


Descriptive Characteristics of Nutrition Incentive Projects Across the U.S.: A Comparison Between Farm Direct and Brick and Mortar Settings

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Abstract

The purpose of this study is to describe the programmatic characteristics of current nutrition incentive projects supported by the Gus Schumacher Nutrition Incentive Program (GusNIP). Specifically, implementation characteristics of nutrition incentive projects that were funded in 2019 were compared across brick and mortar (B&M) and farm direct (FD) sites in the United States. Across 10 nutrition incentive (NI) grantees, there were 621 sites that reported data from B&M (n = 156) and FD (n = 465) locations. Among B&M sites, the common food retail types included: large chain traditional supermarket (n = 49) and independent traditional supermarket (n = 46). Among FD sites, the most frequently reported food retail types were farmers markets (n = 371). For B&M sites, the most common financial instruments were loyalty cards (n = 67, 43.5%), followed by an automatic discount at the register (n = 41, 26.6%), and coupons (n = 29, 18.8%). FD sites frequently reported physical financial instruments including tokens (n = 272, 61.1%), followed by paper vouchers (n = 131, 29.4%). Supplemental Nutrition Assistance Program (SNAP) purchases that were eligible to *trigger incentives* included mainly “all fresh FVs” at B&M sites (n = 98, 48.5%) and “all SNAP eligible items” at FD sites (n = 417, 85.8%). FVs eligible for incentive *redemption* included mainly “all fresh FVs” for both B&M sites (n = 110, 65.5%) and FD sites (n = 370, 67.6%). In terms of incentive-to-SNAP level ratio, both B&M sites and FD sites reported that they commonly utilized a 1:1 incentive-to-SNAP level ratio (n = 106, 68.8% and n = 261, 94.9% respectively). This paper will provide foundational understanding of the heterogeneity of GusNIP NI projects—specifically between B&M and FD settings—in order to inform future national work and ultimately demonstrate the impact of NI projects on food security status and dietary quality.

Keywords

food security, nutrition incentive, farmers market, public health, supermarkets, food assistance programs

Highlights

- Nutrition incentive projects are a promising approach to increase fruit and vegetable consumption and increase food security among low-income populations.
- This paper provides foundational understanding of the heterogeneity of nutrition incentive projects—specifically between brick and mortar and farm direct settings—in order to inform future national work.
- By establishing and supporting the use of common, reliable and valid shared metrics by all nutrition

incentive projects will ultimately yield greater nationally generalizable insights over time and help make the case for nutrition incentive projects as an approach to reduce food insecurity and increase dietary quality.

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Background

Chronic disease is a leading cause of poor health in the United States (U.S.), and low dietary quality is a large contributor to this burden.¹ Dietary intake that includes fruits and vegetables (FVs) greatly reduces health risks associated with chronic disease. However, approximately 90% of adults in the U.S. do not consume sufficient amounts of FVs.² Low-income individuals face innumerable disparities that lead to lower FV intake (FVI) and higher rates of diet-related chronic diseases when compared to other populations.³ Chronic disease and limited FVI among low-income populations are complex and multi-faceted. These issues continue to be a public health challenge that is correlated with the experience of food insecurity, or the inability to access adequate food to support an active and healthy life.³

The role of the built food environment has received growing attention in relation to its contribution to diet and chronic disease.⁴ Physical proximity to food outlets with healthy options is one component of food access, however, food insecure populations report that they have less access to healthy and *affordable* food in their community, even where grocery stores are present.⁵ The ability to afford a healthy diet and food prices are significant drivers of dietary choice among low-income populations.⁶

One promising federal effort to support high dietary quality among low-income populations is through nutrition incentive (NI) projects. This study focuses on NI project funded by the Gus Schumacher Nutrition Incentive Program (GusNIP), which is supported by the United States Department of Agriculture (USDA) National Institute of Food and Agriculture's (NIFA). Specifically, GusNIP NI projects provide financial incentives to low-income participants to purchase FVs at participating food outlets by matching purchases made with Supplemental Nutrition Assistance Program (SNAP) benefits with "incentives" at the point-of-purchase for FVs. NI projects partner with food outlets where eligible participants shop, thus providing a supportive community food environment that allows individuals to affordably access a nutritious diet while also supporting local economies.

