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Evaluation of the Healthy Incentives Pilot (HIP)
SUMMARY OF FINDINGS

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CONTENTS

OVERVIEW OF THE HEALTHY INCENTIVES PILOT EVALUATION

The Healthy Incentives Pilot (HIP) tested a way of making fruits and vegetables more affordable for participants in the Supplemental Nutrition Assistance Program (SNAP). Under HIP, SNAP participants received a financial incentive for purchasing fruits and vegetables. For every dollar of SNAP benefits they spent on targeted fruits and vegetables (TFVs) at participating retailers, SNAP households received a 30-cent incentive on their SNAP Electronic Benefit Transfer (EBT) card. The incentive could be spent on any SNAP-eligible foods and beverages.

The Massachusetts Department of Transitional Assistance (DTA) implemented the pilot in Hampden County. Located in western Massachusetts, the county includes urban, rural, and suburban areas with approximately 55,000 SNAP households. Hampden County has the lowest median household income in the State as well as high rates of obesity and related chronic illnesses. The pilot operated from November 1, 2011, through December 31, 2012.

The overall goal of the Healthy Incentives Pilot evaluation was to assess the impact of HIP on participants' intake of fruits and vegetables. The evaluation also did the following:

- Examined the mechanisms through which HIP affected consumption, including participant attitudes, food expenditures, shopping patterns, and family home food environment.
- Assessed the effect of HIP on stakeholders.
- Described how HIP was implemented and operated.
- Considered the feasibility and costs of expanding HIP.

The HIP evaluation used a random assignment research design, widely viewed as providing the strongest evidence of causal impact. Specifically, 7,500 Hampden County SNAP households were randomly selected to participate in HIP, while the remaining 47,595 SNAP households continued to receive benefits as usual.

Various types of data were collected from numerous sources, including: telephone surveys with a random subsample of HIP and non-HIP participants; EBT transaction data; retailer surveys; interviews with key stakeholders; and administrative cost data.

KEY FINDINGS

HIP Impacts on Participants

- HIP increased fruit and vegetable consumption of pilot participants. HIP participants consumed almost a quarter of a cup more targeted fruits and vegetables than non-HIP participants. This 26 percent increase in consumption over non-HIP participants is both statistically significant and large enough to be nutritionally relevant.
- HIP impacts were not affected by the presence of children in the household, employment status, age, or amount of the household's SNAP benefit. Some evidence indicated that impacts were larger for households who before HIP had more positive attitudes about fruits and vegetables.
- HIP households spent more SNAP benefits than non-HIP households on targeted fruits and vegetables in participating supermarkets and superstores—$12.05 versus $10.86 each month—an increase of $1.19 or 11 percent. HIP households earned average incentives of $3.65 each month. Average monthly purchases of targeted fruits and vegetables by HIP households were similar throughout the pilot and were less than originally anticipated.
- According to self-reports, HIP households spent $78.17 each month on all fruits and vegetables in all types of stores and with cash as well as SNAP benefits. In contrast, non-HIP households reported spending $72.02 each month, which was $6.15 (or 8.5 percent) less than spending reported by HIP households.

- HIP participants clearly responded to the price incentive and used their SNAP benefits to purchase more targeted fruits and vegetables. However, the amount of TFVs they purchased with their SNAP benefits in HIP participating stores was insufficient to account for their entire increased intake. This suggests that HIP affected consumption through other mechanisms as well, such as informational and attitudinal effects, and may also suggest an incomplete understanding of how the pilot worked.

Effects of HIP on Retailers

- HIP had relatively little effect on store operations. Most retailers reported that HIP purchases were easy to process. Over 90 percent of retailers reported no change in check-out time. Few retailers reported problems during the pilot.
- HIP might have induced retailers to increase their supply of fruits and vegetables to attract HIP households, but only a minority of retailers reported such changes during the pilot.
- HIP increased SNAP redemptions at Hampden County retailers due to the incentives earned, but because incentive earnings were small, the impact on retailer sales was also small. Most SNAP spending occurred in supermarkets, superstores, and grocery stores, and HIP participating retailers in these categories experienced the HIP-related spending increase.

HIP Implementation, Costs, and Feasibility of Expansion

- HIP was an innovative and complex project. Planning and implementation was difficult, requiring DTA to coordinate the work of numerous entities to ensure the pilot was operational in 15 months.
- Total costs for the pilot were $4.4 million. System changes accounted for a little over half of all costs. Incentive payments to HIP participants represented just 6 percent of total costs ($263,043). Retailer recruitment, participant notifications and training, and expenses for management and oversight of HIP accounted for the remaining costs.
- The experience in Hampden County demonstrated that HIP was both technically and operationally feasible. Projected start-up costs to expand HIP nationwide are estimated to be $89.8 million. The projected value of incentives with nationwide expansion, based on plausible scenarios about SNAP households' fruit and vegetable spending, ranges from $0.8 billion to $4.5 billion annually.

The remainder of this Summary examines these and other findings in more detail, and discusses their implications.

BACKGROUND

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

Under HIP, SNAP participants received a financial incentive for the purchase of fruits and vegetables. Specifically, for every dollar of SNAP benefits the household spent on targeted fruits and vegetables (TFV) in participating retailers, 30 cents in SNAP benefits was added back to their EBT card. 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.[1] The incentive was capped at $60 per household per month to prevent misuse and ensure that total incentive payments would not exceed $2 million. The cap did not appear to constrain households as very few households reached it.

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

HIP was rolled out in three waves over three months. Approximately equal numbers of households were able to begin earning HIP incentives on November 1, 2011, December 1, 2011 and January 1, 2012. HIP participants were able to earn incentives for 12 months; incentives ended for the third wave in December 2012.

HIP Evaluation

The objective of the HIP incentive was to increase participants' intake of fruits and vegetables. The evaluation therefore measured HIP's impact on the consumption of targeted fruits and vegetables—those foods eligible to earn the incentive. In addition, the evaluation also conducted numerous exploratory analyses to learn whether HIP affected consumption of specific fruits and vegetables and other types of foods, and whether the pilot was associated with a change in overall diet quality.

To understand how HIP worked, the evaluation examined various mechanisms through which HIP might affect consumption. These included participant attitudes toward fruits and vegetables, food expenditures, shopping patterns, and family home food environment. In addition, analyses examined whether HIP impacts differed by household characteristics as well as by baseline attitudes and behaviors.

Because operating HIP required the cooperation of retailers, the evaluation examined how the pilot affected their operations, including check-out processes and the promotion and sales of fruits and vegetables.

Finally, the evaluation documented the process of implementing and operating HIP. In particular, the evaluation quantified the costs of the pilot, including development, implementation, and incentive costs. The evaluation also considered the feasibility of expanding HIP nationwide and the potential costs of such an expansion.

The HIP evaluation used a random assignment research design. Specifically, 7,500 Hampden County SNAP households were randomly selected to participate in HIP, while the remaining 47,595 households continued to receive SNAP benefits as usual.

Data Collection

To determine impacts on fruit and vegetable consumption, the evaluation had to collect dietary intake data. The evaluation employed trained telephone interviewers to collect this information using dietary recall interviews—a widely used, reliable methodology—that obtained detailed information on all foods and beverages the respondent consumed in the 24 hours before the interview. Survey respondents also provided information about their attitudes toward and preferences for fruits and vegetables, and their shopping patterns, food expenditures, and household characteristics.

A random subsample of approximately 5,000 households, equally divided between the HIP and non-HIP groups, was selected to participate in the telephone survey data collection. Three rounds of participant surveys were conducted. The first, occurring before HIP implementation, collected baseline information (Round 1). Two rounds of participant surveys were conducted during HIP, one 4 to 6 months into implementation (Round 2), and the other 9 to 11 months into implementation (Round 3). Only the Round 2 and Round 3 surveys included 24-hour dietary recalls. In addition, two rounds of three focus groups each were conducted with HIP participants, corresponding to the Round 2 and Round 3 participant surveys.

