<0.001]***
\$350 or higher	24.8%	30.1%	14.9%	[<0.001]***
Location				
Springfield	53.2%	52.8%	53.9%	[0.082]*
Chicopee & Holyoke	24.8%	25.9%	22.7%	[<0.001]***
Other	22.0%	21.3%	23.5%	[<0.001]***
Sample Size (household-months)	30,327	19,893	10,434	

Two-sided t-test: *p<0.1, **p<0.05, ***p<0.01

Source: DTA SNAP Caseload Data

Few HIP households made the maximum possible use of the opportunity to earn HIP incentives. Exhibit 5.1 also shows the count of households that made the maximum creditable HIP purchases during each month. Fewer than 10 households in any one month reached the statutory incentive cap of

\$60 per household per month or spent all their SNAP benefits on HIP-eligible items in participating stores.

Monthly average HIP purchases (including households that made \$0 purchases) were relatively low, as Exhibit 5.3 shows. The average value of HIP purchases fluctuated during the months of implementation roll-out. After February 2012, average HIP purchases were between \$11 and \$13 per month. The distribution of HIP purchases was heavily skewed (Appendix E, Exhibit E5.1), with roughly one-third of households having no HIP purchases. Households at the 75th percentile made an average of \$15-\$20 in HIP purchases each month. A few households spent over \$200 on HIP-eligible TFVs in a single month.

As a result of this pattern, HIP households earned an average of \$3–\$4 in incentives each month. HIP purchases represented approximately 5 percent of all SNAP purchases.

Exhibit 5.3: SNAP Purchases, HIP Purchases, and HIP Incentives Earned by All HIP Households, by Month

	Mean monthly SNAP purchases (Dollars)	Mean monthly HIP purchases ^a		Mean HIP incentive earned ^c (Dollars)
		(Dollars)	(Percent of SNAP purchases) ^b	
November 2011	\$346.11	\$11.37	3.6%	\$3.41
December 2011 ^d	\$275.81	\$7.86	3.2%	\$2.36
January 2012 ^d	\$264.38	\$9.81	4.1%	\$2.94
February 2012	\$253.38	\$10.77	4.7%	\$3.23
March 2012	\$259.04	\$11.00	4.8%	\$3.30
April 2012	\$259.23	\$11.84	5.1%	\$3.55
May 2012	\$264.85	\$11.93	5.0%	\$3.58
June 2012	\$261.45	\$13.03	5.5%	\$3.91
July 2012	\$262.58	\$12.89	5.4%	\$3.87
Average March–July 2012	\$261.41	\$12.13	5.2%	\$3.64

^aHIP purchases are SNAP expenditures recognized in EBT records as having been spent on target fruits and vegetables; mean includes households that made \$0 purchases

^bHIP purchases as a percent of SNAP purchases calculated for each household; column shows the mean percentage across households, including those with \$0 HIP purchases

^cEqual to 30 percent of HIP purchases up to the statutory cap; includes households with \$0 HIP incentives earned

^dThe statistics for December and January understate the actual amount of HIP purchases somewhat due to a technical problem.

Source: EBT Daily Transaction Data (missing approximately 4 percent of HIP households)

Excluding households that did not make any HIP purchases in a given month, the average amounts of HIP purchases and incentives earned were somewhat larger but still relatively low (Exhibit 5.4). On average, across March–July 2012, these HIP households made \$18.50 in HIP purchases and earned \$5.55 in incentives. HIP purchases represented approximately 8 percent of all SNAP purchases for these households.³⁶

³⁶ Appendix E presents additional detail: Exhibit E5.2 shows distribution of HIP purchases, excluding households that made no HIP purchases in a given month. Exhibits 5.3 and 5.4 present information on the

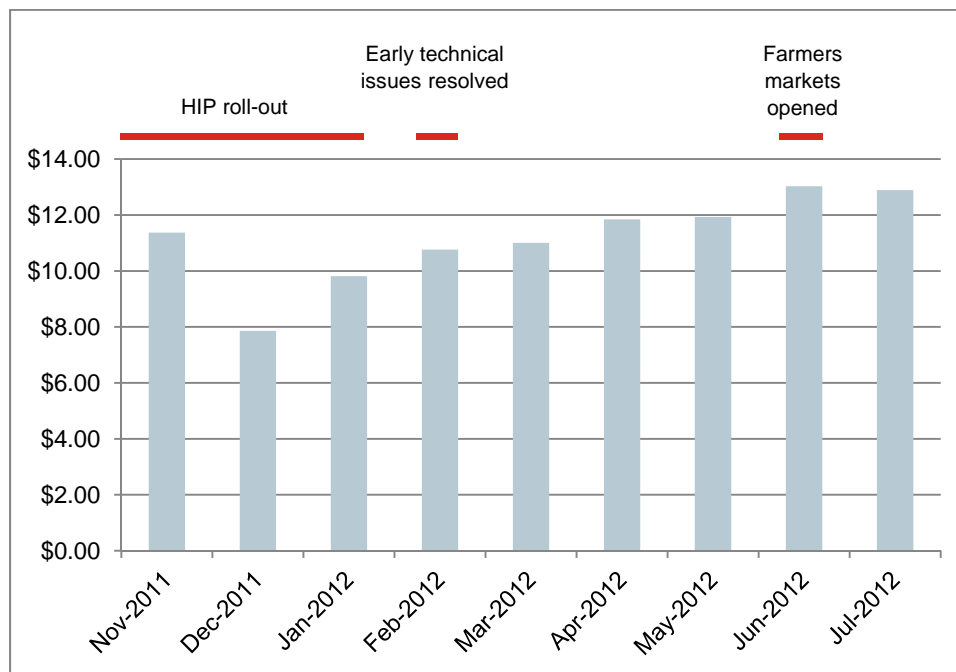
Exhibit 5.4: SNAP Purchases, HIP Purchases, and HIP Incentives Earned by HIP Households that made Any HIP purchases, by Month

	Mean monthly SNAP purchases (Dollars)	Mean monthly HIP purchases ^a		Mean HIP incentive earned ^c (Dollars)
		(Dollars)	(Percent of SNAP purchases) ^b	
November 2011	\$403.49	\$17.38	5.49%	\$5.22
December 2011	\$317.87	\$14.12	5.66%	\$4.24
January 2012	\$303.55	\$16.58	6.86%	\$4.98
February 2012	\$291.12	\$17.22	7.40%	\$5.17
March 2012	\$296.95	\$17.13	7.35%	\$5.14
April 2012	\$294.90	\$17.76	7.61%	\$5.33
May 2012	\$298.89	\$18.06	7.46%	\$5.42
June 2012	\$298.76	\$19.94	8.25%	\$5.98
July 2012	\$298.66	\$19.65	8.08%	\$5.89
Average March–July 2012	\$297.62	\$18.50	7.75%	\$5.55

Source: EBT Daily Transaction Data (missing approximately 4 percent of HIP households)

Exhibit 5.5 illustrates the trend in average monthly HIP purchases in relationship to the project timeline. Once HIP roll-out was completed and early technical issues were resolved, HIP purchases increased slightly each month. The peak during the early implementation period occurred in June, when more fruits and vegetables are in season and likely more readily available and at lower prices, and also the month that farmers markets began operating, providing an additional venue for HIP participants to earn incentives. The aggregate statistics are insufficient to determine how much the addition of farmers markets and farm stands contributed to the rising trend of both the average monthly HIP purchases and the average HIP percentage of SNAP purchases. Future analyses will determine how much these added retailers contributed to the overall volume.

distribution of HIP purchases as a percentage of SNAP purchases over time for all households and excluding households that made no HIP purchases in a given month.

Exhibit 5.5: Average HIP Purchase with Milestones in Implementation

Differences in HIP Purchases and Incentives Earned by Subgroup

Exhibit 5.6 examines differences in HIP purchases and incentives earned by subgroups defined by demographic, financial, and location characteristics. The table presents averages of monthly data for March through July 2012.

HIP Take-up Rates

The first column shows the percentage of HIP households with HIP purchases, or the HIP take-up rate. This provides an indication of which subgroups are more or less likely than average to make HIP purchases. Highlights of the patterns in this table include:

- There are substantial differences in HIP take-up by SNAP benefit level, with higher benefits associated with higher HIP take-up.
- Both Spanish as a primary language and Hispanic origin are associated with higher HIP take-up.
- Other subgroups with above-average HIP take-up include: the highest income group (\$1,084 per month or more), those with a head of household age 16 to 40 (compared to those with older household heads), households with children, and residents of Chicopee/Holyoke (compared to those in Springfield or outside these cities).
- Groups with below-average HIP take-up include: households with white or black household heads, those with disabled heads of household, those with neither children nor elderly, and single-person households.

These associations do not necessarily imply that all of these characteristics independently affect HIP purchases. The relationship of HIP take-up to benefit level is consistent with the expectations that households with higher SNAP benefits will be more sensitive to the HIP incentive. Other

characteristics may be associated with higher take-up because they are also associated with higher benefit levels (such as household size and the presence of children). On the other hand, some subgroups may have different underlying preferences for HIP-eligible foods, may have accessibility issues (for example, due to disability or residential location), or they may respond differently to communications about HIP. The higher take-up among households with Spanish as a primary language may be due to higher benefit levels or other factors, but it provides some reassurance that understanding HIP was not more of a problem for this subgroup (that received notifications and materials in Spanish) than for other subgroups.

HIP Purchases

Examining the dollar value of HIP purchases and the percent of SNAP benefits this represents, the following patterns emerge:

- As with HIP take-up rate, the average HIP purchase amount rises with the SNAP benefit level. On the other hand, HIP purchases as a percentage of SNAP purchases decline as benefit level increases.
- Households with Spanish as the primary language have above-average HIP purchases, both in dollars per month and as a percentage of SNAP purchases. For all Hispanic households, the pattern is less consistent: the average HIP purchase amount is above the overall average, but the HIP percentage of SNAP purchases is below average.
- The relationship of HIP purchases to household income depends on the measure used. Only the highest income group has above-average HIP purchases. HIP purchases as a percent of SNAP purchases increases as income increases.
- Other groups with above average monthly HIP purchases are those with the following characteristics: household head age 31-40; household head of “other” race (mostly Asian); non-disabled; with children; located in Chicopee and Holyoke or other communities outside Springfield; and with two or more persons, particularly those with male heads. Some but not most of these groups also had above-average HIP purchases as a percentage of SNAP purchases.

As noted above, these associations do not necessarily imply that all of these characteristics independently affect HIP purchases.

**Exhibit 5.6: HIP Purchases, SNAP Purchases, and HIP Incentives Earned by Subgroup
(Average over Months of Participation March–July 2012)**

Baseline Household Characteristics	HIP households with HIP purchases (percent)	Mean monthly SNAP purchases (Dollars)	Mean monthly HIP purchases ^a		Mean HIP incentive earned ^c (Dollars)
			(Dollars)	(Percent of SNAP purchases) ^b	
Race/ethnicity of head					
Hispanic	69.3%	\$285.48	\$12.63	4.9%	\$3.79
White	62.8%	\$240.53	\$11.90	5.4%	\$3.57
Black	61.1%	\$252.96	\$9.82	4.6%	\$2.95
Other	64.6%	\$229.24	\$14.63	6.8%	\$4.38
Primary language					
Spanish primary language	69.4%	\$250.34	\$14.81	6.4%	\$4.44
Other primary language	64.2%	\$265.51	\$11.16	4.7%	\$3.35
Age of head					
16–30	69.0%	\$338.55	\$12.37	3.7%	\$3.71
31–40	69.7%	\$340.31	\$14.05	4.2%	\$4.21
41–54	60.9%	\$224.32	\$10.48	4.7%	\$3.14
Over 54	63.7%	\$162.69	\$12.06	7.7%	\$3.62
Household head disability status					
Disabled	60.9%	\$202.78	\$10.20	5.4%	\$3.06
Not Disabled	71.2%	\$332.08	\$14.48	4.8%	\$4.34
Household composition					
Elderly in household	62.3%	\$152.89	\$12.48	8.5%	\$3.74
Children in household	77.7%	\$404.87	\$16.63	4.4%	\$4.99
No elderly or children in household	57.8%	\$187.69	\$8.83	4.8%	\$2.65
Household size(gender of head of household)					
HH Size 2+ (male)	72.3%	\$321.08	\$19.73	6.6%	\$5.91
HH Size 2+ (female)	76.2%	\$382.85	\$15.67	4.5%	\$4.70
HH Size 1 (male)	53.4%	\$171.48	\$7.66	4.5%	\$2.30
HH Size 1 (female)	61.0%	\$164.94	\$10.07	6.4%	\$3.02
Monthly income					
\$0	64.9%	\$309.19	\$11.92	4.0%	\$3.58
\$1–\$787	64.3%	\$263.09	\$11.73	4.7%	\$3.52
\$788–\$1,082	63.5%	\$203.45	\$10.57	5.7%	\$3.17
\$1,083+	70.2%	\$284.82	\$14.64	6.1%	\$4.39
Monthly SNAP benefit					
\$1–\$160	57.1%	\$145.64	\$8.93	6.6%	\$2.68
\$161–\$200	59.3%	\$193.82	\$9.53	4.9%	\$2.86
\$201–\$349	76.8%	\$303.54	\$15.16	5.2%	\$4.55
\$350+	79.4%	\$469.89	\$18.20	4.0%	\$5.46
Location					
Springfield	65.2%	\$265.07	\$11.59	4.9%	\$3.48
Chicopee & Holyoke	68.6%	\$265.64	\$12.46	5.3%	\$3.74
Other	63.3%	\$247.89	\$13.13	5.7%	\$3.94
ALL HIP households	65.6%	\$261.41	\$12.13	5.2%	\$3.64

^aHIP purchases are SNAP expenditures recognized in EBT records as having been spent on target fruits and vegetables, net of returns; mean includes households that made \$0 purchases

^bHIP purchases as a percent of SNAP purchases calculated for each household; column shows the mean percentage across households, including those with \$0 HIP purchases

^cEqual to 30 percent of HIP purchases up to the statutory cap; includes households with \$0 HIP incentives earned

Sources: EBT Daily Transaction Data (missing approximately 4 percent of HIP households) and DTA SNAP Caseload Data (July 2011)

Sample Size = 6,065 households

5.2 Self-Assessed Changes in Shopping Habits due to HIP

This section examines changes in shopping habits due to HIP as reported by the HIP participants themselves in the primary shopper interview. We specifically focus on changes related to purchasing fruits and vegetables and changes in shopping location.³⁷ Looking first at fruit and vegetable purchasing (Exhibit 5.7), results show that among HIP participants, the most common change reported by 70 percent of households, was that fruits and vegetables had become more affordable to the family due to HIP. One focus group participant noted that, “It helps a little bit, you know.” Another echoed that HIP helped with day-to-day purchasing: “Yea, it helps. I can’t say it doesn’t.” A majority (60 percent) of HIP participants also felt that their family was buying a larger amount and a greater variety of both fruits and vegetables due to HIP. One focus group respondent commented, “it’s not the typical apples and oranges anymore—you got the apples, the oranges, the grapes, the cantaloupe, a variety.” Less than half of HIP participants reported that HIP resulted in their family buying new fruits and vegetables that they had not tried before. According to the participants themselves, HIP generally appears to be having the desired effects on increasing the amount and variety of fruits and vegetables purchased, as well as their affordability.

Exhibit 5.7: Primary Shopper Self-Reported Changes in Fruit and Vegetable Purchasing Due to HIP: Round 2 Participant Survey, HIP-Eligible Households

Because of the Healthy Incentives Pilot...	Proportion (N)
Fruits and vegetables have become more affordable to family (N=850)	0.70 (589)
Fruits	
Family is buying larger amounts of fruits (N=868)	0.61 (520)
Family has bought and eaten greater variety of fruits (N=869)	0.61 (523)
Family is buying new fruits not tried before (N=870)	0.45 (384)
Vegetables	
Family is buying larger amounts of vegetables (N=871)	0.61 (526)
Family has bought and eaten greater variety of vegetables (N=874)	0.60 (522)
Family is buying new vegetables not tried before (N=869)	0.43 (361)

Weighted proportions (unweighted Ns)

“Don’t know” and “refused” responses coded as missing

Source: Participant Survey (primary shopper module)

In terms of shopping location, three-quarters of HIP participants reported that they had not changed their shopping location for fruits and vegetables due to HIP (Exhibit 5.8). The one-quarter of participants who did change the store in which they shopped for fruits and vegetables, did so primarily because of the price, the availability, and the greater variety of fruits and vegetables. Overall, however, HIP does not appear to have had an impact on self-reported changes in shopping location.

³⁷ HIP participants were asked specifically about their perception of changes in shopping habits due to HIP, and the control group was not asked about their changes in shopping habits. Thus we cannot conclude that the changes reported in this section are true impacts of HIP.

Exhibit 5.8: Primary Shopper Self-Reported Changes in Shopping Location Due to HIP: Round 2 Participant Survey, HIP-Eligible Households

	Proportion (N)
Because of HIP, have you changed which stores you go to, to buy fruits and vegetables? (N=879)	
Yes	0.26 (231)
No	0.74 (648)
If yes, why have you changed which stores you go to? ^a	
Other store has greater variety of fruits & vegetables (N=231)	0.65 (152)
Price of fruits & vegetables more affordable at other store (N=229)	0.79 (181)
Other store has fresh fruits & vegetables (N=230)	0.77 (178)
Other reason (N=230)	0.07 (17)

Weighted proportions (unweighted Ns)

"Don't know" and "refused" responses coded as missing

^aRespondents could choose multiple reasons, so proportions do not add to one

Source: Participant Survey (primary shopper module)

5.3 Shopping Patterns and Food Expenditures

In this section, we use data from the primary shopper interview collected from both HIP and non-HIP respondents to assess the impact of HIP on general shopping patterns, reported expenditures on food and groceries, and more specifically, reported expenditures on fruits and vegetables. As noted in Chapter 3, not all eligible retailers chose to participate in HIP. The surveys asked questions about the types of stores in which respondents usually shopped and the reasons they shopped in those stores. HIP might have affected these decisions for households participating in the pilot. Fruit and vegetable expenditures provide (self-reported) estimates of overall spending on these foods, and not just fruit and vegetable spending that earned incentives, as presented in Chapter 5.

The outcomes analyzed in this chapter are either binary or categorical outcomes. In the chapter, we present the results of analyses based on linear probability and linear regression models as they are more easily interpretable. Appendix E presents analyses based on logistic and ordered logistic regression models; results are similar to those presented here.³⁸

General Shopping Patterns

To examine the impact of HIP on general shopping patterns, we first looked at the impact on participants' usual grocery shopping location (Exhibit 5.9). Of the nine grocery store types examined, ranging from chain supermarkets to convenience stores to farmers markets, no significant effects emerged. HIP participants and non-HIP participants did not differ in their usual grocery shopping location.³⁹

³⁸ In all models, covariates included stratification and blocking variables, respondent gender, age, and race/ethnicity, and fruit and vegetable screener covariates as well as Round 1 outcomes for measures that were collected in both Round 1 and Round 2 in order to increase precision.

³⁹ For baseline proportions of treatment and control groups who shopped at these locations, see Appendix E, Exhibit E5.10.

Exhibit 5.9: Impact of HIP on Usual Grocery Store Type, Linear Probability Model^a

Usual place to shop	Regression-adjusted mean (S.E.)		Impact			
	Treatment	Control	T-C	[S.E.]	{t-statistic}	(P-value)
Large chain grocery store or supermarket	0.803 (0.014)	0.798 (0.013)	0.005	[0.019]	{0.258}	(0.796)
Natural or organic supermarket (such as Whole Foods Market)	0.008 (0.003)	0.007 (0.003)	0.002	[0.004]	{0.371}	(0.711)
Small local store or corner store	0.022 (0.005)	0.031 (0.006)	-0.009	[0.008]	{-1.076}	(0.282)
Convenience store (such as 7-11 or mini market)	0.003 (0.002)	0.002 (0.002)	<0.001	[0.002]	{0.090}	(0.928)
Warehouse club store (such as Sam's Club or Costco)	0.012 (0.004)	0.022 (0.005)	-0.010	[0.007]	{-1.433}	(0.152)
Discount superstore (such as Walmart)	0.139 (0.012)	0.131 (0.011)	0.008	[0.016]	{0.525}	(0.600)
Ethnic market	0.005 (0.003)	0.001 (0.001)	0.004	[0.004]	{1.194}	(0.233)
Farmers market/co-op	0.005 (0.003)	0.001 (0.001)	0.004	[0.003]	{1.281}	(0.200)
Some other location ^b	N/A	N/A	N/A	N/A	N/A	N/A

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

Binary outcomes, 1=yes, 0=no; "don't know" responses coded as missing

^aAppendix E, Exhibit E5.5 presents the logistic regression model.

^bImpact not estimable for this outcome due to low proportion of respondents with positive responses.

Source: Participant Survey (primary shopper module); (unweighted N=1,789)

We then examined the impact of HIP on the reasons given by respondents for choosing their usual grocery store type for purchasing fresh fruits and vegetables (Exhibit 5.10). For both HIP and non-HIP households, the most common reasons were: prices/affordability (about 50 percent); store was close to home (about one-third); and variety of products available (about 20 percent). All other reasons were reported by fewer than 20 percent of all households.

Despite the lack of any significant differences in their usual grocery store type, HIP participants were less likely to say they chose their usual store type because their preferred products were available and because of quality than were non-HIP participants. No significant impact of HIP was found for any of the other reasons examined, however, and given the number of reasons examined, at least one of the two significant differences may have emerged due to chance.⁴⁰

HIP also did not have an impact on reported grocery shopping frequency or the likelihood that participants would go out of their way or make a special effort to shop at a particular store for fruits and vegetables (Exhibit 5.11). Both HIP and non-HIP participants went grocery shopping about every other week, on average, and HIP and non-HIP participants were equally likely to go out of their way or make a special effort to shop at a particular store for fruits and vegetables.⁴¹

On average, both HIP and non-HIP participants were also rarely kept from grocery shopping by limited transportation or by the distance to the grocery store (Exhibit 5.11). Aside from a few significant impacts on reasons for the choice of a usual grocery store type for purchasing fresh fruits and vegetables, results demonstrated that HIP did not have an impact on participants' general shopping patterns. This lack of impact on general shopping patterns was echoed in HIP participant focus groups. As one participant noted, "Pretty much, I just have noticed I've stuck to my old habits."⁴²

⁴⁰ For baseline proportions of treatment and control groups who chose their usual shopping place for different reasons, see Appendix E, Exhibit E5.11.

⁴¹ For baseline proportions of treatment and control groups who shopped at different frequencies and who went out of their way to shop at a particular store, see Appendix E, Exhibits E5.12 and E5.13.

⁴² For baseline proportions of treatment and control groups who experienced barriers to grocery shopping, see Appendix E, Exhibit E5.14.

Exhibit 5.10: Impact of HIP on Reasons for Choice of Usual Grocery Shopping Place, Linear Probability Model^a

Usually shop there because...	Regression-adjusted mean (S.E.)		Impact			
	Treatment	Control	T-C	[S.E.]	{t-statistic}	(P-value)
Prices/affordability	0.476 (0.017)	0.519 (0.017)	-0.043	[0.024]	{-1.801}	(0.072)*
Close to home	0.314 (0.016)	0.325 (0.015)	-0.011	[0.022]	{-0.489}	(0.625)
Variety of products	0.226 (0.015)	0.201 (0.014)	0.024	[0.020]	{1.229}	(0.219)
Produce better or fresher	0.168 (0.013)	0.146 (0.012)	0.021	[0.017]	{1.236}	(0.217)
Sales/promotions in store	0.123 (0.012)	0.128 (0.011)	-0.005	[0.016]	{-0.308}	(0.758)
Preferred products are available	0.093 (0.010)	0.132 (0.011)	-0.039	[0.015]	{-2.587}	(0.010)***
Familiarity with store	0.060 (0.008)	0.061 (0.008)	-0.001	[0.012]	{-0.098}	(0.922)
One stop shopping	0.047 (0.007)	0.050 (0.008)	-0.003	[0.010]	{-0.329}	(0.743)
Easy to get there	0.020 (0.005)	0.020 (0.005)	<0.001	[0.007]	{-0.002}	(0.998)
Quality	0.035 (0.006)	0.056 (0.008)	-0.021	[0.010]	{-2.055}	(0.040)**
Close to work	0.010 (0.004)	0.006 (0.003)	0.004	[0.005]	{0.843}	(0.399)
Close to some other location	0.005 (0.003)	0.007 (0.003)	-0.002	[0.004]	{-0.507}	(0.612)
Disability accessible	0.002 (0.001)	<0.001 (<0.001) ^b	0.002	[0.001]	{1.427}	(0.154)
Hours of operation convenient	0.007 (0.003)	0.009 (0.003)	-0.002	[0.005]	{-0.328}	(0.743)
EBT card accepted	0.030 (0.006)	0.019 (0.005)	0.010	[0.008]	{1.290}	(0.197)
Ethnic foods are available	0.004 (0.002)	0.007 (0.003)	-0.003	[0.003]	{-0.861}	(0.389)
Good service	0.027 (0.006)	0.019 (0.005)	0.008	[0.008]	{1.029}	(0.304)
Bulk purchases	0.023 (0.005)	0.024 (0.005)	<0.001	[0.008]	{-0.029}	(0.977)
Clean	0.021 (0.005)	0.017 (0.005)	0.004	[0.006]	{0.621}	(0.535)
Some other reason	0.009 (0.003)	0.007 (0.003)	0.002	[0.004]	{0.366}	(0.714)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

Binary outcomes, 1=Yes, 0=No, "don't know" responses coded as missing

^aAppendix E, Exhibit E5.6 presents the logistic regression model

^bThe mean for the control group is slightly outside of the 0-1 range of the variable due to the regression adjustment.

Source: Participant Survey (primary shopper module); (unweighted N=1,782)

Exhibit 5.11: Impact of HIP on Grocery Shopping Behaviors and Barriers, Linear Regression Model^a

	Regression-adjusted mean (S.E.)		Impact			
	Treatment	Control	T-C	[S.E.]	{t-statistic}	(P-value)
Grocery shopping frequency ^b (N=1795)	5.222 (0.029)	5.219 (0.029)	0.002	[0.041]	{0.061}	(0.951)
Go out of way to shop for fruits and vegetables at particular store (N=1781) ^c	0.409 (0.017)	0.413 (0.017)	-0.004	[0.023]	{-0.158}	(0.875)
How often kept from grocery shopping by...^d						
Limited transportation (N=1781)	2.163 (0.041)	2.109 (0.039)	0.054	[0.056]	{0.965}	(0.335)
Distance to grocery store (N=1771)	1.948 (0.039)	1.993 (0.040)	-0.046	[0.055]	{-0.825}	(0.410)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

^aAppendix E, Exhibit E5.8, E5.9, and E5.11 present the logistic regression model; Exhibit E5.10 presents the ordered logistic regression model.

^bCategorical outcome, 1=yearly or not at all, 2=2 to 3 times a year, 3=every other month, 4=once a month, 5=every other week, 6=once a week, 7=more than once a week; “don’t know” and “refused” responses coded as missing

^cBinary outcome, 1=yes, 0=no; “don’t know” and “refused” responses coded as missing

^dCategorical outcomes: 1=never, 2=rarely, 3=sometimes, 4=most of the time, 5=always; “don’t know” and “refused” responses coded as missing

Source: Participant Survey (primary shopper module)

Self-Reported Expenditures on Food and Groceries

Next, we examined the impact of HIP on self-reported expenditures on food and groceries, and on fruits and vegetables, in particular (Exhibit 5.12). No significant impacts of HIP were found on usual spending for groceries either using SNAP benefits or using cash, or on spending in restaurants. However, consistent with HIP intent, HIP did have a positive impact on reported spending on fruits and vegetables. HIP participants reported that they spent \$76.88 per month on fruits and vegetables and non-HIP households reported that they spent \$69.50 per month. This difference of just over \$7.00 each month is statistically significant.⁴³

5.4 Discussion

During the first half of HIP operations, participating households spent relatively little on targeted fruits and vegetables, at least in stores participating in HIP. Overall, two-thirds of HIP households purchased HIP-eligible foods, thus earning incentives; the other one-third of households did not earn any incentives in a given month. On average, during March-July 2012, HIP households spent \$12.13 on targeted fruits and vegetables and earned an average of \$3.64 in HIP incentives each month.

Overall, we did not find evidence that HIP affected general shopping patterns. Most HIP participants reported that they did not change their shopping location due to HIP. When comparing HIP participants to non-HIP participants, using the random assignment design, HIP similarly did not appear to have an impact on general shopping patterns, including shopping location, reason for choice of shopping location, shopping frequency, going out of the way to shop at a particular store, or barriers to grocery shopping. HIP also did not impact expenditures on food or groceries in general, as reported by HIP and non-HIP participants.

As intended, however, HIP participants reported changes in fruit and vegetable purchasing, saying that they bought larger amounts and a greater variety of fruits and vegetables because of HIP. These households felt that fruits and vegetables had become more affordable due to HIP. Consistent with these responses, reported spending on fruits and vegetables was significantly higher for HIP participants than non-HIP participants. The next chapter examines whether and how this greater spending on fruits and vegetables translated into greater consumption of fruits and vegetables.

The findings in this chapter appear somewhat inconsistent. HIP households report spending \$77 per month on fruits and vegetables, yet EBT data indicate that they only spent \$12 on HIP purchases. In addition, most (60 percent) HIP households report that they are buying larger amounts and a greater variety of fruits and vegetables than they did prior to HIP. Some of this apparent inconsistency may be due to spending on ineligible fruits and vegetables (e.g., white potatoes or fruits and vegetables packaged with added sugars or sauces), purchasing fruits and vegetables at stores not participating in HIP, or purchasing fruits and vegetables with cash or WIC fruit and vegetable vouchers. Chapter 7 further explores possible explanations for the inconsistencies. In addition, analyses for the Final Report will examine spending at qualifying and non-qualifying retailers to further clarify the link between reported spending on fruits and vegetables and HIP incentive earnings.

⁴³ For baseline monthly expenditures of treatment and control groups, see Appendix E, Exhibit E5.15.

Exhibit 5.12: Impact of HIP on Self-Reported Monthly Expenditures, Linear Regression Model

Usual monthly spending for...	Regression-adjusted mean (S.E.)		Impact			
	Treatment	Control	T-C	[S.E.]	{t-statistic}	(P-value)
Groceries using only SNAP (N=1699)	278.87 (5.01)	275.70 (4.64)	3.17	[6.83]	{0.464}	(0.643)
Groceries not using SNAP (N=1665)	148.65 (4.82)	149.19 (4.79)	-0.54	[6.74]	{-0.080}	(0.936)
Food items ^a (N=1613)	107.22 (4.24)	107.18 (4.04)	0.04	[5.71]	{0.008}	(0.994)
Nonfood items (N=1613)	42.40 (1.99)	42.58 (2.15)	-0.18	[2.95]	{-0.062}	(0.951)
Restaurants (N=1695)	36.17 (1.62)	39.94 (2.14)	-3.78	[2.62]	{-1.443}	(0.149)
All fruits and vegetables ^b (N=1488)	76.88 (2.28)	69.50 (2.14)	7.39	[3.11]	{2.373}	(0.018)**

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

Continuous outcomes: self-reported expenses in dollars per month; “don’t know” and “refused” responses coded as missing

^a Calculated as grocery expenditures not using SNAP minus expenditures on nonfood items

^b Purchased with SNAP and with other forms of payment

Source: Participant Survey (primary shopper module)

6. Impact on Fruit and Vegetable Consumption

In previous chapters, we have described impacts of the Healthy Incentives Pilot on intermediate outcomes including attitudes about fruits and vegetables, the household food environment, and food expenditures. Those results provide important context for understanding the mechanisms by which HIP may influence our ultimate outcome of interest: consumption of fruits and vegetables. In this chapter, we describe impacts on fruit and vegetable consumption, as well as impacts on intake of other foods and nutrients to provide exploratory evidence on other differences in consumption patterns attributable to the pilot.

As described in Chapter 2, our primary dietary intake measures in this Interim Report are based on data from the AMPM 24-hour dietary recall interviews conducted in Round 2.⁴⁴ In addition, we report impacts on secondary measures of usual daily intake based on Round 2 data from the Eating at America's Table Study (EATS) fruit and vegetable screener completed by each sampled respondent.

Like the impact estimates presented in Chapters 4 and 5, estimates in this chapter exploit the evaluation's random assignment design. By comparing mean intake for those assigned to the treatment group and thus eligible to earn the HIP incentive ("HIP participants") with mean intake among those assigned to the control group and thus ineligible to earn the HIP incentive ("HIP non-participants"), we can estimate the impact of the pilot. Here, we report regression-adjusted estimates that are slightly more precise than direct comparison of unadjusted means (see Appendix D for additional detail on the methodology).

All outcome measures in this HIP Interim Report are preliminary and exploratory, based on results from the first post-implementation survey round (Round 2).⁴⁵ The main confirmatory outcome for the HIP Evaluation, which will be reported in a forthcoming Final Report, is the impact of HIP on a measure of fruit and vegetable intake combining reports from both post-implementation survey rounds (Round 2 and Round 3). Detailed information on the definition and construction of this measure from the AMPM 24-hour dietary recall data is provided below.

The chapter begins by presenting impacts on various aggregate measures of fruit and vegetable intake, including our chosen proxy for consumption of foods qualifying for the incentive—what we call "lower-bound modified targeted fruit and vegetable (MTFV)" (Section 6.1). The other sections of this chapter report impacts on specific fruit and vegetable categories affected by HIP (Section 6.2), particular population subgroups affected by HIP (Section 6.3), and selected secondary food and

⁴⁴ The analysis pools the first interviews with the 10 percent subsample of second interviews, clustering standard errors at the respondent level to account for non-independence of interview responses within respondents. After deleting records which lack a complete dietary recall or key analytic covariates, our analysis file includes 2,081 dietary recall interviews with 1,871 respondents.

⁴⁵ When interpreting results, readers should keep in mind that these tabulations include multiple hypothesis tests. Given the large number of hypothesis tests, because we test at the five percent level, it is likely that five percent of the tests would appear statistically significant using a conventional two-tailed hypothesis testing approach just by random chance. The best practice to address this issue is to identify a main confirmatory outcome in advance.

nutrient outcomes, showing, for example, whether HIP increased total food energy intake or caused a substitution between one food group and another (Section 6.4).

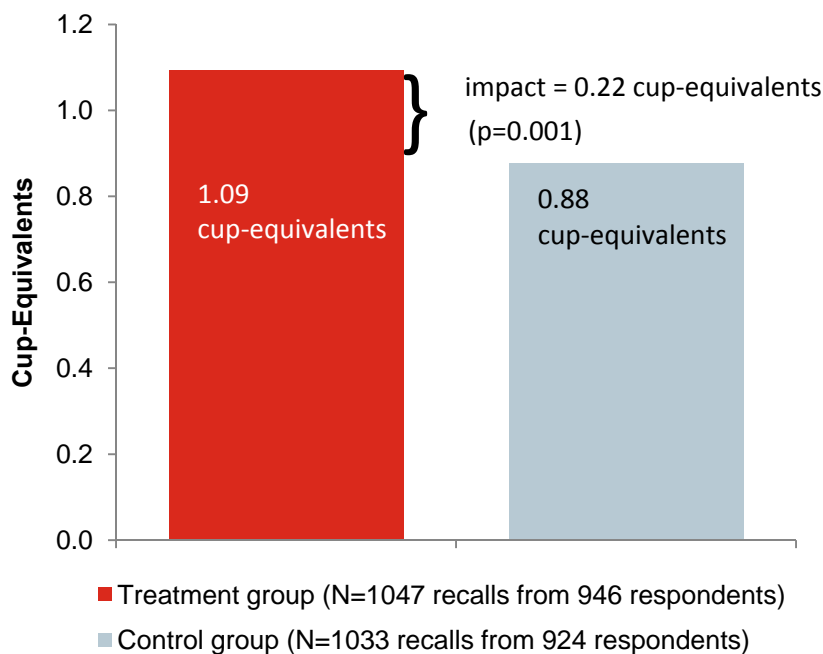
6.1 Fruits and Vegetables

This section reports HIP impacts on fruit and vegetable consumption. We begin with impacts for lower-bound MTFV. As will be seen below, lower-bound MTFV is the most conservative available proxy for targeted fruit and vegetable intake, including only fruit and vegetable intake from foods we can be reasonably sure would have qualified to earn the HIP incentive if purchased from a participating retailer. We then consider progressively broader fruit and vegetable intake aggregates and components. In particular, we consider impacts on upper-bound MTFV and on all fruits and vegetables, including a breakdown of impacts on individual components of these aggregates such as mixed foods, white potatoes and 100% fruit juice, and other fruits and vegetables acquired outside of retail stores.