There is growing evidence supporting the effectiveness of NI projects in increasing FVI and reducing food insecurity among participants.⁷ Despite promising trends, results typically focus on combined data from single projects that lack consistency in methodology, limiting comparability across projects. More robust, aggregate, and national-level research is warranted in order to understand which program attributes work best in certain contexts. Specifically, we have limited understanding of how NI projects may operate in unique ways in brick and mortar (B&M) sites (e.g., grocery stores) and farm direct (FD) sites (e.g., farmers market). Currently, the programmatic and measurement variations that exist present challenges in conducting meaningful analyses. Defining characteristics across NI projects in a national sample will provide researchers, practitioners, and policy makers with an understanding of implementation strategies. Therefore, the purpose of this study is to describe the programmatic characteristics of current GusNIP NI projects across B&M and FD sites in the

U.S. This paper will provide foundational understanding of the heterogeneity of GusNIP NI projects—in particular between B&M and FD settings—in order to inform future national work and understanding the impact of NI projects.

Methods

This study was conducted by members of the Gus Schumacher Nutrition Incentive Program (GusNIP) National Training, Technical Assistance, Evaluation, and Information Center (NTAE), created and funded by the USDA NIFA. The NTAE is responsible for the creation of a national evaluation model with shared metrics across GusNIP-funded projects. For this study, the NTAE aggregated and analyzed data on the inaugural cohort of NI projects funded in 2019 (grant year from September 1, 2019 to August 31, 2020). The unit of analysis is descriptive data from participating sites (i.e., B&M and FD sites) where incentives are accepted for purchase of FVs.

Measures

Variables reported by sites included: site-type classification (B&M, FD), food retail type (e.g., supermarket, farmers market), site operating days, financial instruments used for incentives (e.g., token), SNAP purchases eligible to trigger incentives, FVs eligible to redeem incentives, incentive-to-SNAP level ratio (e.g., 1:1 match). Grantees and sites reported descriptive data quarterly using a reporting system developed by the NTAE through the Smartsheet platform (www.smartsheet.com, 2021).

Analyses

Data were aggregated by site type (B&M, FD) and frequencies and percentages were reported for all variables. Several variables were also reported with response options collapsed in order to provide meaningful descriptions. All computations were conducted using the statistical software package R (R Foundation for Statistical Computing, 2017).

Results

Across 10 NI grantees, there were 621 sites that reported data from B&M (n = 156) and FD (n = 465) locations. Within B&M and FD site types, there was further classification into food retail categories (Table 1). Among B&M sites, the most common food retail types included: large chain traditional supermarkets (n = 49), independent traditional supermarkets (n = 46), medium chain traditional supermarkets (n = 23), and other small grocery or convenience stores (n = 13; Table 1). Among FD sites, frequently reported food retail types included farmers markets (n = 371), with fewer sites indicating mobile markets (n = 36) and farm stands (n = 35; Table 1). Most B&M sites were open daily (89.9%), while FD sites were typically open 1 day per week (86.1%; Table 2). The financial instruments that were used to deliver the incentives also varied between B&M and FD sites. For B&M sites, the most common financial instruments were loyalty

Table 1. Site Type Across Brick and Mortar (B&M) and Farm Direct (FD).