Several other types of data were collected as part of the evaluation. EBT transaction data were obtained for all 55,095 HIP and non-HIP households in Hampden County for all 14 months of HIP implementation. These data provided detailed information on households' SNAP EBT purchases, including the date, time, amount, and store location for each shopping transaction that used SNAP benefits. In addition, for HIP households, the data provided information on aggregate HIP-eligible purchase amounts and HIP incentives earned. In participating stores with electronic cash register systems that automatically collect such information, data on purchases of targeted fruits and vegetables were provided for both HIP and non-HIP households.

Two rounds of retailer surveys and three rounds of store observations provided information on how HIP affected store operations. The first retailer survey was conducted before HIP implementation and the second was conducted near the end of the pilot. The timing of the three rounds of store observations corresponded approximately to the participant survey rounds. Three rounds of interviews with DTA staff and other key stakeholders

provided information about HIP implementation and operation, which was used to examine the effect of the pilot on stakeholders and to estimate the costs of the pilot and of nationwide expansion of HIP. Administrative cost data were also used to calculate pilot costs.

HIP IMPACTS ON PARTICIPANTS

The main goal of the HIP evaluation was to assess the impact of HIP on participants' consumption of targeted fruits and vegetables (TFV). This is the single confirmatory outcome we specified before analyzing the data.[2] In addition to this main outcome, the evaluation also examined the impact of HIP on the consumption of total fruits and vegetables, on the consumption of different types of fruits and vegetables, and on overall dietary quality.

HIP was expected to affect these consumption outcomes primarily by inducing households to purchase more targeted fruits and vegetables. The incentive would make these foods less expensive, thereby encouraging households to increase their purchases, resulting in additional fruits and vegetables in the home. HIP might also influence the attitudes of household members toward fruits and vegetables, reminding them of their nutritional value and encouraging households to purchase and consume more.

The rest of this section examines the impact of HIP on these participant outcomes: fruit and vegetable consumption, expenditures, home food environment, and attitudes. Unless otherwise noted, we only discuss HIP/non-HIP differences that are statistically significant at conventional significance levels ($p<0.05$). The final evaluation report presents results of all analyses conducted.

Consumption of Fruits and Vegetables

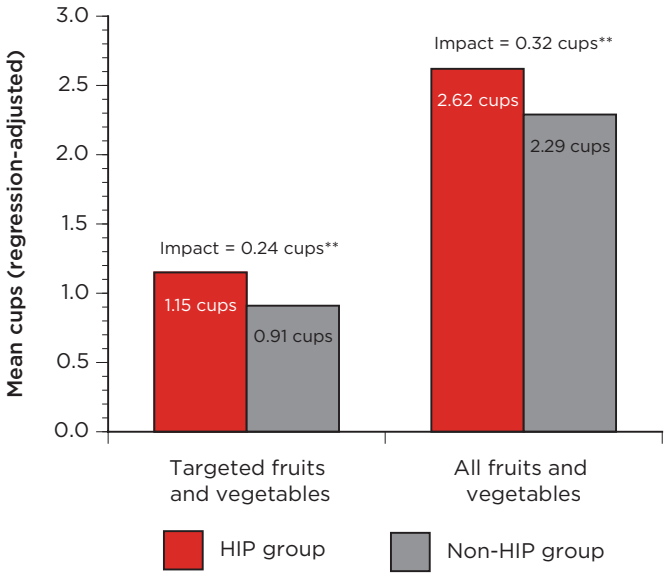
The evaluation found that HIP participants (adults 16 and older) consumed significantly more fruits and vegetables per day than did non-HIP participants. HIP participants consumed almost a quarter of a cup more targeted fruits and vegetables (those that earned the incentive) than did non-HIP participants (Exhibit 1). This represents an increase in consumption of 26 percent over non-HIP participants.

HIP participants also consumed more 100% fruit juice than did non-HIP participants. As a result, HIP participants consumed almost one-third of a cup more of all fruits and vegetables than did non-HIP participants. The total fruit and vegetable measure included TFVs as well as 100% fruit juice, white potatoes, legumes, and foods bought in prepared form.

There are several possible reasons why HIP's impact may have been broader than the impact on targeted fruits and vegetables alone (though the data do not allow us to determine the relative importance of the different reasons). HIP participants had additional SNAP resources due to incentive earnings, which they may have chosen to spend on non-targeted fruits and vegetables. In addition, HIP may have influenced their attitudes and preferences for fruits and vegetables in general. Finally, participants may have mistakenly thought that some ineligible items, such as 100% fruit juice, were eligible for the incentive.

HIP participants increased their consumption of vegetables more than their consumption of fruits. Approximately 55 percent of HIP's effect on the consumption of targeted fruits and vegetables stemmed

Exhibit 1: HIP participants consumed more fruits and vegetables per day.



**Difference between HIP group and non-HIP group is significantly different from zero at the 0.01 level.
Due to rounding, impact may not be exactly the same as the difference between the HIP and non-HIP groups.

Source: *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*, 2014 (Exhibit 8.3).

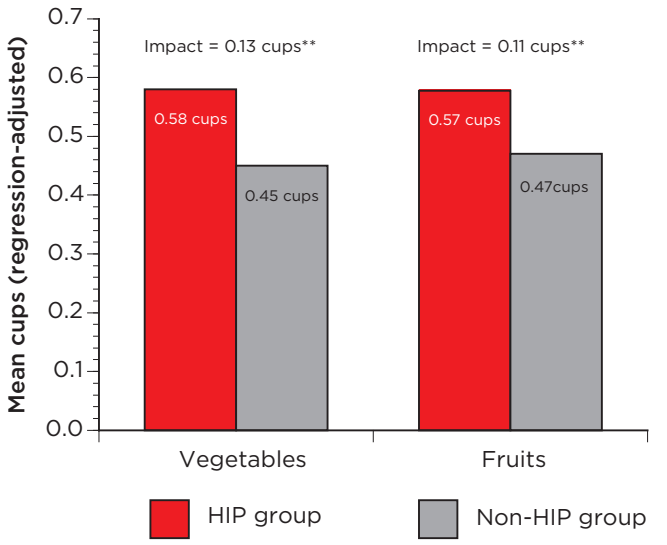
from greater consumption of vegetables and 45 percent from greater consumption of fruits. HIP participants consumed 0.13 cups more vegetables and 0.11 cups more fruits than did non-HIP participants (Exhibit 2).

While all targeted fruits and vegetables earned the incentive, HIP affected the consumption of only certain types of fruits and vegetables.[3] HIP participants consumed more dark green vegetables, red/orange vegetables, and "other" vegetables (e.g., celery, cucumbers, mushrooms, green beans, onions, asparagus) compared with non-HIP participants (Exhibit 3). The consumption of other starchy vegetables was similar in both the HIP and non-HIP groups. In the fruit category, HIP participants consumed significantly more "other" fruits (e.g., apples, pears, bananas, grapes, peaches) than did non-HIP participants (Exhibit 3). Both groups consumed similar amounts of the citrus fruit, melons, and berries group.

Nearly all survey respondents in both the HIP and non-HIP groups consumed some fruits and/or vegetables during the day. Thus, there was little room for HIP to induce those not already consuming any fruits and vegetables to start doing so. However, some evidence suggests that HIP may have caused individuals to consume some types of fruits and vegetables on days when they otherwise would not have consumed any. Among HIP participants, 47 percent consumed some "other" fruit during the previous day compared with 42 percent of non-HIP participants. HIP participants were also more likely than non-HIP participants to have consumed 100% fruit juice—50 percent of HIP participants compared to 45 percent of non-HIP participants (Exhibit 4). In addition, 16 percent of HIP participants compared with 12 percent of non-HIP participants reported consuming dark green vegetables, and 68 percent of HIP participants consumed some "other" vegetables compared to 65 percent of non-HIP participants.