Two Proxies for Targeted Fruits and Vegetables

Exhibit 6.1 shows the Round 2 daily adult (aged 16 and older) consumption of our chosen proxy for fruits and vegetables eligible for the HIP incentive: lower-bound MTFV. Lower-bound MTFV intake was slightly more than one-fifth of a cup (0.22 cup-equivalents⁴⁶) higher among HIP participants as compared to those not selected to participate in HIP. This represents a difference of approximately 25 percent over consumption in the absence of the program (0.88 cup-equivalents for control group members). Furthermore, we can decisively reject the null hypothesis of no impact.

Exhibit 6.1: Impact of HIP on Consumption of Modified Targeted Fruits and Vegetables (Lower Bound),^a Mean Cup-Equivalents Consumed



⁴⁶ One MyPyramid cup-equivalent is equal to one cup of cut-up raw or cooked fruits or vegetables.

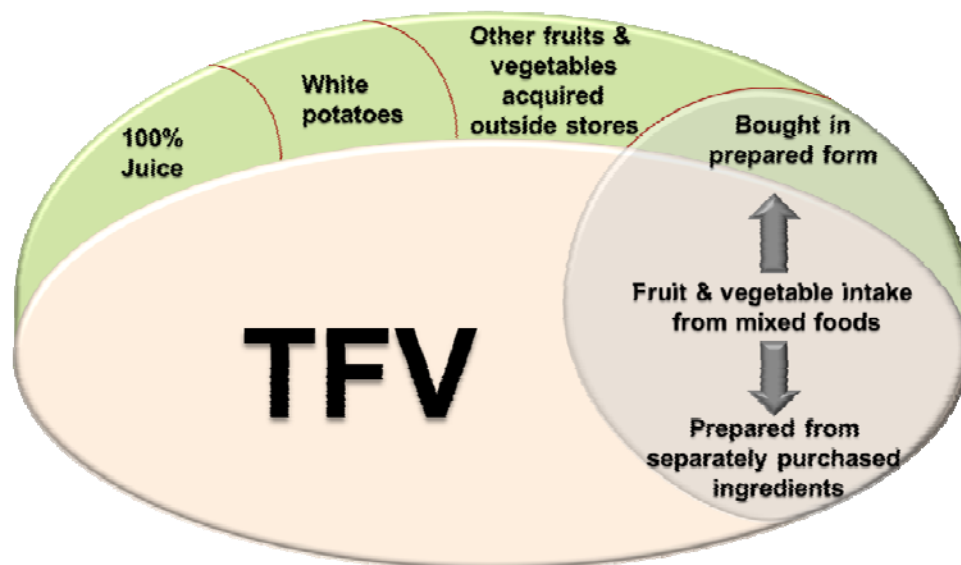
^a Modified Targeted Fruits and Vegetables includes fruits and vegetables acquired from the store, excluding white potatoes and 100% juice; lower bound measure excludes mixed foods.

Source: AMPM Dietary Recall Interview (unweighted N=2,080 recalls from 1,870 respondents)

To understand these results, it is important to understand the definition of and motivation for this preferred lower-bound MTFV measure.

The targeted fruits and vegetables (TFVs) that qualify for the HIP incentive include fresh, canned, frozen, and dried fruits and vegetables without added sugars, fats, oils, or salt as purchased from HIP-participating retailers; they exclude white potatoes and 100% juice.⁴⁷ Exhibit 6.2 visually depicts TFV as a proportion of all fruits and vegetables. The first three exclusions (100% juice, white potatoes, and fruits and vegetables purchased outside stores, the three “slices” at the top of the oval) are relatively straightforward to implement when constructing a proxy measure based on standard data elements recorded from the 24-hour dietary recall. Standard nutritional coding schemes allow for identification of intake from 100% juice and from white potatoes, which can then directly be excluded from a constructed TFV proxy measure. Similarly, for each food consumed, the respondent reports whether that food was purchased from a retail store or acquired from some other location (e.g. a food pantry, as part of a school meal, at a restaurant, etc.). This coding allows us to appropriately restrict the measure to intake from foods purchased at stores only – with the caveat that we cannot specifically identify whether the store in question participated in HIP.

Exhibit 6.2: Targeted Fruits and Vegetables (TFV) as a Proportion of All Fruits and Vegetables



However, intake of “mixed foods,” as depicted in the circular subset on the right side of the diagram, presents a more intractable coding challenge. The issue is that standard dietary coding schemes identify the form in which a food was *consumed*, while whether a food qualified for a HIP incentive

⁴⁷ Beverages containing less than 100% juice would also not qualify for the incentive because they generally include non-fruit, non-vegetable content; the exclusion of “100% juice” is thus intended to explicitly disqualify all-fruit or all-vegetable juices with no *whole* fruit or vegetable content.

depends on the form in which the food was *acquired*. When consumed foods include both TFV and other ingredients (for example, chicken and vegetable stew), it is not possible to distinguish between the following two scenarios:

- A consumed food was prepared from individual ingredients *after* purchase, in which case the TFV purchase *would have* been eligible for the HIP incentive, as in the lower part of the circle depicting intake of fruits and vegetables from mixed foods in Exhibit 6.2; or
- A consumed food was purchased in prepared form, with the ingredients combined *prior to* purchase, in which case the TFV ingredient *would not have* been eligible for the incentive, as in the upper part of the circle depicting intake of fruits and vegetables from mixed foods.

This leaves us with only two choices for constructing our TFV proxy: we can either *include* all intake of fruits and vegetables from mixed foods (the entire right-hand circle in Exhibit 6.2), or *exclude* all such intake, since we have no practical way to divide up these foods into TFV and non-TFV. The two resulting measures effectively establish upper and lower bounds on “true” TFV intake, since the former would include some non-TFVs, while the latter would exclude some TFVs.

In particular, we constructed two alternative proxy measures for TFV, designated as “modified TFV” (MTFV) to emphasize the inexact correspondence between the desired outcome and the measures that were feasible to construct using available data. For store-purchased foods only, both measures include fruit and vegetable intake from foods containing *only* fruit and vegetable ingredients. Both measures exclude white potatoes, 100% juice, and all fruits and vegetables purchased or acquired from restaurants, cafeterias, food pantries, or other non-store locations, since only store-purchased items are eligible for the HIP incentive.

The proxy measure “lower-bound modified targeted fruits and vegetables” (***lower-bound MTFV***) excludes all food items that include both TFV and other ingredients. That is, it explicitly *excludes* any fruit and vegetable intake from mixed foods that contain non-fruit, non-vegetable ingredients (e.g. apple pie, potato salad, or chili) or fruit and vegetable preparations including only added sugars, fats, or oils (e.g. stir-fried string beans, dried sweetened cranberries, canned peas with added sugar). This strict definition ensures that all included fruit and vegetable intake comes from foods that would qualify to earn the HIP incentive if purchased in a participating store. We take this as our confirmatory outcome measure because its conservative definition ensures that it does not include any fruit and vegetable intake from non-TFVs.

An alternative proxy measure—***upper-bound MTFV***—is defined somewhat less conservatively. It includes all those foods included in lower-bound MTFV, plus some additional mixed foods *that may have* qualified for the HIP incentive. Like lower-bound MTFV, the upper-bound measure excludes all fruits and vegetables not purchased from a store. Unlike lower-bound MTFV, however, it also *includes* fruit and vegetable intake from mixed foods (again excluding white potatoes and 100% fruit juice). Both the upper- and lower-bound measures capture intake from TFV bought and prepared with added, non-qualifying ingredients after purchase. However, upper-bound MTFV *also* includes any fruit and vegetable intake from foods purchased in prepared form. True TFV thus lies somewhere between the lower- and upper-bound MTFV proxy measures.

As Exhibit 6.3 shows, the difference between the two proxy measures is substantial. In the control group, regression adjusted upper-bound MTFV is 49 percent higher than lower-bound MTFV (1.31 cup-equivalents vs. 0.88 cup-equivalents).

Exhibit 6.3 also reports impacts on upper-bound MTFV. Intake of fruits and vegetables from mixed foods did not significantly differ between HIP participants and non-participants. As a result, impacts on upper-bound MTFV were similar in magnitude and significance to impacts on lower-bound MTFV. This result suggests that HIP is primarily influencing intake of TFV consumed alone, without added sugars, fats, oils, or other ingredients.

Other Fruit and Vegetable Aggregates

HIP may affect fruit and vegetable intake for several reasons. First, HIP may affect TFV intake by causing substitution between eligible and ineligible items. Second, HIP may affect even non-targeted fruits and vegetables by influencing participant attitudes and preferences (see Chapter 4), or by increasing a household's total resources available for food purchases.

Exhibit 6.3 reports impact estimates for various fruit and vegetable aggregates and included components.⁴⁸ Considering progressively more inclusive aggregates in turn provides suggestive evidence on which components contribute to HIP impacts on overall fruit and vegetable intake, beyond targeted fruits and vegetables considered alone. As already noted, HIP did not have an impact on fruit and vegetable intake from mixed foods.

⁴⁸ Full regression results including coefficients for all covariates appear in Appendix E, Exhibit E6.1.

Exhibit 6.3: Impact of HIP on Consumption of Fruits & Vegetables and Disaggregated Components, Lower- and Upper-Bound Modified Target Fruits & Vegetables (MTFV) and all Fruits and Vegetables, Cup-Equivalents

	Regression-adjusted mean (S.E.)		Impact			
	Treatment (T)	Control (C)	T-C	[S.E.]	{t-statistic}	(P-value)
Lower-bound MTFV	1.093 (0.050)	0.878 (0.041)	0.215	[0.064]	{3.373}	(0.001)***
Plus MTFV from mixed foods	0.425 (0.023)	0.431 (0.022)	-0.006	[0.032]	{-0.192}	(0.848)
Upper-bound MTFV	1.518 (0.054)	1.309 (0.048)	0.209	[0.072]	{2.926}	(0.003)***
Plus additional components:						
100% fruit juice	0.594 (0.041)	0.477 (0.031)	0.117	[0.051]	{2.269}	(0.023)**
White potatoes	0.361 (0.024)	0.351 (0.022)	0.011	[0.032]	{0.332}	(0.740)
Other fruits & vegetables acquired outside stores	0.257 (0.019)	0.251 (0.021)	0.006	[0.029]	{0.206}	(0.837)
All fruits and vegetables	2.731 (0.075)	2.388 (0.069)	0.343	[0.101]	{3.395}	(0.001)***

Two-sided test; *p<0.1, **p<0.05, ***p<0.01

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

MTFV=Intake of fruits and vegetables acquired from the store, excluding white potatoes and 100% juice

Upper bound measure includes fruit & vegetable intake from mixed foods, lower bound measure excludes mixed foods

Source: AMPM Dietary Recall Interview (unweighted N=2,080 recalls from 1,870 respondents)

White Potatoes and 100% Fruit Juice

Because neither 100% fruit juice nor white potatoes qualify for the HIP incentive, both the upper- and lower-bound MTFV measures exclude these items. However, as seen in Exhibit 6.3, both 100% fruit juice and white potatoes contribute substantially to total fruit and vegetable intake. Individuals in our control group consumed 0.48 cup-equivalents of 100% fruit juice, comprising about 20 percent of all fruit and vegetable intake, and 0.35 cup-equivalents of white potatoes, comprising about 15 percent of all fruit and vegetable intake.

Interestingly, HIP participants consumed significantly more 100% fruit juice than non-participants (0.12 cup-equivalents), even though fruit juice does not qualify for the HIP incentive. Perhaps some HIP participants thought that 100% fruit juice purchases earned the incentive. In contrast, there was no statistically significant impact on white potato consumption.

Fruits and Vegetables Acquired Outside Stores

The upper- and lower-bound MTFV measures additionally exclude all fruit and vegetable intake from foods acquired from restaurants, cafeterias, food pantries, or any other source besides a retail store.⁴⁹

⁴⁹ The AMPM dietary recall collects information on where food consumed was acquired.

These foods contribute to the difference in intake between upper-bound MTFV and all fruit and vegetable consumption not otherwise attributable to intake from white potatoes or 100% fruit juice. This residual comprises about 0.25 cup-equivalents, or about 10 percent of all fruit and vegetable intake. We find no evidence that HIP influenced intake of fruits and vegetables acquired from non-store sources.

All Fruit and Vegetable Intake

HIP participants' total fruit and vegetable consumption is approximately one third of a cup (0.34 cup-equivalents) greater than that of non-participants. This impact is somewhat larger than the one fifth of a cup impact on MTFV described above.⁵⁰ The 0.12 cup-equivalents impact on 100% fruit juice intake explains the bulk of the difference in impacts between these two measures. These findings suggest that HIP may have an impact on total fruit and vegetable consumption beyond its direct effects on MTFV consumption, though it is unclear why these indirect impacts would be concentrated on 100% fruit juice.

6.2 Targeted Fruit and Vegetable Groups and Subgroups

Although fruits and vegetables from all major fruit and vegetable subgroups qualify to earn the HIP incentive, it is plausible that impacts could be concentrated within a particular fruit or vegetable group or subgroup. For example, members of the HIP group might differentially increase spending on a handful of familiar fruits or vegetables within a subgroup already comprising a relatively large proportion of their prior fruit and vegetable consumption. Alternatively, they could spread any additional spending proportionally across specific subgroups.

To investigate how impacts on total intake were distributed across fruit and vegetable categories, we separately report HIP impacts on lower-bound MTFV disaggregated by MyPyramid groups and subgroups (Exhibit 6.4) and on usual intake of fruits and vegetables as reported on a fruit and vegetable consumption screener (Exhibit 6.5).

MyPyramid Fruit and Vegetable Groups and Subgroups

For these analyses of fruit and vegetable groups and subgroups, we use MyPyramid definitions, defined in accordance with the 2005 Dietary Guidelines for Americans (DHHS and USDA, 2005). The two major MyPyramid fruit subgroups are (i) citrus, melon, and berries; and (ii) other fruits. The five major MyPyramid vegetable subgroups are (i) dark green (broccoli, spinach, most greens); (ii) orange (carrots, sweet potatoes, winter squash, pumpkin); (iii) starchy (corn, white potatoes, green peas); (iv) tomatoes; and (v) other vegetables (cabbage, celery, cucumber, lettuce, onions, peppers, green beans, cauliflower, mushrooms, summer squash).⁵¹

⁵⁰ However, the difference between impacts on MTFV and impacts on total fruits and vegetables was significant only at the 90% confidence level; in other words, we cannot reject the hypothesis that impacts on MTFV and impacts on total fruits and vegetables were identical in magnitude at the conventional 95% confidence level.

⁵¹ These MyPyramid definitions preceded those used in the current MyPlate consumer education program based on the 2010 Dietary Guidelines for Americans, for which food group and subgroup equivalent databases have not yet been released, precluding their use in the present analyses. Under the current USDA food patterns, tomatoes and other red vegetables are grouped along with orange vegetables to form a single

For this analysis, we use lower-bound MTFV measures including intake from store-purchased fruits and vegetables only and excluding intake from mixed foods. Fruit group and subgroup measures include intake from whole fruit only, excluding intake from 100% fruit juice. The total vegetable and starchy vegetable measures exclude intake from white potatoes. Impacts on lower-bound MTFV disaggregated by MyPyramid food group and subgroup are reported in Exhibit 6.4.

Exhibit 6.4: Impact of HIP on Consumption of Lower Bound Modified Target Fruits & Vegetables (MTFV), Cup-Equivalents, by MyPyramid Food Group

	Regression-adjusted mean (SE)		Impact			
	Treatment (T)	Control (C)	T-C	[S.E.]	{t-statistic}	(P-value)
Total fruits and vegetables	1.093 (0.050)	0.878 (0.041)	0.215	[0.064]	{3.373}	(0.001)***
Total fruits	0.613 (0.037)	0.520 (0.030)	0.093	[0.047]	{1.968}	(0.049)**
Citrus fruits, melons, & berries	0.163 (0.014)	0.120 (0.012)	0.043	[0.019]	{2.250}	(0.025)**
Other fruits (e.g. apples, pears, bananas, grapes, peaches)	0.450 (0.033)	0.400 (0.026)	0.050	[0.041]	{1.219}	(0.223)
Total vegetables	0.480 (0.028)	0.358 (0.023)	0.123	[0.036]	{3.390}	(0.001)***
Dark green vegetables	0.066 (0.008)	0.036 (0.006)	0.030	[0.010]	{3.110}	(0.002)***
Orange vegetables	0.039 (0.008)	0.028 (0.005)	0.010	[0.010]	{1.101}	(0.271)
Other starchy vegetables	0.039 (0.005)	0.040 (0.006)	-0.001	[0.008]	{-0.143}	(0.887)
Tomatoes	0.082 (0.007)	0.066 (0.006)	0.016	[0.010]	{1.656}	(0.098)*
Other vegetables (e.g. celery, cucumbers, mushrooms, green beans, onions, asparagus)	0.255 (0.018)	0.187 (0.016)	0.067	[0.024]	{2.789}	(0.005)***

Two-sided test; *p<0.1, **p<0.05, ***p<0.01

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

MTFV=Intake of fruits and vegetables acquired from the store, excluding white potatoes and 100% juice

Lower bound measure excludes fruit and vegetable intake from mixed foods

Source: AMPM Dietary Recall Interview (unweighted N=2,080 recalls from 1,870 respondents)

We find higher targeted fruit intake of 0.09 cup-equivalents in HIP participants relative to the non-participants. A little less than half of this impact was due to a statistically significant 0.04-cup

“red and orange vegetables” group. In addition, beans and peas consumed in excess of levels needed to meet protein group recommendations in combination with meat, poultry, fish, eggs, nuts, and seeds comprise a fifth vegetable subgroup.

difference in intake of fruits from the citrus fruit, melon, and berries subgroup. We did not detect a statistically significant difference in consumption of other fruits.

The treatment-control difference in targeted vegetable intake was 0.12 cup-equivalents. This includes a 0.03-cup difference in intake of dark green vegetables, a 0.07-cup difference in intake of the other vegetables subgroup, and a borderline-significant (i.e., $0.05 < p < 0.10$) 0.02-cup difference in intake of tomatoes. We find no evidence of an increase in consumption of orange vegetables or of starchy vegetables (the latter of which, as noted above, excludes white potatoes, the most commonly-consumed starchy vegetable).

Usual Daily Intake from Fruit & Vegetable Screener

In addition to completing 24-hour dietary intake recall interviews, sampled respondents also completed a modified version of the Eating at America's Table Study (EATS) Fruit and Vegetable Screener (Thompson et al. 2000) that asked about usual intake of several common foods containing fruits and vegetables by the respondent over the past month.⁵² Respondents were asked how often during the past month they had consumed 100% juice, fruit, leafy green salads, fried potatoes, other potatoes, beans, other vegetables, tomato sauce, and salsa. In addition, they reported how much they usually consumed when they ate these items. Using standard EATS scoring procedures, these reported frequencies and amounts were used to calculate an estimate of usual intake per day in standardized cup-equivalents for each respondent.

These measures are less precise than 24-hour dietary recall measures, so in general we would expect to detect fewer impacts. Nonetheless, Exhibit 6.5 shows statistically significant impacts on self-reported usual daily intake of fruit and leafy green salads, broadly consistent with the impacts on fruit, dark green vegetables, and other vegetables (including lettuce) found in the dietary recall data. We did not, however, find impacts on the screener measure of 100% juice, or on the two common tomato-based foods, tomato sauce and salsa, in contrast to the significant impact on 100% fruit juice and the borderline-significant increase in tomato intake from the recall data. In addition, we find no impact on intake of fried or other potatoes, beans, or the screener measure of other vegetable intake.

⁵² Baseline responses to the fruit and vegetable screener are presented in Appendix E, Exhibit E6.2. There were no statistically significant differences between the treatment and control groups.

Exhibit 6.5: Impact of HIP on Estimated Usual Daily Intake from Fruit & Vegetable Screener, Cup-Equivalents

	Regression-adjusted mean (SE)		Impact			
	Treatment (T)	Control (C)	T-C	[S.E.]	{t-statistic}	(P-value)
100% Juice (N=1789)	1.002 (0.048)	0.935 (0.046)	0.067	[0.066]	{1.017}	(0.309)
Fruit (N=1793)	0.711 (0.032)	0.626 (0.028)	0.085	[0.042]	{2.044}	(0.041)**
Salad (N=1801)	0.333 (0.014)	0.294 (0.014)	0.039	[0.020]	{2.010}	(0.045)**
Fried Potatoes (N=1810)	0.057 (0.005)	0.078 (0.013)	-0.021	[0.015]	{-1.440}	(0.150)
Other Potatoes (N=1807)	0.215 (0.011)	0.195 (0.010)	0.020	[0.015]	{1.350}	(0.177)
Beans (N=1804)	0.195 (0.014)	0.185 (0.010)	0.010	[0.017]	{0.583}	(0.560)
Other Vegetables (N=1788)	0.525 (0.023)	0.483 (0.020)	0.041	[0.031]	{1.349}	(0.177)
Tomato Sauce (N=1784)	0.103 (0.006)	0.111 (0.007)	-0.008	[0.010]	{-0.799}	(0.424)
Salsa (N=1802)	0.008 (0.001)	0.009 (0.002)	-0.001	[0.002]	{-0.439}	(0.660)

Two-sided test; *p<0.1, **p<0.05, ***p<0.01

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

“Refused” and “don’t know” responses on frequency or amount items coded as missing

Source: Participant Survey (respondent module)

6.3 Population Subgroup Impacts

Findings above demonstrated statistically significant impacts of HIP on the treatment group as a whole. We additionally assessed whether impacts differed across subgroups defined by household and individual characteristics. To maximize power for these comparisons, we defined binary subgroup designations such that, to the maximum extent possible, approximately one half of respondents fell into each group. In particular, we tested for differences in impacts by:

- Respondent gender (males vs. females),
- Respondent age group (age 16-40 years vs. 41+ years),
- Primary shopper employment status (employed full- or part-time vs. not employed),
- SNAP benefit size (\$200 or less vs. over \$200), and
- Household composition (households with children vs. households with no children).

Exhibit 6.6 displays population subgroup impact estimates on lower-bound MTFV. We find no evidence of differential impacts by any of the characteristics listed—respondent gender or age group, primary shopper employment status, SNAP benefit size, or household composition. We note, however, that our study was not powered to detect subgroup differences.

Exhibit 6.6: Differences in Impacts of HIP on Consumption of Modified Targeted Fruits and Vegetables (MTFV), Lower Bound, by Demographic Subgroup

	Regression-adjusted treatment mean (SE)	Regression-adjusted control mean (SE)	Treatment-control impact (p-value)	Difference in impacts (p-value)
Respondent gender (N=2081 recalls from 1871 respondents)				
Females	1.119 (0.064)	0.886 (0.038)	0.233 (0.001)***	
Males	1.080 (0.114)	0.899 (0.039)	0.181 (0.157)	
Impact: females - males				0.051 (0.725)
Respondent age group (N=2081 recalls from 1871 respondents)				
16-40 years	1.073 (0.077)	0.895 (0.038)	0.178 (0.037)**	
41+ years	1.145 (0.082)	0.890 (0.039)	0.255 (0.007)***	
Impact: 16-40 years - 41+ years				-0.077 (0.541)
Primary shopper employment status (N=1990 recalls from 1789 respondents) ^a				
Working full or part-time	1.136 (0.105)	0.900 (0.038)	0.236 (0.033)**	
Not working	1.099 (0.059)	0.884 (0.041)	0.215 (0.003)***	
Impact: working - not working				0.021 (0.863)
Household SNAP benefit amount (n=2081 recalls from 1871 respondents)				
\$200 or less	1.096 (0.072)	0.892 (0.039)	0.204 (0.017)**	
Over \$200	1.123 (0.084)	0.893 (0.038)	0.230 (0.012)**	
Impact: \$200 or less – over \$200				-0.026 (0.829)
Household composition (N=2081 recalls from 1871 respondents)				
Children in household	1.156 (0.093)	0.892 (0.038)	0.264 (0.008)***	
No children in household	1.072 (0.071)	0.893 (0.039)	0.178 (0.037)**	
Impact: children in HH – no children				0.086 (0.517)

Two-sided test; *p<0.1, **p<0.05, ***p<0.01

Due to rounding, reported impacts (T-C differences) and reported differences in impacts across subgroups may differ from differences between reported regression-adjusted means for the treatment and comparison groups and subgroups.

MTFV=Intake of fruits and vegetables acquired from the store, excluding white potatoes and 100% juice

Lower bound measure excludes fruit and vegetable intake from mixed foods

^a Sample size is smaller for this subgroup analysis because the primary shopper employment status item is included in the primary shopper survey, which was not completed in all households with a sampled respondent completing a dietary recall interview.

Source: AMPM Dietary Recall Interview

6.4 Secondary Dietary Outcomes

One purpose of HIP is to encourage healthful eating patterns, which may improve overall nutritional status and lower the risk of overweight, obesity, and related chronic conditions. It is therefore of interest to examine HIP impacts on foods other than fruits and vegetables, which may provide suggestive evidence on whether observed higher targeted fruit and vegetable intake among HIP participants is an indication that they are substituting fruits and vegetables for other foods in their diets. In addition, we estimate impacts on broader measures of dietary status including total food energy, fiber, and micronutrients commonly found in fruits and vegetables.

Other Intake

Exhibit 6.7 reports impacts of HIP on foods other than fruits and vegetables for each of the major MyPyramid food groups.⁵³ If participants are substituting fruit and vegetable consumption for other types of intake, then we might expect concurrent decreases in consumption of other foods. Alternatively, income effects from the HIP incentive might result in an increase in consumption of other foods.

We find statistically significantly lower grain consumption among the HIP-group of 0.46 ounce-equivalents, driven by a 0.46 ounce-equivalent difference in intake of other (refined) grains. We also see greater alcohol consumption among HIP participants of 0.13 drinks. Especially given concerns about multiple comparisons noted in the introduction to this chapter, patterns of impacts are not sufficiently consistent to provide clear evidence in support of either a substitution or an income effect.

Exhibit 6.7: Impact of HIP on Consumption of Other Foods, by MyPyramid Food Group

	Regression-adjusted mean (SE)		Impact			
	Treatment (T)	Control (C)	T-C	[S.E.]	{t-statistic}	(P-value)
Total grains (oz-eq)	5.405 (0.132)	5.864 (0.128)	-0.459	[0.185]	{-2.487}	(0.013)**
Whole grains (oz-eq)	0.664 (0.038)	0.662 (0.037)	0.002	[0.052]	{0.045}	(0.964)
Other grains (oz-eq)	4.740 (0.127)	5.202 (0.124)	-0.461	[0.178]	{-2.585}	(0.010)***
Total dairy (milk, yogurt, cheese) (cup-eq)	1.545 (0.055)	1.471 (0.050)	0.074	[0.074]	{0.987}	(0.324)
Meat, poultry, fish, & eggs (oz-eq)	4.781 (0.128)	4.775 (0.123)	0.006	[0.177]	{0.034}	(0.973)
Legumes, nuts, and seeds (oz-eq)	0.432 (0.043)	0.459 (0.061)	-0.027	[0.066]	{-0.407}	(0.684)
Discretionary oils (gm-eq)	15.60 (0.60)	16.07 (0.60)	-0.47	[0.83]	{-0.567}	(0.571)
Discretionary solid fats (gm-eq)	36.96 (0.96)	37.78 (0.95)	-0.82	[1.37]	{-0.599}	(0.549)
Added sugar (tsp) ^a	15.74 (0.56)	15.67 (0.51)	0.06	[0.76]	{0.085}	(0.933)
Alcohol (drinks) ^b	0.262 (0.047)	0.128 (0.020)	0.134	[0.051]	{2.643}	(0.008)*** ^c

Two-sided test; *p<0.1, **p<0.05, ***p<0.01

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

^aIncludes, for example, the sugar added to sweetened soft drinks consumed.

^bReflects alcohol content in beverages consumed.

^cNote that this result appears to be driven by the presence of several extreme outliers who reported 8 or more drinks of alcohol in the prior 24 hours. Excluding those individuals (7 in all) from the analysis, differences between treatment and control groups are no longer statistically significant.

Source: AMPM Dietary Recall Interview (unweighted N=2,081 recalls from 1,871 respondents)

⁵³ Exhibit 6.7 includes all major MyPyramid non-fruit, non-vegetable food groups, including “discretionary” foods such as alcohol, added sugar, and solid fats and oils, to provide a comprehensive picture of dietary composition across all major categories of intake.

Total Food Energy

Total food energy is an important issue, because increasing fruit and vegetable intake without increasing total food energy is thought to decrease risk of weight gain (Dietary Guidelines for Americans, 2010).

The estimated impact of HIP on total energy intake was small (a difference of 9 kilocalories per day) which is not statistically significant (Exhibit 6.8). However, we note that our study was not sufficiently powered to detect an impact on total energy of the magnitude that would be implied by the observed one-third of a cup-equivalent increase in total fruit and vegetable consumption. In the absence of a statistically significant impact in either direction, we cannot determine whether higher fruit and vegetable consumption associated with HIP participation was in addition to or in place of consumption of other foods. Doing so would have required a sample several times as large.

Exhibit 6.8: Impact of HIP on Total Energy Intake

	Regression-adjusted mean (SE)		Impact			
	Treatment (T)	Control (C)	T-C	[S.E.]	{t-statistic}	(P-value)
Total energy (kcal)	1830 (32)	1839 (30)	-9	[44]	{-0.21}	(0.832)

Two-sided test; *p<0.1, **p<0.05, ***p<0.01

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

Source: AMPM Dietary Recall Interview (unweighted N=2,081 recalls from 1,871 respondents)

Fiber and Micronutrients

Finally, to assess impacts of HIP on the overall nutritional profile of HIP participants, we analyzed intake of fiber and micronutrients most commonly found in targeted fruits and vegetables (beta carotene, vitamin A, and vitamin C). We find statistically significant impacts on vitamin C intake, consistent with the observed increase in consumption of citrus, melon, and berries, which are good sources of vitamin C (see Exhibit 6.9).

Exhibit 6.9: Impact of HIP on Nutrient Intake

	Regression-adjusted mean (SE)		Impact			
	Treatment (T)	Control (C)	T-C	[S.E.]	{t-statistic}	(P-value)
Fiber (g)	13.89 (0.30)	13.39 (0.28)	0.50	[0.40]	{1.25}	(0.213)
Beta carotene (mcg)	1809 (129)	1555 (121)	254	[176]	{1.44}	(0.149)
Vitamin A (mcg RAE)	616 (21)	572 (21)	44	[30]	{1.49}	(0.137)
Vitamin C (mg)	116 (5)	98 (4)	18	[6]	{3.09}	(0.002)***

Two-sided test; *p<0.1, **p<0.05, ***p<0.01

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

Source: AMPM Dietary Recall Interview (unweighted N=2,081 recalls from 1,871 respondents)

6.5 Discussion

This chapter has reported random assignment-based estimates of the impact of HIP on food intake. The results show clearly statistically significant and substantively meaningful (about one fifth of a cup-equivalent, or about 25 percent higher than the control (non-HIP) group intake level) impacts on

our chosen proxy for fruits and vegetables qualifying for the HIP incentive (lower-bound MTFV). These results are robust when using the alternative upper-bound MTFV proxy measure, and there appear to be impacts on both fruits and vegetables.

The final evaluation report will ultimately judge the success of the HIP intervention based on a single confirmatory outcome: an estimate of lower-bound MTFV based on pooling results across the two follow-up surveys. This Interim Report only analyzes data from the first follow-up survey. As such, none of these results are confirmatory. Inasmuch as implementation and participant understanding improves, growth in impact between the interim and final report periods seems plausible. Thus, while in no sense final, these results taken alone suggest that HIP achieves its goal—increasing fruit and vegetable consumption of SNAP participants.

7. Conclusion

The Healthy Incentives Pilot (HIP) investigates the impact of making fruits and vegetables more affordable for participants in the Supplemental Nutrition Assistance Program (SNAP). The Food, Conservation, and Energy Act of 2008, authorized funds for pilot projects to determine if financial incentives provided to SNAP recipients at the point of sale increase the consumption of fruits, vegetables, or other healthful foods. The HIP evaluation had a rigorous random-assignment research design, so HIP/non-HIP differences can be interpreted as the causal impact of the pilot. HIP households were able to earn the incentive for 12 months.

This Interim Report on early findings 4-6 months after implementation is the second of three reports for the HIP evaluation. Previously, the Early Implementation Report (Bartlett et al., 2013) described the development and early implementation of the pilot. Subsequently, a Final Report will provide more definitive and complete results on the study's main outcomes, which will include data collected 9-11 months after implementation. The Final Report will provide estimates for additional outcomes and sensitivity analysis, and it will consider the potential for expanding the incentive to other locations.

This concluding chapter of the Interim Report proceeds in four sections. First, it summarizes the study's most important findings, including results about the primary food intake outcomes (Section 7.1). As presented in Chapter 6, interim results suggest that HIP had a significant and positive effect on fruit and vegetable intake.

Second, this chapter explores the intermediate variables by which HIP appears to influence the main food intake outcomes (Section 7.2). A notable finding is that HIP had favorable impacts on participant attitudes toward and exposure to fruits and vegetables, yet actual purchases of HIP-eligible food items recorded in EBT transactions data were surprisingly small. We discuss several possible explanations for the contrast between low HIP spending and positive estimated HIP impacts on fruit and vegetable intake.

Third, the chapter discusses limitations of the analysis (Section 7.3). Then, the final section of this chapter describes the next stages of this pilot evaluation (Section 7.4).

7.1 Summarizing the Results

The primary evaluation outcome was lower-bound Modified Targeted Fruit and Vegetable (MTFV) intake, based on a participant survey that included a 24-hour dietary recall. MTFV is a proxy measure for Targeted Fruits and Vegetables (TFVs), which were eligible for the HIP incentive in this pilot. TFVs include fresh, canned, frozen, and dried fruits and vegetables without added sugars, fats, oils, or salt, excluding white potatoes and 100% juice. The lower-bound MTFV measure excludes mixed foods that might not have been eligible for the incentive.

HIP increased targeted fruit and vegetable intake by about one-fifth of a cup daily, an increase of about 25 percent. Specifically, HIP participants had average daily lower-bound MTFV intake per adult of 1.09 cup-equivalents, which is 0.22 cup-equivalents higher than intake for the control group (0.88 cup-equivalents). The impact estimate was similar using an upper-bound variant of the MTFV consumption measure, based on different assumptions about selected mixed foods whose eligibility for the HIP incentive could not be determined. Using the upper-bound approach, HIP participants had

daily MTFV intake of 1.52 cup-equivalents, which is 0.21 cup-equivalents (approximately 16 percent) higher than intake for the control group. The positive HIP impacts were broadly consistent across population subgroups defined by employment status, age, presence of children, and amount of the household's SNAP benefit. Furthermore, HIP caused significant increases in several categories of targeted fruits and vegetables, but not most other food groups. Total food energy showed no significant difference between treatment and control groups.

Healthy People 2020 objectives seek to increase total fruit and vegetable intake from 1.3 cup-equivalents per 1,000 calories to 2.0 cup-equivalents per 1,000 calories. The *Healthy People 2020* objectives for total fruit and vegetable intake encompass some foods that would be eligible for HIP and others that would be ineligible. Our estimated main HIP impact was 0.22 cup-equivalents daily for just modified targeted fruits and vegetables (using the lower-bound approach, which excludes certain mixed foods). Comparing this HIP impact on MTFVs to the *Healthy People 2020* objectives for the broader category of all fruit and vegetable intake, the HIP impact reduces the “total fruit and vegetable intake gap” by approximately 17 percent. This HIP impact is both statistically significant and large enough to make some progress toward meeting *Healthy People 2020* objectives.

7.2 Intermediate Variables

HIP could influence fruit and vegetable consumption through (at least) two pathways.

- *An economic pathway.* The HIP incentive is equivalent to a 30 percent price discount on TFVs. The literature on the price sensitivity of food purchases suggests that a 30 percent decrease in the price of fruits and vegetables would lead to very roughly a 20 percent increase in fruit and vegetable spending.
- *An informational pathway.* Enrollment in HIP might also have an effect above and beyond prices. The very existence of the program and its informational materials (the EBT card sleeve, regular mailings, value of the incentive reported on supermarket receipts) reminds participants of the importance of eating TFVs.

Chapter 6 (Exhibit 6.1) presented our best estimate of the impact of HIP—a 25 percent increase in self-reported 24-hour recall MTFV consumption for a single adult. Given the variability in the estimates in the literature, this is close to the 20 percent impact that would have been projected from the literature from a pure economic pathway. The fact that our estimate is slightly larger than is implied by the estimates in the literature might be interpreted as evidence for the importance of the informational pathway.

