Community Preventive Services Task Force

Social Determinants of Health: Fruit and Vegetable Incentive Programs

Community Preventive Services Task Force Finding and Rationale Statement

Ratified December 2023

Updated July 2026

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Suggested citation:
The Community Preventive Service Task Force (CPSTF). Social Determinants of Health: Fruit and Vegetable Incentive Programs. The Community Guide [www.thecommunityguide.org]. The Community Preventive Service Task Force, Atlanta, Georgia, 30329. https://doi.org/10.15620/cdc/168652

Community Preventive Services Task Force Finding and Rationale Statement

Intervention Definition

Fruit and vegetable incentive (FVI) programs offer people financial incentives to purchase fruits and vegetables. These programs aim to improve affordability and access to fruits and vegetables for participants with lower incomes. Examples include produce prescriptions, bonus dollars, market bucks, produce coupons, and nutrition incentives.

People can use incentives to help pay for fruits and vegetables at a range of venues, including farmers markets, mobile markets, or grocery stores.

Incentive models may include:

- Point-of-sale discounts (i.e., percentage off regular price)
- Rebates (i.e., cash back for future purchases)
- Matches (i.e., money tied to the dollar amount spent)
- Subsidies (i.e., a fixed amount of money available to purchase fruits and vegetables)

Programs may be implemented by community-based organizations; local, state, territorial, or tribal governments; or health systems. Programs may also offer participants nutrition education, such as cooking lessons or demonstrations.

The impact of the federal nutrition assistance programs such as the Supplemental Nutrition Assistance Program (SNAP); the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); and the Food Distribution Program on Indian Reservations (FDPIR) are outside the scope of this review.

CPSTF Finding

The Community Preventive Services Task Force recommends FVI programs for households with lower incomes based on strong evidence of effectiveness in reducing household food insecurity and increasing household fruit and vegetable consumption.

Programs in which incentives were provided to participants who were at risk for or had diet-related health conditions improved blood glucose as measured using A1C levels.

Fruit and vegetable incentive programs are expected to improve health equity across the United States by improving affordability and access to healthier foods for households with lower incomes.

The CPSTF also finds fruit and vegetable incentive programs to be cost-effective.

Rationale

Basis of Finding

The CPSTF recommendation is based on evidence from a systematic review of 30 studies conducted in the US.

To assess intervention effectiveness, a team of specialists in systematic review methods and subject matter experts synthesized outcomes for household food insecurity (i.e., percent who were food insecure), fruit and vegetable consumption (e.g., servings per day, cups per day, times per day), overall diet quality, sugar sweetened beverage consumption, and physical health (e.g., blood glucose, blood pressure, body mass index).

Evidence from the included studies showed FVI programs reduced household food insecurity and improved fruit and vegetable consumption. Evidence also showed that programs in which incentives were provided to participants who were at risk for or had diet-related health conditions improved blood glucose as measured using A1c levels. Studies did not show consistent and meaningful improvement in overall diet quality, blood pressure, or body mass index. There were not enough studies to determine whether FVI programs affected sugar sweetened beverage consumption, self-reported health, or cholesterol (Table 1).

Table 1. Summary of Findings for FVI Programs

Outcome	Number of Studies	Summary Effect Estimates	Direction of Effect
Household food insecurity (measured using United States Department of Agriculture (USDA) U.S. Household Food Security)	12	7 studies with 8 data points **Absolute difference:** Median decrease of 18.00 pct pts (IQI: -25.95, -12.30) **Relative difference:** Median decrease of 23.03% (IQI: -38.71%, -18.10%) 5 studies with 6 datapoints provided narrative results: 3 favorable and significant, 2 favorable, and 1 no change	Favors the intervention

Fruit and vegetable consumption (servings, cups, and times per day)	23	***Servings per day*** 5 studies with 7 data points **Absolute difference:** Median increase of 1.10 serv/d (IQI: 0.30, 1.60) **Relative difference:** Median increase of 27.37% (IQI: 17.04%, 48.44%) 1 study provided narrative result that was favorable and significant ***Cups per day*** 8 studies with 10 data points **Absolute difference:** Median increase of 0.13 cups/d (IQI: 0.10, 0.30) **Relative difference:** Median increase of 7.30% (IQI: 4.78%, 22.10%)	Favors the intervention

Outcome	Number of Studies	Summary Effect Estimates	Direction of Effect
		1 study provided narrative results that showed no change ***Number of times per day*** 5 studies with 5 data points **Absolute difference:** Median increase of 0.49 times/d (IQI: -0.07, 0.61) **Relative difference:** Median increase of 12.73% (IQI: -0.03%, 17.61%) 4 studies with 5 data points provided narrative results: 1 favorable and significant, 1 favorable, 1 no change, 2 unfavorable	

Overall diet quality	4	3 studies with 6 data points **Absolute difference:** Median increase of 1.50 pct pts (IQI: 0.93, 4.88) on the Healthy Eating Index **Relative difference:** Median increase of 3.08% on the Healthy Eating Index (IQI: 1.50%, 9.41%) 1 study provided narrative result that was favorable and significant	Inconsistent results
Sugar sweetened beverage consumption	2	2 studies provided narrative results that were favorable and significant	Too few studies
Blood glucose as measured using hemoglobin A1c	6	6 studies with 6 data points **Absolute difference:** Median decrease of 0.64 pct pts in A1c levels (IQI: -1.33, 0.08) **Relative difference:** Median decrease of 6.67% in A1c levels (IQI: -12.91%, 1.03%)	Favors the intervention
Outcome	**Number of Studies**	**Summary Effect Estimates**	**Direction of Effect**

Blood pressure	5	***Systolic Blood Pressure*** 5 studies with 5 data points **Absolute difference:** Median decrease of 0.49 mmHg (IQI: -2.49, 3.45) **Relative difference:** Median decrease of 0.38% in mmHg (IQI: -1.88%, 2.67%) ***Diastolic Blood Pressure*** 5 studies with 5 data points **Absolute difference:** Median decrease of 0.40 mmHg (IQI: -1.19, 0.83) **Relative difference:** Median decrease of 0.58% in mmHg (IQI: -1.52%, 1.18%)	Inconsistent results
Body Mass Index	7	6 studies with 7 data points **Absolute difference:** Median decrease of 0.05 kg/m2 (IQI: -0.57, 0.10) **Relative difference:** Median decrease of 0.22% in kg/m2 (IQI: -1.98%, 0.37%) 1 study provided narrative result that was favorable and significant	Inconsistent results
Self-reported health	1	1 study provided narrative result that was favorable	Too few studies
Cholesterol	1	1 study provided narrative results for cholesterol measures that showed no change	Too few studies

cup/d: cups per day
kg/m2: kilogram per meter squared IQI: Interquartile

interval mmHg: millimeters of mercury

pct. pts.: percentage points serv/d: servings per day times/d: times per day

Applicability and Generalizability Issues

Intervention Settings

The CPSTF finding is applicable to FVI programs implemented across the United States (30 studies). Three studies were conducted in multiple U.S. regions and the remainder were distributed across the Western (11 studies), Midwestern (7 studies), Northeastern (7 studies) or Southern (2 studies) regions as defined by the U.S. Census Bureau.

Over half of the included studies evaluated FVI programs in urban areas (16 studies). The remaining studies were conducted in a combination of urban, suburban, and rural settings (9 studies), rural areas alone (4 studies), or tribal lands (1 study).

Population Characteristics

The CPSTF finding is applicable to participants with lower incomes. It is also applicable regardless of participants' sex, race or ethnicity, age, or educational attainment.

All studies evaluated programs that were designed and implemented among people with lower incomes. In the 14 studies reporting participation in the Supplemental Nutrition Assistance Program (SNAP), a median 55% of participants received SNAP benefits. In the 11 studies reporting participation in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), a median 16% of participants received WIC benefits. In the study that reported participation in the Food Distribution Program on Indian Reservations (FDPIR), 84% received FDPIR benefits.

Twenty-five studies provided data on sex and reported most of their participants were female (median 72% female).

Studies included participants who self-identified as Hispanic or Latino (median 37%; 24 studies), Black or African American (median 28%; 26 studies), White (median 27%; 25 studies), Native Hawaiian or Other Pacific Islander (14% from one study), Asian (9%; 7 studies), two or more races (median 3%; 4 studies), American Indian or Alaska Native (2%; 4 studies), and other race or ethnicity (median 4%; 16 studies). One study was conducted on Tribal Lands in the Navajo Nation.

Twenty-two studies reported participant age (median 42 years). Four studies enrolled children as participants. Eleven studies reported educational attainment that were summarized into three categories: greater than high school (median 30%; 11 studies); high school graduate or equivalent (median 35%; 9 studies); and less than high school (median 18%; 9 studies).

Intervention Characteristics

The CPSTF finding is applicable across most intervention characteristics examined, including the organization that offered the program, incentive redemption venue, whether programs offered intervention components in addition to incentives, incentive frequency, some incentive models, and intervention duration.