Consistent with the increase in fruit and vegetable consumption and with the increased likelihood of consuming some types of fruits and vegetables in a typical day, the evaluation found that HIP partici-

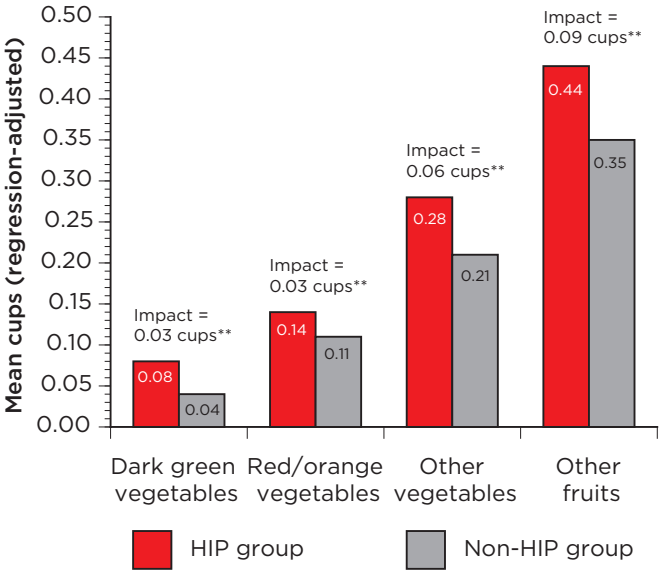
Exhibit 2: HIP participants increased their consumption of vegetables more than they increased their consumption of fruit.



**Difference between HIP group and non-HIP group is significantly different from zero at the 0.01 level.
Due to rounding, impact may not be exactly the same as the difference between the HIP and non-HIP groups.

Source: *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*, 2014 (Exhibit 8.5).

Exhibit 3: HIP participants increased consumption of certain types of vegetables and fruits.



**Difference between HIP group and non-HIP group is significantly different from zero at the 0.01 level.
Due to rounding, impact may not be exactly the same as the difference between the HIP and non-HIP groups.

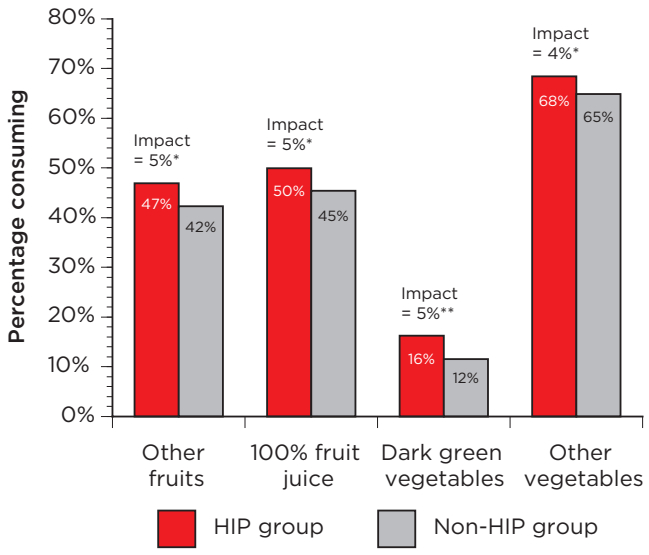
Source: *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*, 2014 (Exhibit 8.5).

pants consumed a greater variety of fruits and vegetables than non-HIP participants. This is measured by the number of different fruit and vegetable food groups participants consumed.

Given that HIP caused greater consumption of fruits and vegetables overall among participants compared with non-participants, the analysis examined whether some categories of individuals experienced larger HIP impacts than others. One set of analyses examined whether impacts varied by demographic characteristics, including gender, age, education, race/ethnicity, disability status, employment status, household composition, WIC status, and SNAP benefit amount. The impact of HIP on the consumption of targeted fruits and vegetables and on the consumption of all fruits and vegetables did not vary by any of the demographic characteristics examined.

A second set of analyses examined whether HIP impacts differed depending on the attitudes that respondents reported before HIP implementation.

Exhibit 4: HIP induced additional participants to consume some specific fruits and vegetables.



* Difference between HIP group and non-HIP group is significantly different from zero at the 0.05 level.
**Difference between HIP group and non-HIP group is significantly different from zero at the 0.01 level.
Due to rounding, impact may not be exactly the same as the difference between the HIP and non-HIP groups.

Source: *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*, 2014 (Exhibit 8.8).

This analysis found evidence that stronger preferences for fruits and vegetables at baseline predicted stronger HIP impacts. Specifically, impacts of HIP were larger among those with more positive attitudes toward fruits and vegetables before HIP implementation. This suggests that HIP may have been more successful in increasing intake among those who already enjoyed fruits or vegetables, relative to those who did not already enjoy these foods.

Dietary Quality

To determine whether HIP participants' increased fruit and vegetable intake led to more healthful eating habits and improved overall nutritional status and diet quality, we examined several measures of dietary quality. These included fiber and macronutrients commonly found in fruits and vegetables, adherence to the 2010 Dietary Guidelines for Americans (DGAs), and the 2010 Healthy Eating Index (HEI).

HIP participants consumed foods with higher overall levels of vitamin C than did non-HIP participants. This is consistent with the observed increase in consumption of fruit given that many fruits are good sources of vitamin C. Intake of vitamin A, beta carotene, and fiber was similar among HIP participants and non-HIP participants.

Since HIP was successful in increasing fruit and vegetable consumption, improved overall dietary quality might be expected for HIP participants. To assess whether this occurred, we examined HIP impacts on the proportion of participants whose measured food intake complied with selected 2010 DGAs. We also assessed scores on the 2010 HEI, a measure of diet quality in terms of conformance to Federal dietary guidance.

Few respondents overall met the DGAs for fruits and even fewer met the guidelines for vegetables. HIP participants were no more likely than non-HIP participants to meet fruit and vegetable guidelines.

HIP did, however, increase HIP participants' HEI scores. All four fruit and vegetable components of the 2010 HEI were significantly higher among HIP participants than non-HIP participants following HIP implementation. These differences led to an increase in the total 2010 HEI score, which was almost five points higher among HIP participants than non-HIP participants (62 compared to 57, respectively).

Expenditures on Fruits and Vegetables

The HIP incentive effectively lowered the price of the targeted fruits and vegetables, which was expected to encourage households to purchase more of these foods. In turn, this was expected to increase intake of fruits and vegetables. Spending measures are therefore important in helping to understand how HIP increased fruit and vegetable consumption.

HIP participants earned incentives only if they did all of the following:

- Purchased targeted fruits and vegetables (TFV).
- Used their SNAP benefits to make the purchase.
- Made the purchase at a retailer that participated in HIP.

Not all HIP households earned incentives each month (though almost all households earned some incentives during the year-long pilot). EBT data show that, in an average month, two-thirds of HIP households earned some HIP incentive. Households with higher SNAP benefits, with children in the household, and with Hispanic or Asian heads were more likely to earn HIP incentives.

In an average month, HIP households spent just over $12 on targeted fruits and vegetables in participating stores (representing 5 percent of their SNAP benefits), earning an average incentive of $3.65. Average monthly purchases of TFVs were similar over all the months the pilot operated.

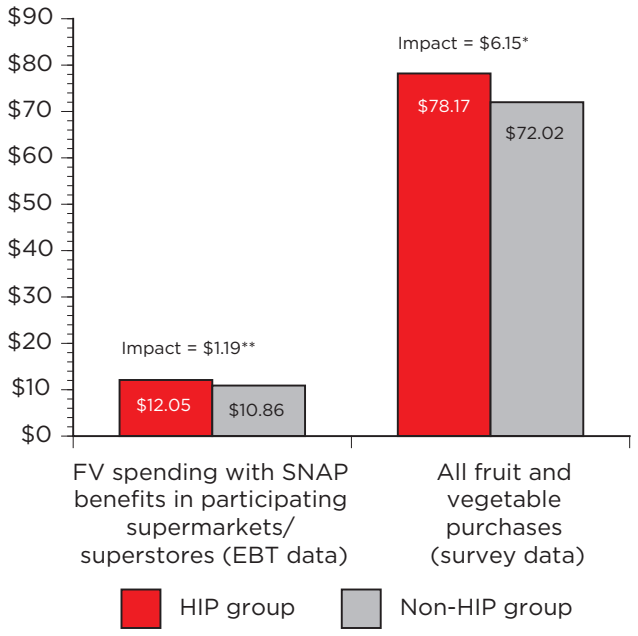
HIP households spent more than non-HIP households on targeted fruits and vegetables in participating supermarkets and superstores. The EBT data for supermarkets and superstores includes information on total TFV purchases in these stores for both HIP and non-HIP households, allowing us to compare their purchases. In these stores, non-HIP households spent $10.86 each month on targeted fruits and vegetables using their EBT card and HIP households spent $12.05. This represents an increase of $1.19 or 11 percent (Exhibit 5).