Other results presented in this Interim Report suggest that the interpretation of these results may be more subtle. Specifically, the HIP incentives earned seem small relative to the reported MTFV consumption and relative to the impact (Chapter 5). Analysis of the EBT data showed that the average HIP incentive earned was \$3.87 (per household, per month), corresponding to HIP TFV purchases of \$12.90 (per household, per month).⁵⁴ An exploratory calculation suggests that this is equivalent to

⁵⁴ As noted in Section 5.1, the EBT transaction data analyzed for this report are missing approximately 4 percent of HIP households. Missing households appear to be similar to included households. We expect to have complete data for the Final Report.

approximately 0.48 cup-equivalents of TFV intake (per adult, per day).⁵⁵ By contrast, the HIP participants' self-reported lower-bound MTFV intake in the 24-hour recall is 1.09 cup-equivalents (per adult, per day). This is more than twice the 0.48 cup-equivalents per adult per day suggested by the exploratory calculation. Additional analyses are needed to better understand the relation between the spending and intake estimates. In particular, it seems possible that some HIP households are purchasing TFVs in ways that do not earn the incentive (for example, not with SNAP benefits or in non-participating stores).⁵⁶

7.3 Limitations of the Analysis

This study randomly assigned SNAP participants to either the HIP group that was eligible to earn the incentive or to the non-HIP group that continued to receive SNAP benefits as usual. Random assignment is widely considered to be the best method to estimate impacts. It provides assurance that HIP and non-HIP participants did not differ systematically in unobservable ways. At the same time, a random assignment research design requires tradeoffs. It is difficult to use a random assignment research design in a nationally representative sample of geographic locations. Instead, random assignment studies generally are done in pilot settings in particular locations. In the case of HIP, the pilot was conducted in Hampden County, Massachusetts.

It is possible that impacts would be larger if a healthy incentive were implemented in a broader setting. HIP applied to just 7,500 of the approximately 55,000 SNAP participant households in Hampden County. In a continuing incentives program, more stores would likely participate; there would be more in-store signage; and there would be more word-of-mouth about how HIP works. We have not identified any mechanism through which broad roll-out would have smaller impacts.

This study has relied primarily on survey data to measure the primary food intake outcomes of interest. Survey data have several limitations. First, response is never complete. Non-respondents may differ from respondents, such that estimates on respondents do not project to the entire SNAP population. To reach as many respondents as possible, we sent field interviewers to household addresses in cases where respondents could not be reached by telephone, and we provided interviewers for both English- and Spanish-language respondents. For Round 1 (pre-implementation), the survey response rate as a percentage of sampled persons was 63 percent (HIP group) and 64 percent (non-HIP group), which is sufficiently low that it could cause bias if survey respondents differ substantially and systematically from survey non-respondents (see Chapter 2). We will conduct a non-response analysis to assess the extent of non-response bias; results will be described in the Final Report. For Round 2 (4-6 months post-implementation), the survey response rate was 84

⁵⁵ This exploratory calculation assumes 365.25/12 days per month; 1.76 adults per household (see Exhibit 2.5); and \$0.50 per cup-equivalent (see Stewart, et al., 2011). Using other plausible values in this computation (for example, considering children in the conversion from household to persons, or the possibility that the price per cup is too low for Hampden County or for TFVs) would lower the estimate below 0.48 cups per day.

⁵⁶ HIP gives households a strong incentive to purchase TFV with SNAP benefits in participating retail establishments. Three-quarters of HIP-group households report not having changed where they shopped (See Exhibit 5.8), which suggests that they did not respond to this incentive. Thus, such behavior might indicate a lack of understanding of the HIP program.

percent (HIP) and 82 percent (non-HIP). All analyses use survey weights that attempt to control for differential non-response by characteristics observed in the case records and in earlier surveys.

Second, the key outcome for this study is food intake based on a 24-hour dietary recall instrument. We used USDA's Automated Multiple Pass Method (AMPM) instrument, which is designed to enhance respondents' ability to recall food consumed during the previous day. This is a well-established and frequently used measurement approach. Moreover, it is sufficiently complex that we would not expect bias from a desire on the part of HIP participants to give the "right" answer. Nonetheless, one can never completely rule out the possibility that results are influenced by measurement error.⁵⁷

7.4 From Interim Report to Final Report

This document is explicitly an "Interim Report." It reports limited early results based on the participant survey that took place four to six months after HIP implementation (Round 2).

The Final Report will expand on this Interim Report in several ways. First, the Final Report will analyze data from two participant survey rounds (Round 2 and Round 3, which took place nine to eleven months after HIP implementation). The resulting sample will have approximately twice as many interviews, and will therefore yield more precise estimates. That increased precision will be particularly useful for subgroup analyses that examine whether HIP had differential impact on subgroups of the population. This Interim Report includes limited subgroup analyses, the Final Report will include additional subgroup analyses, including subgroups defined by attitudes toward fruits and vegetables, home food environment, and shopping patterns.

Second, this Interim Report does not include estimates of usual intake and of the fraction of respondents satisfying dietary guidelines and other binary standards. Those estimates require applying algorithms to infer usual intake from the full sample and a second 24-hour recall interview with approximately 10 percent of the sample. The Final Report will include those analyses of usual intake.

Third, HIP was implemented in three waves (each containing one third of the HIP participant group) from November, 2011, to January, 2012. There were some technical difficulties in the first few months of implementation, leading to some participants not being credited for qualifying purchases. These issues were remedied and the participants were eventually credited. As noted in Section 7.3, qualifying HIP purchases of TFVs remained fairly small as of July, 2012, the last month of the Round 2 survey period. It is not known whether participant understanding of the pilot's incentive structure and operation was still trending upwards at that time. The Final Report will include EBT transactions data from August through November, 2012, the time period for the Round 3 survey. Both the larger

⁵⁷ In our sample of both male and female respondents aged 16 years and older in 2012, mean daily food energy was 1830 kcal in the treatment group and 1839 kcal in the control group. By comparison, in nationally representative estimates from NHANES 2005-2006, for an adult population aged 20 years and older, mean food energy was 2157 kcal. It is likely that both our survey and NHANES understate actual food energy intake to an unknown extent, due to difficulties in respondent recall. Nonetheless, our random assignment research design provides reassurance that any under-reporting is similar for the HIP and non-HIP participants. We will investigate this issue further in the Final Report.

sample and the longer time period should contribute to more precise and reliable estimates in the Final Report.

Furthermore, we have noted the difficulty of determining the pathways by which HIP contributed to the impact on MFTV consumption estimated here. Further analyses of the EBT data—in particular, analysis focusing on participating retailers and participants who shop almost exclusively at participating retailers—may help us to better understand how the HIP incentive works.

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Appendix A: Random Assignment and Sampling

A rigorous research design was critical to assessing the impact of HIP on participants' intake of fruits and vegetables. Random assignment was used to determine which SNAP households in Hampden County would participate in HIP. Then, random sampling was used to select respondents for the participant surveys. (Exhibit 2.1 in Chapter 2 provides a graphical overview of the evaluation design.) The first section of this appendix discusses random assignment to HIP/non-HIP status. The second section of this appendix discusses random sampling of participant survey respondents.

A.1 Random Assignment to HIP/non-HIP Status

The random assignment of eligible SNAP participant households to HIP and non-HIP status was central to the evaluation design and HIP operations. DTA provided administrative case file records containing all households and persons on SNAP in Hampden County as of mid-July, 2011.⁵⁸ We randomly selected 7,500 SNAP households (containing 9,286 persons) to participate in HIP. The remaining 47,595 eligible SNAP households in Hampden (containing 59,652 persons) were not selected to earn the HIP incentive.

To ensure that the HIP (treatment) and non-HIP (control) groups were balanced or similar, we used a blocked random assignment design. Tests on the samples after random assignment confirmed that they were similar with respect to key participant characteristics. Additionally, HIP households were randomly divided into three groups, corresponding to the three waves DTA established to enroll participants in HIP.⁵⁹ Non-HIP households were also divided into three waves to facilitate participant survey sampling.

The rest of this section provides a detailed description of the steps in the random assignment process.

Step 1: Review Data

To conduct random assignment, we used the July 2011 extract of households in Hampden County, Massachusetts that were eligible for HIP. We reviewed the file and the related documentation to ensure that all the eligible households, and only the eligible households, were included in the file. The evaluation sought to estimate the impact of HIP on adult food intake, so child-only cases were not eligible for HIP. Furthermore, only households that did their own shopping were eligible for the evaluation. SNAP participants who sign over their benefits to a residential or treatment facility were not eligible. Homeless participants who retained the use of their own benefits remained eligible for the study. DTA excluded ineligible households prior to providing the file.

We verified that the exclusion criteria applied to the extract was correct by reviewing the SQL query DTA used to extract the data and by verifying through tabulations that the cases to be excluded were not included in the file. We verified that all households in the file extract had:

⁵⁸ Once DTA generated this Hampden County SNAP case extract file of HIP-eligible households, these households remained in the HIP universe for the duration of the pilot; no additional households were added to the pilot.

⁵⁹ DTA staggered enrollment in HIP over three months for ease of implementation. Prior to each wave's start date, HIP households received several mailings describing HIP. See Chapter 3 for additional details.

- Active SNAP cases in July 2011.
- Residential or mailing addresses in Hampden County.
- An active grantee (head of household).
- At least one active member 16 years of age or older.
- Benefit amount greater than \$0 in June 2011.

We also verified (using the ‘residential facility type code’ or `res_type`) that none of the households in the file extract were in the following excluded residential facilities:

- Approved Public Medical Institution
- Assessment Center
- Licensed Chronic Hospital
- Educational Residential Facility
- Hospital
- Licensed Intermediate Care Facility
- Penal Institution
- Licensed Residential Care Facility
- Long Term Care Facility
- Public Nonmedical Institution
- Private Psychiatric Residential Facility
- Public Psychiatric Residential Facility
- Residential Inpatient Treatment Center

Step 2: Create Blocking Variables and Per Block Sample Size Determination

We created 12 household-level blocking cells defined by:

- Geography (3 levels): Springfield; Chicopee/Holyoke; and remainder of Hampden County;
- Household size (2 levels): 1-person and 2-or-more-persons; and
- Gender for head of household (2 levels): male-headed and female-headed.

3 levels of geography x 2 levels of household size x 2 genders of for head of household = 12 block cells.

Next, we calculated the proportion (P_h) of total households in each of the ($h = 1$ to 12) blocking cells, i.e. $P_h = Y_h/Y_T$ where Y_h is the number of households in the blocking cell h and Y_T is total number of households. This proportion is the “cell size”.⁶⁰

Then, we determined the number of households to select for HIP in each cell. First, we calculated $m_h = 7,500 * P_h$. The total number of households to select for HIP across all cells would be 7,500 (i.e.

⁶⁰ We planned to combine small blocking cells of cell size less than .01 and recalculate P_h if necessary. As Exhibit A.1 shows, none of the cell sizes were this small, so this step was not necessary.

$\sum m_h = 7,500$). However, since m_h 's would be in decimals, we used stochastic rounding⁶¹ to obtain integer cell sample sizes, n_h .

The source file contained 55,095 HIP-eligible households. For each of the 12 blocking cells, Exhibit A.1 presents the total number of households (Y_h), the proportion of households in each cell (p_h), the unrounded number of households to select from each cell (m_h), and the stochastically rounded number of households to select (n_h). The total number of households to be selected was exactly 7,500.⁶²

Exhibit A.1: Description of the Blocking Cells

Blocking cells	Y_h	p_h	m_h	n_h
Springfield, HH Size 2+, Male Head	1,153	0.0209	157.0	157
Springfield, HH Size 2+, Female Head	11,608	0.2107	1,580.2	1,580
Springfield, HH Size 1, Male Head	8,651	0.1570	1,177.6	1,177
Springfield, HH Size 1, Female Head	7,580	0.1376	1,031.9	1,032
Chicopee & Holyoke, HH Size 2+, Male Head	591	0.0107	80.5	81
Chicopee & Holyoke, HH Size 2+, Female Head	5,578	0.1012	759.3	759
Chicopee & Holyoke, HH Size 1, Male Head	3,762	0.0683	512.1	512
Chicopee & Holyoke, HH Size 1, Female Head	3,702	0.0672	503.9	504
Hampden Balance, HH Size 2+, Male Head	998	0.0181	135.9	136
Hampden Balance, HH Size 2+, Female Head	4,366	0.0792	594.3	595
Hampden Balance, HH Size 1, Male Head	3,333	0.0605	453.7	454
Hampden Balance, HH Size 1, Female Head	3,773	0.0685	513.6	513
All Blocking Cells	55,095	1.0000	7,500.0	7,500

Step 3: Random Assignment and Proportion Verification

We randomly selected n_h households from each blocking cell h (e.g. Springfield, household size 1, female household head) to be in HIP. The remaining households were put in the non-HIP group. Thus, within blocks, we have simple random sampling without replacement which we implemented in SAS using PROC SURVEYSELECT.

The result of the random assignment by blocking cells is presented in Exhibit A.2. As would be expected if random assignment was properly conducted, the percentages of HIP and non-HIP households in each of the blocking cells are virtually identical to each other and the cell proportions, p_h , from Exhibit A.1 above (also replicated as the “All” column). This indicates that proportions by blocking cells were computed and applied correctly during random assignment.

⁶¹ We rounded the decimal sample size m_h to integer sample size n_h by rounding it up or down randomly. If the number we drew randomly from a uniform distribution on the interval $[0, 1]$ was less than the decimal component of m_h , then m_h was rounded down to n_h . But if the random number was equal or greater to the decimal component m_h , then m_h was rounded up to n_h .

⁶² Due to stochastic rounding of blocking cells, the actual HIP households could be slightly different than 7,500. In a test simulation of 1,000 runs, the sample size ranged from 7,497 to 7,503.

Exhibit A.2: Blocking Cell Shares of HIP and non-HIP Households

Blocking cells	HIP		Non-HIP		All	
	N	%	N	%	N	%
Springfield, HH Size 2+, Male Head	157	2.1%	996	2.1%	1,153	2.1%
Springfield, HH Size 2+, Female Head	1,580	21.1%	10,028	21.1%	11,608	21.1%
Springfield, HH Size 1, Male Head	1,177	15.7%	7,474	15.7%	8,651	15.7%
Springfield, HH Size 1, Female Head	1,032	13.8%	6,548	13.8%	7,580	13.8%
Chicopee & Holyoke, HH Size 2+, Male Head	81	1.1%	510	1.1%	591	1.1%
Chicopee & Holyoke, HH Size 2+, Female Head	759	10.1%	4,819	10.1%	5,578	10.1%
Chicopee & Holyoke, HH Size 1, Male Head	512	6.8%	3,250	6.8%	3,762	6.8%
Chicopee & Holyoke, HH Size 1, Female Head	504	6.7%	3,198	6.7%	3,702	6.7%
Hampden Balance, HH Size 2+, Male Head	136	1.8%	862	1.8%	998	1.8%
Hampden Balance, HH Size 2+, Female Head	595	7.9%	3,771	7.9%	4,366	7.9%
Hampden Balance, HH Size 1, Male Head	454	6.1%	2,879	6.0%	3,333	6.0%
Hampden Balance, HH Size 1, Female Head	513	6.8%	3,260	6.8%	3,773	6.8%
All Blocking Cells	7,500	100.0%	47,595	100.0%	55,095	100.0%

Step 4: Balance Test and Sample Rejection

We tested balance on baseline characteristics between the HIP and non-HIP groups using variables provided in the case file extract. We used a robust global F-test on a linear regression⁶³ as the primary test for systematic differences between the HIP and non-HIP households. We tested on the following variables:

- Monthly SNAP Benefit (4 categories);
- Spanish Language Flag (2 categories);
- Recertification Type (3 categories);
- Monthly Income (4 categories);
- Bay State CAP Flag (2 categories);
- Homeless Status Flag (2 categories);
- Residence Type (3 categories);
- Age of Household Head (4 categories);
- Race/Ethnicity of Household Head (4 categories);
- Disability Flag (2 categories);
- U.S. Citizenship Flag (2 categories);
- TANF/AFDC Flag (2 categories);
- Unearned Income Flag (2 categories);
- SSI Flag (2 categories);

⁶³ We regressed a 0/1 indicator for non-HIP/HIP status on all the selected baseline characteristics (as binary or categorical variables) as well as the dummy variables indicating the blocking cells. Reference groups were omitted for variables with multiple categories, e.g. monthly SNAP benefit \$1-\$161 was excluded in the linear regression, while the rest of the SNAP benefit categories were included. The global F-test for the null hypothesis that the coefficients of all the baseline characteristics (excluding the dummy variables for the blocking cells) is zero was assessed at the 20 percent significance level to determine if there was a less than 20 percent chance that the groups were produced by a process in which all baseline characteristics are unrelated to non-HIP/HIP status. See the body of the appendix for a discussion of the 20 percent level.

- RSDI Flag (2 categories);
- Unemployment Compensation Flag (2 categories); and
- Household Type (3 categories).

The purpose of this test was to determine if a chance “bad draw” was obtained from the random selection process, not to judge whether the process was in fact random; our knowledge of the randomization mechanism and the results of a previously conducted simulation of test randomizations lead us to infer that the procedure was random. A chance “bad draw” does not bias the random assignment result but it does create differences in baseline characteristics that needlessly increase the variance of the impact estimates to be produced by the study.

We planned to discard the selected sample if the global F-test failed (i.e. $p\text{-value} < 0.20$). Then we would select a replacement sample until an acceptable sample was obtained. We only expected 1 in 5 samples to fail this test and verified this using a simulation of 1,000 samples. This broader rejection standard (compared to a standard of $p\text{-value} < .05$ or $p < .10$) reflects the desire to more closely match the two groups on baseline characteristics than would be accomplished by the usual standards. More readily rejecting groups produced by initial tries assures that the eventual accepted groups more closely match on the examined characteristics.

Exhibit A.3, presents the results of these tests. The p-value of 0.5359 for the global F-statistic, shown at the bottom of the exhibit, leads us to conclude that there is no evidence of systematic differences between the HIP and non-HIP households in this sample and accept the sample as the basis for the experiment.

As shown in Exhibit A.3, we also conducted individual t-tests on the 35 variables representing the baseline characteristics for the sample. With so many individual t-tests, a few are bound to appear statistically significant just by chance.⁶⁴ Therefore the t-tests *were not* used to accept (or discard) the sample but only for diagnostic purposes. In the sample drawn, there were no statistically significant differences between HIP and non-HIP households for any of the 35 characteristics tested. In fact, the smallest individual p-value for the t-test is 0.1037 for the \$1-\$787 category of monthly income. Thus, these individual tests also provide no evidence of lack of randomness.

⁶⁴ For example, if the outcomes were uncorrelated (which they are not), we would expect 1 in 20 t-tests to be statistically significant just by chance at the significance level of 5 percent.

Exhibit A.3: Balance Test

Household characteristics	HIP	Non-HIP	p-Value
N	7,500	47,595	
Monthly SNAP benefit			
\$1-\$160	25.7%	25.0%	0.2005
\$161 - \$200	39.3%	39.6%	0.6306
\$201 - \$349	10.8%	10.4%	0.2537
\$350 +	24.3%	25.1%	0.1226
Spanish language	22.2%	22.2%	0.9250
Recertification type			
Recertification	53.0%	52.4%	0.3145
Semiannual reporting	32.0%	32.2%	0.7084
Other reevaluation	15.0%	15.4%	0.3640
Monthly income			
\$0	23.4%	24.0%	0.3212
\$1 - \$787	26.5%	25.7%	0.1037
\$788 - \$1,083	25.3%	25.3%	0.9409
\$1,084 +	24.7%	25.1%	0.4587
Baystate CAP	7.9%	8.0%	0.9031
Homeless	6.8%	6.8%	0.9903
Housing type			
Private	80.0%	80.5%	0.3686
Public	13.9%	13.5%	0.3580
Other	6.0%	6.0%	0.8601
Household head age			
16 - 30	28.1%	27.6%	0.3880
31 - 40	21.4%	21.2%	0.6996
41 - 54	25.9%	26.6%	0.2433
55 +	24.6%	24.6%	0.9458
Household head race/ethnicity			
Hispanic	43.3%	43.6%	0.7224
White	36.5%	36.7%	0.7144
Black	13.3%	12.9%	0.3247
Other	6.9%	6.8%	0.9296
Disabled	49.6%	49.6%	0.9742
US citizen	95.7%	95.9%	0.3696
TANF/AFDC	13.4%	13.4%	0.9054
Unearned income	60.2%	59.5%	0.2414
SSI	32.4%	32.5%	0.8231
RSDI	27.3%	27.5%	0.7741
Unemployment compensation	5.0%	4.6%	0.1669
Household type			
Household with elderly	12.1%	12.5%	0.3518
Household with children	36.5%	36.3%	0.6315
Other household	51.4%	51.3%	0.8786
F statistic	0.95		0.5359

Step 5: Divide Samples into 3 Waves

Having drawn a final sample, the HIP and non-HIP groups were randomly divided into 3 waves for HIP implementation and then for the fielding of the survey. As is discussed in Chapter 3, issuing and activating HIP was staggered; one wave of participants began HIP each month over the period November 2011 through January 2012.

A.2 Random Sampling for Participant Survey

The survey samples of respondents, equally distributed between the HIP and non-HIP household groups, were selected using a stratified random assignment procedure. The stratification variables were the same ones used in the random assignment of households to the HIP and non-HIP groups. Among the HIP and non-HIP groups, an equal number of respondents were selected from each of the three waves. Sampled respondents were aged 16 and older and only one respondent was selected per household.⁶⁵

We randomly sampled 2,538 SNAP recipients from both the HIP and non-HIP households to participate in the Round 1 survey (i.e., a total of 5,076). This sample size was chosen so that a large enough sample would remain for Rounds 2 and 3 to achieve the desired level of precision after accounting for participants who left SNAP, and thus were ineligible for the survey, or who became non-respondents in the later rounds. The target sample was designed to be able to detect a post-implementation HIP/non-HIP difference in targeted fruit and vegetable intake of 0.25 cup-equivalents of fruits and vegetables per day.⁶⁶

The rest of the section describes the process for sampling persons for the Round 1 and Round 2 participant surveys.

Create Sampling Frame

Using the DTA administrative case file data, we created two files for sampling purposes: (1) a household level file of eligible SNAP households in Hampden County, Massachusetts that had been randomly assigned to HIP and non-HIP groups (referred to as the “AU file”); and (2) the corresponding person-level file of household members 16 years of age or older in the eligible SNAP households (referred to as the “AP file”).

Three key variables were used to select the respondent sample:

1. HIP_IND: This household-level variable contained the preassigned codes for the treatment status of the SNAP household (H = HIP; K = non-HIP).
2. BLOCK: This variable designated the 12 household-level blocking cells defined by a cross-classification of three levels of geography, two levels of household size, and two levels of gender of head of household (as defined in the previous section).

⁶⁵ Approximately 6 percent of sampled respondents were aged 16-17. This group was included in the sample as they can be SNAP heads of households and the sample was intended to represent all types of households.

⁶⁶ Based on assumptions provided in FNS’s RFP and discussed in Abt’s proposal.

3. **WAVE:** This variable was created as part of the random assignment process and corresponded to the three waves DTA established to enroll participants in HIP (November 1, 2011, December 1, 2011, and January 1, 2012, respectively).

Exhibit A.4 presents the numbers of households and persons in the HIP evaluation sampling frames by treatment status and size of household. Exhibit A.5 summarizes the number of persons in the sampling frames by treatment status, blocking cell, and wave. As expected, based on the random assignment of households discussed in the previous section, the populations of persons within households in the sampling frames were well balanced with respect to the blocking cells across the different treatment groups and waves.

Exhibit A.4: Frequencies of Households and Persons in the HIP and non-HIP Sampling Frames by Size of Household

# persons at least 16 years old in HH	HIP				Non HIP			
	Households		Persons		Households		Persons	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
1	6,054	80.72%	6,054	65.19%	38,107	80.07%	38,107	63.88%
2	1,167	15.56%	2,334	25.13%	7,479	15.71%	14,958	25.08%
3	230	3.07%	690	7.43%	1,559	3.28%	4,677	7.84%
4	39	0.52%	156	1.68%	361	0.76%	1,444	2.42%
5	8	0.11%	40	0.43%	75	0.16%	375	0.63%
6	2	0.03%	12	0.13%	9	0.02%	54	0.09%
7	0	0.00%	0	0.00%	3	0.01%	21	0.04%
8	0	0.00%	0	0.00%	2	0.00%	16	0.03%
Total	7,500	100.00%	9,286	100.00%	47,595	100.00%	59,652	100.00%

Exhibit A.5: Frequencies of Persons in the HIP and non-HIP Sampling Frames by Block and Wave

Blocking Cells	HIP			Non-HIP		
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
Springfield, HH Size 2+, Male Head	93	98	93	635	613	641
Springfield, HH Size 2+, Female Head	781	764	787	5,040	5,054	5,081
Springfield, HH Size 1, Male Head	392	393	392	2,491	2,491	2,492
Springfield, HH Size 1, Female Head	344	344	344	2,183	2,183	2,182
Chicopee & Holyoke, HH Size 2+, Male Head	50	47	51	338	322	322
Chicopee & Holyoke, HH Size 2+, Female Head	366	370	364	2,424	2,403	2,410
Chicopee & Holyoke, HH Size 1, Male Head	171	170	171	1,084	1,083	1,083
Chicopee & Holyoke, HH Size 1, Female Head	168	168	168	1,066	1,066	1,066
Hampden Balance, HH Size 2+, Male Head	88	95	89	605	567	572
Hampden Balance, HH Size 2+, Female Head	316	319	323	2,040	1,964	2,012
Hampden Balance, HH Size 1, Male Head	151	151	152	960	959	960
Hampden Balance, HH Size 1, Female Head	171	171	171	1,086	1,087	1,087
Total	3,091	3,090	3,105	19,952	19,792	19,908

We prepared the sampling frame for sample selection in the following steps:

1. **Random number assigned to each household (RAND).** We generated and assigned a uniform random number between 0 and 1 to each household in the AU file.

2. **Household-level variable created (HH_TYP).** At the same time, we created a household level variable that classified households into three types: households with persons 65 years or older; households with children 5 years or younger but no one 65 or older; and all other households.
3. **Person level file created.** We merged the two extract files to create a person-level file containing all of the household-level variables in the AU file.
4. **Number of adults in household variable created (NUMADLT34).** We created this dichotomous variable, indicating whether the household had fewer than four adults in the household or four or more adults in the household. We used this variable to adjust the sample sizes in order to achieve better balance by household size across the treatment groups.
5. **Person-level file split into two sampling frames (HIP_IND).** We divided the person level file created in step 3 into two sampling frames—HIP and Non-HIP.
6. **Records in each frame sorted.** Prior to sampling, we sorted the records in each of the two sampling frames as follows:
 - by WAVE
 - by BLOCK within WAVE
 - by NUMADLT34 within BLOCK
 - by HH_TYP within NUMADLT34
 - by RAND within HH_TYPE
 - by AUID (unique household identifier) within RAND.

We used HH_TYP and NUMADLT34 as sorting variables within the primary strata defined for sampling (i.e., the primary strata defined by BLOCK and WAVE) to achieve better balance with respect to household composition across the various waves.

Sorting by AUID ensured that persons in the same household were listed together in the final sorted file. We used the variable WAVE as a stratification variable to permit the selection of equal numbers of sampled persons for each wave.

Select Round 1 Participant Survey Sample

Because of the small size of the HIP sampling frame, the desired sampling rate for the HIP sample was about 1 in 3.7, compared to 1 in 23 in the Non-HIP sample. Therefore, it was possible to select more than one eligible person in HIP households consisting of four or more adults. To avoid this possibility, we lowered the sampling rates for households with four or more adults in the HIP sample and to achieve approximately equal sample sizes by size of household for the two treatment groups, made a corresponding downward adjustment in sampling rates in Non-HIP households with four or more persons.

For the HIP sample we deviated slightly from equal-probability systematic sampling by (1) selecting households with 4 or more adults with certainty and then randomly selecting 1 person per household and (2) applying a small compensatory increase in the probability of selection in households with less than 4 adults in order to achieve the planned sample size of 2,538. For the Non-HIP sample we selected approximately the same number of Non-HIP persons in each household size class (less than 4 adults and more than 4 adults) as was previously noted for the HIP sample. Exhibit A.6 summarizes the intended sample sizes resulting from these adjustments.

Exhibit A.6: Intended Frequencies* of Households and Persons in the HIP and non-HIP Samples by Size of Household

# persons at least 16 years old in HH	HIP				Non HIP			
	Households		Persons		Households		Persons	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
1	1,667	65.68%	1,667	65.68%	1,632	64.30%	1,632	64.30%
2	637	25.10%	637	25.10%	638	25.14%	638	25.14%
3	185	7.29%	185	7.29%	213	8.39%	213	8.39%
4	39	1.54%	39	1.54%	45	1.77%	45	1.77%
5	8	0.32%	8	0.32%	9	0.35%	9	0.35%
6	2	0.08%	2	0.08%	1	0.04%	1	0.04%
7	0	0.00%	0	0.00%	0	0.00%	0	0.00%
8	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	2,538	100.00%	2,538	100.00%	2,538	100.00%	2,538	100.00%

* Actual sample sizes will vary from these numbers.

Exhibit A.7 summarizes the distribution of the evaluation sample by treatment status, wave, and block. Despite the adjustments made in sampling to balance sample sizes, the sample sizes shown in this table are specified by design and are roughly proportional to the corresponding population counts shown in Exhibit A.5.

Exhibit A.7: Counts of Evaluation Sample by Treatment Status, Wave, and Block

Blocking Cells	HIP			Non-HIP		
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
Springfield, HH Size 2+, Male Head	27	27	27	27	27	27
Springfield, HH Size 2+, Female Head	215	215	215	215	215	215
Springfield, HH Size 1, Male Head	106	106	106	106	106	106
Springfield, HH Size 1, Female Head	93	93	93	93	93	93
Chicopee & Holyoke, HH Size 2+, Male Head	14	14	14	14	14	14
Chicopee & Holyoke, HH Size 2+, Female Head	103	103	103	103	103	103
Chicopee & Holyoke, HH Size 1, Male Head	46	46	46	46	46	46
Chicopee & Holyoke, HH Size 1, Female Head	45	45	45	45	45	45
Hampden Balance, HH Size 2+, Male Head	26	26	26	26	26	26
Hampden Balance, HH Size 2+, Female Head	84	84	84	84	84	84
Hampden Balance, HH Size 1, Male Head	41	41	41	41	41	41
Hampden Balance, HH Size 1, Female Head	46	46	46	46	46	46
Total	846	846	846	846	846	846

After completion of participant sampling, we assigned each household a HIP flag or indicator identifying it as one of the following four groups:

- HIP household, non-survey group (Group H)
- HIP household, survey group (Group I)
- Non-HIP household, survey group (Group J)
- Non-HIP household, non-survey group (Group K)

We applied these flags to all members of the original households in the HIP universe.

Select Round 2 Participant Survey Sample

Eligible sample cases at Round 2 were defined as those who completed a Round 1 survey and were on SNAP at the time of the interview.⁶⁷ To ensure the sample was on SNAP at the time of the interview, we compared each wave to the previous month's DTA SNAP file immediately before releasing it to determine if any cases had exited SNAP. We removed such cases before releasing the sample. We also excluded cases if the respondent was institutionalized or did not meet the "following rules" determined by DTA. The SNAP case was tied to the head of household and therefore, the HIP status and the HIP incentives were also tied to this individual.⁶⁸

Exhibit A.8 summarizes the numbers of respondents initially included in the Round 2 sampling frame based on the January, 2012 DTA file, by HIP treatment status, blocking group, and wave. Of the 1,388 Round 1 respondents in the HIP group, slightly over 90 percent were still active in January 2012 and eligible to participate in Round 2. Of the 1,396 Round 1 respondents in the Non-HIP group, almost 91 percent were still active and eligible to participate in January 2012.

⁶⁷ Chapter 2, Section 2.8 discusses the reason for excluding cases no longer on SNAP.

⁶⁸ If the original head of household (HoH) left the SNAP household, DTA closed that SNAP case. Other household members could form a new case, but that new case did not get the HIP flag and thus did not earn HIP incentives even if its prior flag was a HIP case. Similarly, if a member of a HIP household other than the original HoH left the household, that person was not given a HIP flag and was not eligible to earn HIP incentives. In such cases, the household with the original HoH retained the HIP flag and HIP incentives. The SNAP case also could close without any changes in household composition. Regardless of how a SNAP case closed, if the SNAP case reopened with the original HoH, the household once again received the HIP flag and resumed earning HIP incentives.

Exhibit A.8: Number of Round 1 Respondents Sampled for Round 2 after Deleting Ineligibles

Blocking group	HIP				Non - HIP				Grand total
	Wave				Wave				
	1	2	3	Total	1	2	3	Total	
Springfield, HH Size 1, Female Head	51	52	55	158	55	57	44	156	314
Springfield, HH Size 1, Male Head	41	52	34	127	40	49	42	131	258
Springfield, HH Size 2+, Female Head	101	119	96	316	110	131	97	338	654
Springfield, HH Size 2+, Male Head	11	13	7	31	14	14	11	39	70
Chicopee/Holyoke HH Size 1, Female Head	26	19	27	72	24	31	24	79	151
Chicopee/Holyoke HH Size 1, Male Head	19	21	20	60	17	21	15	53	113
Chicopee/Holyoke HH Size 2+, Female Head	51	66	44	161	53	66	49	168	329
Chicopee/Holyoke HH Size 2+, Male Head	7	8	10	25	5	4	8	17	42
Hampden Balance, HH Size 1, Female Head	26	24	25	75	17	27	14	58	133
Hampden Balance, HH Size 1, Male Head	15	20	14	49	20	16	15	51	100
Hampden Balance, HH Size 2+, Female Head	36	43	37	116	47	43	33	123	239
Hampden Balance, HH Size 2+, Male Head	13	13	10	36	12	9	9	30	66
Total	397	450	379	1226	414	468	361	1243	2469

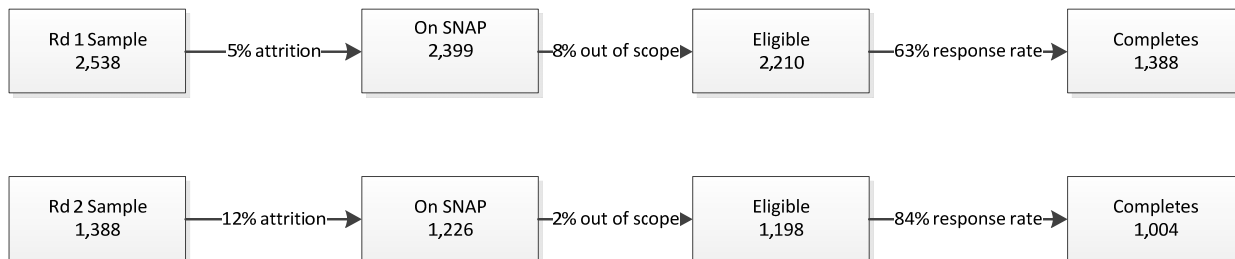
Summary of Sample Sizes

Exhibit A.9 summarizes the sample flow for the three rounds of the participant survey for the HIP and non-HIP groups separately. As shown, 2,538 participants in each group were initially sampled for Round 1. We assumed there would be 20.3 percent attrition in each group through the course of Round 1 data collection based on published national SNAP exit rates (Cody et al., 2007).⁶⁹ However, as shown, the attrition rate combined with cases that were out of scope (i.e., deceased, institutionalized, out of state) resulted in 13 percent of the sample in the HIP Group and 14 percent in the Non-HIP Group to be ineligible for participation. As described above, all respondents that completed Round 1 were included in the Round 2 frame. Attrition and out of scope cases in Round 2 were similar to that in Round 1. All Round 2 completed cases were released for Round 3.

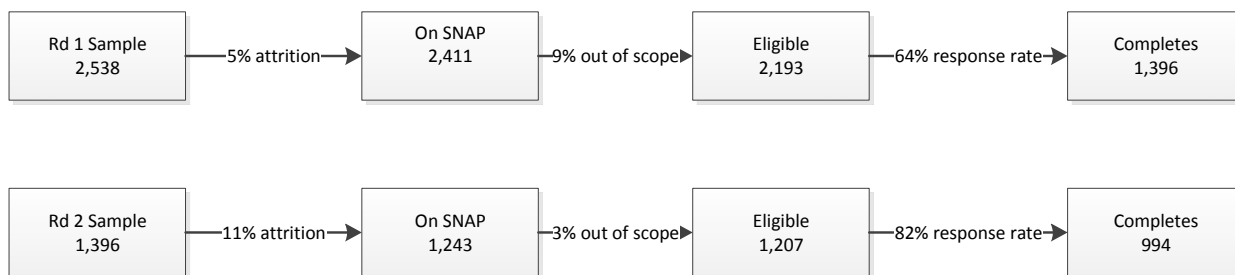
⁶⁹ Massachusetts statewide exit rates provided by the Massachusetts DTA are broadly similar to the national rates. While analysis done by DTA indicated exit rates in Hampden County were less than national SNAP exit rates and also less than Massachusetts statewide exit rates, we did not change our estimated sample sizes because we assumed a higher sample size would allow us to achieve the desired number of completed interviews in Rounds 2 and 3.