Site Type	N (%)	Brief Definition
Brick and Mortar (B&M) Site Types (n = 156)		
Large Chain Traditional Supermarket	49 (31.4)	Publicly traded companies that operate stores, often under multiple banners and with centralized decision-making
Medium Chain Traditional Supermarket	23 (14.7)	Companies that operate multiple stores across large areas and multiple states
Independent Traditional Supermarket	46 (29.5)	Full-service grocery stores that are independently owned or licensed
Limited-Assortment Supermarket	2 (1.3)	A low-priced grocery store that offers a limited assortment
Fresh Format	8 (5.1)	Emphasize perishables and offer center-store assortments that differ from those of traditional retailers
Co-Op Grocery Store	11 (7.1)	A member-owned grocery store where the decisions are determined by its members. These stores can range in size and typically offer a large selection of natural foods
Other Small Grocery/Convenience Store	13 (8.3)	A small grocery (also known as corner store, bodega, "mom-and-pop," mini-mart) that carries a limited selection of staples and other convenience goods
E-Commerce or Online Purchasing	2 (1.3)	Food and consumable products ordered using the internet via any device, regardless of the method of payment or fulfillment
Other	2 (1.3)	
Farm Direct (FD) Site Types (n = 465)		
Farmers Market	371 (79.8)	A public and recurring assembly of farmers or their representatives selling the food that they produced directly to consumers
Farm Stand	35 (7.5)	Typically located at or near the farm from which the food was produced. It can be a permanent (or semi-permanent) set-up
Mobile Market	36 (7.7)	Various forms of vehicles that operate on the same premise of bringing affordable and healthy foods into neighborhoods with limited healthy food access. Most mobile markets have a set route and drop-off locations throughout the week to reach specific neighborhoods
Community Supported Agriculture (CSA)	4 (.9)	Community of individuals who pledge support to a farm operation to share the risks and benefits of food production with the farmer. Some CSAs are operated by a single farmer, while others include a variety of different farmers
Other	19 (4.1)	
Total	621 (100)	

cards (n = 67, 43.5%), followed by an automatic discount at the register (n = 41, 26.6%), and coupons (n = 29, 18.8%; Table 2). FD sites frequently reported physical financial instruments including tokens (n = 272, 61.1%), followed by paper vouchers (n = 131, 29.4%; Table 2).

SNAP purchases that were eligible to *trigger incentives* included mainly "all fresh FVs" at B&M sites (n = 98, 48.5%) and "all SNAP eligible items" at FD sites (n = 417, 85.8%; Table 2). FVs eligible for incentive *redemption* included mainly "all fresh FVs" for both B&M sites (n = 110, 65.5%) and FD sites (n=370, 67.6%; Table 2). In terms of incentive-to-SNAP level ratio, both B&M sites and FD sites reported that they commonly utilized a 1:1 incentive-to-SNAP level ratio (n = 106, 68.8% and n = 261, 94.9% respectively; Table 2). In addition, B&M sites reported that their outlets utilized a 50% off model in addition to a 1:1 model (50% off only: n = 12, 8.4%; 1:1 and 50%; n = 30, 19.5%; Table 2).

Discussion

Food security is commonly defined as the inability to access adequate food in order to support an active and healthy life. However, "access to adequate food" may fall short of ensuring that food meets physiological requirements in terms of quantity, quality, safety, and social and cultural acceptability.⁸

To account for this, there has been a call to action for policymakers, public health practitioners, and food system actors to begin utilizing the term "nutrition security," which emphasizes dietary quality and nutrition to address chronic disease disparities.⁸ NI programs have the potential to support food and nutrition security for low-income Americans by increasing purchasing power for FVs. This research sets the stage for quantifiable and shared understanding of how NI projects are implemented across settings and geographies, with the aim to improve food security and dietary quality among vulnerable populations.

This descriptive data provides a comprehensive landscape of how NI projects are administered across settings in the U.S. One previous study was conducted with a set of NI projects across 13 states and found incremental increases in FVI with higher levels of incentives.⁹ A separate national Food Insecurity Nutrition Incentive (FINI) program evaluation found no detectable change in FVI among participants receiving a 1:1 match compared to the control.¹⁰ However, heterogeneity of program types and evaluation methodologies contribute to these conflicting findings. A recent commentary outlined current evidence supporting NI programs, while highlighting that limited clarity can be partially attributed to a lack of consistent measurement and

Table 2. Programmatic Characteristics Across Brick and Mortar (B&M) and Farm Direct (FD) Sites.