A second measure of fruit and vegetable spending comes from survey respondents, who reported their usual monthly expenditures on all fruits and vegetables. HIP households reported spending more on fruits and vegetables overall than did non-HIP households. HIP households said they spent $78.17 each month on fruits and vegetables (21 percent of their total grocery spending) while non-HIP households reported spending $72.02 (19 percent of their grocery spending). This difference of $6.15 represents an 8.5 percent increase in fruit and vegetable spending due to HIP (Exhibit 5).

The survey measure differs from the EBT-based measure of TFV spending because the survey measure includes fruit and vegetable purchases in stores that did not participate in HIP, purchases made with cash or other forms of payment, and purchases of fruits and vegetables that did not qualify to earn incentives (such as white potatoes and 100% fruit juice). Monthly SNAP spending on targeted fruits and vegetables in HIP stores represented just 18 percent of all reported fruit and vegetable purchases (Exhibit 6).

HIP did not lead households to make major changes in shopping patterns, such as where they purchased groceries and how frequently they shopped. HIP gave households some motivation to

Exhibit 5: HIP households purchased more fruits and vegetables each month.



* Difference between HIP group and non-HIP group is significantly different from zero at the 0.05 level.
**Difference between HIP group and non-HIP group is significantly different from zero at the 0.01 level.

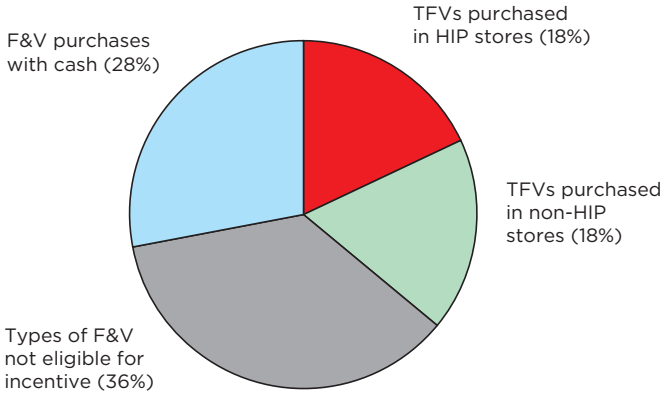
Source: *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*, 2014 (Exhibits 6.1, 6.2).

make their purchases of targeted fruits and vegetables in participating stores, so that they could earn the incentive. However, HIP participants did not respond strongly to this motivation. During the pilot, SNAP expenditures in participating retailers increased by approximately the value of the incentives earned, while SNAP expenditures in non-participating retailers were unchanged.

When asked in the participant survey, approximately one-quarter of HIP households reported that they had changed where they purchased fruits and vegetables, generally to have access to fresh produce, a greater variety of fruits and vegetables, and more affordable prices. Because we see no corresponding pattern in the EBT transaction data, it seems likely that these responses reflected only small behavioral changes, such as occasionally switching fruit and vegetable purchases between two stores that the participant already patronized.

HIP survey respondents reported changes in fruit and vegetable purchasing. Two-thirds of HIP households said that they bought larger amounts and a greater variety of fruits and vegetables because of HIP. Almost half reported that they bought fruits and vegetables that they had not tried before (Exhibit 7). In addition, three-quarters of HIP households felt that fruits and vegetables had become more affordable due to HIP.

Exhibit 6: HIP households purchased fruits and vegetables in different ways, earning incentives on a relatively small percentage of their purchases.



TFV: Targeted fruits and vegetables; F&V: Fruits and vegetables.
Source: *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*, 2014 (calculated from Section 6.1).

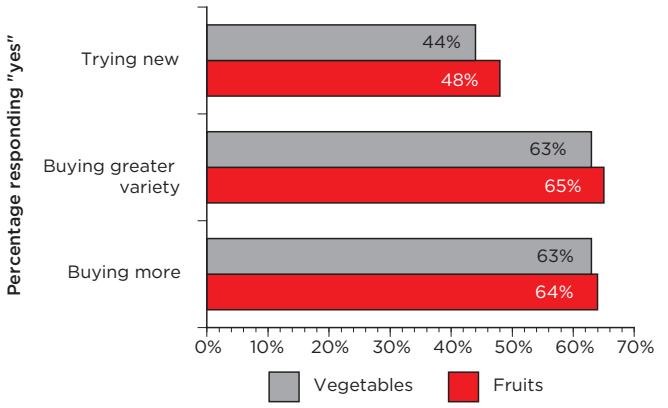
Knowledge, Attitudes, and Behaviors

For the HIP incentive to affect purchasing behavior and ultimately food consumption, HIP participants needed to know about the program and understand how it worked. Findings from the participant survey and from focus groups suggest that a sizeable proportion of HIP participants did not fully understand the pilot program, though their understanding increased over the year the pilot lasted.

When HIP participants were asked early in the pilot (4 to 6 months after implementation) whether they had heard of HIP, 38 percent reported that they had not heard about HIP (Exhibit 8). Awareness increased over time and by later in the pilot (9 to 11 months after implementation), three-quarters reported that they had heard about HIP. However, a sizeable minority (24 percent) of HIP participants were reportedly unaware of the pilot even at that late date.

HIP participants also had some difficulties understanding how the pilot worked. When asked near the beginning of the pilot, 38 percent said it was hard to understand how HIP worked and 37 percent said it was hard to remember which fruits and vegetables qualified to earn the incentive. Understanding improved over the year and by the latter part of the pilot, fewer, but still a sizeable minority (25 percent) of HIP participants reported such difficulties (Exhibit 8). Exploratory analysis suggested that limited understanding of HIP was associated with lower

Exhibit 7: HIP households reported buying more and a greater variety of fruits and vegetables.



Source: *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*, 2014 (Exhibit 6.8).

spending on TFVs using EBT benefits in supermarkets and superstores participating in HIP.

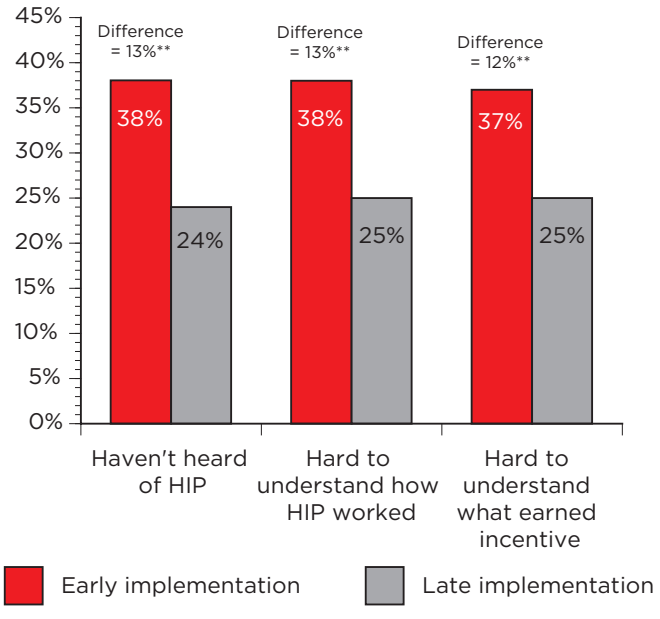
Attitudes toward and preferences for fruits and vegetables may affect both the level of fruit and vegetable intake and how responsive participants are to the incentive. Respondents were asked several questions about their food preferences and perceived barriers to consuming fruits and vegetables. Both HIP participants and non-HIP participants generally had quite positive attitudes toward fruits and vegetables and did not report overwhelming barriers to their consumption.