Exhibit A.9: Actual Sample Sizes, by HIP and non-HIP Status

HIP Group



Non-HIP Group



Appendix B: Weighting Methodology

This appendix summarizes the procedures used to weight the person-level survey data collected in the Healthy Incentives Pilot (HIP) evaluation. Survey weights are required to project the sample results to population levels. We therefore computed weights for the completed cases in the sample at the end of each data collection round. These weights are designed to (a) take account of the varying probabilities with which persons were selected for the study and (b) compensate for differential rates of survey nonresponse. Nonresponse adjustments were calculated to reflect the fact that nonresponse could occur either prior to or after ascertaining eligibility for the survey. Additional details of the weighting methodology can be found in the separate volume, Healthy Incentives Pilot (HIP) Interim Report: Participant Survey Weighting Methodology (Chu, 2013).

For each survey round, sampled-person weights were constructed for analysis of the sampled person interviews. A parallel set of primary-shopper weights were constructed for the primary shopper interviews. For many household-level variables, the primary-shopper weights serve as household weights, because there is only one primary shopper per household, and the corresponding questions appeared on the primary shopper portion of the survey. In addition to the two sets of full-sample weights, a series of replicate weights using a jackknife method was constructed for variance estimation purposes.

Specifically, the two sections of this appendix discuss construction of weights for Round 1 and Round 2, respectively. Because only cases interviewed at Round 1 were interviewed at Round 2, there is no need for separate longitudinal weights. The Round 2 weights apply to longitudinal analyses of Round 1 and Round 2.

B.1 Round 1

This section describes the construction of Round 1 weights. The section begins with a discussion of wave-specific base weights and pooled base weights. It then describes ratio adjustments and nonresponse adjustments.

Wave-Specific Base Weights

Under the stratified sampling design employed for the HIP evaluation, the probability of selecting an eligible individual for the study depended on the (randomly-assigned) wave of data collection (corresponding to the three waves of implementation), “blocking groups” defined by location and selected characteristics of households, and on the size of the household expressed in terms of the number of eligible adults residing in the household. For brevity, we refer to each blocking group-by-size category combination as a “stratum.” The wave-specific base weight for person i in stratum s in wave v was computed as:

$$w_{vsi}^{base} = 1/P_{vs} \quad (1)$$

where P_{vs} = the probability of selecting persons in stratum s and wave v ($v = 1, 2, 3$). This probability generally equals the number of adults sampled in a given wave and stratum divided by the corresponding number of adults in the sampling frame.

Pooled Base Weights

The base weights defined by formula (1) are appropriate for analysis of each individual wave of data collection. To analyze the combined sample, the wave-specific base weights were adjusted to take account of differences in coverage by wave, and permit unbiased estimation based on all three waves of data.

The goal of this step of the weighting process was to adjust the wave-specific base weights in a manner that minimized the variation of the overall combined-sample weights (also referred to as “pooled” or “composite” weights), while at the same time providing unbiased weights for the combined sample.

These pooled base weights were created in two steps. First, the wave-specific base weights were scaled up or down by wave-specific scaling factors designed to align the resulting weighted sample counts to known population counts. That is, a rescaled base weight for the i th sample person in wave v and subgroup g was computed as:

$$w_{vgi}^{adj} = S_{vg} w_{vgi}^{base}, \quad (2)$$

where S_{vg} is the appropriate wave-specific scaling factor. Next, approximately optimal composite estimation factors, A_{vg} , designed to minimize the variation of the resulting combined-sample weights were applied to the wave-specific adjusted weights to obtain the pooled weights, w_{vgi}^{pool} , as follows:

$$w_{vgi}^{pool} = A_{vg} w_{vgi}^{adj}. \quad (3)$$

Ratio Adjustment of the Pooled Weights

Although the composite weights defined in formula (3) are theoretically unbiased, the corresponding weighted counts are subject to sampling variability, and consequently do not always match known population counts by blocking group. Therefore, a ratio adjustment was applied to the pooled weights so that weighted counts of the sample agreed with the corresponding population (frame) counts for each of 12 blocking groups. Using appropriate post-stratification factors, $F_s^{(ps)}$, the final post-stratified pooled weight for the i th sample person in blocking group s was computed as:

$$w_{si}^{ps} = F_s^{(ps)} w_{si}^{pool} \quad (4)$$

Nonresponse Adjustment

The final step in the weighting process for Round 1 was to adjust the post-stratified base weights defined by formula (4) to compensate for varying rates of nonresponse in the baseline survey. Since nonresponse could have occurred either (1) prior to determining eligibility (e.g., the sampled person could not be contacted or located); or (2) after determining eligibility (e.g., the person was located and eligibility was determined), the nonresponse adjustment was done in two phases.

The purpose of the first-phase adjustment was to distribute a portion of the weighted count of the unknown-eligibility cases to those cases for which eligibility was ascertained. A CHAID analysis (Chi Square Automatic Interaction Detector) was conducted separately for each treatment group to identify cells within which the predicted probabilities of ascertaining eligibility were similar. The results of the CHAID analysis were used to define the cells (labeled $r = 1, 2, \dots, R$) for the first-phase

nonresponse adjustment. The weighted first-phase response rates varied from around 50 percent to over 95 percent across the final adjustment cells. The first-phase nonresponse adjustment factor, A_r , was computed as the inverse of the weighted first-phase response rate in final cell r . The first-phase adjusted weight for the i th sampled person in cell r for whom eligibility was determined was computed as:

$$w_{ri}^{NR1} = A_r w_{ri}^{ps} \quad (5)$$

The purpose of the second-phase adjustment was to distribute the weighted count of the known-eligible nonrespondents to the Round 1 respondents. The results of a CHAID analysis were used to define the cells (labeled $s = 1, 2, \dots, S$) for the second-phase nonresponse adjustment. The second-phase nonresponse adjustment factor, B_s , was computed as the inverse of the weighted second-phase response rate in final cell s . The final nonresponse-adjusted weight for the i th responding person in cell s (i.e., cases in response status group 1) was then computed as:

$$w_{si}^{NR2} = B_s w_{si}^{NR1} \quad (6)$$

B.2 Round 2

This section discusses the construction of Round 2 weights. It first considers the initial weights and then the nonresponse adjustment.

Initial Weights

The Round 2 sampling weights are constructed based on the set of final nonresponse-adjusted person weights, $w_{ri}^{Round\ 1}$, developed for analysis of respondents in the baseline survey (see Section B.1). The Round 1 (baseline) weights were designed to provide for substantially unbiased estimation of the characteristics of SNAP beneficiaries (by treatment group) in Hampden County, Massachusetts who were active participants in the July 2011 case files provided by the Massachusetts DTA, and who remained eligible through the end of Round 1 data collection.

Since all of the still-eligible Round 1 respondents were carried over into (i.e., “sampled” for) Round 2, the final weights from Round 1 are the “initial” weights for Round 2. The “initial” weights are adjusted for nonresponse experienced in Round 2, as described in the following section.

Nonresponse Adjustment

As in Round 1, nonresponse could have occurred either (1) prior to determining eligibility (e.g., the sampled person could not be contacted or located); or (2) after determining eligibility (e.g., the person was located and eligibility was determined). Therefore, as in Round 1, the nonresponse adjustment was done in two phases.

In the first phase of adjustment, a portion of the weighted count of the unknown-eligibility cases was distributed to the known-eligible cases. As in Round 1, CHAID was used to identify cells within which the predicted probabilities of ascertaining eligibility were similar. In addition to the classification variables used previously to weight the Round 1 sample, selected variables (responses) from the Round 1 interview were used as possible independent (predictor) variables in the CHAID analysis. For both HIP and non-HIP samples, the weighted (conditional) first-phase response rates were high, varying from around 87 percent to 100 percent over the final adjustment cells. The first-

phase nonresponse adjustment factor, A_r , was computed as the inverse of the weighted first-phase response rate in final cell r . The (intermediate) first-phase adjusted weight for the i th sampled person in cell r for whom eligibility was determined was computed as:

$$w_{ri}^{NR1} = A_r w_{ri}^{Round\ 1} \quad (7)$$

The purpose of the second-phase adjustment was to distribute the weighted count of the known-eligible nonrespondents in Round 2 to the Round 2 respondents. For the second-phase adjustment, the same set of independent variables used previously for the first-phase adjustment were specified as possible independent variables in a CHAID analysis. The output from the CHAID analysis was used to define the second-phase nonresponse-adjustment weighting cells (denoted by the subscript $s = 1, 2, \dots, S$). The second-phase nonresponse adjustment factor, B_s , was computed as the inverse of the weighted second-phase response rate in final cell s . The final nonresponse-adjusted weight for the i th responding person in cell s was then computed as:

$$w_{si}^{Round\ 2} = B_s w_{si}^{NR1} \quad (8)$$

Appendix C: Data Collection Instruments

Appendix 71

Round 1 Study Participant and Primary Shopper Survey: English

Rev. from CATI specs 1/17/12

Healthy Incentives Pilot – Round 1 STUDY PARTICIPANT and Primary Shopper Survey: English

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: U.S. Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis, 3101 Park Center Drive, Room 1014, Alexandria, VA 22302 ATTN: PRA (0584-xxxx). Do not return the completed form to this address.

Sampled Respondent Introduction

(R 1,2,3)

NAVIGATION: IF RESPONDENT IS A MINOR (AGES 16-17) GO TO PARENT CONSENT FOR MINORS SCRIPT PC.01

1	Intro.01 (R 1,2,3)	[Hello, my name is {INTERVIEWER} from Westat. And I'm calling about the USDASnap study.] May I speak with [NAME OF RESPONDENT]?	
		R available	11
		R lives here – needs appointment	12
		R lives at another number or address	13
		Never heard of R	14
		Phone company recording	15
		Answering machine	16
		Retry dialing	17
		REFUSED	77
		DON'T KNOW	99

NAVIGATION: If R available, GO TO 2 [Intro.02].

2	Intro.02 (R 1,2,3)	My name is {INTERVIEWER} from Westat. And I'm calling about the USDA, SNAP, study.] I'd like to make sure that you are the correct person. Your name is {R_FNAME R_LNAME} and your approximate age is {R's AGE}?	
		Yes – exact match	1
		Yes – qualified match	2
		No – does not match	3
		REFUSED	7
		DON'T KNOW	9

NAVIGATION: If Yes-exact or qualified match, GO TO Intro.03. If No, ask for respondent and repeat question when respondent is obtained.

Items with an “Other, specify” response selection will cause the CATI system to create an open text field for typing in the response.

(R) indicates whether the item will be administered in the first, second and/or third round of data collection.

Question ID prefixes in ALL CAPS indicate source. For example, item CSWP.101a was sourced from the California Survey of WIC Participants (CSWP), question #101a. Version (e.g., v2) indicators show item is revised for HIP. Question ID prefixes not in ALL CAPS were created for HIP. Question ID ALL CAPS prefix abbreviations indicate the item source as follows:

[AMP](#) = Automated Multiple Pass Method 24-hour dietary recall (USDA).

[NHANES](#) = National Health and Nutrition Examination Survey (CDC), instruments as follows:

[CSWP](#) = California Survey of WIC Participants (California).

ACQ = Acculturation Questionnaire

[EATS](#) = Eating at America's Table Study (NCI).

CBQ = Consumer Behavior Questionnaire

[FAB](#) = Food, Attitudes and Behaviors Survey (NCI).

DMQ = Demographic Information Questionnaire

[FSM](#) = Food Security Module (USDA).

FCBS = Flexible Consumer Behavior Survey

[TS](#) = Townsend Fruit & Vegetable Inventory (UC Davis)

FSQ = Food Security Questionnaire

OCQ = Occupation Questionnaire

SCQ = Screener Module #1

GO TO 1 [Intro.01].

3 Intro.03 (R 1)

I am calling about the USDA, SNAP, formerly known as the Food Stamp Program. We're interested in learning how the program is working in Hampden County., I would like to ask you some questions about food and shopping that will help SNAP improve services and better meet the needs of the people who use this program.

The interview takes about 30 minutes you will receive a \$20 check as a thank you for participating in the study.

Your participation is voluntary. You have the right to stop at any time or skip questions. Taking part in this study will not affect your benefits in any way – either now or in the future.

We do not plan to share this information with anyone other than USDA staff and its contractors, except as otherwise required by law. Data that identify you or your family members will not be included in any report. There is a small risk of the loss of privacy of your data, but our data security plans and procedures minimize this risk.

We sent you a letter about the study that provides more information. If you did not receive the letter, I can read it to you.

Do you agree to participate?

YES

IF NO, ADDRESS ISSUES/CONCERNS ABOUT STUDY. CODE AS REFUSAL.

INTERVIEWER: ANSWER QUESTIONS ABOUT ABT, WESTAT, ETC. AND PROVIDE TOLL=FREE # AS NEEDED.

GO TO BEGINNING OF SAMPLED RESPONDENT INTERVIEW

Parent Consent for Minors

(R 1,2,3)

4 PC.01 (R 1,2,3)

Are you the parent or legal guardian of {Minor Selected Respondent_FirstName and MSR_LastName}?

Yes	1
No	2
REFUSED	7
DON'T KNOW	9

If No, GO TO PC.03

5 PC.02 (R 1,2,3)

I am calling about the USDA SNAP, formerly known as the Food Stamp Program. We're interested in learning how the program is working in Hampden County. {Your daughter/son, Minor Selected Respondent_FirstName and MSR LastName} was selected as a participant in this study. We need your consent to interview FirstName since {she/he} he is a minor. _FirstName} will be asked questions about {her/his} diet, food knowledge, attitudes, and

beliefs. After we talk with MINOR we will want to talk to the person who does the grocery shopping for your household.

The interview with MINOR take about 15 minutes and MINOR will receive a \$20 check as a thank you for participating in the study. His/her participation is voluntary. He/she has the right to stop at any time or skip questions. Taking part in this study will not affect your benefits in any way – either now or in the future. We do not plan to share this information with anyone other than USDA staff and its contractors, except as otherwise required by law. Data that identify you or your family members will not be included in any report. To protect confidentiality, we cannot share your youth’s answers with you. There is a small risk of the loss of privacy of your data, but our data security plans and procedures minimize this risk.

May we have your consent to talk to {MR_FirstName}?

- Yes 1
- No 2
- REFUSED 7
- DON'T KNOW 9

If Yes, GO TO PC.05. If No, Refuse, or DK, ADDRESS ISSUES/CONCERNS ABOUT STUDY. CODE AS REFUSAL. INTERVIEWER: ANSWER QUESTIONS ABOUT ABT, WESTAT, ETC. AND PROVIDE TOLL=FREE # AS NEEDED.

6 PC.03 (R 1,2,3)

PC3 (R1,2, 3). Who is {Minor Selected Respondent_FirstName and MSR_LastName}'s parent or legal guardian? What is their name ?

- ENTER NAME

REFUSED 7

DON'T KNOW 9

7 PC.04 (R 1,2,3)

What is that person’s telephone number? And what type of phone is this?
CATI: ALLOW FOR ENTRY OF MULTIPLE PHONE NUMBERS AND ABILITY TO SELECT PHONE TYPE.

- [] - -

ENTER PHONE NUMBER

Home 1

Work 2

Cell 3

Other 4

REFUSED 7

DON'T KNOW 9

PC.05 (R1) SPEAKING WITH MINOR:

8 Intro.06 (R 1,2,3)

Hello, my name is {INTERVIEWER} from Westat. And I’m calling about the USDA/FNS, SNAP, study.] I’d like to make sure that you are the correct person. Your name is {R_FNAME R_LNAME} and your appproximate age is {R’s AGE}?

- Yes – exact match 1
- Yes – qualified match 2
- No – does not match 3
- REFUSED 7

DON'T KNOW 9

NAVIGATION: If Yes-exact or qualified match, GO TO [Intro.07]. If No, ASK TO SPEAK WITH CORRECT PERSON.

9 Intro.07 (R1) I am calling about the USDA/FNS, SNAP, formerly known as the Food Stamp Program. We're interested in learning how the program is working in Hampden County, and would like to ask you some questions about food and shopping that will help SNAP improve services and better meet the needs of the people who use this program. The interview takes about 15 minutes. You will receive a \$20 check as a thank you. Your participation is voluntary. You have the right to stop at any time or skip questions. Taking part in this study will not affect your benefits in any way – either now or in the future. We do not plan to share this information with anyone other than USDA/FNS staff and its contractors, except as otherwise required by law. Data that identify you or your family members will not be included in any report. The answers you give will not be shared with your parent or guardian. There is a small risk of the loss of privacy of your data, but our data security plans and procedures minimize this risk.

Do you agree to participate?

YES

IF NO, ADDRESS ISSUES/CONCERNS ABOUT STUDY. CODE AS REFUSAL.

INTERVIEWER: ANSWER QUESTIONS ABOUT ABT, WESTAT, ETC. AND PROVIDE TOLL=FREE # AS NEEDED.

Food Preferences and Beliefs
(R 1,2,3)

4 FAB.1-At.01 (R 1,2,3) The first questions are about your food preferences and beliefs. For each statement, tell me how much you agree or disagree. The first statement is: I enjoy trying new foods. Do you . . .

strongly disagree, 1
disagree, 2
neither disagree nor agree, 3
agree, or 4
strongly agree? 5
REFUSED 7
DOES NOT APPLY 8

5 TS.01 (R 1,2,3) I enjoy trying new fruits. Do you . . .

strongly disagree, 1
disagree, 2
neither disagree nor agree, 3

agree, or	4
strongly agree?	5
REFUSED	7
DOES NOT APPLY	8

6 TS.02 (R 1,2,3)

I enjoy trying new vegetables.

strongly disagree,	1
disagree,	2
neither disagree nor agree,	3
agree, or	4
strongly agree?	5
REFUSED	7
DOES NOT APPLY	8

7 FAB.1-Bel.04a (R 1,2,3)

I eat enough fruits to keep me healthy.

strongly disagree,	1
disagree,	2
neither disagree nor agree,	3
agree, or	4
strongly agree?	5
REFUSED	7
DOES NOT APPLY	8

8 FAB.1-Bel.04b (R 1,2,3)

I eat enough vegetables to keep me healthy.

strongly disagree,	1
disagree,	2
neither disagree nor agree,	3
agree, or	4
strongly agree?	5
REFUSED	7
DOES NOT APPLY	8

9 FAB.1-Bel.05 (R 1,2,3)

I often encourage my family and friends to eat fruits and vegetables.

strongly disagree,	1
disagree,	2
neither disagree nor agree,	3
agree, or	4
strongly agree?	5
REFUSED	7
DOES NOT APPLY	8

Barriers to Consuming FV
(R 1,2,3)

10 FAB.1-Bel.22 (R 1,2,3)

The next items are about barriers to eating fruits and vegetables. For each statement, tell me how much you agree or disagree. The first

statement is: It's hard for me to eat more vegetables because I don't know how to prepare them. Do you . . .

strongly disagree, 1
 disagree, 2
 neither disagree nor agree, 3
 agree, or 4
 strongly agree? 5
 REFUSED 7
 DOES NOT APPLY 8

11 New.Bar.1v (R 1,2,3)

It's hard for me to eat more vegetables because they are hard to find where I shop for food.

strongly disagree, 1
 disagree, 2
 neither disagree nor agree, 3
 agree, or 4
 strongly agree? 5
 REFUSED 7
 DOES NOT APPLY 8

12 New.Bar.1f (R 1,2,3)

It's hard for me to eat more fruits because they are hard to find where I shop for food.

strongly disagree, 1
 disagree, 2
 neither disagree nor agree, 3
 agree, or 4
 strongly agree? 5
 REFUSED 7
 DOES NOT APPLY 8

13 FAB-Bar2.01 (R 1,2,3)

I don't eat fruits and vegetables as much as I like to because they cost too much.

strongly disagree, 1
 disagree, 2
 neither disagree nor agree, 3
 agree, or 4
 strongly agree? 5
 REFUSED 7
 DOES NOT APPLY 8

14 FAB-Bar2.02 (R 1,2,3)

I don't eat fruits and vegetables as much as I like to because they often spoil before I get a chance to eat them.

strongly disagree, 1
 disagree, 2
 neither disagree nor agree, 3
 agree, or 4
 strongly agree? 5
 REFUSED 7
 DOES NOT APPLY 8

15 FAB-Bar2.05b (R 1,2,3)

I don't eat fruits and vegetables as much as I like to because my family doesn't like them.

strongly disagree, 1
 disagree, 2
 neither disagree nor agree, 3
 agree, or 4
 strongly agree? 5
 REFUSED 7
 DOES NOT APPLY 8

16 FAB-Bar2.05a (R 1,2,3)

I don't eat fruits and vegetables because I don't like them.

strongly disagree, 1
 disagree, 2
 neither disagree nor agree, 3
 agree, or 4
 strongly agree? 5
 REFUSED 7
 DOES NOT APPLY 8

Fruit and Vegetable Screener
 (R 1,2,3)

17 EATS.1 (R 1,2,3)

For this next set of questions, please think about all the fruits, vegetables, and fruit juices that you had last month. Include those that were raw and cooked, eaten as snacks and at meals, eaten at home and away from home in restaurants, with friends, and as take-out, and eaten alone and mixed with other foods.

During the past month, how many times per day, week, or month did you drink 100% pure fruit juice such as orange, mango, apple, grape or pineapple juices? Do not include fruit-flavored drinks with added sugar or fruit juice you made at home and added sugar to.

[IF NEEDED: Include only 100% pure juices. Do not include fruit-flavored drinks with added sugar, like cranberry cocktail, Hi-C, lemonade, Kool-Aid, Gatorade, Tampico, and Sunny Delight.] [IF "every day", ASK: How many times a day?]

NUMBER: EUNIT

— —

DAY 1
 WEEK 2
 MONTH 3
 REFUSED 77
 DON'T KNOW 99

NAVIGATION: If Never, GO TO 19 [EATS.2].

18 EATS.1a (R 1,2,3)

Each time you drank 100% juice, how much did you usually drink?
 Would you say . . .

less than 3/4 cup (less than 6 ounces), 1
 3/4 to 1 1/4 cup (6 to 10 ounces), 2

1 1/4 to 2 cups (10 to 16 ounces), or	3
more than 2 cups (more than 16 ounces)?	4
REFUSED	77
DON'T KNOW	99

19 EATS.2 (R 1,2,3) During the past month, how many times per day, week or month
did you eat fruit? Include fresh, frozen or canned fruit. Do not
include juices or dried fruits.

NUMBER: EUNIT

DAY	1
WEEK	2
MONTH	3
REFUSED	77
DON'T KNOW	99

NAVIGATION: If Never, GO TO 21 [EATS.3].

20 EATS.2a (R 1,2,3) Each time you ate fruit, how much did you usually eat? Would you
say...

LESS THAN 1 MEDIUM FRUIT [less than ½ cup]	1
1 MEDIUM FRUIT [about ½ cup]	2
2 MEDIUM FRUITS [about 1 cup]	3
MORE THAN 2 MEDIUM FRUITS [more than 1 cup].....	4
REFUSED	77
DON'T KNOW	99

21 EATS.3 (R 1,2,3) (During the past month), how many times per day, week or month
did you eat a green leafy or lettuce salad, with or without other
vegetables?

IF NEEDED: INCLUDE: spinach salads.

NUMBER: EUNIT

DAY	1
WEEK	2
MONTH	3
REFUSED	77
DON'T KNOW	99

NAVIGATION: If Never, GO TO 23 [EATS.4].

22 EATS.3a (R 1,2,3) Each time you ate green leafy or lettuce salad, how much did you
usually eat? Would you say . . .

about 1/2 cup,	1
about 1 cup,	2
about 2 cups, or	3
more than 2 cups?	4
REFUSED	77
DON'T KNOW	99

23 EATS.4 (R 1,2,3)

(During the past month), how many times per day, week or month did you eat any kind of fried potatoes, including french fries, home fries, or hash brown potatoes?

NUMBER: EUNIT

IF NEEDED: DO NOT INCLUDE potato chips. INCLUDE
Tater tots and other fresh or frozen fried potatoes.

DAY	1
WEEK	2MONTH
REFUSED	77
DON'T KNOW	99

3

NAVIGATION: If Never, GO TO 25 [EATS.5].

24 EATS.4a (R 1,2,3)

Each time you ate fried potatoes, how much did you usually eat?
Would you say . . .

small order or less (about 1 cup or less),	1
medium order (about 1 1/2 cups),	2
large order (about 2 cups), or	3
super size order or more (about 3 cups or more)?	4
REFUSED	77
DON'T KNOW	99

25 EATS.5 (R 1,2,3)

(During the past month), how many times per day, week, or month did you eat any other kind of potatoes, such as baked, boiled, mashed potatoes, sweet potatoes, or potato salad?

IF NEEDED: INCLUDE all types of potatoes except
fried. INCLUDE potatoes au gratin, scalloped
potatoes.

NUMBER: EUNIT

DAY	1
WEEK	2
MONTH	3
REFUSED	77
DON'T KNOW	99

NAVIGATION: If Never, GO TO 27 [EATS.6].

26 EATS.5a (R 1,2,3)

Each time you ate these potatoes, how much did you usually eat?
Would you say . . .

1 small potato or less (1/2 cup or less),	1
1 medium potato (1/2 to 1 cup),	2
1 large potato (1 to 1 1/2 cups), or	3
2 medium potatoes or more (1 1/2 cups or more)?	4
REFUSED	77
DON'T KNOW	99

27 EATS.6 (R 1,2,3)

(During the past month), how many times per day, week or month did you eat refried beans, baked beans, beans in soup, pork and beans or any other type of cooked dried beans? Do not include green beans.

IF NEEDED: INCLUDE: soybeans, kidney, pinto, garbanzo, lentils, black, black-eyed peas, cow peas, and lima beans.

NUMBER: EUNIT

DAY	1
WEEK	2
YEAR	3
REFUSED	77
DON'T KNOW	99

NAVIGATION: If Never, GO TO 29 [EATS.7].

28 EATS.6a (R 1,2,3)

Each time you ate these beans, how much did you usually eat?
Would you say . . .

less than 1/2 cup,	1
1/2 to 1 cup,	2
1 to 1 1/2 cups, or	3
more than 1 1/2 cups?	4
REFUSED	77
DON'T KNOW	99

29 EATS.7 (R 1,2,3)

(During the past month), not including lettuce salads, potatoes, and cooked dried beans, how many times per day, week or month did you eat other vegetables?

IF NEEDED: DO NOT INCLUDE rice. Examples of other vegetables to IF NEEDED: INCLUDE: tomatoes, green beans, carrots, corn, cabbage, bean sprouts, collard greens, plantains, yucca, chayote or other squash, and broccoli. IF NEEDED: INCLUDE any form of the vegetable: raw, cooked, canned, frozen, or dried.

NUMBER: EUNIT

DAY	1
WEEK	2
MONTH	3
REFUSED	77
DON'T KNOW	99

NAVIGATION: If Never, GO TO 31 [EATS.8].

30 EATS.7a (R 1,2,3)

Each of these times that you ate other vegetables, how much did you usually eat? Would you say . . .

less than 1/2 cup,	1
1/2 to 1 cup,	2
1 to 2 cups, or	3

more than 2 cups?	4
REFUSED	77
DON'T KNOW	99

31 EATS.8 (R 1,2,3)

(During the past month), how many times per day, week or month did you have tomato sauces such as with spaghetti or noodles or mixed into foods such as lasagna? Please do not count tomato sauce on pizza.

NUMBER: EUNIT

DAY	1
WEEK	2
MONTH	3
REFUSED	77
DON'T KNOW	99

NAVIGATION: If Never, GO TO 33 [EATS.11].

32 EATS.8a (R 1,2,3)

Each time you ate tomato sauce, how much did you usually eat?
Would you say . . .

about 1/4 cup,	1
about 1/2 cup,	2
about 1 cup, or	3
more than 1 cup?	4
REFUSED	77
DON'T KNOW	99

33 EATS.11 (R 1,2,3)

(During the past month), how many tiems per day, week or month you have Mexican-type salsa made with tomato?

IF NEEDED: INCLUDE: all tomato-based salsas.

NUMBER: EUNIT

DAY	1
WEEK	2
MONTH	3
REFUSED	77
DON'T KNOW	99

NAVIGATION: If Never, for Round 1 GO TO 35
[NHANES.DMQ.241]; for Rounds 2,3 GO TO 40 [FAB-Shop.01].

34 EATS.11a (R 1,2,3)

Each time you ate salsa, how much did you usually eat? Would you say . . .

less than 1 tablespoon,	1
1-2 tablespoons,	2
3-5 tablespoons, or	3
more than 5 tablespoons?	4
REFUSED	77
DON'T KNOW	99

Respondent Characteristics

(R 1)

35 NHANES.DMQ.241 (R 1)

Now I'm going to ask you a few questions about yourself. Do you consider yourself to be Hispanic or Latino?

IF NEEDED: READ IF NEEDED: Where do your ancestors come from? Are they Puerto Rican; Cuban/Cuban American; Dominican Republic; Mexican/Mexican American; Central/South American; Other Latin American; Other Hispanic or Latino

YES 1
 NO 2
 REFUSED 7
 DON'T KNOW 9

36 NHANES.SCQ.270 (R 1)

What race do you consider yourself to be? You may give one or more races. Are you American Indian or Alaskan Native, Asian, Black or African American, native Hawaiian or Pacific Islander, or white?

IF NEEDED: Select all that apply.

AMERICAN INDIAN OR ALASKAN NATIVE 15
 ASIAN 13
 BLACK 12
 NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER 14
 WHITE 11
 OTHER 91
 REFUSED -7

RaceOS
 SPECIFY:

[What race do you consider yourself to be?]

37 NHANES.ACQ.011 (R 1)

What language or languages do you usually speak at home?

IF NEEDED: Select all that apply.

ENGLISH 11
 SPANISH 12
 OTHER 13
 REFUSED 77
 DON'T KNOW 99

38 Marr.1 (R 1)

Are you . . .

IF RESPONDENT SAYS "Single", RE-READ RESPONSE
 OPTIONS.

married, 1
 not married but living with a partner, 2
 widowed, 3
 divorced, 4

separated, or	5
never married?	6
OTHER:	7
REFUSED	77

IF OTHER:

RCS1102.

MarStOS

[What is your marital status?]

SPECIFY:

39 NHANES.DMQ.141 (R 1)

What is the highest grade or level of school you have completed or the highest degree you have received?

[IF R SAYS "high school", PROBE: Did you get a diploma or GED?] Training note: if respondent says "some technical school" or "technical certificate", then probe the two or three most likely lower levels of education. For example: "Of these, which would be the highest level of school you have completed: 12th grade no diploma; high school graduate, or GED or equivalent?"

1ST GRADE	1
2ND GRADE	2
3RD GRADE	3
4TH GRADE	4
5TH GRADE	5
6TH GRADE	6
7TH GRADE	7
8TH GRADE	8
9TH GRADE	9
10TH GRADE	10
11TH GRADE	11
12TH GRADE, NO DIPLOMA	12
HIGH SCHOOL GRADUATE	13
GED OR EQUIVALENT	14
SOME COLLEGE, NO DEGREE	15
ASSOCIATE DEGREE: OCCUPATIONAL, TECHNICAL, OR VOCATIONAL PROGRAM	16
ASSOCIATE DEGREE: ACADEMIC PROGRAM	17
BACHELOR'S DEGREE (EXAMPLE: BA, AB, BS, BBA)	18
MASTER'S DEGREE (EXAMPLE: MA, MS, MENG, MED, MBA)	19
PROFESSIONAL SCHOOL DEGREE (EXAMPLE: MD, DDS, DVM, JD)	20
DOCTORAL DEGREE (EXAMPLE: PHD, EDD)	21
NEVER ATTENDED/KINDERGARTEN ONLY	0
REFUSED	77
DON'T KNOW	99

Transition to Shopper

(R 1,2,3)

40 FAB-Shop.01 (R 1,2,3)

Now I would now like to ask you about food shopping. Who is the primary food shopper in your household? The primary food shopper is the person who does the grocery shopping most often.

RESPONDENT	1
R TAKES TURNS WITH OTHERS	2
R GOES TOGETHER WITH OTHERS	3
SPOUSE OR PARTNER OF R	4
A PARENT OF R	5
SOMEONE OTHER THAN R	6
REFUSED	77
DON'T KNOW	99

NAVIGATION: If spouse or partner, parent, someone else, Refuse, or D/K, then CONTINUE with 41 [C1a].
Otherwise, GO TO beginning of shopper interview [CSWP.101a].

TTS1060

ShopFNAM

What is that person's name:

[IF MORE THAN ONE PERSON]: Please give me the name of the one person you mainly think of as the shopper:

[ENTER FIRST NAME, MIDDLE NAME, LAST NAME]:

TTS1150

Shop__HH

Does [SHOPPER] live in your household?"

Yes	1
No	2

Respondent Contact Information

(R 1,2,3)

41 C1a (R 1,2,3)

In just a moment, I'll have some questions that I need to ask the primary food shopper. Once {PRIMARY SHOPPER'S_FNAME, PS_LNAME} has completed the primary shopper interview, we will send your household a {\$20/\$30/\$40} check to thank you for participating in the study. I'd like to confirm your name and address [Is your full name...]

IF NEEDED: If No, enter corrected respondent name.

FNAME
MNAME
LNAME

NAVIGATION: GO TO contact information section of shopper interview [C1c].

End Respondent Interview

(R 1,2,3)

42 CR6 (R 1,2,3)

Thank you for all the time you've spent answering questions about food which will help SNAP improve services and better meet the needs of the people who use this program.

43 CR7 (R 1,2)

We look forward to talking you again in about three to six months.

44 CR9 (R 1,2,3)

May I speak with the primary food shopper now?

Healthy Incentives Pilot – **Round 1 Primary Food Shopper** Questionnaire***Shopper Introduction***

NAVIGATION: IF THE SAMPLED RESPONDENT INTERVIEW IS WITH AN ADULT RESPONDENT AND HAS BEEN COMPLETED, GO TO GO TO **INTROSHOP.01**

- | | | | |
|---|------------------------|---|--|
| 1 | IntroShop.01 (R 1,2,3) | <p>Hello, my name is [INTERVIEWER NAME], may I speak with [NAME OF PRIMARY SHOPPER]?</p> | |
| | | | |
| 2 | IntroShop.02 (R 1,2,3) | <p>My name is [INTERVIEWER NAME] and I am calling about the USDA /FNS SNAP, formerly known as the Food Stamp Program. We're interested in learning how the program is working in Hampden County. Are you the primary food shopper in your household? The primary food shopper is the person who does the grocery shopping most often.</p> | |
| | | <p>Yes 1</p> <p>No 2</p> | |
| | | <p>NAVIGATION: If Yes, GO TO 4 [IntroShop.04]. If No, GO TO the Parent Consent for Minors interview, item [PC01].</p> | |
| | | | |
| 3 | IntroShop.03 (R 1,2,3) | <p>May I speak with [NAME OF SHOPPER]?</p> | |
| | | <p>Yes 1</p> <p>No 2</p> | |

HH Composition

(R 1,2,3)

4 IntroShop.04 (R 1,2,3)

My name is [INTERVIEWER] and I am calling about the USDA SNAP, formerly known as the Food Stamp Program. We're interested in learning how the program is working in Hampden County. We would like to ask you some questions about food and shopping that will help SNAP improve services and better meet the needs of the people who use this program. This part of the interview takes about 10 minutes. We are sending [NAME OF SAMPLED RESPONDENT] a \$20 check to thank your household for participating in the study. Your participation is voluntary. You have the right to stop at any time or skip questions. Taking part in this study will not affect your benefits in any way – either now or in the future. We do not plan to share this information with anyone other than USDA and its contractors, except as otherwise required by law. Data that identify you or your family members will not be included in any report. There is a small risk of the loss of privacy of your data, but our data security plans and procedures minimize this risk.

{R'S_FN, R_LN} mentioned that you did most of the shopping in the household. We'd like to ask you some questions about your household, shopping for your household and about food in the home.

Do you agree to participate?

[IF HOMELESS: Please answer these questions about members of your family who are currently with you.]