Site Operating days	B&M Sites (n = 158) n (%)	FD Sites (n = 461) n (%)	All Sites (n = 619) n (%)
1 day per week	2 (1.4)	397 (86.1)	381 (64.8)
2–3 days per week	4 (2.7)	38 (8.6)	42 (7.1)
4–6 days per week	9 (6.1)	11 (2.5)	20 (3.4)
Daily	133 (89.9)	16 (3.6)	149 (25.3)
Financial instruments	B&M sites (n = 154) n (%)	FD sites (n = 445) n (%)	All sites (n = 599) n (%)
Token	12 (7.8)	272 (61.1)	284 (47.4)
Paper voucher	1 (.6)	131 (29.4)	132 (22.0)
Loyalty card	67 (43.5)	7 (1.6)	74 (12.4)
Discount at register	41 (26.6)	29 (6.5)	70 (11.7)
Coupon	29 (18.8)	0	29 (4.8)
Loyalty account	4 (2.6)	0	4 (.7)
EBT Card	0	6 (1.3)	6 (1.0)
SNAP purchases/products eligible to trigger incentive	B&M sites (n = 202) n (%)	FD sites (n = 486) n (%)	All sites (n = 688) n (%)
All SNAP eligible items	18 (8.9)	417 (85.8)	435 (63.2)
All fresh FVs	98 (48.5)	21 (4.3)	119 (17.3)
Only organic grown FVs	0	3 (.6)	3 (.4)
Only state or regionally grown FVs	36 (17.8)	14 (2.9)	50 (7.3)
Canned FVs (no added salt/sugar)	3 (1.5)	0	3 (.4)
Dried FVs (no added salt/sugar)	0	3 (.6)	3 (.4)
Frozen FVs (no added salt/sugar)	5 (2.5)	1 (.2)	6 (.9)
Only state or regionally grown FVs	36 (17.8)	14 (2.9)	50 (7.3)
Plants that produce herbs and FVs	3 (1.5)	8 (1.6)	11 (1.6)
Seeds that produce herbs and FVs	1 (.5)	2 (.4)	3 (.4)
Other	2 (1.0)	3 (.6)	5 (.7)
FVs Eligible for Incentive Redemption	B&M sites (n = 168) n (%)	FD sites (n = 542) n (%)	All sites (n = 710) n (%)
All fresh FVs	110 (65.5)	370 (67.6)	480 (67.6)
Only state or regionally grown FVs	42 (25.0)	81 (14.9)	123 (17.3)
Plants that produce herbs and FVs	5 (3.0)	51 (9.4)	56 (7.9)
Only organic grown FVs	0	4 (.7)	4 (.6)
Canned FVs (no added salt/sugar)	1 (.6)	4 (.7)	5 (.7)
Dried FVs (no added salt/sugar)	1 (.6)	4 (.7)	5 (.7)
Frozen FVs (no added salt/sugar)	4 (2.4)	3 (.6)	7 (1.0)
Seeds that produce herbs and FVs	2 (1.2)	17 (3.1)	19 (2.7)
Other	3 (1.8)	8 (1.5)	11 (1.5)
Incentive-level ratio	B&M sites (n = 154) n (%)	FD sites (n = 275) n (%)	All sites (n = 429) n (%)
1:1 only	106 (68.8)	261 (94.9)	367 (85.5)
50% off only	13 (8.4)	0	13 (3.0)
1:1 and 50% off	30 (19.5)	6 (2.2)	46 (8.4)
2:1	1 (.6)	5 (1.8)	6 (1.4)
Other (e.g., 25%; 4:1)	4 (2.6)	3 (1.1)	7 (1.6)