Some indicators suggest that HIP may have improved attitudes toward fruits and vegetables, at least for some groups of participants. HIP participants who reported before the pilot began that they were consuming three or more servings of fruits and vegetables daily subsequently had more positive attitudes toward fruits and vegetables than did non-HIP participants who also reported consuming three or more servings of fruits and vegetables daily. In other respects, HIP and non-HIP households generally had similar attitudes. This suggests that HIP may have been more successful in strengthening favorable attitudes among those who already consumed above-average amounts of fruits or vegetables.

Past research has shown that having fruits and vegetables in the family food environment is associated with increased consumption. While HIP and non-HIP households were similar before the intervention, HIP households more often had fruits and vegetables available at home during the pilot. Eighty-eight percent of HIP households had fruits available for family members and 92 percent had vegetables available (Exhibit 9). Non-HIP households were somewhat less likely to have fruits and vegetables at home—83 percent had fruits available and 89 percent had vegetables available.

HIP had no impact on the availability of other types of foods at home, which includes both foods commonly identified as more healthful (such as

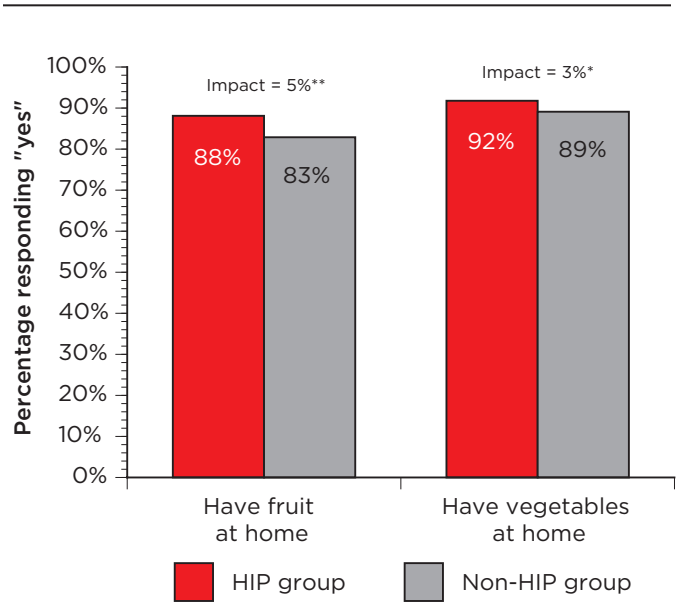
Exhibit 8: HIP participants did not fully understand the pilot, though understanding improved over time.



**Difference between early and late implementation is significantly different from zero at the 0.01 level.
Due to rounding, change may not be exactly the same as the difference between the HIP and non-HIP groups.

Source: *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*, 2014 (Exhibits 5.1, 5.4).

Exhibit 9: HIP participants were more likely to have fruit and vegetables available at home.



* Difference between HIP group and non-HIP group is significantly different from zero at the 0.05 level.
**Difference between HIP group and non-HIP group is significantly different from zero at the 0.01 level.

Source: *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*, 2014 (Exhibit F7.13).

lowfat/nonfat milk) and less healthful (such as salty snacks and soft/fruit drinks).

How HIP Worked

HIP was envisioned primarily as a financial inducement to increase fruit and vegetable intake among SNAP participants. The incentive effectively lowered the price of fruits and vegetables, which economic theory predicts would lead households to increase their purchases of the targeted fruits and vegetables thus resulting in increased consumption. In addition, HIP's impact could plausibly have been increased by the implicit and explicit nutrition information and marketing provided by HIP—mailings, an EBT card sleeve, and register receipts summarizing incentive earnings—and by the very existence of a program that rewarded fruit and vegetable purchases.

HIP households clearly responded to the price incentive and used their SNAP benefits to purchase more targeted fruits and vegetables, thereby earning HIP incentives. However, the amount of TFVs they purchased with their SNAP benefits in HIP participating stores was insufficient to account for all their increased intake. As noted above, household spending on TFVs in HIP participating stores was only a relatively small percentage of their reported spending on all fruits and vegetables. Clearly, HIP households bought fruits and vegetables in ways that did not earn incentives.

Taken together, these findings suggest that HIP also affected consumption in ways other than through the price mechanism. The evaluation identified two other mechanisms that likely help explain how HIP led to increased consumption of fruits and vegetables among pilot participants:

- ***Informational or attitudinal mechanism***—HIP may have exposed some participants to the benefits of fruit and vegetable consumption and helped change their attitudes. While the evaluation only found limited evidence that HIP directly affected attitudes, some exploratory analysis suggested that changed attitudes may have played a role in increased consumption.
- ***Incomplete understanding of how the pilot worked***—Some HIP participants had an incomplete understanding of how the incentive worked and which fruits and vegetables qualified to earn incentives. As a result, they may have thought they were earning incentives in situations where they did not in fact earn them—such as in stores that did not participate in HIP or for fruits and vegetables that did not qualify.

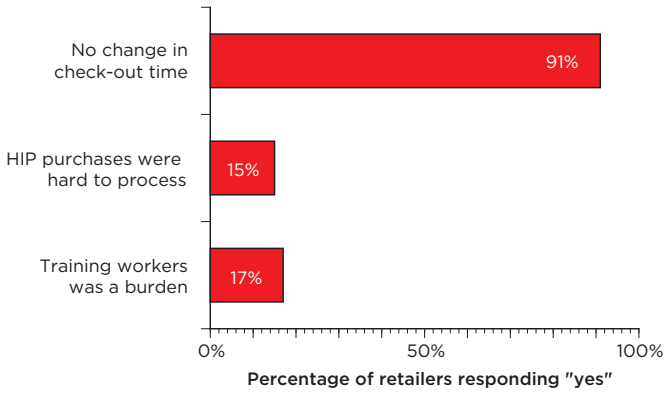
Further research could help policymakers understand the underlying mechanisms by which HIP impacted fruit and vegetable consumption, potentially disentangling the possible explanations for the observed effects and informing consideration of how to best design an incentive program.

EFFECTS OF HIP ON RETAILERS

How HIP affects retailers' businesses is critical to the potential long-run feasibility of the program. Among the 130 stores that voluntarily participated in HIP, the evaluation found that HIP had relatively little effect on store operations and on the retail environment more generally. However, impacts might be greater in a wider implementation with more SNAP households earning the incentive and with more retailers participating in HIP.

At the outset of the pilot, some retailers, particularly smaller stores, were concerned that HIP might increase the time and effort required to process SNAP purchases. Minimal changes were expected in supermarkets and superstores since processes in these stores were automated with integrated electronic cash register (IECR) systems. Most smaller grocery stores and convenience stores did not have

Exhibit 10: HIP had relatively little effect on store operations across all participating retailers.



Source: *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*, 2014 (Exhibits 4.3, 4.7).

IECRs. At these stores, cashiers had to manually separate HIP-eligible items from other SNAP items and calculate a HIP subtotal. However, store managers reported that HIP had little effect on check-out time—over 90 percent of retailers reported no change in check-out time (Exhibit 10). Grocery store owners were somewhat more likely to report an increase in check-out time, but over 80 percent reported no change.

In addition, relatively few retailers (15 percent) reported that HIP purchases were hard to process. None of the supermarkets and superstores with IECRs had difficulty, but roughly one-third of the smaller grocery stores reported that HIP purchases were hard to process. Similarly, only 17 percent of retailers reported that training workers for HIP was a burden. Over 50 percent of grocery stores reported training was burdensome, while no supermarkets or superstores reported difficulties. This undoubtedly reflects differences in the procedures required to process HIP transactions and thus in the worker training that was required in the two types of stores.

Few retailers reported problems during the pilot. The most common problems and questions, reported only by stores without IECRs, concerned identifying HIP-eligible items and identifying customers participating in the pilot who could earn the incentive.

It is encouraging that relatively few HIP retailers reported problems with HIP operations. However, anecdotal evidence from DTA suggests that the anticipated burden of HIP participation deterred some smaller retailers who did not use IECRs from agreeing to participate in the pilot. Any wider implementation of HIP might benefit from taking this issue of perceived burden into consideration.