5 CSWP.101a (R 1,2,3)

How many people currently live in your household By household, I mean your family and other people who live with you and with whom you share food and food expenses. Please include yourself and any babies and small children.

|_|_|_|

ENTER NUMBER

REFUSED 77

DON'T KNOW 99

IF NUMBER OF PEOPLE =1

Are you

Age 18 to 64 or 1

Age 65 or older?..... 2

REFUSED 77

DON'T KNOW 99

6 CSWP.101b.a (R 1,2,3)

Of these, how many are adults age 18 to 64?

|_|_|_|

ENTER NUMBER

REFUSED 77

DON'T KNOW 99

7 CSWP.101b.s (R 1,2,3)

Of these, how many are adults age 65 or older?

|_|_|_|

ENTER NUMBER

REFUSED 77

DON'T KNOW 99

8 CSWP.101c (R 1,2,3)

How many are children between the ages of 5 and 17 years?

|_|_|_|

ENTER NUMBER

REFUSED 77

DON'T KNOW 99

9 CSWP.101d (R 1,2,3)

And, how many are children under 5 years of age?

|_|_|_|

ENTER NUMBER

REFUSED 77

DON'T KNOW 99

[ERROR MESSAGE IF NUMBERS DO NOT ADD UP CORRECTLY TO TOTAL IN HH: I may have made a mistake in recording the numbers you gave me. Let me ask those questions again.]

Participation in Other Nutrition Assistance Programs

(R 1)

10 Household.1 (R 1)

The next questions ask about participation in nutrition assistance programs. In the current school year, have any children in your household received free or reduced price lunch from the National School Lunch Program?

INTERVIEWER: If the interview is in summer, ask about "last school" year, if during the school year, ask about "current" school year.

Yes 1

No 2

REFUSED 77

DON'T KNOW 99

NAVIGATION: SKIP this item if no children 5-17 years old in household.

11 Household.2 (R 1)

In the past 30 days, did anyone in your household receive assistance from the WIC program?

INTERVIEWER: refer to calendar for past 30 days reference period

Yes 1

No 2

REFUSED 77

DON'T KNOW 99

12 Household.3a (R 1)

In the past 30 days, did any children in your household attend the Head Start program or a child care program where they got free meals?

INTERVIEWER: refer to calendar for past 30 days
reference period

Yes 1
No 2
REFUSED 77
DON'T KNOW 99

NAVIGATION: SKIP this item if no children 0-5 years
old in household.

13 Household.4 (R 1)

In the past 30 days, did anyone in your household receive assistance
from Meals on Wheels or the Senior Nutrition Program?

INTERVIEWER: refer to calendar for past 30 days
reference period

Yes 1
No 2
NA, NO SENIORS IN HOME..... 3
REFUSED 77
DON'T KNOW 99

14 Household.5 (R 1)

In the past 30 days, did anyone in your household receive food from
a food pantry or soup kitchen, such as the Open Pantry, Lorraine's
Food Pantry and Soup Kitchen, or Kate's Kitchen?

INTERVIEWER: refer to calendar for past 30 days
reference period

Yes 1
No 2
REFUSED 77
DON'T KNOW 99

Family Food Environment

(R 1,2,3)

15 NHANES.CBQ.020 (R 1,2,3)

The next questions ask how often you have certain types of food
available at home. How often do you have fruits available at home?
This includes fresh, dried, canned and frozen fruits. Would you say...

INTERVIEWER: READ IF NEEDED: "Do not include
juice".

Always 1
Most of the time 2
Sometimes 3
Rarely 4
Never 5
REFUSED 7
DON'T KNOW 9

16 Have.1 (R 1,2,3)

How often do you have fruits in the refrigerator or on the kitchen
counter? [Would you say always, most of the time, sometimes,
rarely, or never?]

Always	1
Most of the time	2
Sometimes	3
Rarely	4
Never	5
DON'T HAVE A REFRIGERATOR	6
REFUSED	7
DON'T KNOW	9

17 NHANES.CBQ.030 (R 1,2,3)

How often do you have vegetables available at home? This includes fresh, dried, canned, and frozen vegetables. [Would you say always, most of the time, sometimes, rarely, or never?]

Always	1
Most of the time	2
Sometimes	3
Rarely	4
Never	5
DON'T HAVE A FREEZER	6
REFUSED	7
DON'T KNOW	9

18 Have.2 (R 1,2,3)

How often do you have ready to eat vegetables such as baby carrots, cherry tomatoes, or vegetables that you have sliced to make them ready to eat in the refrigerator or on the kitchen counter? [Would you say always, most of the time, sometimes, rarely, or never?]

INTERVIEWER: IF NEEDED, SAY: Include vegetables you can eat without heating or cooking.

Always	1
Most of the time	2
Sometimes	3
Rarely	4
Never	5
REFUSED	7
DON'T KNOW	9

19 NHANES.CBQ.040 (R 1,2,3)

How often {does your family/do you} have salty snacks such as chips and crackers available at home? Do not include nuts. [Would you say always, most of the time, sometimes, rarely, or never?]

Always	1
Most of the time	2
Sometimes	3
Rarely	4
Never	5
REFUSED	7
DON'T KNOW	9

20 NHANES.CBQ.050 (R 1,2,3)

How often {does your family/do you} have 1% fat, skim or fat-free milk available at home? Please do not include 2% milk. [Would you say always, most of the time, sometimes, rarely, or never?]

Always	1
--------------	---

Most of the time	2
Sometimes	3
Rarely	4
Never	5
REFUSED	7
DON'T KNOW	9

21 NHANES.CBQ.060 (R 1,2,3)

How often {does your family/do you} have soft drinks, fruit-flavored drinks, or fruit punch available at home? Please do not include diet drinks, 100 percent juice or sports drinks. [Would you say always, most of the time, sometimes, rarely, or never?]

Always	1
Most of the time	2
Sometimes	3
Rarely	4
Never	5
REFUSED	7
DON'T KNOW	9

22 NHANES.CBQ.180 (R 1,2,3)

The next questions ask about your evening meals at home.

During the past month, how often did all or most of your family sit down and eat evening meals together at home? Would you say...

Always	1
Most of the time	2
Sometimes	3
Rarely or.....	4
Never	5
REFUSED	7
DON'T KNOW	9

NAVIGATION: SKIP THIS ITEM if only 1 person in HH.

23 NHANES.CBQ.190 (R 1,2,3)

During the past month, how often were evening meals cooked at home?

INTERVIEWER: IF NEEDED, SAY: Include leftovers from meals cooked at home.

Always	1
Most of the time	2
Sometimes	3
Rarely	4
Never	5
REFUSED	7
DON'T KNOW	9

General Shopping Patterns

(R 1,2,3)

- 24 FAB.Shop.02 (R 1,2,3) Where do you usually go grocery shopping? Would you say...
[IF MORE THAN ONE: Where do you buy most of your groceries?]
- | | |
|---|--------------------------|
| Large chain grocery store or supermarket | 1 |
| Natural or organic supermarket (such as Whole Foods Market) | 2 |
| Small local store or corner store | 3 |
| Convenience store (such as 7-Eleven or mini market) | 4 |
| Warehouse club store (such as Sam's Club or Costco) | 5 |
| Discount superstore (such as Wal-Mart) | 6 |
| Online delivery (such as Peapod or Fresh Direct) | 7 |
| Ethnic market | 8 |
| Farmer's market/co-op | 9 |
| OTHER, specify | <input type="checkbox"/> |
| REFUSED | 77 |
| DON'T KNOW | 99 |
- 25 Shop.14 (R 1,2,3) You said you usually shop for groceries at a {STORE TYPE IN Q 24 [FAB.Shop.02]}. Why do you usually shop at there?
- PROBE: Any other reasons?]
- INTERVIEWER: Do not read response options. SELECT ALL THAT APPLY.
- | | |
|---|----|
| CLOSE TO HOME | 1 |
| CLOSE TO WORK OR SCHOOL | 2 |
| LOCATION CONVENIENT (OTHER) | 3 |
| AFFORDABLE PRICE | 4 |
| LOTS OF IN-STORE PROMOTIONS | 5 |
| VARIETY OF PRODUCTS | 6 |
| ETHNIC FOODS ARE AVAILABLE | 7 |
| PREFERRED PRODUCTS ARE ALWAYS AVAILABLE | 8 |
| BETTER OR FRESHER PRODUCE | 9 |
| GOOD SERVICE | 10 |
| CLEAN | 11 |
| FAMILIARITY WITH STORE | 12 |
| CONVENIENT HOURS OF OPERATION | 13 |
| ACCEPTS EBT CARD | 14 |
| OTHER | 15 |
| REFUSED | 16 |
| DON'T KNOW | 17 |
- 26 Shop.15 (R 1,2,3) How often do you usually shop for groceries? Would you say..
- | | |
|-----------------------------|----|
| More than once a week | 1 |
| Once a week | 2 |
| Every other week | 3 |
| Once a month | 4 |
| Every other month | 5 |
| 2-3 times a year or | 6 |
| Yearly or not at all | 7 |
| REFUSED | 77 |
| DON'T KNOW | 99 |
- 27 Shop.16 (R 1,2,3) Do you go out of your way or make special efforts to go to a particular store to shop for fruits and vegetables?

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

28 Shop.17 (R 1,2,3)

How often does limited transportation keep you from shopping for groceries? Would you say...

Always 1
 Most of the time 2
 Sometimes 3
 Rarely 4
 Never 5
 REFUSED 7
 DON'T KNOW 9

29 Shop.18 (R 1,2,3)

How often does distance to grocery store keep you from shopping for groceries?

Always 1
 Most of the time 2
 Sometimes 3
 Rarely 4
 Never 5
 REFUSED 7
 DON'T KNOW 9

Food Expenditures

(R 1,2,3)

30 CES.x1a (R 1,2,3)

The next questions ask about money spent for food, beverages, and other items [you / your household] usually purchase. What has been [you/your household] usual monthly expense for grocery shopping purchases made only with SNAP? Include any place you buy groceries, for example, grocery stores, convenience stores, specialty stores, and farmers markets.

\$ | | | | | | | | | |
 NO MONEY SPENT 0
 REFUSED 7
 DON'T KNOW 9
 ENTER UNIT
 Week..... 1
 Month 2
 REFUSED 7
 DON'T KNOW 9

31 CES.x1b (R 1,2,3)

What has been your household usual monthly expense for grocery shopping purchases not using SNAP?

[IF NEEDED: Include any place you buy groceries, for example, grocery stores, convenience stores, specialty stores, and farmers markets.]

\$ | | | | | | | | | |
 NO MONEY SPENT 0
 REFUSED 7

DON'T KNOW 9
 ENTER UNIT
 Week..... 1
 Month 2
 REFUSED 7
 DON'T KNOW 9

32 CES.x2 (R 1,2,3)

About how much of this amount was for nonfood items, such as paper products, detergents, home cleaning supplies, pet foods, and alcoholic beverages?

\$ | | | | | | | | | |
 NO MONEY SPENT 0
 REFUSED 7
 DON'T KNOW 9
 ENTER UNIT
 Week..... 1
 Month 2
 REFUSED 7
 DON'T KNOW 9

33 CES.x3 (R 1,2,3)

What has been your household's usual monthly expense for meals or snacks from restaurants, fast food places, cafeterias, carryouts, or other such places?

\$ | | | | | | | | | |
 NO MONEY SPENT 0
 REFUSED 7
 DON'T KNOW 9
 ENTER UNIT
 Week..... 1
 Month 2
 REFUSED 7
 DON'T KNOW 9

34 Expend.01 (R 1,2,3)

What has been your household's usual monthly expense for fruits and vegetables?

\$ | | | | | | | | | |
 NO MONEY SPENT 0
 REFUSED 7
 DON'T KNOW 9
 ENTER UNIT
 Week..... 1
 Month 2
 REFUSED 7
 DON'T KNOW 9

Shopper Employment Status
 (R 1,2,3)

35 Employ.01s (R 1,2,3)

Now I would like to ask you about employment. We would like to know what you do – are you working now, looking for work, retired, keeping house, a student, or what?

WORKING AT A JOB OR BUSINESSFULL TIME NOW	11
WORKING PART TIME NOW	12
ONLY TEMPORARILY LAID OFF	13
SICK LEAVE OR MATERNITY LEAVE	14
LOOKING FOR WORK	15
UNEMPLOYED	16
RETIRED	17
DISABLED, PERMANENTLY OR TEMPORARILY	18
KEEPING HOUSE	19
STUDENT	20
OTHER	21
REFUSED	77
DON'T KNOW	99

HH Employment Status

(R 1,2,3)

36 Employ.02 (R 1,2,3)

Regarding employment, not including yourself, how many adults age 18 and older in the household were employed full-time last week?

_ _ _	
ENTER NUMBER	
REFUSED	77
DON'T KNOW	99

NAVIGATION: SKIP this item if HH has 1 adult, or if
Shopper is minor and HH has 0 adults and GO TO 39
[Employ.05].

37 Employ.03 (R 1,2,3)

Not including yourself, how many adults in the household were employed part-time last week?

_ _ _	
ENTER NUMBER	
REFUSED	77
DON'T KNOW	99

38 Employ.04 (R 1,2,3)

Not including yourself, how many adults in the household were not employed last week?

_ _ _	
ENTER NUMBER	
REFUSED	77
DON'T KNOW	99

Are there any 16 or 17 year old youth in your household?

Yes	1
No	2

NAVIGATION: SKIP this item if no children aged 5-17 in HH and GO TO NAVIGATION instructions following 42 [Employ.08]. If No, Refused or D/K, follow navigation rule for 42 [Employ.08].

40 Employ.06 (R 1,2,3)

How many of the 16 or 17 year old youth were employed full time last week?

|_|_|_|

ENTER NUMBER

REFUSED 77

DON'T KNOW 99

41 Employ.07 (R 1,2,3)

How many youth were employed part time last week?

|_|_|_|

ENTER NUMBER

REFUSED 77

DON'T KNOW 99

42 Employ.08 (R 1,2,3)

How many youth were not employed last week?

|_|_|_|

ENTER NUMBER

REFUSED 77

DON'T KNOW 99

If Sampled Respondent is a minor and sampled respondent interview has not been completed, GO TO parent consent for minors interview. If Sampled Respondent is a minor and sampled respondent interview is complete, GO TO 66 [C6]. If Sampled Respondent is not Primary Shopper, GO TO 66 [C6]. If Sampled Respondent is Primary Shopper, GO TO 43 [C1b].

Contact Information

(R 1,2,3)

43 C1b (R 1,2,3)

To thank you for participating in the study, we want to send your household a {\$20/\$30/\$40} check. Let me make sure I have your correct name and address – is it {RESPONDENT NAME}?

INTERVIEWER: If No, enter corrected respondent name.

Yes 1

No 2

REFUSED 7

DON'T KNOW 9

44 C1c (R 1,2,3)

Please give the best place to mail your incentive check to. What is your mailing address?

-
- 45 C1d (R 1,2,3) Is this also the address where you live?
- Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9
- 46 C1e (R 1,2,3) What is the address where you live?
-
- 47 C2a (R 1,2) We're eager to talk to you again between {February and May 2012, in about 3 to 5 months/August and November 2012, in about 9 to 11 months}. We want to make sure we don't lose track of you. We will not share your contact information with DTA or USDA/FNS, except as otherwise required by law. What is your home phone number, starting with the area code:
- [] - -
 ENTER PHONE NUMBER
 REFUSED 7
 DON'T KNOW 9
- 48 C2b (R 1,2) May I have your cell phone number, starting with the area code:
- [] - -
 ENTER PHONE NUMBER
 REFUSED 7
 DON'T KNOW 9
- 49 C2c (R 1,2) Do you have an email address?
- Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9
- 50 C2d (R 1,2) What is your email address. [ENTER EMAIL ADDRESS. READ THE E-MAIL ADDRESS BACK TO THE RESPONDENT FOR THEM TO VERIFY.]
- _____ @ _____
- 51 C3a (R 1,2) Could you please tell me the name and address of someone who does not live with you who is likely to know where you are if you move or we can't reach you? [RECORD NAME OR INDICATE REFUSAL OR DON'T KNOW]
- _____
 ENTER NAME
 REFUSED 7
 DON'T KNOW 9
- 52 C3b (R 1,2) What is their address?

- 53 C3c (R 1,2) What is their phone number? And what type of phone is this?
[ALLOW FOR ENTRY OF MULTIPLE PHONE NUMBERS AND ABILITY TO
SELECT PHONE TYPE HOME, WORK, CELL PHONE.]
- [] - - - - -
ENTER PHONE NUMBER
- Home 1
Work 2
Cell 3
Other 4
REFUSED 7
DON'T KNOW 9
- 54 C3d (R 1,2) Do you know if they have an email address it is and what it is?
- _____ @ _____
- 55 C3e (R 1,2) What is this person's relationship to you?
- GIRLFRIEND 1
BOYFRIEND 2
MOTHER 3
FATHER 4
SIBLING 5
DAUGHTER/SON 6
GRANDPARENT 7
AUNT/UNCLE 8
COUSIN 9
OTHER RELATIVE 10
FRIEND 11
OTHER NONRELATIVE 12
- 56 C4a (R 1,2) Is there someone else who would know where you are if you move
or we can't reach you [RECORD NAME]?
- _____
- ENTER NAME
REFUSED 7
DON'T KNOW 9
REPEAT ABOVE FOR UP TO 3 PEOPLE

End Shopper Interview
(R 1,2,3)

- 66 C6 (R 1,2,3) Thank you for all the time you've spent answering questions about
food which will help SNAP improve services and better meet the
needs of the people who use this program.
- 67 C7 (R 1,2) We look forward to talking you again in about three to six months.

68

C8 (R 1,2,3)

Good bye.

Appendix 72

Round 2 Study Participant and Primary Shopper Survey: English

Rev. from CATI specs 1/17/12

HEALTHY INCENTIVES PILOT – ROUND 2 STUDY PARTICIPANT AND PRIMARY SHOPPER SURVEY: ENGLISH

Public reporting burden for this collection of information is estimated to average 46 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: U.S. Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis, 3101 Park Center Drive, Room 1014, Alexandria, VA 22302 ATTN: PRA (0584-xxxx). Do not return the completed form to this address.

Sampled Respondent Introduction

(R 1,2,3)

NAVIGATION: IF RESPONDENT IS A MINOR (AGES 16-17) GO TO PARENT CONSENT FOR MINORS SCRIPT PC.01

1 Intro.01 (R 1,2,3)

[Hello, my name is {INTERVIEWER} from Westat. And I'm calling about the USDA/FNS SNAP study.] May I speak with [NAME OF RESPONDENT]?

R available	11
R lives here – needs appointment	12
R lives at another number or address	13
Never heard of R	14
Phone company recording	15
Answering machine	16
Retry dialing	17
REFUSED	77
DON'T KNOW	99

NAVIGATION: If R available, GO TO 2 [Intro.02].

2 Intro.02 (R 1,2,3)

My name is {INTERVIEWER} from Westat. And I'm calling about the USDA/FNS, SNAP, study.] I'd like to make sure that you are the correct person. Your name is {R_FNAME R_LNAME} and your approximate age is {R's AGE}?

Yes – exact match	1
Yes – qualified match	2
No – does not match	3
REFUSED	7
DON'T KNOW	9

Items with an “Other, specify” response selection will cause the CATI system to create an open text field for typing in the response.

(R) indicates whether the item will be administered in the first, second and/or third round of data collection.

Question ID prefixes in ALL CAPS indicate source. For example, item CSWP.101a was sourced from the California Survey of WIC Participants (CSWP), question #101a. Version (e.g., v2) indicators show item is revised for HIP. Question ID prefixes not in ALL CAPS were created for HIP. Question ID ALL CAPS prefix abbreviations indicate the item source as follows:

[AMPMP](#) = Automated Multiple Pass Method 24-hour dietary recall (USDA).

[NHANES](#) = National Health and Nutrition Examination Survey (CDC), instruments as follows:

[CSWP](#) = California Survey of WIC Participants (California).

ACQ = Acculturation Questionnaire

[EATS](#) = Eating at America's Table Study (NCI).

CBQ = Consumer Behavior Questionnaire

[FAB](#) = Food, Attitudes and Behaviors Survey (NCI).

DMQ = Demographic Information Questionnaire

[FSM](#) = Food Security Module (USDA).

FCBS = Flexible Consumer Behavior Survey

[TS](#) = Townsend Fruit & Vegetable Inventory (UC Davis)

FSQ = Food Security Questionnaire

OCQ = Occupation Questionnaire

SCQ = Screener Module #1

NAVIGATION: If Yes-exact or qualified match, GO TO Intro.04. If No, ask for respondent and repeat question when respondent is obtained.

4 Intro.04 (R 2)

My name is [INTERVIEWER NAME] from Westat and we interviewed you about the SNAP program in Hampden County, on {MONTH_DAY_YEAR OF COMPLETED INTERVIEW}. We are calling back again, to ask some of the same questions, as well as some new questions about the foods you eat. The interview takes about 45-60 minutes. Your household will receive a \$30 check as a thank you for participating in the study. Your participation is voluntary. You have the right to stop at any time or skip questions. Taking part in this study will not affect your benefits in any way – either now or in the future. We do not plan to share this information with anyone other than USDA/FNS staff and its contractors, except otherwise required by law. Data that identify you or your family members will not be included in any report. There is a small risk of the loss of privacy of your data, but our data security plans and procedures minimize this risk. We sent you a letter about the study that provides more information. If you did not receive the letter, I can read it to you.

Do you agree to participate?

YES

IF NO, ADDRESS ISSUES/CONCERNS ABOUT STUDY. CODE AS REFUSAL

INTERVIEWER: ANSWER QUESTIONS ABOUT ABT, WESTAT, ETC. AND PROVIDE TOLL=FREE # AS NEEDED.

NAVIGATION: GO TO 24-HOUR RECALL

Parent Consent for Minors

(R 1,2,3)

6 PC.01 (R 1,2,3)

Are you the parent or legal guardian of {Minor Selected Respondent_FirstName and MSR_LastName}?

Yes	1
No	2
REFUSED	7
DON'T KNOW	9

If No, GO TO 3 [PC.03].

7 PC.02 (R 1,2,3)

I am calling about the USDA/FNS, SNAP, formerly known as the Food Stamp Program. We're interested in learning how the program is working in Hampden County. {Your daughter/son, Minor Selected Respondent_FirstName and MSR LastName} was selected as a participant in this study. We need your consent to interview FirstName since {she/he} he is a minor. _FirstName} will be asked questions about {her/his} diet, food knowledge, attitudes, and beliefs. After we talk with MINOR we will want to talk to the person who does the grocery shopping for your household.

The interview with MINOR take about 15 minutes and MINOR will receive a \$20 check as a thank you for participating in the study. His/her participation is voluntary. He/she has the right to stop at any time or skip questions. Taking part in this study will not affect your benefits in any way – either now or in the future. We do not plan to share this information with anyone other than USDA/FNS staff and its contractors, except otherwise required by law. Data that identify you or your family members will not be included in any report. There is a small risk of the loss of privacy of your data, but our data security plans and procedures minimize this risk.

May we have your consent to talk to {MR_FirstName}?

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

If Yes, GO TO PC.05. If No, Refuse, or DK, ADDRESS ISSUES/CONCERNS ABOUT STUDY. CODE AS REFUSAL. INTERVIEWER: ANSWER QUESTIONS ABOUT ABT, WESTAT, ETC. AND PROVIDE TOLL=FREE # AS NEEDED.

8 PC.03 (R 1,2,3)

PC3 (R1,2, 3). Who is {Minor Selected Respondent_FirstName and MSR_LastName}'s parent or legal guardian? What is their name ?

 ENTER NAME
 REFUSED 7
 DON'T KNOW 9

9 PC.04 (R 1,2,3)

What is that person's telephone number? And what type of phone is this?
 CATI: ALLOW FOR ENTRY OF MULTIPLE PHONE NUMBERS
 AND ABILITY TO SELECT PHONE TYPE.

[_____] - _____ - _____
 ENTER PHONE NUMBER
 Home 1
 Work 2
 Cell 3
 Other 4
 REFUSED 7
 DON'T KNOW 9

PC.05 (R1) SPEAKING WITH MINOR:

10 Intro.06 (R 1,2,3)

Hello, my name is {INTERVIEWER} from Westat. And I'm calling about the USDA/FNS, SNAP, study.] I'd like to make sure that you are the correct person. Your name is {R_FNAME R_LNAME} and your approximate age is {R's AGE}?

Yes – exact match 1
 Yes – qualified match 2
 No – does not match 3
 REFUSED 7
 DON'T KNOW 9

NAVIGATION: If Yes-exact or qualified match, GO TO [Intro.06]. If No, ASK TO SPEAK WITH CORRECT PERSON.

12 Intro.08 (R 2)

My name is [INTERVIEWER NAME] from Westat and we interviewed you about the SNAP program in Hampden County, on {MONTH_DAY_YEAR OF COMPLETED INTERVIEW}. We are calling back again, to ask some of the same questions, as well as some new questions about the foods you eat. The interview takes about 35-50 minutes. You will receive a \$30 check as a thank you for participating in the study. Your participation is voluntary. You have the right to stop at any time or skip questions. Taking part in this study will not affect your benefits in any way – either now or in the future.. We do not plan to share this information with anyone other than USDA/FNS staff and its contractors, except otherwise required by law. Data that identify you or your family members will not be included in any report. There is a small risk of the loss of privacy of your data, but our data security plans and procedures minimize this risk.

INTERVIEWER: ANSWER QUESTIONS ABOUT ABT,
WESTAT, ETC. AND PROVIDE TOLL=FREE # AS
NEEDED.

Do you agree to participate?

YES

IF NO, ADDRESS ISSUES/CONCERNS ABOUT
STUDY. CODE AS REFUSAL.

INTERVIEWER: ANSWER QUESTIONS ABOUT ABT,
WESTAT, ETC. AND PROVIDE TOLL=FREE # AS
NEEDED.

24-Hour Dietary Recall

(R 2,3)

- 4 USDA AMPM (R 2,3) <<Entire AMPM instrument>> The first questions ask about the foods you ate and beverages you drank for one day.

Exposure to Nutrition Education

(R 2,3)

- 5 SnapEd.1 (R 2,3) The next questions ask about healthy eating and nutrition education you may have received. In the past three months, have you heard or seen any messages about eating more fruits and vegetables or the importance of fruits and veggies in a healthy diet?

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

- 6 SnapEd.2 (R 2,3) In the past three months, did you attend any nutrition education or healthy eating programs or classes?

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

Food Preferences and Beliefs

(R 1,2,3)

- 7 FAB.1-At.01 (R 1,2,3) The following questions are about your food preferences and beliefs. For each statement, tell me how much you agree or disagree. The first statement is: I enjoy trying new foods. Do you . . .

strongly disagree, 1
 disagree, 2
 neither disagree nor agree, 3
 agree, or 4
 strongly agree? 5
 REFUSED 7
 DOES NOT APPLY 8

- 8 TS.01 (R 1,2,3) I enjoy trying new fruits. Do you . . .

strongly disagree, 1
 disagree, 2
 neither disagree nor agree, 3
 agree, or 4
 strongly agree? 5
 REFUSED 7

DOES NOT APPLY 8

9 TS.02 (R 1,2,3) I enjoy trying new vegetables.

strongly disagree, 1

disagree, 2

neither disagree nor agree, 3

agree, or 4

strongly agree? 5

REFUSED 7

DOES NOT APPLY 8

10 FAB.1-Bel.04a (R 1,2,3) I eat enough fruits to keep me healthy.

strongly disagree, 1

disagree, 2

neither disagree nor agree, 3

agree, or 4

strongly agree? 5

REFUSED 7

DOES NOT APPLY 8

11 FAB.1-Bel.04b (R 1,2,3) I eat enough vegetables to keep me healthy.

strongly disagree, 1

disagree, 2

neither disagree nor agree, 3

agree, or 4

strongly agree? 5

REFUSED 7

DOES NOT APPLY 8

12 FAB.1-Bel.05 (R 1,2,3) I often encourage my family and friends to eat fruits and vegetables.

strongly disagree, 1

disagree, 2

neither disagree nor agree, 3

agree, or 4

strongly agree? 5

REFUSED 7

DOES NOT APPLY 8

Barriers to Consuming FV

(R 1,2,3)

13 FAB.1-Bel.22 (R 1,2,3) The next items are about barriers to eating fruits and vegetables. For each statement, tell me how much you agree or disagree. The first statement is: It's hard for me to eat more vegetables because I don't know how to prepare them. Do you . . .

strongly disagree, 1

disagree, 2

neither disagree nor agree, 3

agree, or	4
strongly agree?	5
REFUSED	7
DOES NOT APPLY	8

14 New.Bar.1v (R 1,2,3) It's hard for me to eat more vegetables because they are hard to find where I shop for food.

strongly disagree,	1
disagree,	2
neither disagree nor agree,	3
agree, or	4
strongly agree?	5
REFUSED	7
DOES NOT APPLY	8

15 New.Bar.1f (R 1,2,3) It's hard for me to eat more fruits because they are hard to find where I shop for food.

strongly disagree,	1
disagree,	2
neither disagree nor agree,	3
agree, or	4
strongly agree?	5
REFUSED	7
DOES NOT APPLY	8

16 FAB-Bar2.01 (R 1,2,3) I don't eat fruits and vegetables as much as I like to because they cost too much.

strongly disagree,	1
disagree,	2
neither disagree nor agree,	3
agree, or	4
strongly agree?	5
REFUSED	7
DOES NOT APPLY	8

17 FAB-Bar2.02 (R 1,2,3) I don't eat fruits and vegetables as much as I like to because they often spoil before I get a chance to eat them.

strongly disagree,	1
disagree,	2
neither disagree nor agree,	3
agree, or	4
strongly agree?	5
REFUSED	7
DOES NOT APPLY	8

18 FAB-Bar2.05b (R 1,2,3) I don't eat fruits and vegetables as much as I like to because my family doesn't like them.

strongly disagree,	1
disagree,	2
neither disagree nor agree,	3
agree, or	4

strongly agree?	5
REFUSED	7
DOES NOT APPLY	8

19 FAB-Bar2.05a (R 1,2,3)

I don't eat fruits and vegetables because I don't like them.

strongly disagree,	1
disagree,	2
neither disagree nor agree,	3
agree, or	4
strongly agree?	5
REFUSED	7
DOES NOT APPLY	8

Fruit and Vegetable Screener

(R 1,2,3)

20 EATS.1 (R 1,2,3)

For this next set of questions, please think about all the fruits, vegetables, and fruit juice that you had last month. Include those that were raw and cooked, eaten as snacks and at meals, eaten at home and away from home in restaurants, with friends, and as take-out, and eaten alone and mixed with other foods. During the past month, how many times per day, week, or month did you drink 100% pure fruit juice such as orange, mango, apple, grape or pineapple juices? Do not include fruit-flavored drinks with added sugar or fruit juice you made at home and added sugar to.

[IF NEEDED: Include only 100% pure juices. Do not include fruit-flavored drinks with added sugar, like cranberry cocktail, Hi-C, lemonade, Kool-Aid, Gatorade, Tampico, and Sunny Delight.] [IF "every day", ASK: How many times a day?]

NUMBER: EUNIT

DAY	1
WEEK	2
MONTH	3
REFUSED	77
DON'T KNOW	99

NAVIGATION: If Never, GO TO 22 [EATS.2].

21 EATS.1a (R 1,2,3)

Each time you drank 100% juice, how much did you usually drink?
Would you say . . .

less than 3/4 cup (less than 6 ounces),	1
3/4 to 1 1/4 cup (6 to 10 ounces),	2
1 1/4 to 2 cups (10 to 16 ounces), or	3
more than 2 cups (more than 16 ounces)?	4
REFUSED	77
DON'T KNOW	99

22 EATS.2 (R 1,2,3)

During the past month, how often did you eat fruit? Include fresh, frozen or canned fruit. Do not include juices or dried fruits.

NEVER	1
1 TO 3 TIMES LAST MONTH	2
1 TO 2 TIMES PER WEEK	3
3 TO 4 TIMES PER WEEK	4
5 TO 6 TIMES PER WEEK	5
1 TIME PER DAY	6
2 TIMES PER DAY	7
3 TIMES PER DAY	8
4 TIMES PER DAY	9
5 OR MORE TIMES PER DAY	10
REFUSED	77
DON'T KNOW	99

NAVIGATION: If Never, GO TO 24 [EATS.3].

23 EATS.2a (R 1,2,3)

Each time you ate fruit, how much did you usually eat?

LESS THAN 1 MEDIUM FRUIT	1
1 MEDIUM FRUIT	2
2 MEDIUM FRUITS	3
MORE THAN 2 MEDIUM FRUITS	4
LESS THAN 1/2 CUP	5
ABOUT 1/2 CUP	6
ABOUT 1 CUP	7
MORE THAN 1 CUP	8
REFUSED	77
DON'T KNOW	99

24 EATS.3 (R 1,2,3)

(During the past month), how often did you eat a green leafy or lettuce salad, with or without other vegetables?

IF NEEDED: INCLUDE: spinach salads.

NEVER	1
1 TO 3 TIMES LAST MONTH	2
1 TO 2 TIMES PER WEEK	3
3 TO 4 TIMES PER WEEK	4
5 TO 6 TIMES PER WEEK	5
1 TIME PER DAY	6
2 TIMES PER DAY	7
3 TIMES PER DAY	8
4 TIMES PER DAY	9
5 OR MORE TIMES PER DAY	10
REFUSED	77
DON'T KNOW	99

NAVIGATION: If Never, GO TO 26 [EATS.4].

25 EATS.3a (R 1,2,3)

Each time you ate green leafy or lettuce salad, how much did you usually eat? Would you say . . .

about 1/2 cup,	1
about 1 cup,	2
about 2 cups, or	3
more than 2 cups?	4
REFUSED	77

DON'T KNOW 99

26 EATS.4 (R 1,2,3)

(During the past month), how often did you eat any kind of fried potatoes, including french fries, home fries, or hash brown potatoes?

IF NEEDED: DO NOT INCLUDE potato chips. INCLUDE Tater tots and other fresh or frozen fried potatoes.

NEVER 1
 1 TO 3 TIMES LAST MONTH 2
 1 TO 2 TIMES PER WEEK 3
 3 TO 4 TIMES PER WEEK 4
 5 TO 6 TIMES PER WEEK 5
 1 TIME PER DAY 6
 2 TIMES PER DAY 7
 3 TIMES PER DAY 8
 4 TIMES PER DAY 9
 5 OR MORE TIMES PER DAY 10
 REFUSED 77
 DON'T KNOW 99

NAVIGATION: If Never, GO TO 28 [EATS.5].

27 EATS.4a (R 1,2,3)

Each time you ate fried potatoes, how much did you usually eat?
 Would you say . . .

small order or less (about 1 cup or less), 1
 medium order (about 1 1/2 cups), 2
 large order (about 2 cups), or 3
 super size order or more (about 3 cups or more)? 4
 REFUSED 77
 DON'T KNOW 99

28 EATS.5 (R 1,2,3)

(During the past month), how often did you eat any other kind of potatoes, such as baked, boiled, mashed potatoes, sweet potatoes, or potato salad?

IF NEEDED: INCLUDE all types of potatoes except fried. INCLUDE potatoes au gratin, scalloped potatoes.

NEVER 1
 1 TO 3 TIMES LAST MONTH 2
 1 TO 2 TIMES PER WEEK 3
 3 TO 4 TIMES PER WEEK 4
 5 TO 6 TIMES PER WEEK 5
 1 TIME PER DAY 6
 2 TIMES PER DAY 7
 3 TIMES PER DAY 8
 4 TIMES PER DAY 9
 5 OR MORE TIMES PER DAY 10
 REFUSED 77
 DON'T KNOW 99

NAVIGATION: If Never, GO TO 30 [EATS.6].

29 EATS.5a (R 1,2,3)

Each time you ate these potatoes, how much did you usually eat?
Would you say . . .

1 small potato or less (1/2 cup or less),	1
1 medium potato (1/2 to 1 cup),	2
1 large potato (1 to 1 1/2 cups), or	3
2 medium potatoes or more (1 1/2 cups or more)?	4
REFUSED	77
DON'T KNOW	99

30 EATS.6 (R 1,2,3)

(During the past month), how often did you eat refried beans, baked beans, beans in soup, pork and beans or any other type of cooked dried beans? Do not include green beans.

IF NEEDED: INCLUDE: soybeans, kidney, pinto,
garbanzo, lentils, black, black-eyed peas, cow peas,
and lima beans.

NEVER	1
1 TO 3 TIMES LAST MONTH	2
1 TO 2 TIMES PER WEEK	3
3 TO 4 TIMES PER WEEK	4
5 TO 6 TIMES PER WEEK	5
1 TIME PER DAY	6
2 TIMES PER DAY	7
3 TIMES PER DAY	8
4 TIMES PER DAY	9
5 OR MORE TIMES PER DAY	10
REFUSED	77
DON'T KNOW	99

NAVIGATION: If Never, GO TO 32 [EATS.7].