Incentive programs were offered through local government or community organizations (16 studies), health care providers (13 studies), or a mix of both (1 study). Incentives could be redeemed in farmers markets (16 studies), grocery stores (3 studies), or a mix of both (9 studies). Two studies did not report the redemption venue.

Of studies reporting additional components, programs offered nutrition or diet-related disease prevention education (16 studies), activities or materials in multiple languages (6 studies), and retailer training or support (4 studies). Other components offered were vendor signage (2 studies) and participant training on how the program works (2 studies). One study each reported having community health workers to follow up on progress of goals, kitchen cooking supplies kit, customized informational mailings, and transportation to the intervention venue. Fourteen studies did not report any additional intervention components.

Participants received incentives monthly (7 studies), weekly (4 studies), at the time of their visit to the program implementation or redemption venue site (12 studies), all incentives at one time (3 studies), or without a formal schedule (4 studies).

Programs were effective when incentives were offered using a subsidy model (i.e., a fixed amount of money available to purchase fruits and vegetables; 21 studies) and matches (i.e., money tied to the dollar amount spent; 6 studies). Few studies reported on point-of-sale discounts (i.e., percentage off regular price; 1 study) or rebates (i.e., cash back for future purchases; no studies) so applicability could not be determined for these models. Two studies reported using more than one type of incentive models.

Of the 22 studies reporting program duration, the median duration was 6 months [Interquartile interval (IQI): 3 to 6 months].

CPSTF could not draw a conclusion regarding the applicability of the incentive amount due to lack of reporting. Incentive amount offered was reported in various ways and most studies did not report the total offered. For the nine studies that did report in terms that could be translated to a monthly maximum amount, the median was $40 (IQI: $20 to $60). Seven studies reported the incentive amount was scaled for household size.

Data Quality Issues

Study designs included single group pre-post (18 studies), randomized control trial (5 studies), pre-post with concurrent comparison group (5 studies), retrospective cohort (1 study), and time series with no comparison group (1 study).

The most assigned study limitations, according to Community Guide quality scoring methods, were loss to follow up and sampling issues due to unclear description of the sampling frame or screening criteria, or low participation rate.

Other Benefits and Harms

CPSTF considered potential additional benefits and harms from exposure to FVI programs.

Postulated potential benefits of the intervention could include the following:

- Expanded economic benefits for local farmers and food retailers which may lead to improved food environment, including an improvement in the quantity and quality of the fresh fruits and vegetables made available to communities (Leng et al. 2022, GusNIP 2023, Vericker et al. 2019);
- Increased awareness and use of farmers markets (Durward 2019);

- Participants feeling more connected to the community (Bowling et al. 2016, Herman et al. 2008); and
- Enhanced fruit and vegetable variety in participants' diets (Trapl et al. 2018).

One postulated potential harm of the intervention could be increased consumption of unhealthy foods due to increased budget for food purchases (Bowling et al. 2016, Harnack et al. 2016, Trapl et al. 2018). However, two included studies found decreases in consumption of sugar sweetened beverages. One study did not find an increase in consumption of foods with added sugar, candies, sweet baked goods, and fast food.

Economic Evidence

The economic evidence shows fruit and vegetable incentive programs are cost-effective.

The search of literature covered the period from inception of databases through April 2024. All monetary values are in 2023 U.S. dollars. The CPSTF based its economic assessment on eight studies, three reporting on intervention cost and five reporting on cost-effectiveness. Other economic outcomes included three studies reporting impacts on economic activity, nine reporting vendor revenue, and one reporting vendor profitability. Among the eight studies that reported intervention cost or cost-effectiveness, the type of incentives offered were predominantly rebates (4 studies), and there was one study each for discounts, matches, subsidies and a mix of incentives. Two studies evaluated produce prescription programs. The interventions were implemented in grocery stores, farmers markets, and mobile markets. Most interventions were implemented in or modeled for SNAP recipients (6 studies), those with food insecurity (1 study), and those with chronic diseases and food insecurity (1 study). The median percentage of Black or African American households was 13.0% (IQI: 7.6% to 20.7%), Hispanic households was 29.0% (IQI: 14.1% to 61.3%), and White households was 46.9% (IQI: 38.5% to 68.6%), based on five studies that reported the statistics.

The assessment of quality was based on how well the estimates captured the main drivers of costs and benefits and the appropriateness of methods used in their estimation. Drivers of intervention cost were deemed to be implementation, administration, and the cost of incentives. Drivers of intervention benefit were averted healthcare costs. The economic review assessed the quality of only the intervention cost and cost-effectiveness estimates. No quality assessment was done for the estimates of other economic outcomes. Estimates with good or fair quality were retained in the review and those with limited quality were removed from the review.

Intervention Cost

Intervention cost was reported by three studies. Assuming nationwide expansion of a rebate program to 21.6 million SNAP households, one study reported a one-time implementation cost of $5.52 per household and $4.10 to $23.04 per household per month for annual recurring cost of benefit distribution. The second study reported $16.43 per household per month in recurring cost for subsidies offered for a produce prescription program. The third study reported recurring intervention cost of $1,651 per site per month for a matched incentive program that could not be converted to a per household basis. The first estimate was of good quality and the second and third were fair quality.

Cost-effectiveness

The median cost per QALY gained was $18,050 over a lifetime horizon and $65,220 over a 10-year time horizon (Table 2). The evidence came from 5 studies reporting 9 estimates for cost per QALY gained. To test how reliable

these estimates were, studies ran the models multiple times with different assumptions. For seven of the eight lifetime estimates, 95% of these repeated calculations came out below $150,000. No such testing was reported for the 10-year estimate. The intervention is cost-effective because both the main estimates and the tested range of results stayed well below the CPSTF benchmark of $150,000 per QALY gained.

Among the 5 studies reporting cost per QALY gained, 3 offered incentives in the form of rebates, 1 offered a discount, and the other offered a mix of incentives. The types of incentives included in the cost-effectiveness studies are not representative of the full range of incentives that were identified above in the review of effectiveness. Multiple cost-effectiveness estimates were reported by studies when they modeled the same programs for Medicaid and Medicaid-Medicare dual eligible populations or modeled the same programs from societal and healthcare systems perspectives.

Table 2. Cost-effectiveness of FVI Programs

Time Horizon	Number of Studies (Number of Estimates)	Net Cost per QALY Gained Quality of Estimates	Variability of Estimates
Lifetime[a]	5 (8)	$18,050 (IQI: $10,718 to $23,333) 4 good, 4 fair	Over 95% of repeated model runs were below $150,000 threshold, 7 estimates NR, 1 estimate
10-year	1 (1)	$65,220 1 good	NR

NR, not reported; QALY, quality-adjusted life year

[1]One study computed net cost as intervention cost only.

Other Economic Outcomes

An increase in vendor revenue was reported in nine studies with nine estimates. One study indicated from self-reports that superstores and most convenience stores had no change in profits due to participation in the FVI program while smaller grocery stores experienced an increase. Three studies modeled increases in local and national gross domestic product and employment associated with FVI programs.

Considerations for Implementation

The following considerations for implementation are drawn from studies included in the existing evidence review, the broader literature, and expert opinion.

Program participation and retention may be improved by:

- Tailoring the program so that it carefully considers the culture and context of specific populations (Saxe-Custack et al. 2021, Jones et al. 2020).
- Offering additional program components such as cooking demonstrations, grocery store tours, and activities for children (Anliker et al. 1992, Fertig et al. 2021, Bowling et al. 2016).
- Including reinforcing messages about the benefits of increased fruit and vegetable consumption from healthcare providers in programs that offer produce prescriptions (Cavanagh et al. 2017).

Incentive use may be improved by:

- Identifying redemption venues that are accessible to participants and reduce distance and transportation barriers (Bartlett et al. 2014, Veldheer et al. 2021).
- Providing participants with information about how incentives work, which items are eligible for redemption, and where incentives can be redeemed (Atolye et al. 2021, Vericker 2019).
- Providing more flexibility to participants in terms of where incentives can be redeemed.

Other implementation considerations include:

- FVI programs may be of increased relevance in U.S. regions and states with higher rates of household food insecurity (Rabbitt et al. 2023).
- Engaging with community partners (e.g., faith communities, community-based organizations) in program design and recruitment to improve program implementation (Fertig et al. 2021, Lyonnais et al. 2022).
- Supporting participants after the program has ended so they may sustain behavior change without financial incentives.
- Providing implementers with access to technological tools to improve tracking of participants' incentive use and products purchased.

Implementation Resources

The following publicly available resources provide guidance on FVI implementation:

- CDC: Priority Nutrition Strategy: Fruit and Vegetable Voucher Incentives and Produce Prescriptions
  - Provides strategies for state and local partners to expand existing programs
- Nutrition Incentive Hub
  - Provides training, technical assistance, reporting, and evaluation support to strengthen fruit and vegetable incentive programs
- How to Run a Nutrition Incentive Nutrition Program: A Toolkit for Wholesome Wave's National Nutrition Network
  - Designed for market managers, electronic benefit transfer (EBT) coordinators, and other program administrators interested in bringing programs to farm-to-retail venues.
- How Does the Gus Schumacher Nutrition Incentive Program (GusNIP) Work? A Theory of Change
  - GusNIP funds government agencies and non-profit organizations to FVI programs. This article provides an overview of how GusNIP nutrition incentives work.