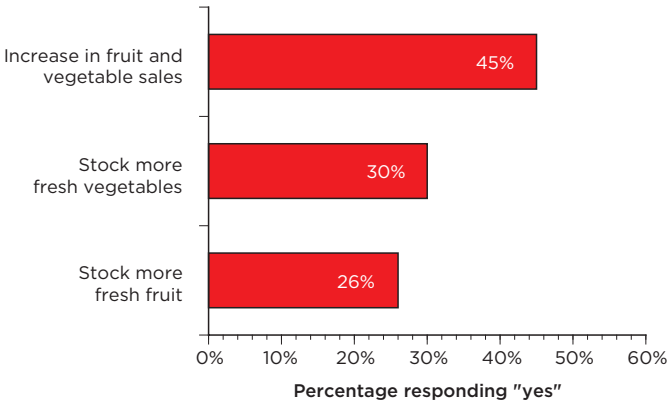
HIP could potentially have induced retailers to increase their supply of fruits and vegetables to attract HIP households, but only a minority of retailers reported such changes during the pilot. Overall, 26 percent of retailers reported that they stocked more fresh fruits and 30 percent reported that they stocked more fresh vegetables after HIP began (Exhibit 11). Grocery stores were more likely to report increased stocking than either supermarkets, superstores, or convenience stores. Perhaps if HIP was widely implemented, more stores would expand their fruit and vegetable offerings, similar to the increased availability of healthy foods that resulted from the revised WIC food packages (Andreyeva et al., 2012).

Overall, 45 percent of participating stores reported that they experienced some, though generally small, increases in sales of fruits and vegetables due to HIP (Exhibit 11). This increase was reported primarily by supermarkets, superstores, and grocery stores. Few convenience stores reported increases, which is not surprising given the limited number of fruits and vegetables that they had available both before and throughout the pilot.

A majority of retailers reported that they were somewhat or very satisfied with how HIP worked in their stores, though satisfaction varied depending on the type of store (Exhibit 12). The vast majority of supermarkets, superstores, and grocery stores reported that they were satisfied with HIP. In contrast, only one-third of convenience store managers were somewhat or very satisfied; the rest were neither satisfied nor dissatisfied. These findings are likely explained by the fact that convenience stores carried relatively few HIP-eligible items, which limited the pilot's potential benefits for them.

DTA made a considerable effort to ensure that farmers markets were able to participate in the pilot, including developing technology solutions to support their participation. Because farmers markets provide an array of fresh fruits and vegetables, they were a good source for targeted fruits and vegetables. While most farmers markets participated in HIP, SNAP purchases in farmers markets were relatively small during the pilot. Less than half of 1 percent of

Exhibit 11: HIP had a limited effect on stocking and sales of fruits and vegetables.



Source: *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*, 2014 (Exhibits 4.4, 4.5).

HIP and non-HIP households shopped in farmers markets.

HIP increased SNAP redemptions at Hampden County retailers due to the incentives earned by HIP households, which gave them more SNAP benefits to spend. However, because the amount of incentives earned was small, the impact on retailer sales was also small. Most SNAP spending occurred in supermarkets, superstores, and grocery stores, and these stores, particularly the ones participating in HIP, experienced the HIP-related spending increase.

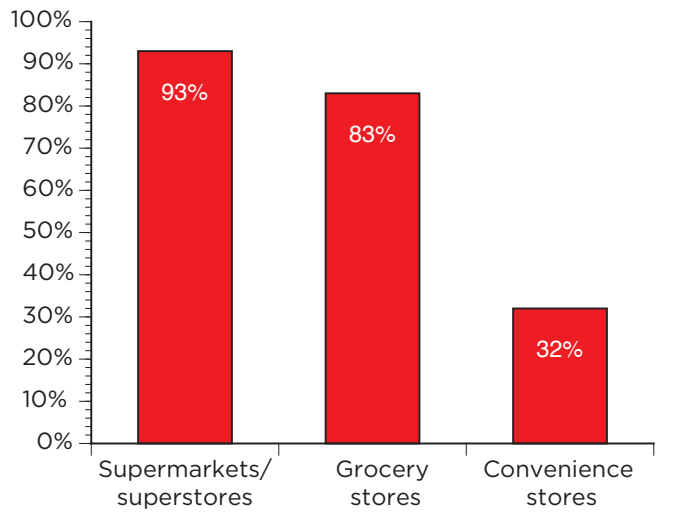
HIP IMPLEMENTATION, COSTS, AND FEASIBILITY OF EXPANSION

The evaluation documented the process of implementing and operating HIP. This included quantifying the costs of the pilot, including development, implementation, and incentive costs. The evaluation also considered the feasibility of expanding HIP nationwide and the potential costs of such an expansion. The challenges and lessons learned from HIP provide valuable guidance for States or other organizations implementing similar initiatives.

HIP Implementation

HIP was an innovative and complex project. Planning and implementation were difficult, requiring DTA to coordinate the work of numerous entities to ensure the pilot was up and running in 15 months. While the design and development process posed many challenges, DTA succeeded in implementing the pilot on schedule. The three key HIP planning and implementation activities involved EBT system changes, recruiting retailers, and training participants.

Exhibit 12: Most HIP retailers were somewhat or very satisfied with how HIP worked in their stores.



Source: *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*, 2014 (Exhibit 4.10).

- ***Designing and implementing EBT system changes*** included developing software to identify when HIP incentives were earned, calculate the incentive amount to credit to HIP clients, and draw down bank funds to pay retailers for food purchases. HIP implementation required substantial system modifications by each of the major partners in EBT operations: DTA, which modified its SNAP client system; Xerox, the EBT processor, which modified its EBT system; and retailers with integrated electronic cash registers and their third-party processors, which modified their systems. The system changes required developing and testing software in roughly 15 months on a tightly coordinated schedule.
- ***Recruiting retailers to participate in HIP*** was critical to the success of the pilot as HIP participants needed to locate and access stores in which they could earn incentives. DTA succeeded in recruiting approximately 130 SNAP-authorized stores to participate in HIP, including supermarkets, superstores, grocery stores, convenience stores, and farmers markets. However, not all households had similar access to participating stores that sold substantial quantities of fruits and vegetables, particularly supermarkets, superstores, and grocery stores. All but one major supermarket chain in Hampden County participated in HIP, but the non-participating chain had a significant presence in the county. As a result, the stores participating in HIP, including several stores that joined during the course of the pilot, accounted for 59 percent of total Hampden County SNAP redemptions. Pilot impacts, particularly the relatively low level of incentives earned by households, were likely affected by this limited retailer participation.
- ***Developing training and notification materials for HIP participants*** so they understood the

purpose of the pilot, were able to locate retailers, and were able to identify and purchase qualifying fruits and vegetables required significant efforts. DTA and its partners spent considerable time on these activities, developing user-friendly materials as well as a schedule and process to disseminate those materials in a series of mailings. DTA provided over 140 voluntary trainings, which were well received but sparsely attended. Only about 1 percent of HIP participants actually attended trainings. Finally, DTA provided substantial support for participants during the pilot using various media, including a dedicated HIP 800 call line, website, and email address.

The fact that HIP operated as a pilot, with only a small proportion of the county's SNAP households participating, and that HIP was being rigorously evaluated, limited the scope of possible education and outreach activities. HIP was designed to test the effect of a financial incentive alone, and therefore materials needed to inform participants about the program but did not include nutrition education information. In addition, it was not possible to use explicit signage about HIP (e.g., signs on buses) because they might have affected non-HIP participants. These factors likely explain, at least in part, the incomplete understanding of the pilot as reported by HIP participants.

HIP Implementation and Operation Costs

Total costs for implementing HIP, including the incentives earned by HIP participants, were $4.4 million. The majority of the costs (55 percent) were incurred for system design, development, and testing for EBT and retailer systems changes. Retailer recruitment and participant notification and training accounted for an additional 14 percent of implementation costs. General administrative expenses for management and oversight of HIP accounted for 16 percent. Costs incurred in support of the evaluation were roughly 10 percent. Incentive payments to HIP participants over the course of the pilot represented the smallest proportion of total costs—just 6 percent (Exhibit 13).