Sample sizes are based on sites that reported a numeric value (e.g., 0 or higher). Sites that did not report site operating days or financial instruments were removed from the sample. Percentages are column percentages. Number of sites (n) in each column header is based on number of sites that have data for this metric, not the total number of sites participating (n = 619). Sites could select multiple responses for financial instruments. Sites may select multiple options for eligible fruits and vegetables so the rows in each column will not add up to the number of sites (n).

evaluation.¹¹ Nugent et al. made the case for shared metrics for GusNIP and across the wider field of financial incentives, and this paper is the first step in reporting comprehensive and aggregate data to describe programmatic similarities and differences.¹¹

While the most common B&M firm type reported was supermarkets (31.4%) and for FD sites, the most commonly

reported firm type was farmers markets (79.8), farmers markets alone outnumbered all B&M sites combined (371 farmers markets vs 156 B&M sites total). This stark difference may be due to the fact that many incentive programs were born out of the local food system movement in attempts to address food access challenges through expansion of farmers markets and associated programming such as

financial incentives.¹² In addition, the majority of published NI literature has occurred in farmers markets, as evidenced by a recent scoping review which highlighted that 16 of the 19 papers reviewed were conducted in this setting.¹² As financial incentive programs expand further into B&M locations, program implementers experience unique challenges (e.g., point-of-sale systems [POS]). However, participation from more diverse populations in terms of race-ethnicity, age, and poverty level are noted in B&M locations.¹³

Another difference between B&M and FD sites is the type of financial instrument utilized. B&M sites in our study commonly reported using loyalty cards and automatic discounts at the register, while FD sites reported utilizing tokens and paper vouchers. Increased technological innovations in B&M settings can be attributed to existing POS systems that allow for the integration of loyalty cards or coding eligible items for discounts.¹⁴ As technology continues to advance and POS systems become more robust, the level and type of data shared with researchers is also expanding.¹⁴ A recent scoping review found that the majority of programs operated with coupons, vouchers, or tokens, with only a few programs operating POS-driven methods.¹² Conversely, FD settings continue to grapple with implementation of advanced technology that allows for robust data due to barriers (e.g., no landline, cost of technology).

This study is not without limitations. This study was conducted during the first year of the NTAE's existence which was purposefully designed to be formative in order to establish a national evaluation model that is both meaningful (i.e., advances the science) and feasible for grantees to carry out. Therefore, iterative changes occurred as reporting systems were established and grantees and sites received training to ensure consistent reporting. In addition, COVID-19 greatly limited program implementation and data collection, including delays in participant-level data collection, driven by the need to accommodate social distancing and temporary closures of food retail locations. The NTAE remained flexible throughout this challenging time, resulting in varying timelines for reporting. As the evaluation model is now more established, and as the impacts of COVID-19 on local food systems and consumers begin to wane, we expect that future years of this evaluation will elicit improved quantity and quality of data.

Implications for Practice and/or Policy and Research

Incentive programs have broad appeal from a range of partners who view incentive programs as mechanisms to improve food access, reduce food insecurity, and stimulate local economies.¹⁵ Although there is broad appeal for NI programs, the supporting evidence is not robust. In a year that did not yield a lot of data, the NTAE was still able to compile firm-level data describing B&M and FD program implementation. This paper advances the NI field of study by providing a narrative of how projects are implemented and

the heterogeneity that exists between them. By establishing and supporting the use of common, reliable, and valid shared metrics by all GusNIP-funded projects and their sites, the NTAE has pioneered a standardized approach to evaluation of incentive programs and will ultimately yield greater nationally generalizable insights over time. Following this descriptive paper, there is a need for outcome studies focusing on variables such as incentives distributed/redeemed and FVI and food insecurity among participants. It will be important to continue to describe program implementation models highlighted in this paper in order to best understand what programmatic features work best under what conditions and for whom. NI projects exist in every state, with varying degrees of robustness, and this foundational research can help improve food security for low-income populations living across the U.S. Funders, practitioners, policy maker, and researchers alike can coordinate reporting and evaluation for mutual benefits to demonstrate the impact of NI programs on overall public health.

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