- An Introduction to Incorporating Diversity, Equity, and Inclusion (DEI) into Nutrition Incentive Program Research and Evaluation
- ○ Provides strategies for incorporating DEI into FVI program research and evaluation
- Supporting Food & Nutrition Security through Healthcare
  - ○ Serves as resource for healthcare systems and their public health and community partners to support food and nutrition security in their communities through programs, policies, and practices, including produce prescription programs.
- No Kid Hungry Rural Produce Prescription Toolkit
- ○ Provides toolkit for people planning and operating produce prescription programs in rural areas
- Food Sovereignty, Health, and Produce Prescription Programs: A Case Study in Two Rural Tribal Communities
  - ○ Describes the implementation of produce prescription programs in two rural tribal communities.
    - ○ Provides strategies for addressing unique challenges of implementing FVI programs in tribal communities

Evidence Gaps

CPSTF identified several areas that have limited information. Additional research and evaluation could help answer the following questions and fill remaining gaps in the evidence base.

CPSTF identified the following questions as priorities for research and evaluation:

- What is the long-term impact of FVI programs and how can improvement in outcomes be sustained after the program ends?
- How does effectiveness vary among population groups (e.g., children, recipients of SNAP or WIC, people with or at risk for diet-related health conditions)?
- How can programs best be tailored to participants to improve incentive redemption and program effectiveness?

Remaining questions for research and evaluation identified in this review include:

- How can researchers use consistent dietary measures for fruit and vegetable consumption to enable comparisons across studies?
- How does the seasonality of farmers markets impact participants' fruit and vegetable purchases and consumption? How can improvements in outcomes be sustained during the off-season?
- What is the total incentive amount provided by programs? Does program effectiveness vary by the amount provided?
- Does program effectiveness vary by the incentive model? Specifically, do point-of-sale discounts and rebates work as well as subsidies and matches?
- What are the best strategies for recruiting people who are eligible for nutritional assistance programs (e.g., SNAP), but not enrolled?

Economic Evidence Gaps

CPSTF found the intervention was cost-effective, meaning the health benefits justified the costs. However, there was not enough evidence to assess other economic outcomes. The following questions are proposed as a priority for economic research and evaluation:

- What is the intervention cost of FVI programs?
- Do the monetized benefits of FVI programs exceed the intervention cost?
- Do economic outcomes of FVI programs differ by rural and urban locations?

Remaining questions for research and evaluation identified in the economic review include the following:

- Does cost-effectiveness of FVI programs vary by the type of incentives?
- Do economic outcomes of FVI programs vary by type of commercial vendor?

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Disclaimer

Document last updated July 9, 2026

Appendices of Supporting Documents

Social Determinants of Health: Fruit and Vegetable Incentive Programs

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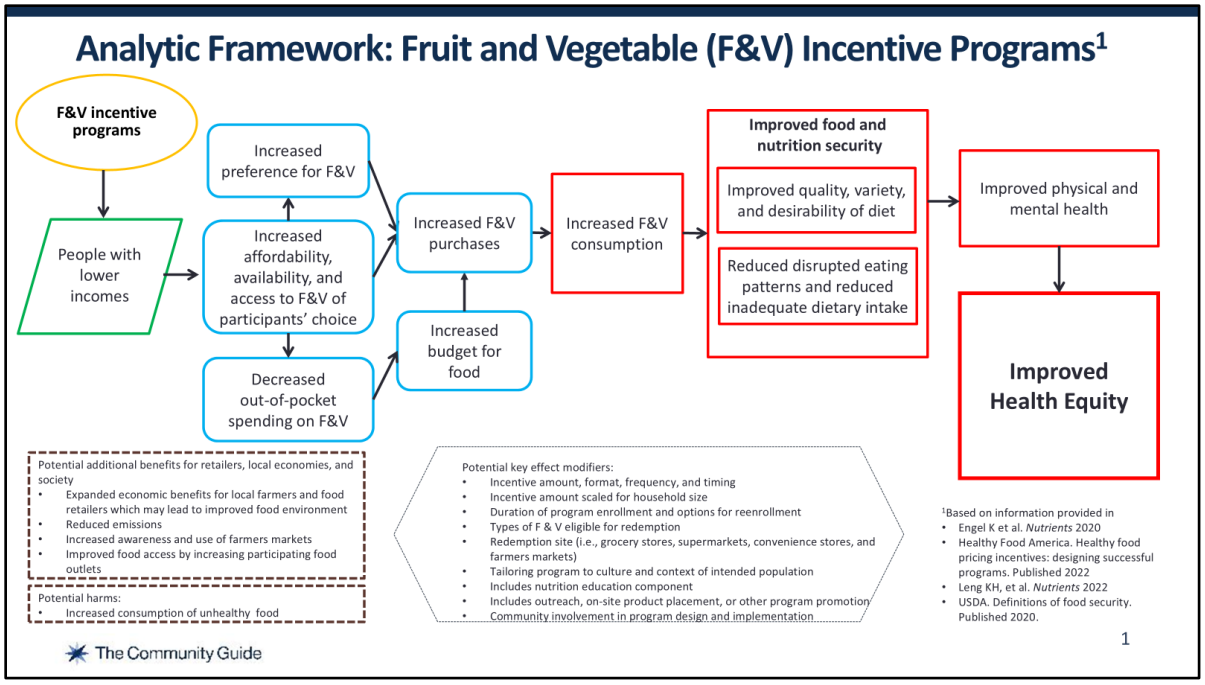
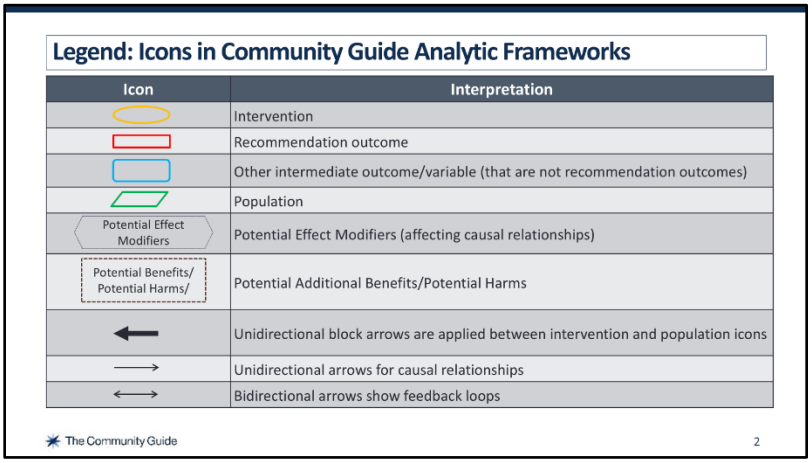
Appendix A
Analytic Framework (Effectiveness Review)



Analytic Framework Text Description



The analytic framework postulates the pathway through which fruit and vegetable incentive programs increase fruit and vegetable consumption, improve food and nutrition security, and improve health equity.

Fruit and vegetable incentive programs are implemented among people with lower incomes. Fruit and vegetable incentive programs may increase affordability, availability, and access to fruit and vegetables of the participants. This may lead to both decreased out of pocket spending on fruits and vegetables and increased budget for food, which may lead to increased preference for fruits and vegetables. These improvements may lead to increased fruit and vegetable purchases, increased fruit and vegetable consumption, reduce food insecurity, and improved physical and mental health, leading to improved health equity.

Potential additional benefits for retailers, local economies and society included expanded economic benefits for local farmers and food retailers, which may lead to improved food environment; reduced

emissions due to support of local, seasonal eating among participants, increased awareness and use of farmers markets, and improved food access by increasing participating food outlets. Potential harms may be increased consumption of unhealthy food.

Potential key effect modifiers include:

- Incentive amount, format, frequency, and timing
- Incentive amount scaled for household size
- Duration of program enrollment and options for reenrollment
- Types of fruits and vegetables eligible for redemption
- Redemption site (i.e., grocery stores, supermarkets, convenience stores, and farmers markets)
- Tailoring program to culture and context of intended population
- Includes nutrition education component
- Includes outreach, on-site product placement, or other program promotion
- Community involvement in program design and implementation

Appendix B

Search Strategy (Effectiveness Review): Social Determinants of Health: Fruit and Vegetable Incentive Programs

The CPSTF recommendation is based on a systematic review of 30 studies (published through February 2023). Databases searched for this review included CINAHL, Cochrane Library, Embase, Google Scholar, Medline, PsycInfo, Scopus, Sociological Abstracts, and the USDA website.