Feasibility of Nationwide Expansion

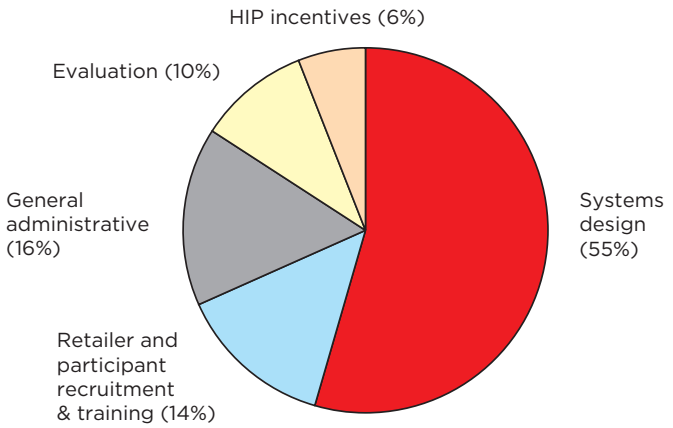
The experience in Hampden County demonstrated that implementing and operating HIP was both technically and operationally feasible. Most stakeholders interviewed in the course of the evaluation, including DTA, EBT systems developers/operators, and large chain retailers, indicated strong support for expanding HIP nationwide. The one exception was convenience store chain retailers, which carry a limited selection of HIP-eligible items. Nationwide expansion of HIP would need to consider whether retailer participation would be voluntary or mandatory for some or all categories of SNAP-authorized retailers.

The experiences of the pilot and discussions with HIP stakeholders identified several areas, detailed below, that would pose challenges for HIP expansion and provide opportunities to facilitate success.

Legislation, Regulations, and Industry Standards

Expansion of HIP would require developing a framework for implementation that would include legislation, regulations, and industry standards. Based on experiences with the establishment of SNAP and WIC EBT, developing this framework would take several years. Technical and industry experts emphasized that standards would be needed to ensure that all stakeholders understood the technical and functional requirements, and to provide coordination among the numerous EBT and retailer systems involved.

Exhibit 13: HIP pilot costs were dominated by implementation costs.



Due to rounding, percents do not add to 100%.

Source: *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*, 2014 (Exhibits 9.2, 9.3).

HIP experiences underscored that it is most efficient if all system requirements are specified before the design process begins. While the major system requirements were specified up-front, some processes (e.g., receipt specifications and the process for handling returns) were not fully addressed in the specifications. This omission led to inefficiencies in the implementation process. In addition, system tracking and reporting procedures are critical elements that need to be agreed upon and tested before implementation.

Systems Design and Implementation

Once standards and requirements have been established, EBT and retailer systems needed to be modified to accommodate the HIP incentive. The process for designing EBT and retailer system changes can be quite lengthy. Both Xerox and DTA indicated that the design process took longer than anticipated due to the complexity of implementing HIP, the number of design issues to be resolved, and the number of stakeholders involved.

National rollout would require more time for system design and implementation than was required for HIP. The HIP technical design process took considerable time, leaving only about six months for the development and testing of the required modifications. Many retailers were able to accommodate the time schedule and deploy changes before HIP start-up. However, retailers noted that it generally requires 18-24 months to make the type of system changes needed to accommodate HIP. This allows modifications to be placed on the IECR development schedule and provides sufficient time for design, development, testing and release. National implementation would involve significantly more stakeholders and thus more systems that would need to be modified.

Because SNAP agencies typically have not been involved with changes to retailer systems, a specialist in EBT and IECR systems is needed for deployments similar to HIP. DTA recognized from the start that a technical liaison was needed to provide support for retailers, and they hired an outside consulting firm. The consulting firm also supported DTA in the design and testing of changes to the EBT system. The support provided by the consultants was crucial for getting all retailer system modifications in place before HIP start-up.

Retailer Participation and Readiness

A fundamental question regarding retailer participation in HIP expansion is whether the program would be mandatory for all retailers, mandatory for some retailers, or completely voluntary. Retailer participation in HIP was voluntary, requiring DTA to expend substantial time and effort to recruit retailers. Undoubtedly retailer participation would have been more complete if participating in HIP were a condition of participating in SNAP.

HIP provided valuable lessons about how expansion would affect large retailers with integrated electronic cash register systems (IECRs). Engagement of retailers would likely have been easier for a permanent systems change as the benefits of participating in HIP would have been greater relative to the costs. Several non-participating retailers indicated that they would have been more willing to participate if HIP was a permanent part of SNAP. In addition, more retailers might have participated in the initial implementation if there had been more time to make system modifications.

Recruiting smaller, independent retailers would also likely be easier for a permanent program. DTA spent considerable time and effort recruiting these retailers. The recruitment effort involved developing relationships with the owners of the smaller stores, requiring multiple visits to stores to explain HIP and the benefits of participating.

Making changes to retailer systems is particularly difficult around the November-December holidays, which is the time period HIP began operating. Large retailers indicated that most IECR code is frozen (i.e., no coding changes can be made) from October to mid-January. These months are also a particularly busy time for smaller retailers, creating additional demands on store owners' time.

SNAP Participant Notification, Outreach, and Support

DTA staff felt that HIP could be implemented as a regular part of SNAP if it were expanded. They suggested that such an incentive program could be explained to clients at intake and recertification, and flyers and other training materials could be provided at that time with important details.

The pilot experience provides lessons about how to best communicate information about HIP. DTA worked to develop user-friendly brochures and flyers

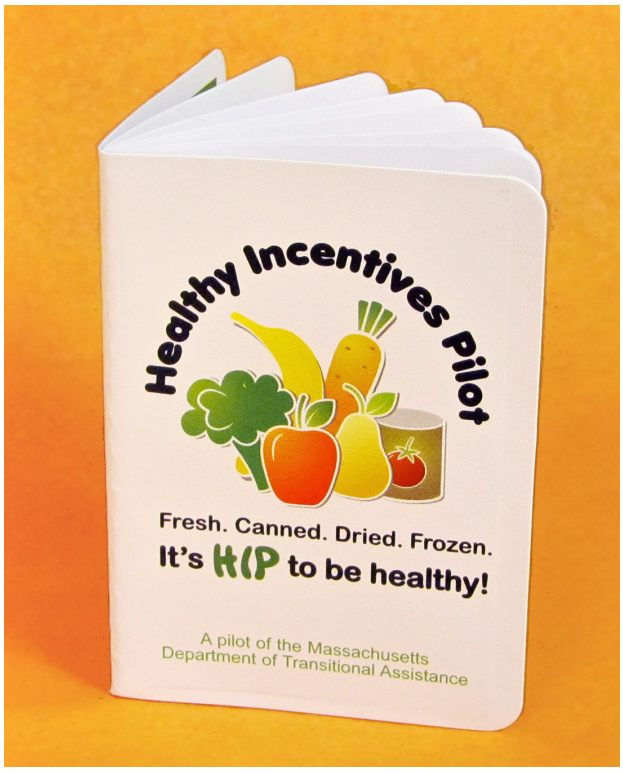
that were colorful and easy to understand. HIP participants also received a special "sleeve" (card-size book-fold, nine pages) for holding their EBT card (Exhibit 14). The sleeve included brief instructions for earning the incentive, information about eligible fruits and vegetables, and where to go for additional information.

As noted above, while DTA offered many training sessions for HIP participants, attendance at these training sessions was quite low. DTA was not surprised that turnout was low, given their experiences with prior changes to the SNAP program. Both these factors suggest that voluntary in-person training sessions would not be the best way to inform participants about HIP expansion.

Stakeholders suggested a variety of other means for communication and outreach, including public service announcement (PSAs), public events, signage or videos in stores and local DTA offices, social media, and word of mouth. Information about HIP could also be combined with other nutrition messages.