31 EATS.6a (R 1,2,3)

Each time you ate these beans, how much did you usually eat?
Would you say . . .

less than 1/2 cup,	1
1/2 to 1 cup,	2
1 to 1 1/2 cups, or	3
more than 1 1/2 cups?	4
REFUSED	77
DON'T KNOW	99

32 EATS.7 (R 1,2,3)

(During the past month), not including lettuce salads, potatoes, and cooked dried beans, how often did you eat other vegetables?

IF NEEDED: DO NOT INCLUDE rice. Examples of other vegetables to IF NEEDED: INCLUDE: tomatoes, green beans, carrots, corn, cabbage, bean sprouts, collard greens, plantains, yucca, chayote or other squash, and broccoli. IF NEEDED: INCLUDE any form of the vegetable: raw, cooked, canned, or frozen.

NEVER	1
1 TO 3 TIMES LAST MONTH	2
1 TO 2 TIMES PER WEEK	3
3 TO 4 TIMES PER WEEK	4
5 TO 6 TIMES PER WEEK	5

1 TIME PER DAY	6
2 TIMES PER DAY	7
3 TIMES PER DAY	8
4 TIMES PER DAY	9
5 OR MORE TIMES PER DAY	10
REFUSED	77
DON'T KNOW	99

NAVIGATION: If Never, GO TO 34 [EATS.8].

33 EATS.7a (R 1,2,3)

Each of these times that you ate other vegetables, how much did you usually eat? Would you say . . .

less than 1/2 cup,	1
1/2 to 1 cup,	2
1 to 2 cups, or	3
more than 2 cups?	4
REFUSED	77
DON'T KNOW	99

34 EATS.8 (R 1,2,3)

(During the past month), how often did you have tomato sauces such as with spaghetti or noodles or mixed into foods such as lasagna? Please do not count tomato sauce on pizza.

NEVER	1
1 TO 3 TIMES LAST MONTH	2
1 TO 2 TIMES PER WEEK	3
3 TO 4 TIMES PER WEEK	4
5 TO 6 TIMES PER WEEK	5
1 TIME PER DAY	6
2 TIMES PER DAY	7
3 TIMES PER DAY	8
4 TIMES PER DAY	9
5 OR MORE TIMES PER DAY	10
REFUSED	77
DON'T KNOW	99

NAVIGATION: If Never, GO TO 36 [EATS.11].

35 EATS.8a (R 1,2,3)

Each time you ate tomato sauce, how much did you usually eat? Would you say . . .

about 1/4 cup,	1
about 1/2 cup,	2
about 1 cup, or	3
more than 1 cup?	4
REFUSED	77
DON'T KNOW	99

36 EATS.11 (R 1,2,3)

(During the past month), how often did you have Mexican-type salsa made with tomato?

IF NEEDED: INCLUDE: all tomato-based salsas.

NEVER	1
1 TO 3 TIMES LAST MONTH	2
1 TO 2 TIMES PER WEEK	3
3 TO 4 TIMES PER WEEK	4

5 TO 6 TIMES PER WEEK	5
1 TIME PER DAY	6
2 TIMES PER DAY	7
3 TIMES PER DAY	8
4 TIMES PER DAY	9
5 OR MORE TIMES PER DAY	10
REFUSED	77
DON'T KNOW	99

NAVIGATION: If Never, for Round 1 GO TO 37
[NHANES.DMQ.241]; for Rounds 2,3 GO TO 38 [FAB-
Shop.01].

37 EATS.11a (R 1,2,3)

Each time you ate salsa, how much did you usually eat? Would you
say . . .

less than 1 tablespoon,	1
1-2 tablespoons,	2
3-5 tablespoons, or	3
more than 5 tablespoons?	4
REFUSED	77
DON'T KNOW	99

Transition to Shopper

38 FAB-Shop.01 (R 1,2,3)

Now I would now like to ask you about food shopping. Who is the
primary food shopper in your household? The primary food shopper
is the person who does the grocery shopping most often.

RESPONDENT	1
R TAKES TURNS WITH OTHERS	2
R GOES TOGETHER WITH OTHERS	3
SPOUSE OR PARTNER OF R	4
A PARENT OF R	5
SOMEONE OTHER THAN R	6
REFUSED	77
DON'T KNOW	99

NAVIGATION: If spouse or partner, parent, someone
else, Refuse, or D/K, then CONTINUE with 39 [C1a].
Otherwise, GO TO beginning of shopper interview
[CSWP.101a].

Respondent Contact Information

(R 1,2,3)

39 C1a (R 1,2,3)

I have some questions that I need to ask the primary food shopper.
Once {PRIMARY SHOPPER'S_FNAME, PS_LNAME} has completed the
primary shopper interview, we will send your household a
{ \$20/\$30/\$40 } check to thank you for participating in the study. Let
me make sure I have your name correctly – is it {RESPONDENT
FNAME, MNAME, LNAME}?

IF NEEDED: If No, enter corrected respondent name.

FNAME
MNAME

LNAME

NAVIGATION: GO TO contact information section of shopper interview [C1c].

End Respondent Interview

(R 1,2,3)

- 40 CR6 (R 1,2,3) Thank you for all the time you've spent answering questions about food which will help SNAP improve services and better meet the needs of the people who use this program.
- 41 CR7 (R 1,2) We look forward to talking you again in about three to six months.
- 42 CR9 (R 1,2,3) May I speak with the primary food shopper now?

Healthy Incentives Pilot – **Round 2 Primary Food Shopper** Questionnaire

Shopper Introduction

- 1 IntroShop.01 (R 1,2,3) Hello, my name is [INTERVIEWER NAME], may I speak with [NAME OF PRIMARY FOOD SHOPPER]?

- 2 IntroShop.02 (R 1,2,3) My name is [INTERVIEWER NAME] and I am calling about the USDA/FNS SNAP, formerly known as the Food Stamp Program. We're interested in learning how the program is working in Hampden County. Are you the primary food shopper in your household? The primary food shopper is the person who does the grocery shopping most often.

Yes 1
No 2

NAVIGATION: If Yes, GO TO 4 [IntroShop.04].

- 3 IntroShop.03 (R 1,2,3) May I speak with [NAME OF SHOPPER]?
- Yes 1
No 2

HH Composition

(R 1,2,3)

- 4 IntroShop.04 (R 1,2,3) My name is [INTERVIEWER] and I am calling about the USDA/FNS SNAP, formerly known as the Food Stamp Program. We're interested in learning how the program is working in Hampden County. We would like to ask you some questions about food and shopping that will help SNAP improve services and better meet the needs of the people who use this program. This part of the interview takes about 10 minutes. We are sending [NAME OF SAMPLED RESPONDENT] a [\$20/\$30/\$40] check to thank your household for participating in the study. Your participation is voluntary. You have the right to stop at any time or skip questions. Taking part in this study will not affect your benefits in any way – either now or in

the future. We do not plan to share this information with anyone other than USDA/FNS and its contractors, except otherwise required by law. Data that identify you or your family members will not be included in any report. There is a small risk of the loss of privacy of your data, but our data security plans and procedures minimize this risk. {R'S_FN, R_LN} mentioned that you did most of the shopping in the household. We'd like to ask you some questions about your household, shopping for your household and about food in the home.

Do you agree to participate?

- | | | |
|---|-----------------------|---|
| 5 | CSWP.101a (R 1,2,3) | <p>How many people currently live in your household, including yourself? By household, I mean your family and other people who live with you and with whom you share food and food expenses.</p> <p style="text-align: center;"> _ _ _
ENTER NUMBER</p> <p>REFUSED 77</p> <p>DON'T KNOW 99</p> |
| 6 | CSWP.101b.a (R 1,2,3) | <p>Of these, how many are adults between 18 and 64 years?</p> <p style="text-align: center;"> _ _ _
ENTER NUMBER</p> <p>REFUSED 77</p> <p>DON'T KNOW 99</p> |
| 7 | CSWP.101b.s (R 1,2,3) | <p>Of these, how many are adults age 65 and older?</p> <p style="text-align: center;"> _ _ _
ENTER NUMBER</p> <p>REFUSED 77</p> <p>DON'T KNOW 99</p> |
| 8 | CSWP.101c (R 1,2,3) | <p>How many are children between the ages of 5 and 17 years?</p> <p style="text-align: center;"> _ _ _
ENTER NUMBER</p> <p>REFUSED 77</p> <p>DON'T KNOW 99</p> |
| 9 | CSWP.101d (R 1,2,3) | <p>And, how many are children under 5 years of age?</p> <p style="text-align: center;"> _ _ _
ENTER NUMBER</p> <p>REFUSED 77</p> <p>DON'T KNOW 99</p> |

- 10 NHANES.CBQ.020 (R 1,2,3) The next questions ask how often you have certain types of food available at home. How often do you have fruits available at home? This includes fresh, dried, canned and frozen fruits. Would you say always, most of the time, sometimes, rarely, or never?
- INTERVIEWER: READ IF NEEDED: "Do not include juice".
- | | |
|------------------------|---|
| Always | 1 |
| Most of the time | 2 |
| Sometimes | 3 |
| Rarely | 4 |
| Never | 5 |
| REFUSED | 7 |
| DON'T KNOW | 9 |
- 11 Have.1 (R 1,2,3) How often do you have fruits in the refrigerator or on the kitchen counter? [Would you say always, most of the time, sometimes, rarely, or never?]
- | | |
|---------------------------------|---|
| Always | 1 |
| Most of the time | 2 |
| Sometimes | 3 |
| Rarely | 4 |
| Never | 5 |
| Don't have a refrigerator | 6 |
| REFUSED | 7 |
| DON'T KNOW | 9 |
- 12 NHANES.CBQ.030 (R 1,2,3) How often do you have vegetables available at home? This includes fresh, dried, canned, and frozen vegetables. [Would you say always, most of the time, sometimes, rarely, or never?]
- | | |
|----------------------------|---|
| Always | 1 |
| Most of the time | 2 |
| Sometimes | 3 |
| Rarely | 4 |
| Never | 5 |
| Don't have a freezer | 6 |
| REFUSED | 7 |
| DON'T KNOW | 9 |
- 13 Have.2 (R 1,2,3) How often do you have ready to eat vegetables such as baby carrots, cherry tomatoes, or vegetables that you have sliced to make them ready to eat in the refrigerator or on the kitchen counter? [Would you say always, most of the time, sometimes, rarely, or never?]
- INTERVIEWER: IF NEEDED, SAY: Include vegetables you can eat without heating or cooking.
- | | |
|------------------------|---|
| Always | 1 |
| Most of the time | 2 |
| Sometimes | 3 |
| Rarely | 4 |
| Never | 5 |

			REFUSED 7
			DON'T KNOW 9
14	NHANES.CBQ.040 (R 1,2,3)	How often {does your family/do you} have salty snacks such as chips and crackers available at home? Do not include nuts. [Would you say always, most of the time, sometimes, rarely, or never?]	
		Always 1	
		Most of the time 2	
		Sometimes 3	
		Rarely 4	
		Never 5	
		REFUSED 7	
		DON'T KNOW 9	
15	NHANES.CBQ.050 (R 1,2,3)	How often {does your family/do you} have 1% fat, skim or fat-free milk available at home? Please do not include 2% milk. [Would you say always, most of the time, sometimes, rarely, or never?]	
		Always 1	
		Most of the time 2	
		Sometimes 3	
		Rarely 4	
		Never 5	
		REFUSED 7	
		DON'T KNOW 9	
16	NHANES.CBQ.060 (R 1,2,3)	How often {does your family/do you} have soft drinks, fruit-flavored drinks, or fruit punch available at home? Please do not include diet drinks, 100 percent juice or sports drinks. [Would you say always, most of the time, sometimes, rarely, or never?]	
		Always 1	
		Most of the time 2	
		Sometimes 3	
		Rarely 4	
		Never 5	
		REFUSED 7	
		DON'T KNOW 9	
17	NHANES.CBQ.180 (R 1,2,3)	The next questions ask about your evening meals at home. During the past month, how often did all or most of your family sit down and eat evening meals together at home?	
		Always 1	
		Most of the time 2	
		Sometimes 3	
		Rarely 4	
		Never 5	
		REFUSED 7	
		DON'T KNOW 9	
		NAVIGATION: SKIP THIS ITEM if only 1 person in HH.	
18	NHANES.CBQ.190 (R 1,2,3)	During the past month, how often were evening meals cooked at home?	

INTERVIEWER: IF NEEDED, SAY: Include leftovers from meals cooked at home.

Always	1
Most of the time	2
Sometimes	3
Rarely	4
Never	5
REFUSED	7
DON'T KNOW	9

HIP Participation

(R 2,3)

19 Hip.1a (R 2,3)

The next questions ask about the Healthy Incentives Pilot, also known as HIP. Have you heard of the Healthy Incentives Pilot?

Yes	1
No	2
REFUSED	7
DON'T KNOW	9

NAVIGATION: If No, Refused, or Don't Know, GO TO 21 [Hip.2].

20 Hip.1b (R 2,3)

How did you hear about the Healthy Incentives Pilot?

INTERVIEWER: Read first four responses if necessary, SELECT ALL THAT APPLY. SPECIFY source of information for word of mouth.

Letter	1
Handout	2
Informational pamphlet	3
Word of mouth	4
DTA case manager	5
Community service provider	6
Other	7
REFUSED	77
DON'T KNOW	99

NAVIGATION: If control group, GO TO 42 [Shop.11].

21 Hip.2 (R 2,3)

Did you go to a meeting to learn about how the Healthy Incentives Pilot works?

Yes	1
No	2
REFUSED	7
DON'T KNOW	9

NAVIGATION: If No, Refused, or Don't Know, GO TO 23 [Hip.4b].

22 Hip.3 (R 2,3)

How well did the meeting explain the Healthy Incentives Pilot?

Very well	1
Well	2
Somewhat well	3
Not too well	4

Not at all well	5
REFUSED	7
DON'T KNOW	9

23 Hip.4b (R 2,3)

How easy or hard has it been to understand how the Healthy Incentives Pilot works?

Very easy	1
Easy	2
Somewhat easy	3
Somewhat hard	4
Hard	5
Very hard	6
REFUSED	7
DON'T KNOW	9

24 Hip.6b (R 2,3)

In the past month, did you call the EBT or HIP hotline with any questions or problems?

Yes	1
No	2
REFUSED	7
DON'T KNOW	9

NAVIGATION: If No, Refused, or Don't Know, GO TO 26 [Hip.8].

25 Hip.7 (R 2,3)

How helpful were the hotline staff in answering your question and/or resolving the problems?

Very helpful	1
Helpful	2
Somewhat helpful	3
Not helpful	4
Very unhelpful	5
REFUSED	7
DON'T KNOW	9

26 Hip.8 (R 2,3)

The Healthy Incentives Pilot rebate is the credit put back in your SNAP EBT account when you buy eligible HIP fruits or vegetables. In general, how easy or hard is it remembering which fruits and vegetables earn the rebate; would you say it is

Very easy	1
Easy	2
Somewhat easy	3
Somewhat hard	4
Hard	5
Very hard	6
REFUSED	7
DON'T KNOW	9

27 Hip.9a (R 2,3)

Do you keep track of the rebate you earn from the Healthy Incentives Pilot?

Yes	1
No	2

REFUSED	7
DON'T KNOW	9

NAVIGATION: If No, Refused, or Don't Know, go to 30 [Hip.10].

28 Hip.9b (R 2,3)

What is the way that you most often use to keep track of the HIP rebates you have earned from buying eligible fruits and vegetables?

Printed receipt	1
By telephone using computerized system	2
By telephone using live operator	3
Website	4
OTHER	5
REFUSED	7
DON'T KNOW	9

29 Hip.9c (R 2,3)

How easy or hard is it keeping track of the rebates you earn from the Healthy Incentives Pilot; would you say it is

Very easy	1
Easy	2
Somewhat easy	3
Somewhat hard	4
Hard	5
Very hard	6
REFUSED	7
DON'T KNOW	9

30 Hip.10 (R 2,3)

How useful is it to have a receipt showing how much you spend on fruits and vegetables and the rebate you earn each time you shop?

Very useful	1
Somewhat useful	2
Not too useful	3
Not at all useful	4
REFUSED	7
DON'T KNOW	9

31 Hip.11 (R 2,3)

How well do you think the cashiers and other workers in the store where you go grocery shopping understand the Healthy Incentives Pilot?

Very well	1
Well	2
Somewhat well	3
Not too well	4
Not at all well	5
REFUSED	7
DON'T KNOW	9

32 Hip.13a1 (R 2,3)

Because of the Healthy Incentives Pilot rebates, is your family buying a larger amount of fruits?

Yes	1
No	2

REFUSED 7
 DON'T KNOW 9

33 Hip.13a2 (R 2,3) Because of the Healthy Incentives Pilot rebates, is your family buying a larger amount of vegetables?

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

34 Hip.13c1 (R 2,3) Because of the Healthy Incentives Pilot rebates, is your family buying new fruits not tried before?

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

35 Hip.13c2 (R 2,3) Because of the Healthy Incentives Pilot rebates, is your family buying new vegetables not tried before?

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

36 Hip.13b1 (R 2,3) Because of the Healthy Incentives Pilot rebates, have you and your family bought and eaten a greater variety of fruits?

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

37 Hip.13b2 (R 2,3) Because of the Healthy Incentives Pilot rebates, have you and your family bought and eaten a greater variety of vegetables?

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

38 Hip.13x1 (R 2,3) Because of the Healthy Incentives Pilot, have fruits and vegetables become more affordable to you and your family?

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

39 Hip.13d2 (R 2,3) Because of the Healthy Incentives Pilot, have you changed which stores you go to, to buy fruits and vegetables?

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

NAVIGATION: If No, Refused, or Don't Know, go to 41
 [Hip.14].

40 Hip.13d3 (R 2,3)

Why have you changed the stores you go to, to buy fruits and vegetables?

More variety of fruits and vegetables at another store 1
 Price of fruits and vegetables more affordable at another store 2
 Other store has fresh fruits and vegetables 3
 Other 4
 REFUSED 7
 DON'T KNOW 9

41 Hip.14 (R 2,3)

Would you like to continue participating in the Healthy Incentives Pilot?

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

General Shopping Patterns (R 1,2,3)

42 Shop.11 (R 2,3)

Which statement best describes who uses your household's EBT card?

I do most or all of the shopping with the EBT card 1
 I share the shopping with the EBT card with another person 2
 Someone else does most of the shopping with the EBT card, but I use it
 some of the time 3
 I never use the EBT card 4
 REFUSED 7
 DON'T KNOW 9

43 Shop.12 (R 2,3)

In the past month, have you had any problem using your EBT card or with your EBT account?

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

NAVIGATION: If Yes, CONTINUE to 44 [Shop.13].
 Otherwise GO TO 45 [FAB.Shop.02].

44 Shop.13 (R 2,3)

What was the problem using your EBT card or with your EBT account?

INTERVIEWER: Do not prompt. SELECT ALL THAT APPLY.

Lost, stolen or damaged card	1
Forgot PIN	2
Trouble making purchase	3
Did not get HIP rebate/incentive expected [HIP ONLY]	4
Confusion about balance	5
Negative attitude from cashier/manager about Healthy Incentives Pilot	6
Negative comments from other shoppers in line	7
OTHER, specify	8
REFUSED	77
DON'T KNOW	99

45 FAB.Shop.02 (R 1,2,3)

Where do you usually go grocery shopping?

Large chain grocery store or supermarket	1
Natural or organic supermarket (such as Whole Foods Market)	2
Small local store or corner store	3
Convenience store (such as 7-Eleven or mini market)	4
Warehouse club store (such as Sam's Club or Costco)	5
Discount superstore (such as Wal-Mart)	6
Online delivery (such as Peapod or Fresh Direct)	7
Ethnic market	8
Farmer's market/co-op	9
OTHER, specify	10
REFUSED	77
DON'T KNOW	99

46 Shop.14 (R 1,2,3)

You said you usually shop for groceries at a {STORE TYPE IN Q 45 [FAB.Shop.02]}. Why do you usually shop at a {STORE TYPE IN Q 45 [FAB.Shop.02]}?

INTERVIEWER: Do not read response options. SELECT ALL THAT APPLY.

Close to home	1
Close to work or school	2
Location convenient (other)	3
Affordable price	4
Lots of in-store promotions	5
Variety of products	6
Ethnic foods are available	7
Preferred products are always available	8
Better or fresher produce	9
Good service	10
Clean	11
Familiarity with store	12
Convenient hours of operation	13
Accepts EBT card	14
Other	15
REFUSED	77
DON'T KNOW	99

47 Shop.15 (R 1,2,3)

How often do you usually shop for groceries?

More than once a week	1
Once a week	2
Every other week	3

Once a month	4
Every other month	5
2-3 times a year	6
Yearly or not at all	7
REFUSED	77
DON'T KNOW	99

48 Shop.16 (R 1,2,3)

Do you go out of your way or make special efforts to go to a particular store to shop for fruits and vegetables?

Yes	1
No	2
REFUSED	7
DON'T KNOW	9

49 Shop.17 (R 1,2,3)

How often does limited transportation keep you from shopping for groceries?

Always	1
Most of the time	2
Sometimes	3
Rarely	4
Never	5
REFUSED	7
DON'T KNOW	9

50 Shop.18 (R 1,2,3)

How often does distance to grocery store keep you from shopping for groceries?

Always	1
Most of the time	2
Sometimes	3
Rarely	4
Never	5
REFUSED	7
DON'T KNOW	9

Food Expenditures

(R 1,2,3)

51 CES.x1a (R 1,2,3)

The next questions ask about money spent for food, beverages, and other items you and/or your household usually purchase. What has been your household usual MONTHLY expense for grocery shopping purchases made only with SNAP? Include grocery stores, convenience stores, specialty stores, and farmers markets.

\$ __ __ __ __ __ __ __ __ __	
NO MONEY SPENT	0
REFUSED	7
DON'T KNOW	9
ENTER UNIT	
Week.....	1
Month	2
REFUSED	7
DON'T KNOW	9

52 CES.x1b (R 1,2,3)

What has been your household usual MONTHLY expense for grocery shopping purchases not using SNAP? Include grocery stores, convenience stores, specialty stores, and farmers markets.

\$ | | | | | | | | | | | | | |
 NO MONEY SPENT 0
 REFUSED 7
 DON'T KNOW 9
 ENTER UNIT
 Week..... 1
 Month 2
 REFUSED 7
 DON'T KNOW 9

53 CES.x2 (R 1,2,3)

About how much of this amount was for nonfood items, such as paper products, detergents, home cleaning supplies, pet foods, and alcoholic beverages?

\$ | | | | | | | | | | | | | |
 NO MONEY SPENT 0
 REFUSED 7
 DON'T KNOW 9
 ENTER UNIT
 Week..... 1
 Month 2
 REFUSED 7
 DON'T KNOW 9

54 CES.x3 (R 1,2,3)

What has been your household's usual MONTHLY expense for meals or snacks from restaurants, fast food places, cafeterias, carryouts, or other such places?

\$ | | | | | | | | | | | | | |
 NO MONEY SPENT 0
 REFUSED 7
 DON'T KNOW 9
 ENTER UNIT
 Week..... 1
 Month 2
 REFUSED 7
 DON'T KNOW 9

55 Expend.01 (R 1,2,3)

What has been your household's usual MONTHLY expense for fruits and vegetables?

\$ | | | | | | | | | | | | | |
 NO MONEY SPENT 0
 REFUSED 7
 DON'T KNOW 9
 ENTER UNIT
 Week..... 1
 Month 2
 REFUSED 7
 DON'T KNOW 9

Shopper Employment Status

(R 1,2,3)

56 Employ.01s (R 1,2,3)

Now I would like to ask you about employment. We would like to know what you do – are you working now, looking for work, retired, keeping house, a student, or what?

Working at a job or businessfull time now	11
Working part time now	12
Only temporarily laid off	13
Sick leave or maternity leave	14
Looking for work	15
Unemployed	16
Retired	17
Disabled, permanently or temporarily	18
Keeping house	19
Student	20
Other	21
REFUSED	77
DON'T KNOW	99

HH Employment Status

(R 1,2,3)

57 Employ.02 (R 1,2,3)

Regarding employment, not including yourself, how many adults age 18 and older in the household were employed full-time last week?

|_|_|_|

ENTER NUMBER

REFUSED 77

DON'T KNOW 99

NAVIGATION: SKIP this item if HH has 1 adult, or if Shopper is minor and HH has 0 adults and GO TO 60 [Employ.05].

58 Employ.03 (R 1,2,3)

Not including yourself, how many adults in the household were employed part-time last week?

|_|_|_|

ENTER NUMBER

REFUSED 77

DON'T KNOW 99

59 Employ.04 (R 1,2,3)

Not including yourself, how many adults in the household were not employed last week?

|_|_|_|

ENTER NUMBER

REFUSED 77

DON'T KNOW 99

60 Employ.05 (R 1,2,3)

Were any youth (16 or 17 year old) in your household employed last week?

Yes 1

No 2

REFUSED 7
 DON'T KNOW 9

NAVIGATION: SKIP this item if no children aged 5-17
 in HH and GO TO NAVIGATION instructions following
 63 [Employ.08]. If No, Refused or D/K, follow
 navigation rule for 63 [Employ.08].

61 Employ.06 (R 1,2,3) How many youth were employed full time last week?

|_|_|_|
 ENTER NUMBER
 REFUSED 77
 DON'T KNOW 99

62 Employ.07 (R 1,2,3) How many youth were employed part time last week?

|_|_|_|
 ENTER NUMBER
 REFUSED 77
 DON'T KNOW 99

63 Employ.08 (R 1,2,3) How many youth were not employed last week?

|_|_|_|
 ENTER NUMBER
 REFUSED 77
 DON'T KNOW 99

If Sampled Respondent is not Primary Shopper, GO
 TO 87 [C6]. If Sampled Respondent is Primary
 Shopper, GO TO 64 [C1b].

Contact Information

(R 1,2,3)

64 C1b (R 1,2,3) To thank you for participating in the study, we want to send your
 household a {\$20/\$30/\$40} check. Let me make sure I have your
 name correctly – is it {RESPONDENT NAME}?

INTERVIEWER: If No, enter corrected respondent
 name.

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

65 C1c (R 1,2,3) Please give the best place to mail your incentive check to. What is
 your mailing address?

66 C1d (R 1,2,3) Is this also the address where you live?

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

67 C1e (R 1,2,3)

What is the address where you live?

68 C2a (R 1,2)

We're eager to talk to you again between {February and May 2012, in about 3 to 5 months/August and November 2012, in about 9 to 11 months}. We want to make sure we don't lose track of you. We will not share your contact information with DTA or USDA/FNS., except otherwise required by law What is your home phone number, starting with the area code:

[] - -
 ENTER PHONE NUMBER
 REFUSED 7
 DON'T KNOW 9

69 C2b (R 1,2)

May I have your cell phone number, starting with the area code:

[] - -
 ENTER PHONE NUMBER
 REFUSED 7
 DON'T KNOW 9

70 C2c (R 1,2)

Do you have an email address?

Yes 1
 No 2
 REFUSED 7
 DON'T KNOW 9

71 C2d (R 1,2)

What is your email address. [ENTER EMAIL ADDRESS. READ THE E-MAIL ADDRESS BACK TO THE RESPONDENT FOR THEM TO VERIFY.]

_____ @ _____

72 C3a (R 1,2)

Could you please tell me the name and address of someone who is likely to know where you are if you move or we can't reach you?
 [RECORD NAME OR INDICATE REFUSAL OR DON'T KNOW]

 ENTER NAME
 REFUSED 7
 DON'T KNOW 9

73 C3b (R 1,2)

What is their address?

74 C3c (R 1,2)

What is their phone number? And what type of phone is this?
 [ALLOW FOR ENTRY OF MULTIPLE PHONE NUMBERS AND ABILITY TO
 SELECT PHONE TYPE HOME, WORK, CELL PHONE.]

[] - -

ENTER PHONE NUMBER

Home 1
 Work 2
 Cell 3
 Other 4
 REFUSED 7
 DON'T KNOW 9

75 C3d (R 1,2)

Do you know if they have an email address it is and what it is?

@

76 C3e (R 1,2)

What is this person's relationship to you?

Husband/partner 1
 Wife/Partner 2
 Boyfriend 3
 Girlfriend 4
 Mother 5
 Father 6
 Sibling 7
 Friend 8
 Other relative 9

77 C4a (R 1,2)

Is there someone else who would know where you are if you move
 or we can't reach you [RECORD NAME]?

ENTER NAME

REFUSED 7
 DON'T KNOW 9

78 C4b (R 1,2)

What is their address?

79 C4c (R 1,2)

What is their phone number? And what type of phone is this? [ALLOW FOR ENTRY OF MULTIPLE PHONE
 NUMBERS AND ABILITY TO SELECT PHONE TYPE HOME, WORK, CELL PHONE.]

[] - -

ENTER PHONE NUMBER

Home 1
 Work 2
 Cell 3
 Other 4
 REFUSED 7
 DON'T KNOW 9

80 C4d (R 1,2)

Do you know if they have an email address it is and what it is?

_____ @ _____

81 C4e (R 1,2)

What is this person's relationship to you?

Husband/partner 1
 Wife/Partner 2
 Boyfriend 3
 Girlfriend 4
 Mother 5
 Father 6
 Sibling 7
 Friend 8
 Other relative 9

82 C5a (R 1,2)

Is there someone else who would know where you are if you move
 or we can't reach you [RECORD NAME]?

 ENTER NAME
 REFUSED 7
 DON'T KNOW 9

83 C5b (R 1,2)

What is their address?

84 C5c (R 1,2)

What is their phone number? And what type of phone is this?
 [ALLOW FOR ENTRY OF MULTIPLE PHONE NUMBERS AND ABILITY TO
 SELECT PHONE TYPE HOME, WORK, CELL PHONE.]

[] - -
 ENTER PHONE NUMBER
 Home 1
 Work 2
 Cell 3
 Other 4
 REFUSED 7
 DON'T KNOW 9

85 C5d (R 1,2)

Do you know if they have an email address it is and what it is?

_____ @ _____

86 C5e (R 1,2)

What is this person's relationship to you?

Husband/partner 1
 Wife/Partner 2
 Boyfriend 3
 Girlfriend 4
 Mother 5
 Father 6
 Sibling 7
 Friend 8
 Other relative 9

NAVIGATION: If Sampled Respondent is a minor and primary shopper interview has NOT been completed, GO TO 3 [IntroShop.03]. If Sampled Respondent is a minor and primary shopper interview has been completed, GO TO 87 [C6]. If Sampled Respondent is Primary Shopper, GO TO 87 [C6]. If Sampled Respondent is not a minor and if Sampled Respondent is NOT Primary Shopper, then return to “End Respondent Interview” section of respondent interview.

End Shopper Interview

(R 1,2,3)

- | | | |
|----|--------------|---|
| 87 | C6 (R 1,2,3) | Thank you for all the time you’ve spent answering questions about food and shopping which will help SNAP improve services and better meet the needs of the people who use this program. |
| 88 | C7 (R 1,2) | We look forward to talking you again in about three to six months. |
| 89 | C8 (R 1,2,3) | Good bye. |

Appendix D: Analytic Methods

The appendix discusses five issues: (i) regression models for estimating impact; (ii) the treatment of limited dependent variable models; (iii) the computation of standard errors; (iv) subgroup analyses; and (v) multiple comparisons and the single confirmatory outcome—MTFV.

D.1 Multivariate Models

As noted in Chapter 2, our primary estimates of HIP impacts are regression-adjusted, as opposed to simple differences in treatment and control group means. Regression adjustment improves the comparability of the treatment and control groups and increases the precision of our estimators. For continuous outcomes, we use a model of the form:

$$(1) y = \beta_0 + \beta_1 \text{HIP} + \beta_2 \text{ControlVars} + u$$

where y is an outcome of interest, HIP is a binary variable that identifies the treatment group, and *ControlVars* is a vector of characteristics measured as of the Round 1 (baseline) survey or at baseline from administrative data.

In this specification, β_1 gives the impact of HIP, and $H_0: \beta_1=0$ is a test for any impact of HIP.

Exhibit D.1 lists the included *ControlVars* and tabulates simple descriptive statistics (mean and standard error). As Exhibit D.1 shows, *ControlVars* includes all variables used in blocking and stratification (geography within Hampden county, household composition, survey wave, and gender of household head), as well as respondent demographic characteristics (age group, gender, race/ethnicity), and measures related to baseline consumption according to the Fruit and Vegetable Screener. For regressions based on the dietary recall interview only, we additionally included covariates about the AMPM interview itself, including day of interview (first or second) and the respondent's assessment of the prior day's consumption relative to usual levels (more, less, or the same as usual). Finally, for all variables in which baseline outcome data were collected, the baseline outcome was also included as a final covariate. These control variables were selected as likely to be strong predictors of the confirmatory outcome.

Exhibit D.1: Included Analytic Covariates, Final Analytic Sample

	Total	Treatment	Control	P-value
Stratification variables				
Geography				
Springfield	0.53 (963)	0.52 (472)	0.53 (491)	[0.739]
Chicopee or Holyoke	0.25 (465)	0.26 (237)	0.25 (228)	
Hampden balance (omitted category)	0.22 (397)	0.22 (212)	0.23 (185)	
Persons in household				
One person in household	0.45 (807)	0.44 (418)	0.45 (389)	[0.636]
Multiple persons in household (omitted category)	0.55 (1018)	0.56 (503)	0.55 (515)	
Adults in household				
3 or fewer adults in household (omitted category)	0.98 (1797)	0.98 (908)	0.98 (889)	[0.267]
4 or more adults in household	0.02 (28)	0.02 (13)	0.02 (15)	
Household composition				
Elderly in household	0.11 (216)	0.11 (119)	0.11 (97)	[0.780]
Children in household	0.42 (783)	0.44 (382)	0.42 (401)	

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	Total	Treatment	Control	P-value
No children/elderly (omitted category)	0.47 (826)	0.45 (420)	0.47 (406)	
Household head gender				
Male (omitted category)	0.28 (469)	0.27 (238)	0.28 (231)	[0.618]
Female	0.72 (1356)	0.73 (683)	0.72 (673)	
Wave				
HIP start date Nov. 1, 2011 (omitted category)	0.37 (618)	0.40 (310)	0.37 (308)	[0.493]
HIP start date Dec. 1, 2011	0.36 (693)	0.36 (344)	0.36 (349)	
HIP start date Jan. 1, 2012	0.27 (514)	0.25 (267)	0.27 (247)	
AMPM interview characteristics (N=2084)^a				
Recall interview				
First or only recall interview (omitted category)	0.89 (1873)	0.90 (948)	0.89 (925)	[0.284]
Second recall interview	0.11 (211)	0.10 (101)	0.11 (110)	
Intake described relative to usual levels				
Same as usual (omitted category)	0.11 (223)	0.10 (110)	0.11 (113)	[0.890]
More than usual	0.59 (1244)	0.60 (632)	0.59 (612)	
Less than usual	0.26 (541)	0.26 (272)	0.26 (269)	
Missing (don't know or break-off)	0.04 (76)	0.03 (35)	0.04 (41)	
Respondent demographics				
Age group				
16-30 years	0.34 (551)	0.31 (265)	0.34 (286)	[0.632]
31-40 years	0.19 (360)	0.20 (176)	0.18 (184)	
41-54 years	0.25 (472)	0.26 (242)	0.24 (230)	
55+ years (omitted category)	0.23 (442)	0.23 (238)	0.23 (204)	
Gender				
Male (omitted category)	0.34 (572)	0.33 (285)	0.34 (287)	[0.867]
Female	0.66 (1253)	0.67 (636)	0.66 (617)	
Race/ethnicity				
Hispanic	0.42 (761)	0.42 (377)	0.43 (384)	[0.818]
Non-Hispanic White (omitted category)	0.37 (684)	0.38 (363)	0.37 (321)	
Non-Hispanic Black	0.14 (265)	0.14 (126)	0.14 (139)	
Non-Hispanic Other	0.07 (115)	0.06 (55)	0.07 (60)	
Baseline fruit & vegetable screener				
100% Juice	1.59 (0.08)	1.47 (0.07)	1.61 (0.09)	[0.243]
Fruit	0.82 (0.03)	0.80 (0.04)	0.82 (0.04)	[0.645]
Salad	0.38 (0.02)	0.36 (0.02)	0.38 (0.02)	[0.502]
Fried Potatoes	0.09 (0.01)	0.10 (0.01)	0.09 (0.01)	[0.608]
Other Potatoes	0.28 (0.01)	0.27 (0.01)	0.28 (0.01)	[0.728]
Beans	0.25 (0.01)	0.26 (0.02)	0.25 (0.01)	[0.534]
Other Vegetables	0.61 (0.02)	0.59 (0.02)	0.61 (0.03)	[0.579]
Tomato Sauce	0.15 (0.01)	0.15 (0.01)	0.15 (0.01)	[0.642]
Salsa	0.01 (0.00)	0.01 (0.00)	0.01 (0.00)	[0.895]

Weighted proportions and unweighted Ns.