CINAHL

S1 **TI** ((access* OR incentive* OR intervention* OR "Double Up Food Bucks" OR "Gus Schumacher" OR GUSNIP OR "Double-Dollar" OR "Health Bucks*" OR "Dollar for Dollar" OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescri* OR discount OR motivation OR price OR usage)) OR **AB** ((access* OR incentive* OR intervention* OR "Double Up Food Bucks" OR "Gus Schumacher" OR GUSNIP OR "Double-Dollar" OR "Health Bucks*" OR "Dollar for Dollar" OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescri* OR discount OR motivation OR price OR usage))
S2 **TI** ((health N2 promotion) OR (nutrition N2 assistance) OR (FINI N2 program) OR (nutrition N2 education) OR (government N2 financ*)) OR **AB** ((health N2 promotion) OR (nutrition N2 assistance) OR (FINI N2 program) OR (nutrition N2 education) OR (government N2 financ*))
S3 **TI** (double N2 dollar) OR **AB** (double N2 dollar)
S4 **TI** (((program* OR project*) N5 ((produce* N2 prescription*) OR (food N2 prescription*) OR (nutrition N2 incentive*) OR nutrition))) OR **AB** (((program* OR project*) N5 ((produce* N2 prescription*) OR (food N2 prescription*) OR (nutrition N2 incentive*) OR nutrition)))
S5 **TI** (((FVs OR FVI OR (fruit* N2 vegetable*)) N5 (assistance OR health* OR purchase* Or program* OR suppl* OR securit* OR access* OR incentive* OR intervention* OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescrip* OR discount OR motivation OR price OR impact OR usage OR insecurit* OR benefit*))) OR **AB** (((FVs OR FVI OR (fruit* N2 vegetable*)) N5 (assistance OR health* OR purchase* Or program* OR suppl* OR securit* OR access* OR incentive* OR intervention* OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescrip* OR discount OR motivation OR price OR impact OR usage OR insecurit* OR benefit*)))
S6 **TI** (farmer* N2 Market*) OR **AB** (farmer* N2 Market*)
S7 **TI** (("Supplementary Nutrition Assistance Program" OR SNAP OR "WIC"))) OR **AB** (("Supplementary Nutrition Assistance Program" OR SNAP OR "WIC")))
S8 S1 OR S2 OR S3 OR S4
S9 S5 OR S6 OR S7
S10 S8 AND S9
Exclude Medline Journals

Cochrane Library

#1 (access* OR incentive* OR intervention* OR "Double Up Food Bucks" OR "Gus Schumacher" OR gusnip OR "Double-Dollar" OR "Healthy Bucks" OR "Dollar For Dollar" OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescri* OR discount OR motivation OR price OR usage):ti,ab

#2 (health NEAR/2 promotion) OR (nutrtion NEAR/2 assistance) OR (FINI NEAR/2 program) OR (Nutrition NEAR/2 education) OR (government NEAR/2 financ*) OR ((program* OR project*) NEAR/5 ((produce NEAR/2 prescription*) OR (food NEAR/2 prescription*) OR (nutrition NEAR/2 incentive*) OR nutrition)):ti,ab
#3 #1 OR #2
#4 ((FVs OR fvi OR (fruit* NEAR/2 vegetable*)) NEAR/5 (assistance OR health* OR purchase* OR program* OR suppl* OR securit* OR access* OR incentive* OR intervention* OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescrip* OR discount OR motivation OR price OR impact OR usage OR insecurit* OR benefit)) OR (farmer* NEAR/2 market*) OR ((Supplementary Nutrition Assistance Program OR SNAP OR WIC)):ti,ab
#5 #3 AND #4

Embase

1 ((FVs or FVI or (Fruit* adj2 vegetable*)) adj5 (assistance or health* or purchas* or program* or suppl* or secuit* or insecuriti* or benefit*)).ti,ab.
2 (farmer* adj2 market*).ti,ab. or produce.ti.
3 (nutrition adj2 security).ti,ab.
4 SNAP.ti,ab.
5 WIC.ti,ab.
6 healthy diet/
7 Fruit/ and (Food Assistance/ or Healthy Diet/ or Prescription/)
8 Vegetable/ and (Food Assistance/ or Healthy Diet/ or Prescription/)
9 food assistance/
10 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9
11 motivation/
12 program evaluation/
13 health promotion/
14 (Gus Schumacher or GUSNIP).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]
15 ((program* or project*) adj5 ((produce* adj2 prescription*) or (nutrition adj2 incentive*) or nutrition)).ti,ab.
16 (FINI adj2 program).ti,ab.
17 (Double Up Food Bucks or DUFB).ti,ab.
18 ((Double adj2 dollar) or double-dollar or double up or (bonus adj2 dollar*)).ti,ab.58
19 (health adj2 promotion).ti,ab.
20 (access* or incentive* or intervention* or coupon* or voucher* or subsid* or rebate* or match* or prescri* or discount or motivation or price or usage or (government adj2 financ*)).ti,ab.
21 (nutrition adj2 education).ti,ab,kw,kf.
22 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21
23 10 and 22
24 exp Animal/ not exp Human/
25 23 not 24
26 limit 25 to (english language and "remove medline records")

Google Scholar

Incentive OR Program AND Farmers Market OR USDA OR Fruits OR Vegetables

Medline

1 ((FVs or FVI or (Fruit* adj2 vegetable*)) adj5 (assistance or health* or purchas* or program* or suppl* or secuit* or insecuriti* or benefit*)).ti,ab.
2 (farmer* adj2 market*).ti,ab. or produce.ti.
3 (Nutrition adj2 security).ti,ab.
4 SNAP.ti,ab.
5 WIC.ti,ab.
6 Food/ec
7 Diet, Healthy/ec
8 Fruit/ and (Food Assistance/ or Food Supply/ or Diet, Healthy/ or Prescriptions/)
9 Vegetables/ and (Food Assistance/ or Food Supply/ or Diet, Healthy/ or Prescriptions/)
10 Food Assistance/ec
11 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10
12 Motivation/
13 Financing, Government/
14 Program Evaluation/
15 Health Promotion/
16 (Gus Schumacher or GUSNIP).mp.
17 ((program* or project*) adj5 ((produce adj2 prescription*) or (food adj2 prescription*) or (nutrition adj2 incentive*) or nutrition)).ti,ab.
18 (FINI adj2 program).ti,ab.
19 (Double Up Food Bucks or DUFB).ti,ab.
20 ((Double adj2 dollar) or double-dollar or double up or (bonus adj2 dollar*)).ti,ab.
21 (health adj2 promotion).ti,ab.
22 (access* or incentive* or intervention* or coupon* or voucher* or subsid* or rebate* or match* or prescri* or discount or motivation or price or usage or (government adj financ*)).ti,ab.
23 (nutrition adj2 education).ti,ab,kw,kf.
24 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23
25 11 and 24
26 exp Animal/ not exp Human/
27 25 not 26 5942
28 limit 27 to english language

PsycInfo

1 ((FVs or FVI or (Fruit* adj2 vegetable*)) adj5 (assistance or health* or purchas* or program* or suppl* or secuit* or insecuriti* or benefit*)).ti,ab.
2 (farmer* adj2 market*).ti,ab.
3 (nutrition adj2 security).ti,ab.
4 SNAP.ti,ab.
5 WIC.ti,ab.

6 (Fruit and (food assistance or food supply or healthy diet or Prescription*)).mp.
7 (vegetables and (food assistance or food supply or healthy diet or prescription*)).mp.
8 food assistance.mp.
9 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8
10 Motivation/
11 (financ* adj2 government).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]
12 Program Evaluation/
13 Health Promotion/
14 (Gus Schumacher or GUSNIP).mp.
15 ((program* or project*) adj5 ((produce* adj2 prescription*) or (nutrition adj2 incentive*) or nutrition)).ti,ab.
16 (FINI adj2 program).ti,ab.
17 (Double Up Food Bucks or DUFB).ti,ab.
18 ((double adj2 dollar) or double-dollar or double up or (bonus adj2 dollar*)).ti,ab.
19 (health adj2 promotion).ti,ab.
20 (access* or incentive* or intervention* or coupon* or voucher* or subsid* or rebate* or match* or prescri* or discount or motivation or price or usage or (government adj2 financ*)).ti,ab.
21 (nutrition adj2 education).ti,ab.
22 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21
23 9 and 22
24 limit 23 to english language

Scopus

(TITLE-ABS (access* OR incentive* OR intervention* OR "Double Up Food Bucks" OR "Gus Schumacher" OR gusnip OR "Double Dollar" OR "Healthy Bucks" OR "Dollar For Dollar" OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescri* OR discount OR motivation OR price OR usage) OR TITLE-ABS (health W/2 promotion) OR TITLE-ABS (nutrition W/2 assistance) OR TITLE-ABS ("FINI program") OR TITLE-ABS (nutrition W/2 education) OR TITLE-ABS (government W/2 financ*) OR TITLE-ABS ((program* OR project*) W/5 ((produce W/2 prescription*) OR (food W/2 prescription*) OR (nutrition* W/2 incentive*) OR nutrition))) AND (TITLE-ABS ((fvs OR fvi OR (fruit* W/2 vegetable*)) W/5 (assistance OR health* OR purchase* OR program* OR suppl* OR securit* OR access* OR incentive* OR intervention* OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescrip* OR discount OR motivation OR price OR impact OR usage OR insecurit* OR benefit*)) OR TITLE-ABS (farmer* W/2 market*) OR TITLE-ABS ("Supplementary Nutrition Assistance Program" OR snap OR "WIC")) AND NOT INDEX (medline) AND (LIMIT-TO (LANGUAGE , "English")