Providing adequate support resources to answer participant questions is important as changes are rolled-out. To provide participants with easy ways to get questions answered, DTA supported a call line,

Exhibit 14: EBT card sleeve that included information about HIP.



website, and e-mail address. The call line was, by far, the most heavily used resource. Most questions were general questions about HIP and how the incentive operated. Participants also called the HIP line when they had questions about their receipts and suspected an error had occurred. If call lines were to be heavily used in nationwide expansion, having them staffed with multi-lingual individuals, as appropriate, would be important.

Projected Nationwide Expansion Costs

Based on the HIP experience and input from industry experts, the evaluation developed cost projections for nationwide expansion of an incentive program like HIP. Costs of nationwide expansion include the annual cost of incentive payments to SNAP participants and the one-time costs of implementing the program in all 50 States, D.C., Guam, and the Virgin Islands.

HIP incentives would be by far the greatest cost to the Federal government for a nationwide expansion. The annual value of incentives earned would depend on participant behaviors that cannot be predicted fully from the pilot. We did, however, develop estimates based on plausible scenarios about fruit and vegetable spending, allowing us to project a range of annual incentive payments.

The three assumptions about fruit and vegetable spending are the following:

- ***Fruit and vegetable spending based on the HIP experience.*** During the pilot, HIP households earned incentives that averaged $3.65 per month. This was substantially less than expected.
- ***Fruit and vegetable spending assuming all retailers participated in HIP.*** Just over 50 percent of SNAP benefits were spent in participating HIP stores during the pilot. If all stores were to participate, and if the percentage of SNAP benefits spent on fruits and vegetables were the same in all stores as it was in the HIP participating stores, projected household incentive earnings would be $6.90 per month.
- ***Fruit and vegetable spending based on how low-income households allocate fruit and vegetable purchases relative to USDA's Thrifty Food Plan (TFP).*** Researchers (Blisard and Stewart, 2006) found that SNAP households spent 53 per-

cent of the TFP recommendations on fruits and vegetables, which would imply average incentive earnings of $19.78 per month.

The projected annual incentive costs range from 6 to 31 cents per household per day, or $0.8 billion to $4.5 billion annually. This assumes that HIP is fully implemented nationally for all SNAP households, based on Congressional Budget Office projections of national SNAP participation levels (Exhibit 15). These projections illustrate the potential scale of incentive earnings and also the wide range of potential incentive earnings under plausible assumptions.

The evaluation projected that the estimated total (one-time) cost for putting HIP in place nationwide would be $89.8 million. This includes costs of modifying all EBT processor systems, retailer systems' modifications, and State agency costs.

The costs to modify retailer systems represent the largest share of total nationwide implementation costs—62 percent (Exhibit 16). This includes costs to adapt IECR systems (such as those used by the vast majority of supermarkets and superstores, and other types of stores operated by retail chains) and to adapt commercial point-of-sale (POS) terminals (used by smaller retailers accepting credit and debit cards as well as EBT). Contractor costs, representing 11 percent of total costs, include costs that would be incurred by EBT processors as well as the costs of retailer systems specialists to coordinate/support retailer system modifications. State agency costs account for 27 percent of total implementation costs and include costs to train staff, retailers, and SNAP participants and to manage the modification process.

CONCLUSIONS

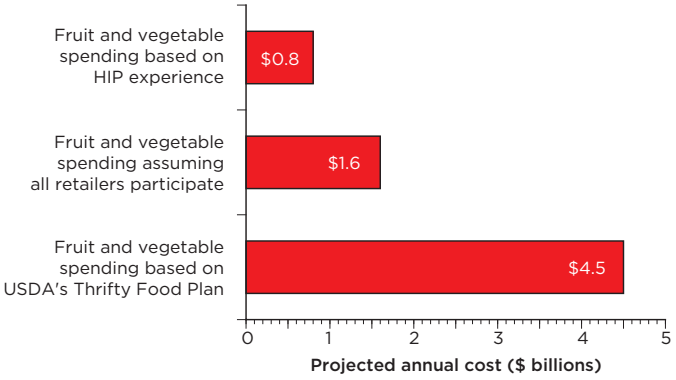
Findings from the HIP evaluation indicate that HIP was successful in its goal of increasing fruit and vegetable intake among pilot participants. HIP participants consumed almost one-quarter cup (26 percent) more targeted fruits and vegetables each day than did non-HIP survey respondents. This HIP impact is both statistically significant and large enough to be nutritionally relevant. Diets with increased fruit and vegetable consumption have strong associations with reduced risk of heart disease, stroke, and several cancers. The HIP impact was sufficiently large to narrow the gap between current consumption and the *Healthy People 2020* objectives for total fruit and vegetable intake by approximately 18 percent.

FOR MORE INFORMATION

The HIP Evaluation produced three reports that are available on the FNS website: www.fns.usda.gov/research-and-analysis.

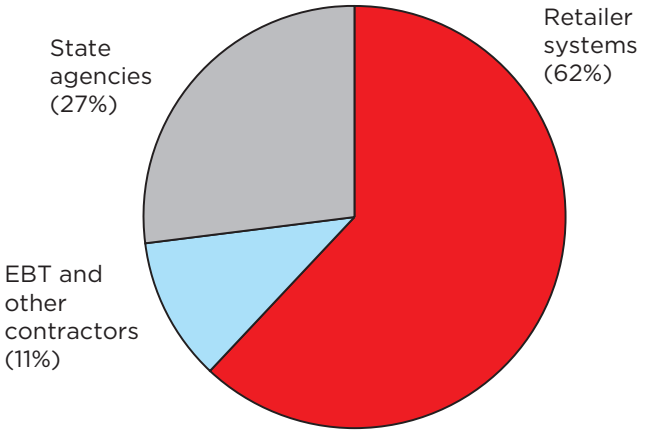
1. The *Early Implementation Report* focuses on the process of implementing HIP. The report describes development activities from pilot incep-

Exhibit 15: Projected annual incentive costs range from $800 million to $4.5 billion, depending on assumptions about fruit and vegetable spending.



Source: *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*, 2014 (Exhibit 9.6).

Exhibit 16: One-time implementation costs for HIP expansion are dominated by costs for system changes.



Source: *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*, 2014 (Exhibit 9.7).

tion to March 2012 when HIP was fully operational.

Bartlett, Susan, Marianne Beauregard, Christopher Logan, et al. *Healthy Incentives Pilot (HIP) Early Implementation Report*. Prepared by Abt Associates for the U.S. Department of Agriculture, Food and Nutrition Service, February 2013.

2. The *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 used data from the baseline period). The report provides estimates of fruit and vegetable consumption among HIP and non-HIP participants and other early pilot impacts 4-6 months after HIP implementation.

   Bartlett, Susan, Jacob Klerman, Parke Wilde, Lauren Olsho, et al. *Healthy Incentives Pilot (HIP) Interim Report*. Prepared by Abt Associates for the U.S. Department of Agriculture, Food and Nutrition Service, July 2013.

3. *The Final Report* addresses all evaluation research objectives and analyzes the complete set of data collected during the evaluation period. It provides confirmatory estimates of the difference in fruit and vegetable intake between the HIP and non-HIP respondents, based on combined data from Rounds 2 and 3. It also examines additional outcomes and includes analyses to better understand the process by which HIP affected participants.

   Bartlett, Susan, Jacob Klerman, Lauren Olsho, et al. *Evaluation of the Healthy Incentives Pilot (HIP): Final Report*. Prepared by Abt Associates for the U.S. Department of Agriculture, Food and Nutrition Service, September 2014.

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ENDNOTES

1. This is the same list of items eligible for the WIC Fruit and Vegetable Cash Value Voucher.
2. Evaluations that examine many potential impacts face the likelihood that conventional statistical tests, which require a 95 percent probability that an observed effect is truly different from zero, will find some significant impacts simply by chance. A conservative way to deal with this problem is to specify one "confirmatory" outcome at the beginning of the research. The evaluator must then conclude that the intervention does or does not have an impact based on results for the confirmatory outcome.
3. The USDA Food Pattern food groups, based on the 2010 Dietary Guidelines for Americans were used to categorize fruits and vegetables.

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