Due to rounding, reported proportions may not sum to one.

Two-sided chi-square test: *p<0.1, **p<0.05, ***p<0.01

^aDescriptive statistics for sample including both first and second day interviews

Source: DTA SNAP Caseload Data; Sampled Respondent Interview (unweighted N=1,825)

Ordinary least squares (OLS) regressions were performed in Stata using the standard **svy** suite of commands and respondent weights to account for the complex sampling structure. Following the regression, the **margins** command was used to estimate regression-adjusted means and standard errors.

D.2 Limited Dependent Variables

Equation (1) presents our multivariate model for continuous outcomes—in particular, our single confirmatory outcome, lower-bound MTFV. However, some of our outcome variables are not continuous. For example, respondent reports of whether they had seen or heard messages about fruits and vegetables in the past three months yield a binary outcome (responses equal to either “yes” or “no”). In addition, many questions about attitudes and preferences (e.g., degree of agreement with statements like “I enjoy trying new foods”) are Likert scales, coded 1 to 5 (with 1 indicating “strongly disagree” and 5 indicating “strongly agree,” for this example). Likert scales are ordinal (i.e., ordered), but not interval (i.e., the number itself is not meaningful). Complete distributions of our binary and ordered scale outcomes at baseline are reported in Appendix E.

By analogy with our approach to the estimation of the impact of HIP for continuous outcomes, we also want a multivariate specification for binary and ordered outcomes. With respect to binary variables, there is some controversy in the literature about how to estimate impact in the random assignment context. Related issues are raised by ordered scales. Our preference is to use linear regression for both binary and ordered scale outcomes (Angrist, 2001; Angrist and Pischke, 2008). This is our preference because we report impacts in terms of percentage points and thus prefer to do estimation in terms of percentage points. Failure to do so can result in a range of anomalous results (especially with subgroup analyses; see Section E.4 below).

Our primary specification thus simply treats binary and ordered scale outcomes as if continuous and applies linear regression. (In the case of binary outcomes, this approach is known as a “linear probability model” specification.) As is always true, this gives the best linear predictor (where best is defined in a least squares sense). This approach gives a simple summary measure for whether the intervention shifts the distribution. Again, we use robust standard errors to address deviations from distributional assumptions.

Another approach is to estimate the corresponding canonical limited dependent variable models (Maddala, 1983). The argument is that the linear probability model cannot be the correct specification because it does not model the limited dependent variable nature of the data and that it can yield predictions out of the range of the dependent variable.

For a binary outcome, the canonical model is logistic regression; i.e.,

$$(2) \ln[\text{odds}(y=1)] = \beta_0 + \beta_1 \text{HIP} + \beta_2 \text{ControlVars},$$

where $\text{odds}(y=1)$ indicates the odds that the binary outcome happened, and \ln is the natural logarithm operator. Estimation proceeds by maximum likelihood. For ordered outcomes, the equivalent model is ordered logistic regression (See Maddala, 1983, for a formal specification). In Appendix E of this Interim Report, we provided estimates using the canonical limited dependent variable models for non-continuous outcomes. Results were similar to those using linear regression.

D.3 Survey Weights, Standard Errors, and Confidence Intervals

Unless otherwise noted, all analyses of survey data use person-level or household-level survey weights depending on the unit of analysis, so that sample estimates provide unbiased estimates of the corresponding population statistics (for those who consent and complete the Round 1 survey) in the pilot site. Construction of those survey weights was discussed in Appendix B.

Standard errors and confidence intervals take account of the survey design, using the replicate sampling weights. All standard error estimates are robust to heteroscedasticity.⁷⁰

The analysis uses all available interviews. For approximately 10% of the sample, there was a second interview at Round 2. This second interview will allow the estimation of “usual intake”. The analyses reported here pool the first and (where available) second interviews at Round 2. This introduces non-independence into the data. To address this non-independence, analysis proceeds by clustering on household, using the appropriate survey commands in Stata, with household specified as the clustering variable.

D.4 Subgroup Analyses

As noted earlier, all subgroup analyses are exploratory. They proceed using a generalization of our earlier regression model:

$$(2) \ y = \beta_0 + \beta_2 \text{ControlVars} + \beta_3 \text{HIP} \times \text{Subgroup_1_Dummy} + \beta_4 \text{HIP} \times \text{Subgroup_2_Dummy} + u .$$

Each of the subgroups is defined using only Round 1 characteristics, so there is no endogenous selection (i.e., subgroup membership was not itself affected by HIP). In particular, *Subgroup_1_Dummy* is a binary variable (e.g., =1 if the primary shopper is employed, =0 otherwise), and *Subgroup_2_Dummy* is the reverse (e.g., =0 if the primary shopper is employed, =1 otherwise). Testing for $\beta_3 = \beta_4$ provides a test for differences across subgroups.

In practice, we discuss sub-group results as follows. We begin by examining the results of the test for $\beta_3 = \beta_4$. If we fail to reject (i.e., impacts do not significantly differ by subgroups), then we simply report that there was no difference in impact across this subgroup. If we reject, we conclude that there was a difference in impact across the subgroups. We then discuss the estimated impact in each of the subgroups.

D.5 Multiple Comparisons

Having a large number of hypothesis tests creates a danger of finding “false positives,” seemingly significant impacts when in fact the true impact of HIP is zero. For each hypothesis test, a conventional approach allows a 5 percent chance of incorrectly rejecting the null hypothesis (a Type I error) and concluding that an impact has occurred where none has. With more than one test, and especially with a large number of tests, the risk of Type I error increases. Hence, it is recommended to identify a single confirmatory outcome ahead of time (Schochet, 2008).

⁷⁰ Randomization does not guarantee homoscedasticity, and the linear probability model on binary outcomes induces heteroscedasticity.

To address this multiple-comparisons problem, the Updated Study Plan specified one “confirmatory” outcome for a study: *the HIP/non-HIP difference in MTFV intake, based on data from Rounds 2 and 3 of the participant survey*, using regression adjustment for control variables. This confirmatory outcome will not be measurable until the Round 3 data becomes available (i.e., for the Final Report). Thus, in this Interim Report, there is no confirmatory outcome. Nevertheless, in writing up the results, we proceed treating lower-bound MTFV at Round 2 as though it was the confirmatory outcome.

The Updated Study Plan described the following strategy for using the result of the test for significance of the confirmatory outcome in writing up all of the results. If the main confirmatory HIP/non-HIP difference is statistically significant at the 5 percent level, we will use and report the conventional approach to testing HIP/non-HIP differences for all outcomes and subgroups. In presenting results, we will describe analyses other than the main confirmatory outcome as “exploratory,” pointing out that impacts (or differences in impact) that appear “significant” given conventional (uncorrected) tests are more likely to appear so simply due to sampling variation in multiple hypothesis tests.

If the main confirmatory HIP/non-HIP difference is not statistically significant at the 5 percent level, we will still use and report the conventional approach to testing differences for all outcomes and subgroups, but the accompanying discussion will warn that seemingly (using uncorrected tests) significant differences for particular outcomes and subgroups could be spurious. As before, the discussion will describe the analysis of these other outcomes and subgroups as exploratory. In this case (i.e., if the result for the confirmatory outcome is not statistically significant), the Executive Summary and other summary documents will simply report that the HIP evaluation found no significant impact on the main outcome and not mention any of the exploratory results.

Appendix E: Supplemental Exhibits

Exhibit E1.1: Minimum Requirements and Specifications for WIC Fruits and Vegetables

Any variety of fresh whole or cut fruit without added sugars.^a

Any variety of fresh whole or cut vegetable, except white potatoes, without added sugars, fats, or oils (orange yams and sweet potatoes are allowed).^a

Any variety of canned^b fruits (must conform to FDA standard of identity (21 CFR Part 145); including applesauce, juice pack or water pack without added sugars, fats, oils, or salt (i.e. sodium). Any variety of frozen fruits without added sugars.^c

Any variety of canned^b or frozen vegetables (must conform to FDA standard of identity (21 CFR Part 155)) except white potatoes (orange yams and sweet potatoes are allowed); without added sugars, fats, or oils. May be regular or lower in sodium.^c

Any type of dried fruits or dried vegetable without added sugars, fats, oils, or salt (i.e., sodium).^a

^aHerbs or spices; edible blossoms and flowers, e.g., squash blossoms (broccoli, cauliflower and artichokes are allowed); creamed or sauced vegetables; vegetable-grain (pasta or rice) mixtures; fruit-nut mixtures; breaded vegetables; fruits and vegetables for purchase on salad bars; peanuts; ornamental and decorative fruits and vegetables such as chili peppers on a string; garlic on a string; gourds; painted pumpkins; fruit baskets and party vegetable trays; and items such as blueberry muffins and other baked goods are not authorized. Mature legumes (dry beans and peas) and juices are not authorized.

^b“Canned” refers to processed food items in cans or other shelf-stable containers, e.g., jars, pouches. Home canned fruits and vegetables, such as those sold at Farmers Markets, are not allowable.

^cExcludes white potatoes; catsup or other condiments; pickled vegetables, olives; soups; juices; and fruit leathers and fruit roll-ups.

Source: Reproduced from FNS Request for Application, Supplemental Nutrition Assistance Program (SNAP), Healthy Incentives Pilot (HIP), CFDA #:10.580, Figure 1.

Exhibit E2.1: Baseline Characteristics of Respondents Completing Round 2 Participant Survey, by Treatment and Control Status

	Total	Treatment	Control	P-value
Age group				
16–30 years	0.34 (585)	0.31 (278)	0.34 (307)	[0.502]
31–40 years	0.18 (373)	0.19 (182)	0.18 (191)	
41–54 years	0.25 (505)	0.26 (257)	0.24 (248)	
55+ years	0.24 (491)	0.24 (263)	0.24 (228)	
Gender				
Male	0.34 (618)	0.34 (307)	0.34 (311)	[0.785]
Female	0.66 (1336)	0.66 (673)	0.66 (663)	
Race/ethnicity				
Hispanic	0.43 (823)	0.42 (407)	0.43 (416)	[0.786]
Non-Hispanic white	0.37 (727)	0.38 (381)	0.37 (346)	
Non-Hispanic black	0.14 (279)	0.14 (134)	0.14 (145)	
Non-Hispanic other	0.07 (125)	0.06 (58)	0.07 (67)	
Disability status				
Disabled	0.49 (999)	0.50 (520)	0.49 (479)	[0.758]
Not disabled	0.51 (955)	0.50 (460)	0.51 (495)	
Citizenship				
US citizen	0.95 (1874)	0.96 (944)	0.95 (930)	[0.449]
Not a US citizen	0.05 (80)	0.04 (36)	0.05 (44)	
Unemployment compensation				
Receiving unemployment compensation	0.04 (84)	0.05 (50)	0.03 (34)	[0.021]**
Not receiving unemployment compensation	0.96 (1870)	0.95 (930)	0.97 (940)	

Weighted proportions (unweighted Ns)

Two-sided chi-square test: *p<0.1, **p<0.05, ***p<0.01

Due to rounding, reported proportions may not sum to one.

Source: DTA SNAP Caseload Data (unweighted N=1954)

Exhibit E2.2: Self-Reported Baseline Characteristics of Respondents Completing Round 2 Participant Survey, by Treatment and Control Status

	Total	Treatment	Control	P-value
Ethnicity (N=1947)				
Hispanic/Latino	0.49 (924)	0.47 (452)	0.49 (472)	[0.556]
Not Hispanic/Latino	0.51 (1023)	0.53 (523)	0.51 (500)	
Race (N=1904)^a				
White	0.47 (891)	0.47 (458)	0.47 (433)	[0.934]
Black or African American	0.16 (324)	0.17 (158)	0.16 (166)	[0.502]
Asian	0.01 (18)	0.01 (11)	0.01 (7)	[0.335]
Native Hawaiian or Pacific Islander	0.01 (17)	0.01 (12)	0.01 (5)	[0.138]
American Indian or Alaskan Native	0.06 (98)	0.05 (44)	0.06 (54)	[0.360]
Other Race	<0.01 (2)	0.00 (0)	<0.01 (2)	[0.577]
Reports race as Hispanic only	0.34 (644)	0.34 (318)	0.34 (326)	[0.910]
Marital status (N=1953)				
Married	0.15 (285)	0.14 (134)	0.16 (151)	[0.811]
Not married but living with partner	0.08 (162)	0.08 (82)	0.08 (80)	
Widowed	0.07 (145)	0.07 (80)	0.07 (65)	
Divorced	0.16 (332)	0.17 (172)	0.16 (160)	
Separated	0.09 (189)	0.10 (97)	0.09 (92)	
Never Married	0.44 (840)	0.44 (414)	0.44 (426)	
Education level (N=1945)				
Never attended/kindergarten only	0.01 (24)	0.02 (14)	0.01 (10)	[0.361]
1st grade	<0.01 (7)	<0.01 (3)	<0.01 (4)	
2nd grade	<0.01 (10)	<0.01 (5)	<0.01 (5)	
3rd grade	0.01 (24)	0.01 (10)	0.02 (14)	
4th grade	0.02 (42)	0.03 (29)	0.01 (13)	
5th grade	0.01 (22)	0.01 (9)	0.01 (13)	
6th grade	0.02 (43)	0.02 (24)	0.02 (19)	
7th grade	0.02 (40)	0.02 (17)	0.02 (23)	
8th grade	0.03 (70)	0.04 (37)	0.03 (33)	
9th grade	0.07 (153)	0.09 (85)	0.07 (68)	
10th grade	0.07 (144)	0.08 (78)	0.07 (66)	
11th grade	0.11 (199)	0.09 (83)	0.11 (116)	
12th grade, no diploma	0.04 (87)	0.05 (50)	0.04 (37)	
High school graduate	0.20 (381)	0.18 (178)	0.21 (203)	
GED or equivalent	0.08 (158)	0.08 (74)	0.09 (84)	
Some college, no degree	0.14 (273)	0.14 (140)	0.13 (133)	
Associate degree: occ/tech/voc	0.06 (114)	0.06 (56)	0.06 (58)	
Associate degree: academic program	0.02 (50)	0.03 (28)	0.02 (22)	
Bachelor's degree	0.04 (71)	0.04 (36)	0.04 (35)	
Master's degree	0.01 (19)	0.01 (11)	0.01 (8)	
Professional school degree	0.01 (11)	<0.01 (6)	0.01 (5)	
Doctoral degree	<0.01 (3)	<0.01 (1)	<0.01 (2)	
Language spoken at home (N=1954)^a				
English	0.82 (1605)	0.83 (807)	0.82 (798)	[0.719]
Spanish	0.42 (808)	0.42 (402)	0.42 (406)	[0.972]
Other	0.06 (110)	0.05 (52)	0.06 (58)	[0.266]
Respondent interview language (N=1954)				
English	0.76 (1480)	0.75 (738)	0.76 (742)	[0.421]
Spanish	0.24 (474)	0.25 (242)	0.24 (232)	

	Total	Treatment	Control	P-value
Proxy needed for interview (N=1954)				
Proxy needed	0.02 (41)	0.02 (21)	0.02 (20)	[0.834]
No proxy needed	0.98 (1913)	0.98 (959)	0.98 (954)	

Weighted proportions (unweighted Ns)

Two-sided chi-square test: *p<0.1, **p<0.05, ***p<0.01

“Don’t know” and “refused” responses coded as missing

Due to rounding, reported proportions may not sum to one.

^aRespondents selected all options that applied; proportions therefore sum to more than one

Source: Sampled Respondent Interview

Exhibit E2.3: Self-Reported Baseline Characteristics of Primary Shoppers Completing Round 2 Participant Survey, by Treatment and Control Status

	Total	Treatment	Control	P-value
Employment status (N=1845)				
Working full-time	0.11 (190)	0.10 (87)	0.11 (103)	[0.616]
Working part-time	0.11 (189)	0.10 (89)	0.11 (100)	
Temporarily laid off	0.01 (15)	0.01 (6)	0.01 (9)	
Sick or maternity leave	<0.01 (8)	<0.01 (4)	<0.01 (4)	
Looking for work	0.13 (233)	0.13 (118)	0.13 (115)	
Unemployed	0.06 (111)	0.06 (57)	0.06 (54)	
Retired	0.11 (199)	0.10 (101)	0.11 (98)	
Disabled, permanently or temporarily	0.30 (570)	0.31 (295)	0.30 (275)	
Keeping house	0.12 (227)	0.12 (116)	0.12 (111)	
Student	0.05 (103)	0.07 (60)	0.05 (43)	
Primary shopper interview language (N=1851)				
English	0.77 (1430)	0.77 (726)	0.77 (704)	[0.968]
Spanish	0.23 (421)	0.23 (211)	0.23 (210)	

Weighted proportions (unweighted Ns)

Two-sided chi-square test: *p<0.1, **p<0.05, ***p<0.01

“Don’t know,” “refused,” and “not ascertained” responses coded as missing

Due to rounding, reported proportions may not sum to one.

Source: Primary Shopper Interview

Exhibit E2.4: HIP/Non-HIP Balance: May 2012 Characteristics for Study Participants on SNAP in May 2012

Variable	Total (proportion)	Treatment (proportion)	Control (proportion)	p-Value
Race/ethnicity of head				
Hispanic	0.44	0.45	0.44	[0.333]
Non-Hispanic white	0.36	0.35	0.36	[0.158]
Non-Hispanic black	0.13	0.13	0.13	[0.408]
Non-Hispanic other	0.07	0.07	0.07	[0.755]
Spanish spoken in household	0.23	0.23	0.23	[0.522]
Age of head				
16-30	0.23	0.24	0.23	[0.368]
31-40	0.21	0.22	0.21	[0.282]
41-54	0.27	0.26	0.27	[0.046]**
Over 54	0.28	0.28	0.28	[0.878]
Household head disabled	0.56	0.56	0.56	[0.749]
Household head U.S. citizen	0.96	0.96	0.96	[0.619]
Household composition				
Elderly in household	0.15	0.15	0.15	[0.890]
Children in household	0.37	0.37	0.37	[0.899]
No elderly or children in household	0.49	0.49	0.49	[0.980]
Housing type				
Private	0.80	0.80	0.80	[0.340]
Public	0.16	0.16	0.15	[0.410]
Other	0.04	0.04	0.04	[0.683]
Household is homeless	0.05	0.05	0.05	[0.404]
Monthly household gross income				
\$0	0.19	0.19	0.19	[0.919]
\$1-787	0.25	0.26	0.25	[0.034]**
\$788-1,082	0.29	0.29	0.29	[0.766]
\$1,083 or higher	0.27	0.26	0.27	[0.023]**
Types of income received by head				
SSI	0.37	0.37	0.37	[0.758]
Social Security	0.31	0.31	0.31	[0.990]
TANF	0.13	0.13	0.13	[0.435]
Unemployment compensation	0.03	0.03	0.03	[0.264]
Other unearned income	0.65	0.65	0.65	[0.606]
SNAP monthly benefit amount				
\$160 or less	0.27	0.28	0.27	[0.219]
\$161-\$200	0.37	0.37	0.37	[0.302]
\$201-\$349	0.10	0.10	0.11	[0.366]
\$350 or higher	0.25	0.25	0.25	[0.600]
Sample size	45,955	6,204	39,751	
F-value ^a		0.95		
P-value ^a		0.533		

Two-sided t-test: *p<0.1, **p<0.05, ***p<0.01

^a Variables included in F-test, but not shown in table: Baystate combined application project (CAP) status for SSI recipients; recertification type (semiannual reporting, recertification, other)

Source: DTA SNAP Caseload Data

Exhibit E4.1: Baseline Family Food Environment, Full Round 2 Sample and by Treatment and Control Status

How often do you have...	Total	Treatment	Control	P-value
Fruits available at home (N=1845)				
Never	0.01 (18)	0.01 (12)	0.01 (6)	[0.123]
Rarely	0.04 (68)	0.04 (34)	0.04 (34)	
Sometimes	0.20 (389)	0.23 (219)	0.19 (170)	
Most of the time	0.34 (622)	0.33 (308)	0.34 (314)	
Always	0.42 (748)	0.39 (361)	0.43 (387)	
Fruits in the refrigerator or on the kitchen counter (N=1844)				
Don't have fridge	0.00 (0)	0.00 (0)	0.00 (0)	[0.241]
Never	0.02 (42)	0.02 (23)	0.02 (19)	
Rarely	0.05 (101)	0.07 (60)	0.04 (41)	
Sometimes	0.27 (516)	0.29 (278)	0.26 (238)	
Most of the time	0.36 (633)	0.33 (301)	0.37 (332)	
Always	0.30 (550)	0.29 (272)	0.30 (278)	
Vegetables available at home (N=1846)				
Don't have freezer	0.00 (0)	0.00 (0)	0.00 (0)	[0.914]
Never	0.01 (21)	0.01 (12)	0.01 (9)	
Rarely	0.02 (38)	0.02 (16)	0.02 (22)	
Sometimes	0.12 (227)	0.13 (119)	0.12 (108)	
Most of the time	0.23 (430)	0.23 (215)	0.23 (215)	
Always	0.61 (1128)	0.60 (572)	0.61 (556)	
Fruits in the refrigerator or on the kitchen counter (N=1844)				
Don't have fridge	0.00 (42)	0.00 (23)	0.00 (19)	[0.241]
Never	0.02 (101)	0.02 (60)	0.02 (41)	
Rarely	0.05 (516)	0.07 (278)	0.04 (238)	
Sometimes	0.27 (633)	0.29 (301)	0.26 (332)	
Most of the time	0.36 (550)	0.33 (272)	0.37 (278)	
Always	0.30 (0)	0.29 (0)	0.30 (0)	
Vegetables available at home (N=1846)				
Don't have freezer	0.00 (21)	0.00 (12)	0.00 (9)	[0.914]
Never	0.01 (38)	0.01 (16)	0.01 (22)	
Rarely	0.02 (227)	0.02 (119)	0.02 (108)	
Sometimes	0.12 (430)	0.13 (215)	0.12 (215)	
Most of the time	0.23 (1128)	0.23 (572)	0.23 (556)	
Always	0.61 (0)	0.60 (0)	0.61 (0)	
Ready to eat vegetables in the refrigerator or on the kitchen counter (N=1845)				
Never	0.06 (113)	0.07 (57)	0.06 (56)	[0.647]
Rarely	0.08 (151)	0.09 (82)	0.07 (69)	
Sometimes	0.29 (527)	0.27 (261)	0.29 (266)	
Most of the time	0.28 (511)	0.28 (261)	0.28 (250)	
Always	0.29 (543)	0.29 (274)	0.29 (269)	
Salty snacks such as chips and crackers available at home (N=1848)				
Never	0.07 (150)	0.08 (81)	0.07 (69)	[0.654]
Rarely	0.17 (311)	0.17 (160)	0.17 (151)	
Sometimes	0.37 (659)	0.34 (323)	0.38 (336)	
Most of the time	0.17 (313)	0.17 (160)	0.16 (153)	
Always	0.22 (415)	0.23 (211)	0.22 (204)	
1% fat, skim or fat-free milk available at home (N=1838)				
Never	0.32 (566)	0.29 (276)	0.32 (290)	[0.197]
Rarely	0.05 (95)	0.06 (55)	0.05 (40)	
Sometimes	0.11 (191)	0.10 (91)	0.11 (100)	

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How often do you have...	Total	Treatment	Control	P-value
Most of the time	0.09 (160)	0.08 (72)	0.09 (88)	
Always	0.44 (826)	0.48 (434)	0.43 (392)	
Soft drinks, fruit-flavored drinks, or fruit punch available at home (N=1845)				
Never	0.15 (289)	0.15 (152)	0.15 (137)	[0.291]
Rarely	0.15 (283)	0.17 (157)	0.14 (126)	
Sometimes	0.31 (536)	0.27 (251)	0.31 (285)	
Most of the time	0.15 (275)	0.15 (141)	0.15 (134)	
Always	0.25 (462)	0.25 (232)	0.25 (230)	
All or most of your family sit down and eat evening meals together at home during the past month (multiple-person households only) (N=1354)				
Never	0.04 (49)	0.04 (26)	0.03 (23)	[0.226]
Rarely	0.08 (105)	0.07 (49)	0.09 (56)	
Sometimes	0.20 (293)	0.23 (157)	0.19 (136)	
Most of the time	0.31 (429)	0.32 (221)	0.30 (208)	
Always	0.38 (478)	0.34 (226)	0.38 (252)	
Evening meals cooked at home during the past month (N=1845)				
Never	0.01 (16)	0.01 (7)	0.01 (9)	[0.882]
Rarely	0.02 (26)	0.01 (12)	0.02 (14)	
Sometimes	0.09 (170)	0.09 (91)	0.09 (79)	
Most of the time	0.30 (576)	0.31 (297)	0.30 (279)	
Always	0.58 (1057)	0.57 (526)	0.58 (531)	

Weighted proportions (unweighted Ns)

Two-sided chi-square test: *p<0.1, **p<0.05, ***p<0.01

"Don't know" and "refused" responses coded as missing

Source: Primary Shopper Interview

Exhibit E4.2: Baseline Food Preferences and Beliefs, Full Round 2 Sample and by Treatment and Control Status

How much do you agree or disagree that...	Total	Treatment	Control	P-value
I enjoy trying new foods (N=1946)				
Strongly disagree	0.01 (24)	0.01 (14)	0.01 (10)	[0.639]
Disagree	0.09 (177)	0.09 (90)	0.09 (87)	
Neither disagree nor agree	0.05 (110)	0.06 (62)	0.05 (48)	
Agree	0.65 (1269)	0.65 (636)	0.66 (633)	
Strongly agree	0.19 (366)	0.18 (176)	0.19 (190)	
I enjoy trying new fruits (N=1949)				
Strongly disagree	0.01 (21)	0.01 (8)	0.01 (13)	[0.115]
Disagree	0.07 (154)	0.09 (88)	0.07 (66)	
Neither disagree nor agree	0.05 (87)	0.04 (37)	0.05 (50)	
Agree	0.64 (1245)	0.64 (627)	0.64 (618)	
Strongly agree	0.23 (442)	0.23 (219)	0.23 (223)	
I enjoy trying new vegetables (N=1950)				
Strongly disagree	0.03 (41)	0.01 (15)	0.03 (26)	[0.107]
Disagree	0.16 (304)	0.18 (158)	0.15 (146)	
Neither disagree nor agree	0.04 (70)	0.03 (26)	0.05 (44)	
Agree	0.61 (1214)	0.61 (619)	0.61 (595)	
Strongly agree	0.16 (321)	0.16 (162)	0.16 (159)	
I eat enough fruits to keep my healthy (N=1951)				
Strongly disagree	0.01 (21)	0.01 (7)	0.01 (14)	[0.480]
Disagree	0.13 (257)	0.13 (130)	0.13 (127)	
Neither disagree nor agree	0.04 (75)	0.04 (41)	0.03 (34)	
Agree	0.64 (1247)	0.65 (631)	0.64 (616)	
Strongly agree	0.18 (351)	0.17 (169)	0.18 (182)	
I eat enough vegetables to keep me healthy (N=1949)				
Strongly disagree	0.02 (36)	0.01 (13)	0.02 (23)	[0.381]
Disagree	0.13 (265)	0.14 (136)	0.13 (129)	
Neither disagree nor agree	0.04 (75)	0.03 (31)	0.04 (44)	
Agree	0.63 (1228)	0.63 (624)	0.63 (604)	
Strongly agree	0.18 (345)	0.17 (174)	0.18 (171)	
I often encourage family/friends to eat fruits and vegetables (N=1933)				
Strongly disagree	0.02 (29)	0.02 (15)	0.02 (14)	[0.933]
Disagree	0.10 (181)	0.10 (88)	0.10 (93)	
Neither disagree nor agree	0.03 (69)	0.04 (38)	0.03 (31)	
Agree	0.61 (1170)	0.60 (582)	0.61 (588)	
Strongly agree	0.24 (484)	0.25 (247)	0.24 (237)	

Weighted proportions (unweighted Ns)

Two-sided chi-square test: *p<0.1, **p<0.05, ***p<0.01

“Don’t know,” “refused,” and “does not apply” responses coded as missing

Source: Sampled Respondent Interview

Exhibit E4.3: Baseline Perceived Barriers to Fruit & Vegetable Consumption, Full Round 2 Sample and by Treatment and Control Status

How much do you agree or disagree that...	Total	Treatment	Control	P-value
It's hard for me to eat more vegetables because I don't know how to prepare them (N=1939)				
Strongly disagree	0.18 (349)	0.17 (179)	0.18 (170)	[0.870]
Disagree	0.50 (969)	0.50 (487)	0.50 (482)	
Neither disagree nor agree	0.04 (87)	0.05 (46)	0.04 (41)	
Agree	0.23 (434)	0.22 (211)	0.23 (223)	
Strongly agree	0.05 (100)	0.06 (53)	0.05 (47)	
It's hard for me to eat more vegetables because they are hard to find where I shop for food (N=1940)				
Strongly disagree	0.19 (348)	0.17 (163)	0.19 (185)	[0.088]*
Disagree	0.62 (1186)	0.61 (590)	0.62 (596)	
Neither disagree nor agree	0.02 (38)	0.02 (15)	0.02 (23)	
Agree	0.15 (324)	0.18 (182)	0.14 (142)	
Strongly agree	0.02 (44)	0.03 (26)	0.02 (18)	
It's hard for me to eat more fruits because they are hard to find where I shop for food (N=1940)				
Strongly disagree	0.19 (353)	0.17 (164)	0.19 (189)	[0.037]**
Disagree	0.63 (1219)	0.63 (615)	0.63 (604)	
Neither disagree nor agree	0.02 (34)	0.01 (13)	0.02 (21)	
Agree	0.14 (286)	0.15 (152)	0.14 (134)	
Strongly agree	0.02 (48)	0.03 (31)	0.02 (17)	
I don't eat fruits and vegetables as much as I like to because they cost too much (N=1944)				
Strongly disagree	0.09 (158)	0.08 (73)	0.09 (85)	[0.682]
Disagree	0.39 (758)	0.41 (390)	0.39 (368)	
Neither disagree nor agree	0.04 (71)	0.03 (30)	0.04 (41)	
Agree	0.38 (751)	0.38 (380)	0.38 (371)	
Strongly agree	0.10 (206)	0.11 (105)	0.10 (101)	
I don't eat fruits and vegetables as much as I like to because they often spoil before I get a chance to eat them (N=1941)				
Strongly disagree	0.07 (137)	0.07 (72)	0.07 (65)	[0.554]
Disagree	0.45 (877)	0.46 (445)	0.45 (432)	
Neither disagree nor agree	0.05 (85)	0.04 (35)	0.05 (50)	
Agree	0.37 (720)	0.36 (360)	0.37 (360)	
Strongly agree	0.06 (122)	0.07 (61)	0.06 (61)	
I don't eat fruits and vegetables as much as I like to because my family doesn't like them (N=1886)				
Strongly disagree	0.16 (288)	0.15 (142)	0.16 (146)	[0.959]
Disagree	0.69 (1304)	0.70 (669)	0.68 (635)	
Neither disagree nor agree	0.02 (39)	0.02 (19)	0.02 (20)	
Agree	0.12 (219)	0.11 (106)	0.12 (113)	
Strongly agree	0.02 (36)	0.02 (18)	0.02 (18)	
I don't eat fruits and vegetables because I don't like them (N=1947)				
Strongly disagree	0.23 (434)	0.21 (204)	0.24 (230)	[0.373]
Disagree	0.64 (1292)	0.68 (669)	0.64 (623)	
Neither disagree nor agree	0.02 (30)	0.02 (15)	0.02 (15)	
Agree	0.09 (165)	0.08 (76)	0.09 (89)	
Strongly agree	0.01 (26)	0.01 (11)	0.01 (15)	

Weighted proportions (unweighted Ns)

Two-sided chi-square test: *p<0.1, **p<0.05, ***p<0.01

"Don't know," "refused," and "does not apply" responses coded as missing

Source: Sampled Respondent Interview

Exhibit E4.4: Impact of HIP on Self-Reported Exposure to Nutrition Education and Promotion in Past 3 Months, Logistic Regression Model

	Predicted probability (S.E.)		Impact			
	Treatment (T)	Control (C)	Odds Ratio	[S.E.]	{t-statistic}	(P-value)
Heard or seen messages about fruits & vegetables (N=1811)	0.775 (0.015)	0.704 (0.016)	1.452	[0.166]	{3.272}	(0.001)***
Attended nutrition education class or program (N=1819)	0.081 (0.011)	0.089 (0.009)	0.904	[0.148]	{-0.618}	(0.537)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01;

Binary outcomes, 1=yes, 0=no; "don't know" responses coded as missing

Source: Sampled Respondent Interview

Exhibit E4.5: Impact of HIP on Family Food Environment, Ordered Logistic Regression Model

How often do you...?	Regression-adjusted mean (S.E.)		Impact			
	Treatment (T)	Control (C)	T-C	[S.E.]	{t-statistic}	(P-value)
Have fruit available at home (N=1794)	4.315 (0.445)	4.016 (0.432)	0.299	[0.096]	{3.106}	(0.002)***
Have fruit in refrigerator or on counter ^a (N=1795)	3.744 (0.434)	3.643 (0.420)	0.101	[0.093]	{1.081}	(0.280)
Have vegetables available at home (N=1797)	3.777 (0.613)	3.557 (0.584)	0.221	[0.113]	{1.962}	(0.050)**
Have ready-to-eat vegetables in fridge or on counter ^a (N=1781)	2.419 (0.400)	2.322 (0.380)	0.097	[0.095]	{1.016}	(0.310)
Have salty snacks at home (chips, crackers) (N=1794)	2.471 (0.399)	2.404 (0.379)	0.068	[0.093]	{0.726}	(0.468)
Have lowfat/nonfat milk at home (N=1784)	2.986 (0.454)	2.925 (0.429)	0.061	[0.102]	{0.598}	(0.550)
Have soft drinks/fruit drinks (not juice) at home (N=1797)	2.034 (0.373)	2.090 (0.350)	-0.056	[0.089]	{-0.624}	(0.533)
Sit down with family at home for evening meals (N=1268) ^b	3.702 (0.531)	3.705 (0.512)	-0.003	[0.118]	{-0.027}	(0.978)
Cook evening meals at home (N=1794)	2.893 (0.592)	2.854 (0.576)	0.039	[0.100]	{0.387}	(0.699)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Categorical outcomes: 1=never, 2=rarely, 3=sometimes, 4=most of the time, 5=always; "don't know" responses coded as missing

^aIncludes sixth category, 0=no refrigerator at home^bAsked only in households with more than one member

Source: Primary Shopper Interview

Exhibit E4.6: Impact of HIP on Family Food Environment, Logistic Regression Model

How often do you...?	Predicted probability (S.E.)		Impact			
	Treatment (T)	Control (C)	Odds Ratio	[S.E.]	{t-statistic}	(P-value)
Have fruit available at home (N=1794)	0.873 (0.013)	0.803 (0.015)	1.694	[0.234]	{3.814}	(0.000)***
Have fruit in refrigerator or on counter ^a (N=1795)	0.755 (0.017)	0.704 (0.018)	1.299	[0.155]	{2.192}	(0.028)**
Have vegetables available at home (N=1797)	0.905 (0.011)	0.878 (0.012)	1.331	[0.214]	{1.779}	(0.075)*
Have ready-to-eat vegetables in fridge or on counter ^a (N=1781)	0.664 (0.019)	0.655 (0.019)	1.039	[0.118]	{0.339}	(0.734)
Have salty snacks at home (chips, crackers) (N=1794)	0.363 (0.019)	0.348 (0.018)	1.070	[0.119]	{0.609}	(0.542)
Have lowfat/nonfat milk at home (N=1784)	0.563 (0.021)	0.544 (0.020)	1.077	[0.127]	{0.625}	(0.532)
Have soft drinks/fruit drinks (not juice) at home (N=1797)	0.385 (0.020)	0.412 (0.019)	0.892	[0.101]	{-1.012}	(0.312)
Sit down with family at home for evening meals (N=1268) ^b	0.752 (0.022)	0.719 (0.021)	1.184	[0.177]	{1.130}	(0.259)
Cook evening meals at home (N=1794)	0.938 (0.010)	0.915 (0.011)	1.397	[0.244]	{1.910}	(0.056)*

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Binary outcomes: 1=Always or most of the time, 0=Sometimes, rarely, or never, 'don't know' responses coded as missing

^aNo refrigerator at home responses also coded as 0 for this measure

^bAsked only in households with more than one member

Source: Primary Shopper Interview

Exhibit E4.7: Impact of HIP on Food Preferences & Beliefs, Ordered Logistic Regression Model