Sociological Abstracts

noft((((FVs OR fvi OR (fruit* NEAR/2 vegetable*)) NEAR/5 (assistance OR health* OR purchase* OR program* OR suppl* OR securit* OR access* OR incentive* OR intervention* OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescrip* OR discount OR motivation OR price OR impact OR usage OR insecurit* OR benefit)) OR (farmer* NEAR/2 market*) OR ((Supplementary Nutrition Assistance Program OR SNAP OR WIC))))

AND

noft(((access* OR incentive* OR intervention* OR "Double Up Food Bucks" OR "Gus Schumacher" OR gusnip OR "Double-Dollar" OR "Healthy Bucks" OR "Dollar For Dollar" OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescri* OR discount OR motivation OR price OR usage)) OR (("health promotion") OR ("nutrition assistance") OR ("FINI program") OR ("Nutrition education") OR (government NEAR/2 financ*) OR ("double dollar*") OR ((program* OR project*) NEAR/5 ((produce NEAR/2 prescription*) OR (food NEAR/2 prescription*) OR (nutrition NEAR/2 incentive*) OR nutrition))))

Limits:

Language: English

Appendix C

Included Studies (Effectiveness Review): Social Determinants of Health: Fruit and Vegetable Incentive Programs

Anliker JA, Winne M, Drake LT. An evaluation of the Connecticut Farmers' Market coupon program. Journal of Nutrition Education. 1992;24(4):185-91.

Atoloye AT, Savoie-Roskos MR, Durward CM. Higher Fruit and Vegetable Intake Is Associated with Participation in the Double Up Food Bucks (DUFB) Program. Nutrients. 2021;13(8):29.

Bartlett S, Klerman J, Olsho L, Logan C, Blocklin M, Beauregard M, 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. 2014.

Basu S, Akers M, Berkowitz SA, Josey K, Schillinger D, Seligman H. Comparison of Fruit and Vegetable Intake Among Urban Low-Income US Adults Receiving a Produce Voucher in 2 Cities. JAMA netw. 2021;4(3):e211757.

Basu S, Gardner CD, White JS, Rigdon J, Carroll MM, Akers M, et al. Effects Of Alternative Food Voucher Delivery Strategies On Nutrition Among Low-Income Adults. Health Aff (Millwood). 2019;38(4):577-84.

Bowling AB, Moretti M, Ringelheim K, Tran A, Davison K. Healthy Foods, Healthy Families: combining incentives and exposure interventions at urban farmers' markets to improve nutrition among recipients of US federal food assistance. Health promot. 2016;6(1):10-6.

Bryce R, Guajardo C, Ilarraza D, Milgrom N, Pike D, Savoie K, et al. Participation in a farmers' market fruit and vegetable prescription program at a federally qualified health center improves hemoglobin A1C in low income uncontrolled diabetics. Prev Med Rep. 2017;7:176-9.

Bryce R, WolfsonBryce JA, CohenBryce A, Milgrom N, Garcia D, Steele A, et al. A pilot randomized controlled trial of a fruit and vegetable prescription program at a federally qualified health center in low income uncontrolled diabetics. Prev Med Rep. 2021;23:101410.

Cavanagh M, Jurkowski J, Bozlak C, Hastings J, Klein A. Veggie Rx: an outcome evaluation of a healthy food incentive programme. Public Health Nutr. 2017;20(14):2636

Cook M, Ward R, Newman T, Berney S, Slagel N, Bussey-Jones J, et al. Food Security and Clinical Outcomes of the 2017 Georgia Fruit and Vegetable Prescription Program. J Nutr Educ Behav. 2021;53(9):770-8.

Durward CM, Savoie-Roskos M, Atoloye A, Isabella P, Jewkes MD, Ralls B, et al. Double Up Food Bucks Participation is Associated with Increased Fruit and Vegetable Consumption and Food Security Among Low-Income Adults. J Nutr Educ Behav. 2019;51(3):342-7.

Fertig AR, Tang X, Dahlen HM. The effect of a fresh produce incentive paired with cooking and nutrition education on healthy eating in low-income households: a pilot study. Public Health Nutr. 2021;24(9):2704-14.

Gordon B, Ridinger S, Krick R, Grosvenor L, Charron R. Fruit and Vegetable Prescription Program for Diabetes Control Among Community Health Centers in Rural Idaho and Oregon. Am J Public Health. 2022;112(7):975-9.

GusNIP NTAE. Gus Schumacher Nutrition Incentive Program (GusNIP): Impact Findings Y3: September 1, 2021 to August 31, 2022. Prepared for U.S. Department of Agriculture, National Institute of Food and Agriculture; 2023.

Harnack L, Oakes JM, Elbel B, Beatty T, Rydell S, French S. Effects of Subsidies and Prohibitions on Nutrition in a Food Benefit Program: A Randomized Clinical Trial. JAMA Intern Med. 2016;176(11):1610-8.

Herman DR, Harrison GG, Afifi AA, Jenks E. Effect of a targeted subsidy on intake of fruits and vegetables among low-income women in the Special Supplemental Nutrition Program for Women, Infants, and Children. Am J Public Health. 2008;98(1):98-105.

Jones LJ, VanWassenhove-Paetzold J, Thomas K, Bancroft C, Ziatyk EQ, Kim LS, et al. Impact of a Fruit and Vegetable Prescription Program on Health Outcomes and Behaviors in Young Navajo Children. Curr. 2020;4(8):nzaa109.

Lyonnais MJ, Rafferty AP, Spratt S, Jilcott Pitts S. A Produce Prescription Program in Eastern North Carolina Results in Increased Voucher Redemption Rates and Increased Fruit and Vegetable Intake among Participants. Nutrients. 2022;14(12):11.

Moran A, Thorndike A, Franckle R, Boulos R, Doran H, Fulay A, et al. Financial Incentives Increase Purchases Of Fruit And Vegetables Among Lower-Income Households With Children. Health Aff (Millwood). 2019;38(9):1557-66.

Ratigan AR, Lindsay S, Lemus H, Chambers CD, Anderson CA, Cronan TA, et al. Factors associated with continued participation in a matched monetary incentive programme at local farmers' markets in low-income neighbourhoods in San Diego, California. Public Health Nutr. 2017;20(15):2786-95.

Ridberg RA, Bell JF, Merritt KE, Harris DM, Young HM, Tancredi DJ. A Pediatric Fruit and Vegetable Prescription Program Increases Food Security in Low-Income Households. Journal of Nutrition Education and Behavior. 2019;51(2):224-30.e1.

Ridberg RA, Levi R, Marpadga S, Akers M, Tancredi DJ, Seligman HK. Additional Fruit and Vegetable Vouchers for Pregnant WIC Clients: An Equity-Focused Strategy to Improve Food Security and Diet Quality. Nutrients. 2022;14(11):01.

Ridberg RA, Marpadga S, Akers MM, Bell JF, Seligman HK. Fruit and Vegetable Vouchers in Pregnancy: Preliminary Impact on Diet & Food Security. Journal of Hunger and Environmental Nutrition. 2021;16(2):149-63.

Savoie-Roskos M, Durward C, Jeweks M, LeBlanc H. Reducing Food Insecurity and Improving Fruit and Vegetable Intake Among Farmers' Market Incentive Program Participants. J Nutr Educ Behav. 2016;48(1):70-6.e1.

Saxe-Custack A, LaChance J, Hanna-Attisha M. Child Consumption of Whole Fruit and Fruit Juice Following Six Months of Exposure to a Pediatric Fruit and Vegetable Prescription Program. Nutrients. 2019;12(1):20.

Saxe-Custack A, LaChance J, Jess J, Hanna-Attisha M. Influence of a Pediatric Fruit and Vegetable Prescription Program on Child Dietary Patterns and Food Security. Nutrients. 2021;13(8):29.

Trapl ES, Smith S, Joshi K, Osborne A, Benko M, Matos AT, et al. Dietary Impact of Produce Prescriptions for Patients With Hypertension. Prev Chronic Dis. 2018;15:E138.

Veldheer S, Scartozzi C, Bordner CR, Opara C, Williams B, Weaver L, et al. Impact of a Prescription Produce Program on Diabetes and Cardiovascular Risk Outcomes. J Nutr Educ Behav. 2021;53(12):1008-17.

Vericker T, Dixit-Joshi S, Taylor J, Giesen L, Gearing M, Baier K, et al. The Evaluation of Food Insecurity Nutrition Incentives (FINI) Interim Report. Prepared by Westat, Inc. for the U.S. Department of Agriculture, Food and Nutrition Service. 2019.