How much do you agree or disagree that...?	Regression-adjusted mean (S.E.)		Impact			
	Treatment (T)	Control (C)	T-C	[S.E.]	{t-statistic}	(P-value)
I enjoy trying new foods (N=1811)	4.673 (0.471)	4.549 (0.456)	0.124	[0.099]	{1.257}	(0.209)
I enjoy trying new fruits (N=1810)	4.796 (0.499)	4.748 (0.485)	0.048	[0.102]	{0.469}	(0.639)
I enjoy trying new vegetables (N=1810)	4.274 (0.433)	4.205 (0.429)	0.069	[0.097]	{0.708}	(0.479)
I eat enough fruits to keep me healthy (N=1808)	3.370 (0.420)	3.228 (0.406)	0.141	[0.101]	{1.394}	(0.164)
I eat enough vegetables to keep me healthy (N=1813)	4.189 (0.458)	4.123 (0.440)	0.066	[0.104]	{0.635}	(0.525)
I often encourage family/friends to eat fruits & vegetables (N=1793)	4.111 (0.446)	4.044 (0.430)	0.067	[0.100]	{0.668}	(0.504)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Categorical outcomes: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree; “don’t know” and “does not apply” responses coded as missing

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

Source: Sampled Respondent Interview

Exhibit E4.8: Impact of HIP on Food Preferences & Beliefs, Logistic Regression Model

How much do you agree or disagree that...?	Predicted probability (S.E.)		Impact			
	Treatment (T)	Control (C)	Odds Ratio	[S.E.]	{t-statistic}	(P-value)
I enjoy trying new foods (N=1811)	0.852 (0.014)	0.833 (0.014)	1.155	[0.161]	{1.040}	(0.298)
I enjoy trying new fruits (N=1810)	0.886 (0.012)	0.869 (0.013)	1.175	[0.174]	{1.087}	(0.277)
I enjoy trying new vegetables (N=1810)	0.800 (0.015)	0.763 (0.016)	1.243	[0.158]	{1.714}	(0.087)*
I eat enough fruits to keep me healthy (N=1808)	0.827 (0.015)	0.783 (0.016)	1.320	[0.172]	{2.137}	(0.033)**
I eat enough vegetables to keep me healthy (N=1813)	0.822 (0.016)	0.803 (0.016)	1.132	[0.151]	{0.924}	(0.356)
I often encourage family/friends to eat fruits & vegetables (N=1793)	0.858 (0.014)	0.854 (0.013)	1.036	[0.150]	{0.246}	(0.806)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Binary outcomes: 1=Strongly Agree or Agree, 0=Neither Agree nor Disagree, Disagree, or Strongly Disagree; “don’t know” and “does not apply” responses coded as missing

Source: Sampled Respondent Interview

Exhibit E4.9: Impact of HIP on Perceived Barriers to Fruit & Vegetable Consumption, Ordered Logistic Regression Model

How much do you agree or disagree that...?	Regression-adjusted mean (S.E.)		Impact			
	Treatment (T)	Control (C)	T-C	[S.E.]	{t-statistic}	(P-value)
Hard to eat vegetables because don't know how to prepare (N=1802)	1.123 (0.452)	1.059 (0.423)	0.065	[0.099]	{0.654}	(0.513)
Hard to eat vegetables because hard to find where I shop (N=1805)	1.678 (0.383)	1.620 (0.366)	0.058	[0.104]	{0.554}	(0.580)
Hard to eat fruits because hard to find where I shop (N=1806)	1.193 (0.386)	1.086 (0.373)	0.107	[0.109]	{0.986}	(0.324)
Don't eat FV as much as would like because cost too much (N=1809)	1.592 (0.346)	1.623 (0.335)	-0.031	[0.095]	{-0.325}	(0.745)
Don't eat FV as much as would like because they spoil (N=1804)	1.665 (0.394)	1.890 (0.379)	-0.225	[0.099]	{-2.271}	(0.023)**
Don't eat FV as much as would like because family dislikes (N=1735)	1.170 (0.364)	1.080 (0.347)	0.090	[0.114]	{0.788}	(0.431)
Don't eat FV as much because I don't like (N=1808)	2.222 (0.373)	2.182 (0.357)	0.041	[0.102]	{0.398}	(0.690)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Categorical outcomes: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree; "don't know" and "does not apply" responses coded as missing

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

Source: Sampled Respondent Interview

Exhibit E4.10: Impact of HIP on Perceived Barriers to Fruit & Vegetable Consumption, Logistic Regression Model

How much do you agree or disagree that...?	Predicted Probability (S.E.)		Impact			
	Treatment (T)	Control (C)	Odds Ratio	[S.E.]	{t-statistic}	(P-value)
Hard to eat vegetables because don't know how to prepare (N=1802)	0.203 (0.016)	0.190 (0.015)	1.083	[0.139]	{0.620}	(0.535)
Hard to eat vegetables because hard to find where I shop (N=1805)	0.121 (0.012)	0.113 (0.011)	1.082	[0.158]	{0.543}	(0.587)
Hard to eat fruits because hard to find where I shop (N=1806)	0.106 (0.012)	0.083 (0.010)	1.311	[0.205]	{1.730}	(0.084)*
Don't eat FV as much as would like because cost too much (N=1809)	0.412 (0.020)	0.421 (0.019)	0.962	[0.108]	{-0.342}	(0.733)
Don't eat FV as much as would like because they spoil (N=1804)	0.372 (0.018)	0.422 (0.018)	0.813	[0.088]	{-1.897}	(0.058)*
Don't eat FV as much as would like because family dislikes (N=1735)	0.103 (0.012)	0.088 (0.010)	1.185	[0.195]	{1.031}	(0.303)
Don't eat FV as much because I don't like (N=1808)	0.049 (0.008)	0.057 (0.008)	0.862	[0.158]	{-0.811}	(0.418)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Binary outcomes: 1=Strongly Agree or Agree, 0=Neither Agree nor Disagree, Disagree, or Strongly Disagree; "don't know" and "does not apply" responses coded as missing

Source: Sampled Respondent Interview

Exhibit E5.1: Distribution of Household HIP Purchases by All HIP Households, by Month

	Average	Min	25th percentile	median	75th percentile	Max
Nov-2011	\$11.37	\$0.00	\$0.00	\$5.75	\$16.82	\$152.22
Dec-2011	\$7.86	\$0.00	\$0.00	\$2.08	\$12.00	\$112.86
Jan-2012	\$9.81	\$0.00	\$0.00	\$3.78	\$15.10	\$150.29
Feb-2012	\$10.77	\$0.00	\$0.00	\$4.99	\$16.16	\$172.93
Mar-2012	\$11.00	\$0.00	\$0.00	\$5.52	\$16.92	\$158.96
Apr-2012	\$11.84	\$0.00	\$0.00	\$6.54	\$17.94	\$179.12
May-2012	\$11.93	\$0.00	\$0.00	\$6.38	\$17.69	\$222.08
Jun-2012	\$13.03	\$0.00	\$0.00	\$6.75	\$19.51	\$192.59
Jul-2012	\$12.89	-\$12.86	\$0.00	\$6.47	\$19.44	\$261.34

Source: EBT Daily Transaction Data

Exhibit E5.2: Distribution of Household HIP Purchases for the month for Households that Made HIP Purchases

	Average	Min	25th percentile	median	75th percentile	Max
Nov-2011	\$17.38	\$0.24	\$6.05	\$12.76	\$24.07	\$152.22
Dec-2011	\$14.12	\$0.04	\$4.71	\$10.78	\$18.86	\$112.86
Jan-2012	\$16.58	\$0.02	\$5.92	\$12.51	\$22.62	\$150.29
Feb-2012	\$17.22	\$0.01	\$6.12	\$13.08	\$22.93	\$172.93
Mar-2012	\$17.13	\$0.08	\$6.22	\$12.79	\$23.01	\$158.96
Apr-2012	\$17.76	\$0.08	\$6.53	\$13.46	\$23.54	\$179.12
May-2012	\$18.06	\$0.02	\$6.53	\$13.37	\$24.32	\$222.08
Jun-2012	\$19.94	\$0.02	\$7.18	\$14.90	\$26.82	\$192.59
Jul-2012	\$19.65	\$0.08	\$6.74	\$14.39	\$26.24	\$261.34

Source: EBT Daily Transaction Data

Exhibit E5.3: Distribution of Household HIP Purchases as a Percentage of SNAP Purchases for All Households

	Average	Min	25th percentile	median	75th percentile	Max
Nov-2011	3.64%	0.00%	0.00%	1.83%	5.27%	70.40%
Dec-2011	3.20%	0.00%	0.00%	0.89%	4.45%	89.23%
Jan-2012	4.12%	0.00%	0.00%	1.63%	5.83%	100.00%
Feb-2012	4.70%	0.00%	0.00%	2.19%	6.69%	100.00%
Mar-2012	4.81%	0.00%	0.00%	2.35%	6.59%	100.00%
Apr-2012	5.14%	0.00%	0.00%	2.76%	7.17%	100.00%
May-2012	4.98%	0.00%	0.00%	2.64%	7.04%	100.00%
Jun-2012	5.46%	0.00%	0.00%	2.85%	7.59%	100.00%
Jul-2012	5.37%	-3.50%	0.00%	2.78%	7.34%	100.00%

Source: EBT Daily Transaction Data

Exhibit E5.4: Distribution of Household HIP Purchases as a Percentage of SNAP Purchases for Households that Made HIP Purchases

	Average	Min	25th percentile	median	75th percentile	Max
Nov-2011	5.49%	0.08%	1.86%	3.88%	6.86%	70.40%
Dec-2011	5.66%	0.01%	1.74%	3.84%	7.37%	89.23%
Jan-2012	6.86%	0.01%	2.29%	4.64%	9.01%	100.00%
Feb-2012	7.40%	0.01%	2.54%	5.21%	9.56%	100.00%
Mar-2012	7.35%	0.03%	2.47%	5.05%	9.22%	100.00%
Apr-2012	7.61%	0.02%	2.67%	5.29%	9.55%	100.00%
May-2012	7.46%	0.01%	2.62%	5.19%	9.45%	100.00%
Jun-2012	8.25%	0.004%	2.92%	5.72%	10.51%	100.00%
Jul-2012	8.08%	0.02%	2.81%	5.57%	10.36%	100.00%

Source: EBT Daily Transaction Data

Exhibit E5.5: Impact of HIP on Usual Grocery Store Type, Logistic Regression Model

Usual place to shop	Predicted Probability (S.E.)		Impact			
	Treatment	Control	Odds Ratio	[S.E.]	{t-statistic}	(P-value)
Large chain grocery store or supermarket	0.831 (0.015)	0.824 (0.014)	1.048	[0.139]	{0.356}	(0.722)
Natural or organic supermarket (such as Whole Foods Market)	<0.001 (<0.001)	<0.001 (<0.001)	1.600	[0.988]	{0.762}	(0.446)
Small local store or corner store	<0.001 (<0.001)	<0.001 (<0.001)	0.605	[0.223]	{-1.361}	(0.174)
Convenience store (such as 7-11 or mini market) ^a	N/A	N/A	N/A	N/A	N/A	N/A
Warehouse club store (such as Sam's Club or Costco)	0.005 (0.002)	0.009 (0.003)	0.553	[0.227]	{-1.445}	(0.149)
Discount superstore (such as Walmart)	0.102 (0.012)	0.096 (0.011)	1.075	[0.169]	{0.459}	(0.646)
Ethnic market†	N/A	N/A	N/A	N/A	N/A	N/A
Farmers market/co-op ^a	N/A	N/A	N/A	N/A	N/A	N/A
Some other location ^a	N/A	N/A	N/A	N/A	N/A	N/A

Binary outcomes, 1=yes, 0=no; "don't know" responses coded as missing

^aInestimable (covariates perfectly predict success or failure within one or more stratum)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Source: Primary Shopper Interview (unweighted N=1,789)

Exhibit E5.6: Impact of HIP on Reasons for Choice of Usual Grocery Store Type, Logistic Regression Model

Usually shop there because...	Predicted Probability (S.E.)		Impact			
	Treatment	Control	Odds Ratio	[S.E.]	{t-statistic}	(P-value)
Close to home	0.291 (0.018)	0.303 (0.017)	0.944	[0.108]	{-0.503}	(0.615)
Close to work	<0.001 (<0.001)	<0.001 (<0.001)	1.781	[1.320]	{0.779}	(0.436)
Close to some other location	<0.001 (<0.001)	<0.001 (<0.001)	0.840	[0.582]	{-0.251}	(0.802)
Easy to get there	<0.001 (<0.001)	<0.001 (<0.001)	1.093	[0.405]	{0.241}	(0.810)
Disability accessible ^a	N/A	N/A	N/A	N/A	N/A	N/A
Hours of operation convenient	<0.001 (<0.001)	<0.001 (<0.001)	0.946	[0.229]	{-0.229}	(0.819)
One stop shopping	0.014 (0.005)	0.014 (0.004)	1.007	[0.349]	{0.020}	(0.984)
Bulk purchases	0.472 (0.019)	0.519 (0.019)	0.828	[0.088]	{-1.776}	(0.076)*
Prices/affordability	0.103 (0.012)	0.108 (0.011)	0.945	[0.148]	{-0.361}	(0.718)
Sales/promotions in store	<0.001 (<0.001)	<0.001 (<0.001)	1.473	[0.550]	{1.037}	(0.300)
EBT card accepted	0.212 (0.016)	0.187 (0.014)	1.169	[0.148]	{1.237}	(0.216)
Variety of products	<0.001 (<0.001)	<0.001 (<0.001)	0.946	[0.229]	{-0.229}	(0.819)
Ethnic foods are available ^a	N/A	N/A	N/A	N/A	N/A	N/A
Preferred products are available	0.076 (0.010)	0.113 (0.011)	0.648	[0.109]	{-2.567}	(0.010)**
Quality	0.029 (0.006)	0.046 (0.008)	0.609	[0.146]	{-2.065}	(0.039)**
Produce better or fresher	0.141 (0.014)	0.121 (0.012)	1.194	[0.180]	{1.181}	(0.238)
Good service	<0.001 (<0.001)	<0.001 (<0.001)	1.342	[0.497]	{0.794}	(0.427)
Clean	<0.001 (<0.001)	<0.001 (<0.001)	1.084	[0.494]	{0.176}	(0.860)
Familiarity with store	0.040 (0.008)	0.040 (0.007)	0.991	[0.228]	{-0.039}	(0.969)
Some other reason	<0.001 (<0.001)	<0.001 (<0.001)	1.075	[0.823]	{0.095}	(0.925)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Binary outcomes, 1=Yes, 0=No, "don't know" responses coded as missing

^aInestimable (covariates perfectly predict success or failure within one or more stratum)

Source: Primary Shopper Interview (unweighted N=1,782)

Exhibit E5.7: Impact of HIP on Grocery Shopping Frequency, Ordered Logistic Regression

	Regression-adjusted mean (S.E.)		Impact			
	Treatment	Control	T-C	[S.E.]	{t-statistic}	(P-value)
Grocery shopping frequency	5.743 (0.573)	5.763 (0.568)	-0.019	[0.092]	{-0.209}	(0.834)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

Categorical outcome, 1=yearly or not at all, 2=2 to 3 times a year, 3=every other month, 4=once a month, 5=every other week, 6=once a week, 7=more than once a week; “don’t know” and “refused” responses coded as missing

Source: Primary Shopper Interview (unweighted N=1,795)

Exhibit E5.8: Impact of HIP on Grocery Shopping Frequency, Logistic Regression

	Predicted probability (S.E.)		Impact			
	Treatment	Control	Odds Ratio	[S.E.]	{t-statistic}	(P-value)
Grocery shopping frequency	0.318 (0.020)	0.332 (0.020)	0.937	[0.117]	{-0.520}	(0.603)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Binary outcome, 1=Once a week or more, 0=less than once a week, 'don't know' and 'refused' responses coded as missing

Source: Primary Shopper Interview (unweighted N=1,795)

Exhibit E5.9: Impact of HIP on Going Out of Way/Making Special Effort to Shop at Particular Store for Fruits and Vegetables, Logistic Regression Model

	Predicted Probability (S.E.)		Impact			
	Treatment	Control	Odds Ratio	[S.E.]	{t-statistic}	(P-value)
Go out of way to shop for FV at particular store	0.400 (0.019)	0.404 (0.018)	0.983	[0.105]	{-0.162}	(0.872)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Binary outcome, 1=yes, 0=no; “don’t know” and “refused” responses coded as missing

Source: Primary Shopper Interview (unweighted N=1,781)

Exhibit E5.10: Impact of HIP on Barriers to Grocery Shopping, Ordered Logistic Regression Model

How often kept from grocery shopping by...	Regression-adjusted mean (S.E.)		Impact			
	Treatment	Control	T-C	[S.E.]	{t-statistic}	(P-value)
Limited transportation (N=1781)	1.831 (0.363)	1.747 (0.339)	0.084	[0.098]	{0.859}	(0.391)
Distance to grocery store (N=1771)	1.310 (0.355)	1.391 (0.338)	-0.081	[0.101]	{-0.799}	(0.425)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and comparison groups.

Categorical outcomes: 1=never, 2=rarely, 3=sometimes, 4=most of the time, 5=always; “don’t know” and “refused” responses coded as missing

Source: Primary Shopper Interview

Exhibit E5.11: Impact of HIP on Barriers to Grocery Shopping, Logistic Regression Model

How often kept from grocery shopping by...	Predicted probability (S.E.)		Impact			
	Treatment	Control	Odds Ratio	[S.E.]	{t-statistic}	(P-value)
Limited transportation (N=1781)	0.154 (0.014)	0.129 (0.012)	1.226	[0.172]	{1.452}	(0.147)
Distance to grocery store (N=1771)	0.094 (0.011)	0.116 (0.011)	0.797	[0.126]	{-1.439}	(0.150)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

0=Never, rarely, or sometimes, 1=most of the time or always; “don’t know” and “refused” responses coded as missing

Source: Primary Shopper Interview

Exhibit E5.12: Baseline Usual Grocery Store Type of Primary Shoppers Completing Round 2 Survey, by Treatment and Control Status

	Total	Treatment	Control	P-value
Large chain grocery store or supermarket	0.80 (1473)	0.81 (749)	0.80 (724)	[0.447]
Natural or organic supermarket (such as Whole Foods Market)	0.01 (10)	0.01 (5)	0.01 (5)	
Small local store or corner store	0.03 (47)	0.03 (25)	0.03 (22)	
Convenience store (such as 7-11 or mini market)	<0.01 (5)	<0.01 (2)	<0.01 (3)	
Warehouse or club store (such as Sam's Club or Costco)	0.01 (29)	0.02 (20)	0.01 (9)	
Discount superstore (such as Walmart)	0.14 (256)	0.13 (121)	0.14 (135)	
Ethnic market	0.01 (10)	<0.01 (4)	0.01 (6)	
Farmers market/co-op	<0.01 (6)	<0.01 (4)	<0.01 (2)	
Other	<0.01 (3)	<0.01 (2)	<0.01 (1)	

Weighted proportions (unweighted Ns)

Two-sided chi-square test: *p<0.1, **p<0.05, ***p<0.01

"Don't know" responses coded as missing

Source: Primary Shopper Interview (unweighted N=1,839)

Exhibit E5.13: Baseline Reasons for Choice of Usual Grocery Store Type of Primary Shoppers Completing Round 2 Survey, by Treatment and Control Status

	Total	Treatment	Control	P-value
Close to home	0.32 (617)	0.36 (335)	0.31 (282)	[0.035]**
Close to work	0.01 (12)	0.01 (5)	0.01 (7)	[0.628]
Close to some other location	0.01 (8)	<0.01 (2)	0.01 (6)	[0.178]
Easy to get there	0.01 (29)	0.01 (14)	0.02 (15)	[0.732]
Disability accessible	0.01 (8)	<0.01 (3)	0.01 (5)	[0.289]
Hours of operation convenient	<0.01 (5)	<0.01 (4)	<0.01 (1)	[0.188]
One stop shopping	0.01 (18)	0.01 (5)	0.01 (13)	[0.094]*
Bulk purchases	0.01 (28)	0.02 (15)	0.01 (13)	[0.892]
Prices/affordability	0.59 (1061)	0.56 (519)	0.60 (542)	[0.117]
Sales/promotions in store	0.17 (322)	0.18 (170)	0.17 (152)	[0.548]
EBT card accepted	0.01 (13)	0.01 (8)	0.01 (5)	[0.488]
Variety of products	0.28 (490)	0.26 (239)	0.28 (251)	[0.509]
Ethnic foods are available	0.02 (38)	0.02 (16)	0.02 (22)	[0.420]
Preferred products are available	0.13 (234)	0.12 (114)	0.13 (120)	[0.557]
Quality	0.03 (42)	0.02 (17)	0.03 (25)	[0.078]*
Produce better or fresher	0.19 (342)	0.19 (170)	0.19 (172)	[0.799]
Good service	0.03 (64)	0.04 (35)	0.03 (29)	[0.659]
Clean	0.02 (37)	0.02 (16)	0.02 (21)	[0.367]
Familiarity with store	0.07 (130)	0.08 (70)	0.06 (60)	[0.310]
Some other reason	0.02 (32)	0.02 (17)	0.02 (15)	[0.813]

Weighted proportions (unweighted Ns)

Two-sided chi-square test: *p<0.1, **p<0.05, ***p<0.01

"Don't know," "refused," and "inapplicable" responses coded as missing

Source: Primary Shopper Interview (unweighted N=1,831)

Exhibit E5.14: Baseline Grocery Shopping Frequency of Primary Shoppers Completing Round 2 Survey, by Treatment and Control Status

	Total	Treatment	Control	P-value
Yearly or not at all	<0.01 (1)	<0.01 (1)	0.00 (0)	[0.520]
2-3 times a year	<0.01 (2)	0.00 (0)	<0.01 (2)	
Every other month	<0.01 (6)	<0.01 (4)	<0.01 (2)	
Once a month	0.28 (534)	0.29 (273)	0.28 (261)	
Every other week	0.35 (639)	0.34 (319)	0.36 (320)	
Once a week	0.22 (413)	0.23 (219)	0.21 (194)	
More than once a week	0.14 (253)	0.13 (121)	0.14 (132)	

Weighted proportions (unweighted Ns)

Two-sided chi-square test: *p<0.1, **p<0.05, ***p<0.01

"Don't know" responses coded as missing

Source: Primary Shopper Interview (unweighted N=1,848)

Exhibit E5.15: Baseline Probability of Going Out of Way/Making Special Effort to Shop at Particular Store for Fruits and Vegetables for Primary Shoppers Completing Round 2 Survey, by Treatment and Control Status

	Total	Treatment	Control	P-value
Go out of way to shop for FV at particular store	0.49 (889)	0.48 (446)	0.49 (443)	[0.728]

Weighted proportions (unweighted Ns)

Two-sided chi-square test: *p<0.1, **p<0.05, ***p<0.01

"Don't know" and "refused" responses coded as missing

Source: Primary Shopper Interview (unweighted N=1,834)

Exhibit E5.16: Baseline Barriers to Grocery Shopping for Primary Shoppers Completing Round 2 Survey, by Treatment and Control Status

How often kept from grocery shopping by...	Total	Treatment	Control	P-value
Limited transportation (N=1831)				
Never	0.42 (765)	0.42 (383)	0.42 (382)	[0.406]
Rarely	0.16 (288)	0.15 (143)	0.17 (145)	
Sometimes	0.24 (444)	0.24 (227)	0.24 (217)	
Most of the time	0.11 (193)	0.10 (95)	0.11 (98)	
Always	0.07 (141)	0.09 (80)	0.07 (61)	
Distance to grocery store (N=1819)				
Never	0.50 (905)	0.49 (452)	0.50 (453)	[0.145]
Rarely	0.13 (252)	0.15 (141)	0.12 (111)	
Sometimes	0.23 (401)	0.20 (187)	0.24 (214)	
Most of the time	0.08 (157)	0.09 (84)	0.08 (73)	
Always	0.06 (104)	0.06 (57)	0.06 (47)	

Weighted proportions (unweighted Ns)

Two-sided chi-square test: *p<0.1, **p<0.05, ***p<0.01

"Don't know" and "refused" responses coded as missing

Source: Primary Shopper Interview

Exhibit E5.17: Baseline Self-Reported Monthly Expenditures of Primary Shoppers Completing Round 2 Survey, by Treatment and Control Status

Usual monthly spending for...	Total	Treatment	Control	P-value
Groceries using only SNAP (N=1786)	277.78 (5.36)	273.00 (5.81)	278.53 (6.29)	[0.788]
Groceries not using SNAP (N=1753)	158.63 (4.96)	155.62 (5.04)	159.10 (5.68)	[0.949]
Food items ^a (N=1718)	110.18 (4.57)	104.34 (4.29)	111.09 (5.24)	[0.547]
Nonfood items (N=1718)	49.50 (1.84)	50.79 (2.78)	49.29 (2.09)	[0.595]
Restaurants (N=1776)	36.62 (1.59)	36.22 (1.67)	36.68 (1.83)	[0.820]
All fruits and vegetables ^b (N=1667)	71.13 (2.11)	71.08 (2.13)	71.14 (2.43)	[0.814]

Weighted means (standard errors)

Two-sided t-test: *p<0.1, **p<0.05, ***p<0.01

"Don't know," "refused," "inapplicable," and "not ascertained" responses coded as missing

^a Calculated as grocery expenditures not using SNAP minus expenditures on nonfood items

^b Purchased with SNAP and with other forms of payment.

Source: Primary Shopper Interview

Exhibit E6.1: Impact of HIP on Consumption of Fruits & Vegetables and Disaggregated Components, Lower- and Upper-Bound Modified Targeted Fruits and Vegetables (MTFV) and All Fruits and Vegetables, Cup-Equivalents, Full Regression Results Including Coefficients for All Covariates

	Lower-bound MTFV	MTFV from mixed foods	Upper-bound MTFV	100% fruit juice	White potatoes	Other fruits & vegetables acquired outside stores	All fruits and vegetables
Treatment status	0.215*** (0.0639)	-0.00607 (0.0316)	0.209*** (0.0716)	0.117** (0.0514)	0.0107 (0.0321)	0.00604 (0.0293)	0.343*** (0.101)
Respondent gender indicator - female	0.0921 (0.130)	0.0572 (0.0576)	0.149 (0.149)	-0.153 (0.113)	-0.117 (0.109)	-0.0513 (0.0641)	-0.172 (0.228)
Respondent gender indicator - male (EXCLUDED category)	-- --	-- --	-- --	-- --	-- --	-- --	-- --
Respondent race/ethnicity indicator - non-Hispanic black	0.0136 (0.126)	0.0655 (0.0677)	0.0791 (0.149)	0.266** (0.122)	-0.0431 (0.0761)	0.0237 (0.0587)	0.326 (0.248)
Respondent race/ethnicity indicator - Hispanic	0.138 (0.0933)	0.0109 (0.0517)	0.149 (0.110)	0.102 (0.0726)	-0.163*** (0.0440)	-0.0824 (0.0609)	0.00512 (0.158)
Respondent race/ethnicity indicator - non-Hispanic other race	0.552*** (0.210)	0.181 (0.111)	0.733*** (0.260)	0.0153 (0.0771)	-0.0764 (0.0750)	-0.0554 (0.0991)	0.617** (0.294)
Respondent race/ethnicity indicator - non-Hispanic white (EXCLUDED category)	-- --	-- --	-- --	-- --	-- --	-- --	-- --
Respondent age indicator - 16-30 years	-0.665*** (0.175)	-0.0779 (0.0743)	-0.743*** (0.192)	0.0427 (0.124)	0.0585 (0.0693)	0.0526 (0.0684)	-0.589** (0.285)
Respondent age indicator - 31-40 years	-0.502*** (0.192)	-0.0400 (0.0849)	-0.542** (0.215)	-0.114 (0.129)	0.0173 (0.0768)	0.0730 (0.0793)	-0.565* (0.310)
Respondent age indicator - 41-54 years	-0.480*** (0.175)	-0.0282 (0.0698)	-0.508*** (0.191)	-0.112 (0.116)	0.00560 (0.0640)	-0.0198 (0.0630)	-0.634** (0.276)
Respondent age indicator – 55+ years (EXCLUDED category)	-- --	-- --	-- --	-- --	-- --	-- --	-- --
Geography indicator - Springfield	-0.108 (0.0953)	-0.0670 (0.0581)	-0.175 (0.115)	0.0427 (0.0689)	0.00945 (0.0586)	0.0356 (0.0414)	-0.0875 (0.152)
Geography indicator - Chicopee/Holyoke	0.0512 (0.112)	-0.104* (0.0571)	-0.0531 (0.131)	-0.0443 (0.0725)	-0.0449 (0.0646)	0.165** (0.0742)	0.0227 (0.175)
Respondent age indicator – Hampden county balance (EXCLUDED category)	-- --	-- --	-- --	-- --	-- --	-- --	-- --
Household size indicator - 1 household member	0.207* (0.104)	0.0906 (0.0571)	0.298** (0.115)	-0.0870 (0.0725)	-0.0477 (0.0646)	-0.0688 (0.0742)	0.0942 (0.175)

	Lower-bound MTFV	MTFV from mixed foods	Upper-bound MTFV	100% fruit juice	White potatoes	Other fruits & vegetables acquired outside stores	All fruits and vegetables
	(0.106)	(0.0597)	(0.128)	(0.0840)	(0.0552)	(0.0656)	(0.164)
Household size indicator – more than one household member (EXCLUDED category)	--	--	--	--	--	--	--
Household head gender indicator - female	-0.253 (0.168)	-0.215*** (0.0775)	-0.468** (0.192)	-0.168 (0.120)	0.0262 (0.105)	-0.0195 (0.0710)	-0.629** (0.272)
Household head gender indicator - male (EXCLUDED category)	--	--	--	--	--	--	--
Elderly in household indicator	-0.153 (0.176)	-0.0404 (0.0736)	-0.193 (0.197)	-0.130 (0.102)	0.141* (0.0825)	-0.00560 (0.0740)	-0.189 (0.282)
Children in household indicator	0.317*** (0.105)	0.0892 (0.0557)	0.407*** (0.123)	0.0952 (0.0848)	-0.00389 (0.0576)	-0.107** (0.0530)	0.391** (0.168)
No children or elderly in household indicator (EXCLUDED category)	--	--	--	--	--	--	--
Household # of adults indicator - four or more adults in household	0.667* (0.389)	0.119 (0.114)	0.785** (0.379)	-0.204* (0.117)	0.0444 (0.131)	-0.142*** (0.0442)	0.484 (0.510)
Household # of adults indicator – three or fewer adults in household (EXCLUDED category)	--	--	--	--	--	--	--
Sampling wave indicator - Wave 2 (HIP start date Dec. 1, 2011)	0.0205 (0.0884)	-0.0542 (0.0452)	-0.0338 (0.104)	-0.00389 (0.0703)	-0.00851 (0.0459)	0.0482 (0.0444)	0.00200 (0.153)
Sampling wave indicator - Wave 3 (HIP start date Jan. 1, 2012)	-0.0857 (0.0889)	-0.0806* (0.0477)	-0.166 (0.101)	-0.0522 (0.0701)	-0.0382 (0.0490)	0.00208 (0.0363)	-0.255* (0.146)
Sampling wave indicator – Wave 1 (HIP start date Nov. 1, 2011) (EXCLUDED category)	--	--	--	--	--	--	--
Second recall interview (binary)	-0.257*** (0.0853)	-0.0237 (0.0684)	-0.281** (0.109)	-0.0318 (0.0748)	-0.0209 (0.0996)	-0.0370 (0.0470)	-0.370** (0.168)
First recall interview (binary) (EXCLUDED category)	--	--	--	--	--	--	--
Intake level more than usual (binary)	-0.0925 (0.124)	-0.0493 (0.0561)	-0.142 (0.142)	-0.0774 (0.0951)	-0.0374 (0.0625)	-0.0843 (0.0653)	-0.341* (0.204)
Intake level less than usual (binary)	-0.356*** (0.127)	-0.0554 (0.0662)	-0.412*** (0.149)	-0.212** (0.0983)	-0.103 (0.0684)	-0.172*** (0.0620)	-0.898*** (0.212)

	Lower-bound MTFV	MTFV from mixed foods	Upper-bound MTFV	100% fruit juice	White potatoes	Other fruits & vegetables acquired outside stores	All fruits and vegetables
Usual intake level assessment missing due to 'don't know' or break-off (binary)	-0.738*** (0.159)	-0.237** (0.107)	-0.975*** (0.197)	-0.181 (0.116)	-0.215** (0.0970)	0.250** (0.114)	-1.120*** (0.266)
Intake level same as usual (EXCLUDED category)	-- --	-- --	-- --	-- --	-- --	-- --	-- --
Estimated daily servings - juice (baseline)	0.0219 (0.0198)	0.00349 (0.00839)	0.0253 (0.0233)	0.0425** (0.0180)	0.0102 (0.00835)	-0.0107 (0.00773)	0.0673** (0.0311)
Estimated daily servings - fruit (baseline)	0.0599 (0.0392)	-0.0187 (0.0168)	0.0412 (0.0428)	-0.0104 (0.0249)	-0.0197 (0.0141)	0.0235 (0.0183)	0.0346 (0.0597)
Estimated daily servings - leafy green salad (baseline)	0.129* (0.0775)	0.0477 (0.0308)	0.177** (0.0869)	-0.0104 (0.0580)	-0.0224 (0.0311)	-0.00501 (0.0232)	0.139 (0.140)
Estimated daily servings - fried potatoes (baseline)	-0.0364 (0.178)	-0.0771 (0.0622)	-0.113 (0.202)	0.571** (0.244)	0.0890 (0.102)	-0.0409 (0.0593)	0.506** (0.234)
Estimated daily servings - other potatoes (baseline)	-0.0435 (0.0737)	0.00949 (0.0417)	-0.0340 (0.0917)	0.0326 (0.0689)	0.0362 (0.0347)	-0.0133 (0.0299)	0.0214 (0.126)
Estimated daily servings - beans (baseline)	0.0766 (0.0869)	0.0238 (0.0443)	0.100 (0.0970)	-0.0709 (0.0596)	-0.0197 (0.0395)	0.0596 (0.0643)	0.0696 (0.141)
Estimated daily servings - other vegetables (baseline)	0.110* (0.0662)	-0.0123 (0.0256)	0.0981 (0.0748)	0.0169 (0.0509)	0.0190 (0.0379)	0.0485* (0.0258)	0.183 (0.120)
Estimated daily servings - tomato sauce (baseline)	0.142 (0.177)	0.113 (0.113)	0.255 (0.245)	-0.226*** (0.0870)	-0.00857 (0.0812)	-0.0253 (0.0629)	-0.00420 (0.297)
Estimated daily servings - salsa (baseline)	-0.703 (0.498)	-0.399* (0.241)	-1.102* (0.588)	-0.232 (0.786)	1.651 (1.526)	-0.0860 (0.314)	0.230 (2.496)
Constant	1.159*** (0.234)	0.629*** (0.104)	1.788*** (0.270)	0.712*** (0.160)	0.513*** (0.103)	0.369** (0.150)	3.382*** (0.361)
Observations	2,081	2,081	2,081	2,081	2,081	2,081	2,081
R-squared	0.093	0.040	0.103	0.075	0.042	0.043	0.087

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Exhibit E6.2: Baseline Estimated Usual Daily Intake in Cup-Equivalents from Fruit & Vegetable Screener, Full Round 2 Sample and by Treatment and Control Status

	Total	Treatment	Control	P-value
100% Juice (N=1925)	1.58 (0.08)	1.45 (0.07)	1.60 (0.09)	[0.179]
Fruit (N=1927)	0.84 (0.04)	0.79 (0.04)	0.84 (0.04)	[0.379]
Salad (N=1938)	0.38 (0.02)	0.36 (0.02)	0.38 (0.02)	[0.369]
Fried Potatoes (N=1943)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	[0.684]
Other Potatoes (N=1938)	0.28 (0.01)	0.27 (0.01)	0.28 (0.02)	[0.633]
Beans (N=1934)	0.26 (0.01)	0.26 (0.02)	0.25 (0.01)	[0.639]
Other Vegetables (N=1919)	0.61 (0.02)	0.61 (0.03)	0.61 (0.03)	[0.976]
Tomato Sauce (N=1916)	0.15 (0.01)	0.16 (0.01)	0.15 (0.01)	[0.535]
Salsa (N=1932)	0.01 (<0.00\1)	0.02 (<0.01)	0.01 (<0.01)	[0.405]

Weighted means (standard error)

Two-sided test: *p<0.1, **p<0.05, ***p<0.01

"Don't know," "refused," and "inapplicable" responses on frequency or amount items coded as missing

Source: Modified EATS Fruit and Vegetable Screener, Sampled Respondent Interview