Weinstein E, Galindo RJ, Fried M, Rucker L, Davis NJ. Impact of a focused nutrition educational intervention coupled with improved access to fresh produce on purchasing behavior and consumption of fruits and vegetables in overweight patients with diabetes mellitus. Diabetes Educ. 2014;40(1):100-6.

Appendix D

Summary Evidence Table (Effectiveness Review): Social Determinants of Health: Fruit and Vegetable Incentive Programs

This table outlines information from the studies included in the Community Guide systematic review of Fruit and Vegetable Incentive Programs. It details study quality, population and intervention characteristics, and study outcomes considered in this review. Complete references for each study can be found in the Included Studies section of the review summary.

Abbreviations Used in This Document:

- Measurement and analysis terms
  - CI: confidence interval
  - NR: not reported
  - NS: not significant
  - pct pts: percentage points
  - SD: standard deviation
- Study design
  - RCT: randomized controlled trial
- Other terms:
  - AIAN: American Indian/Alaska Native
  - FDPIR: Food Distribution Program on Indian Reservations
  - FPL: federal poverty level
  - FQHC: federally qualified health center
  - FV: fruit and vegetable
  - FVRx: fruit and vegetable prescription program
  - GED: General Equivalency Diploma
  - DBP: diastolic blood pressure
  - mmHG: millimeters of mercury
  - NA: not applicable
  - Rx: prescription
  - SBP: systolic blood pressure
  - SNAP: Supplemental Nutrition Assistance Program
  - WIC: Special Supplemental Nutrition Program for Women, Infants, and Children

Outcomes Reported in This Review:

- Food Insecurity (household food insecurity status)
- Fruit and Vegetable Consumption (servings per day, cups per day, times per day)
- Soda consumption
- Additional Health Outcomes (BMI, blood glucose, blood pressure, diet quality, perceived health status)

Notes:

- Incentive models:
  - Matches (i.e., money tied to the dollar amount spent)
  - Point-of-sale discounts (POS) (i.e., percentage off regular price)
  - Rebates (i.e., cash back for future purchases)
  - Subsidies (i.e., a fixed amount of money available to purchase fruits and vegetables)
- Suitability of design: Includes three categories: greatest, moderate, or least suitable design. Read more.
- Rounding: Final effect estimates greater than zero are rounded to the nearest tenth; estimates less than zero are rounded to the nearest hundredth.
- Incentive redemption venue: grocery stores include supermarkets, corner stores, and convenience stores; farmers markets include fruit and vegetable stands and mobile markets.
- Total population includes intervention and control groups unless otherwise noted.
- All studies evaluated interventions designed for and implemented among people with lower incomes.
- Program duration notes length of time in the intervention for individual participants.

Study Characteristics	Population Characteristics	Intervention Characteristics	Results
Author, Year Anliker, 1992 **Location** US, Northeast: Connecticut statewide **Geographic scale** Mix of urban, suburban, and rural **Study design** Pre-post with concurrent comparison group **Suitability of design** Greatest **Quality of Execution:** Fair **Limitations:** 4 • Measurement (outcomes) • Data analysis • Loss to follow-up • Confounding **Outcomes reported** FV consumption **Dates of program implementation** July – December (year not reported)	**Eligibility criteria for inclusion in evaluation** Intervention: WIC-eligible persons served by six participating WIC programs Comparison: Participants from three WIC programs that did not distribute coupons **Total sample population** 483 **Demographics** Mean age: 27 years Sex: NR Race/Ethnicity: 39% White, 36% Black, 25% Hispanic Education: 43% <HS degree; 40% HS degree or GED; 17% >HS degree Nutritional assistance program participation: 100% WIC	**Setting** Incentive Redemption Venue: Farmers market **Program duration:** 2 to 5 months **Intervention:** Farmers Market Project Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: • nutrition education • transportation • activities or materials offered in multiple languages Incentive redemption rate: 79.1% used at least one coupon; 57.6% used entire coupon amount Type of incentive: subsidy Incentive amount: Packet of $10 (five $2 coupons per WIC eligible person) Incentive frequency of receipt: one time Scaled for household size (yes, no, NR): Yes **Comparison:** usual WIC benefits	**Fruit and vegetable consumption** Outcome measure: Frequency of consumption (ranges from 3 to 6 times per week, 1x or 2x per week, 1x every two weeks, or 1x a month or less) Results Intervention Control Pre: NR NR Post: NR NR Absolute difference: Frequency did not differ significantly between intervention and control groups. Relative percentage change: Not calculatable.

Study Characteristics	Population Characteristics	Intervention Characteristics	Results
Author, Year Atoloye, 2021 **Location** US, West: Utah statewide **Geographic scale** Mix of urban, suburban, and rural **Study design** Single group pre-post (compares those who chose to participate in intervention to those who chose not to participate in intervention) **Suitability of design** Least **Quality of Execution:** Fair **Limitations:** 3 • Sampling • Loss to follow-up • Bias **Outcomes reported** FV consumption **Dates of program implementation** June to November (year not reported)	**Eligibility criteria for inclusion in evaluation** Intervention: SNAP participants age 18 and older living in Utah **Total sample population** 212 **Demographics** Mean age: 44 years Sex:77% female Race/Ethnicity: 76% White, 8% Other, 3% Black, 12% Hispanic Education: 12% ≤11th grade, 88% >11th grade Nutritional assistance program participation: 100% SNAP	**Setting** Incentive Redemption Venue: Farmers market **Program duration:** 5 months maximum **Intervention:** Double Up Food Bucks (DUFB) Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: NR Incentive redemption rate: 16% used DUFB after being told about the program Type of incentive: Match Incentive Amount: Maximum match of $10 per visit Incentive frequency of receipt: Per visit Scaled for household size (yes, no, NR): No **Comparison:** SNAP participants who visited the farmers market but chose not to participate in DUFB	**Fruit and vegetable consumption** Outcome measure: Mean # of times FV consumed in a day <u>Results</u> Intervention Control Pre: 4.6 3.3 Post: 3.6 2.9 Absolute difference: -0.60 Relative percentage change: -9.6% NS

Author, Year Bartlett, 2014 **Location** US, Northeast: Hampden County, MA **Geographic scale** Mix of urban, suburban, and rural **Study design** RCT **Suitability of design** Greatest **Quality of Execution** Good **Limitations**: 1 • Loss to follow-up **Outcomes reported** • FV consumption **Dates of program implementation** November 1, 2011 through December 31, 2012	**Eligibility criteria for inclusion in evaluation** SNAP recipients aged 16 and older **Total sample population** 55,095 **Demographics** Mean age: 43 years Sex: 73% female Race/Ethnicity: 37% White, 13% Black, 7% Other, 44% Hispanic Education: 44% < HS diploma, 29% HS diploma, 27% some college or higher Nutritional assistance program participation: 100% SNAP	**Setting** Incentive Redemption Venue: Grocery stores and farmers markets **Program duration:** 12 months **Intervention:** Healthy Incentives Pilot Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: Nutrition education + customized informational mailings + activities or materials offered in multiple languages Incentive redemption rate: 34% of HIP households had no HIP purchases at all in a given month, 36% had purchases greater than $12, 30% had purchases greater than zero but less than $12 Type of incentive: Match Incentive Amount: 30 cents for every $1 spent on FV; max $60 per month Incentive frequency of receipt: Per visit Scaled for household size (yes, no, NR): No **Comparison:** received SNAP benefits as usual	**Fruit and vegetable consumption** Outcome measure: 24 hours dietary recall of targeted FV cup-equivalent consumption <u>Results</u> Intervention Control Pre: NR NR Post: NR NR Absolute difference: 0.24 cups Relative percentage change: 26.0% $p<0.05$ **Note:** Subgroup analysis found FV incentive programs were effective across sex, age groups, education level, race or ethnicity, baseline FV consumption and barriers FV consumption, disability status, and employment status. Effectiveness was slightly greater for those without a HS degree or GED, households whose head of household was non-Hispanic other or not working. Analysis by disability status found similar consumption whether or not the person was living with a disability.

Author, Year Basu, 2019 **Location** US, West: San Francisco, CA **Geographic scale** Urban **Study design** Single group pre-post **Suitability of design** Least **Quality of Execution:** Good **Limitations:** 1 • Sampling **Outcomes reported** Food insecurity FV consumption Diet quality **Dates of program implementation** Six months; time of year not reported (enrollment February 2017 to October 2017)	**Eligibility criteria for inclusion in evaluation** 21 years and older + household income <250% of the federal poverty level + access to a phone + English fluency + live in study area **Total sample population** 176 **Demographics** Mean age: 51 years Sex: 65% female Race/Ethnicity: 31% Black, 16% Hispanic Education: 7% ≤HS degree, 60% HS grad or GED, 28% College degree Nutritional assistance program participation: NR	**Setting** Incentive Redemption Venue: Grocery stores and farmers markets **Program duration:** 6 months **Intervention:** Weekly or monthly fruit and vegetable incentive Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: NR Incentive redemption rate: 81.8% FV monthly group; 66.8% FV weekly group Type of incentive: subsidy Incentive Amount: $20 (four $5 vouchers) per month per family Incentive frequency of receipt: 1 group = monthly; 1 group = weekly Scaled for household size (yes, no, NR): No **Comparison:** Participants pre-program	**Food insecurity** Outcome measure: Six item Department of Agriculture Food Security Survey module <u>Results for weekly group</u> Pre: NR Post: NR Absolute difference: Participants who received weekly vouchers were 30% less likely to be food insecure (OR = 0.70, NS) <u>Results for monthly group</u> Pre: NR Post: NR Absolute difference: Participants who received monthly vouchers were 25% less likely to be food insecure (OR = 0.75, NS) **Fruit and vegetable consumption** Outcome measure: Whole FV cup-equivalents consumed per day <u>Results for weekly group</u> Pre: 0.99 Post: 1.17 Absolute difference: 0.18 Relative percentage change: 18.2% NS <u>Results for monthly group</u> Pre: 1.09 Post: 1.17 Absolute difference: 0.08 Relative percentage change: 7.3% NS **Diet Quality**

			Outcome measure: Healthy Eating Index Score out of 100 <u>Results for weekly group</u> Pre: 54.5 Post: 55.7 Absolute difference: 1.2 Relative percentage change: 2.2% NS <u>Results for monthly group</u> Pre: 56.7 Post: 57.4 Absolute difference: 0.70 Relative percentage change: 1.2% NS
Author, Year Basu, 2021 **Location** US, West: Los Angeles and San Francisco, CA **Geographic scale** Urban **Study design** Single group pre-post **Suitability of design** Least **Quality of Execution** Good **Limitations**: 1 • Sampling **Outcomes reported**	**Eligibility criteria for inclusion in evaluation** 21 years and older + household income <250% of the federal poverty level + access to a phone + English fluency + live in study area **Total sample population** 671 **Demographics** Mean age: 55 years Sex: 62% female Race/Ethnicity: 31% Black, 20% Hispanic Education: 10% <HS degree, 19% HS grad or GED, 40% some college, 26% college grade Nutritional assistance program participation: 3% WIC, 30% SNAP	**Setting** Incentive Redemption Venue: Grocery stores and farmers markets **Program duration:** Six months **Intervention:** Monthly fruit and vegetable incentives Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: Printed materials in English and Spanish Incentive redemption rate: Los Angeles: 79% San Francisco: 75% Type of incentive: subsidy	**Fruit and vegetable consumption** Outcome measure: Mean FV cup-equivalents consumed per day <u>Results for Los Angeles group</u> Pre: 0.97 Post: 1.58 Absolute difference: 0.61 Relative percentage change: 62.9% p<0.05 <u>Results for San Francisco group</u> Pre: 1.14 Post: 1.26 Absolute difference: 0.12 Relative percentage change: 10.5% p<0.05 **Diet Quality**

FV consumption Diet quality **Dates of program implementation** February 2017 to September 2019		Incentive Amount: $20 per month Incentive frequency of receipt: monthly Scaled for household size (yes, no, NR): No **Comparison:** participants pre-program	Outcome measure: Healthy Eating Index Score out of 100 <u>Results for Los Angeles group</u> Pre: 59.5 Post: 66.1 Absolute difference: 6.6 Relative percentage change: 11.1%; p<0.05 <u>Results for San Francisco group</u> Pre: 62.7 Post: 63.7 Absolute difference: 1.0 Relative percentage change: 1.6% NS
Author, Year Bowling, 2016 **Location** US, Northeast: Providence, RI **Geographic scale** Urban **Study design** Single group pre-post **Suitability of design** Least **Quality of Execution:** Fair **Limitations**: 3 • Measurement (outcomes) • Loss to follow-up	**Eligibility criteria for inclusion in evaluation** Families in low-income urban neighborhoods in Rhode Island+ had at least one child age <12 years + participate in at least one nutritional assistance program **Total sample population** 425 **Demographics** Mean age: 35 years Sex: 95% female Race/Ethnicity: 30% White, 9% Asian, 8% Black, 3% Other, 46% Hispanic Education: NR Nutritional assistance program participation: 72% WIC, 75% SNAP	**Setting** Incentive Redemption Venue: Farmers markets **Program duration:** NR **Intervention:** Healthy Foods, Healthy Families Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: nutrition education (i.e. children's nutritional literacy activities and adult education, taste tests, recipe cards) + printed materials offered in multiple languages	**FV consumption** Outcome measure: # of times FV consumed per day <u>Results</u> Pre: 5.13 Post: 5.62 Absolute difference: 0.49 Relative percentage change: 9.55% Significant change in vegetable consumption, but not in fruit consumption. **Soda consumption** Outcome measure: # of times soda consumed per day <u>Results</u> Pre: 0.57 Post: 0.43 Absolute difference: -0.14

• Bias **Outcomes reported** FV consumption Soda consumption **Dates of program implementation** July to October each year; data taken from 2013		Incentive redemption rate: 64% of participants completed at least three visits to a market Type of incentive: Subsidy Incentive Amount: $20 up to $120 total Incentive frequency of receipt: Every third market visit Scaled for household size (yes, no, NR): No **Comparison:** Participants pre-program	Relative percentage change: -24.6% p<0.05
Author, Year Bryce, 2017 **Location** US, Midwest: Detroit, MI **Geographic scale** Urban **Study design** Single group pre-post **Suitability of design** Least **Quality of Execution:** Fair **Limitations:** 2 • Sampling • Bias **Outcomes reported**	**Eligibility criteria for inclusion in evaluation** Adult, non-pregnant patients previously diagnosed with type 2 diabetes + elevated HbA1C >6.5 within three months of intervention + referral from primary care provider **Total sample population:** 65 **Demographics** Mean age: 53 years Sex: 71% female Race/Ethnicity: 28% Black, 6% White, 66% Hispanic Education: NR Nutritional assistance program participation: NR	**Setting** Incentive Redemption Venue: Farmers market **Program duration:** 3 months **Intervention:** Fresh Prescription Program (Fresh Rx) Incentives provided by healthcare provider (produce prescriptions)? Yes Additional components offered: Nutrition education + vendor signage + retailor training + CHWs check progress on goals Incentive redemption rate: • 65% attended market 4 times • 17% attended three times • 6% attended two times • 14% attended once	**Blood Glucose** Outcome measure: Hemoglobin A1C (HbA1C) level <u>Results</u> Pre: 9.54 Post: 8.83 Absolute difference: -0.71 Relative percentage change: -7.4 p<0.001 **SBP** Outcome measure: mmHG <u>Results</u> Pre: 135.1 Post: 135.8 Absolute difference: 0.7 mmHG Relative percentage change: 0.5% p=0.7 **DBP**

Blood Glucose SBP DBP **Dates of program implementation** June – October 2015		Type of incentive: subsidy Incentive Amount: $45 max ($10 per market and a one-time $5 incentive for completing a health goals sheet) Incentive frequency of receipt: Weekly Scaled for household size (yes, no, NR): No **Comparison:** Participants pre-program	Outcome measure: mmHG <u>Results</u> Pre: 79.3 Post: 77.6 Absolute difference: -1.7 mmHG Relative percentage change: -2.1% p=0.17
Author, Year Bryce, 2021 **Location** US, Midwest: Detroit, MI **Geographic scale** Urban **Study design** RCT **Suitability of design** Greatest **Quality of Execution:** Fair **Limitations:** 2 • Sampling • Bias **Outcomes reported** Blood Glucose SBP	**Eligibility criteria for inclusion in evaluation** Adult, non-pregnant FQHC patients diagnosed with type 2 diabetes + elevated HbA1C >8.0 within six months of intervention **Total sample population:** 112 **Demographics** Mean age: 54 years Sex: 66% female Race/Ethnicity: 26% Black, 5% White, 70% Hispanic Education: NR Nutritional assistance program participation: NR	**Setting** Incentive Redemption Venue: Farmers market **Program duration:** 3 months **Intervention:** Fresh Prescription Program (Fresh Rx) Incentives provided by healthcare provider (produce prescriptions)? Yes Additional components offered: Nutrition education + vendor signage +retailor training Incentive redemption rate: More than a quarter went to the Mercado at least 8 times and used all 8 prescriptions (28.6%, n = 16) Type of incentive: Subsidy	**Blood Glucose** Outcome measure: Hemoglobin A1C (HbA1C) level <u>Results</u> Intervention Control Pre: 9.69 9.38 Post: 9.15 9.41 Absolute difference: -0.57 Relative percentage change: -5.9% NS **SBP** Outcome measure: mmHG <u>Results</u> Intervention Control Pre: 131.11 132.33 Post: 130.21 134.00 Absolute difference: -2.6 mmHG Relative percentage change: -1.9% NS **DBP**

DBP Body Mass Index (BMI) **Dates of program implementation** June 1, 2018 – January 1, 2019		Incentive Amount: $80 max ($10 per visit for up to 8 visits) Incentive frequency of receipt: Weekly Scaled for household size (yes, no, NR): No **Comparison:** FQHC patients randomized to the control group who did not receive the prescription program	Outcome measure: mmHG <u>Results</u> Intervention Control Pre: 78.98 79.02 Post: 78.23 78.32 Absolute difference: -0.05 mmHG Relative percentage change: -0.1% NS **BMI** Outcome measure: kg/m2 <u>Results</u> Intervention Control Pre: 32.98 34.39 Post: 33.26 34.51 Absolute difference: 0.16 Relative percentage change: 0.5% NS
Author, Year Cavanaugh, 2017 **Location** US, Northeast: Albany, NY **Geographic scale** Urban **Study design** Retrospective cohort **Suitability of design** Moderate **Quality of Execution:** Fair **Limitations:** 2	**Eligibility criteria for inclusion in evaluation** Health center patients who had low-income and were classified as obese, hypertensive or diabetic **Total sample population:** 54 (Intervention group only) **Demographics (based on intervention group)** Mean age: NR Sex: NR Race/Ethnicity: 54% Black, 30% White, 4% biracial, 13% did not report race/ethnicity Education: NR Nutritional assistance program participation: NR	**Setting** Incentive Redemption Venue: Farmers market **Program duration:** NR **Intervention:** Veggie Rx program Incentives provided by healthcare provider (produce prescriptions)? Yes Additional components offered: Nutrition education Incentive redemption rate: • Mean number of coupons redeemed = 22 (Range 5 – 87)	**BMI** Outcome measure: kg/m2 <u>Results</u> Intervention Control Pre: 40.02 37.41 Post: 39.27 37.76 Absolute difference: -1.1 Relative percentage change: -2.8% p<0.05

• Description • Confounding **Outcomes reported** BMI **Dates of program implementation** Unsure (began issuing produce coupons in December 2011)		Type of incentive: Subsidy Incentive Amount: $91 max Incentive frequency of receipt: One time (given a coupon booklet containing 13 coupons; limited to using one coupon per week) Scaled for household size (yes, no, NR): No **Comparison:** Health center patients who did not participate in the incentive program and were matched to the intervention group participants	
Author, Year Cook, 2021 **Location** US, South: Atlanta, Athens, and Augusta, GA **Geographic scale** Urban **Study design** Time series with no concurrent comparison group **Suitability of design** Least **Quality of Execution:** Fair **Limitations:** 4 • Description • Sampling • Loss to follow-up	**Eligibility criteria for inclusion in evaluation** Primary care or community-based health care center patients who were eligible for SNAP or screened positive for food insecurity + diagnosed with or at risk for 1 or more diet-related chronic conditions or risk factors **Total sample population:** 122 **Demographics** Mean age: NR Age Category: 20-34: 9% 35-44: 12% 45-54: 23% 55-64: 27% 65+: 29% Sex: 72% female Race/Ethnicity: 79% Black, 9% White, 2% multi-racial, 1% Other, 9% Hispanic	**Setting** Incentive Redemption Venue: Farmers markets **Program duration:** 6 months **Intervention:** Georgia Fruit and Vegetable Rx Incentives provided by healthcare provider (produce prescriptions)? Yes Additional components offered: • Nutrition education Incentive redemption rate: NR Total median amount redeemed: $192 Total Mean amount redeemed: $277.60 Type of incentive: Subsidy	**Food insecurity** Outcome measure: Change in percent reporting very low or low food security using the six item Department of Agriculture Food Security Survey module <u>Results</u> Pre: 63.3 Post: 36.0 Absolute difference: -27.3 pct pts Relative percent change: -43.1% Change in low security $p<0.001$ Change in very low security $p=0.23$ **Blood Glucose** Outcome measure: Hemoglobin A1C (HbA1C) level <u>Results</u> Pre: 6.13 Post: 6.19

• Bias **Outcomes reported** Food insecurity Blood Glucose SBP DBP BMI **Dates of program implementation** April through August 2017	Education: 18% <HS degree, 19% HS degree or GED, 57% some or graduated from college or technical school, 7% postgraduate or professional degree Nutritional assistance program participation: 57% SNAP, 5% WIC	Incentive Amount: Average $28 per week per family Incentive frequency of receipt: Weekly Scaled for household size (yes, no, NR): Yes **Comparison:** Participants pre-program	Absolute difference (adjusted model): 0.06 (CI: -0.02 to 0.13) Relative percentage change: 1.0% p=0.06 **SBP** Outcome measure: mmHG <u>Results</u> Pre: 133.01 Post: 132.51 Absolute difference (adjusted model): -0.49 mmHG (CI: -1.36 to 0.38) Relative percentage change: -0.38% p=0.64 **DBP** Outcome measure: mmHG <u>Results</u> Pre: 81.23 Post: 80.50 Absolute difference (adjusted model): -0.67 mmHG (CI: -1.23 to -0.11) Relative percentage change: -0.90% p=0.01 **BMI** Outcome measure: kg/m2 <u>Results</u> Pre: 34.98 Post: 34.93 Absolute difference (adjusted model): -0.06 (CI: -0.22 to 0.10) Relative percentage change: -0.1% p=0.17

Author, Year Durward, 2019 **Location** US, West: Utah **Geographic scale** Rural **Study design** Single group pre-post **Suitability of design** Least **Quality of Execution:** Fair **Limitations:** 2 • Loss to follow-up • Bias **Outcomes reported** Food insecurity FV consumption **Dates of program implementation** Ongoing during farmers market season; data collected during the 2015 farmers market season	**Eligibility criteria for inclusion in evaluation** Adult SNAP participants who were about to use their Double Up Food Bucks (DUFB) **Total sample population:** 339 **Demographics** Mean age: 40 Sex: 77% female Race/Ethnicity: 83% White, 17% Other, 9% Hispanic Education: NR Nutritional assistance program participation: 100% SNAP	**Setting** Incentive Redemption Venue: Farmers markets **Program duration:** 4 to 7 weeks **Intervention:** Double Up Food Bucks (DUFB) Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: NR Incentive redemption rate: Of those who returned to farmers market, 71.0% used DUFB program every time Type of incentive: Match Incentive Amount: $70 max (up to $10 per visit) Incentive frequency of receipt: Per visit (which is at the weekly farmers market) Scaled for household size (yes, no, NR): No **Comparison:** Participants pre-program	**Food insecurity** Outcome measure: change in percent reporting very low or low food security using the six item Department of Agriculture Food Security Survey module <u>Results</u> Pre: 70.0 Post: 55.0 Absolute difference: -15.0 pct pts Relative percent change: -21.4% p<0.001 **FV consumption** Outcome measure: # of times per day FV consumed in a day <u>Results</u> Pre: 2.82 Post: 3.29 Absolute difference: 0.47 (p<0.05) Relative percentage change: 16.7% p=0.002
Author, Year Fertig, 2021 **Location** US, Midwest: Minneapolis and St. Paul, MN and surrounding areas	**Eligibility criteria for inclusion in evaluation** Food pantry clients 18 years and older (required to have income of <200% of FPL or be in crisis) + ability to get to a participating grocery store	**Setting** Incentive Redemption Venue: Grocery store **Program duration:** 2 months	**FV consumption** Outcome measure: # of servings fruits or vegetables were consumed in a day <u>Results</u> Pre: 2.74

Geographic scale Mix of urban and suburban **Study design** Single group pre-post **Suitability of design** Least **Quality of Execution:** Fair **Limitations:** 4 • Sampling • Measurement (exposure) • Loss to follow-up • Confounding **Outcomes reported** FV consumption **Dates of program implementation** Spring 2016	**Total sample population:** 120 **Demographics** Mean age: NR Age category: adults under age 45: 44% 45–64: 43% 65+: 17% Sex: 82.6% female Race/Ethnicity: 50.9% White, 28.6% Black, 8.9% Asian, 1.8% Other, 9.8% Hispanic Education: 16% <HS, 54% HS degree, 30% >HS Nutritional assistance program participation: 52% SNAP, 16% WIC	**Intervention:** Healthy Savings and Cooking pilot Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: Nutrition education + kitchen supplies kit Incentive redemption rate: 93.0% used scan card at least once; average use was 6 out of 8 weeks Type of incentive: subsidy Incentive Amount (reported for three intervention arms): • $80 max ($10 per week) • $120 max ($15 per week) • $160 max ($20 per week) Incentive frequency of receipt: Weekly Scaled for household size (yes, no, NR): No **Comparison:** Participants pre-program	Post: 3.49 Absolute difference: 0.75 Relative percentage change: 27.4% NS
Author, Year Gordon, 2022 **Location** US, West: Oregon and Idaho **Geographic scale** Rural **Study design** Single group pre-post	**Eligibility criteria for inclusion in evaluation** FQHC patients with low incomes in rural Oregon and Idaho with a diabetes diagnosis and HA1C above normal **Total sample population:** 333 **Demographics**	**Setting** Incentive Redemption Venue: Grocery stores and farmers markets **Program duration:** 12-16 weeks **Intervention:** Wholesome Wave FVRx program	**Blood Glucose** Outcome measure: Hemoglobin A1C (HbA1C) level <u>Results</u> Pre: 10.3 Post: 8.88 Absolute difference: -1.42 Relative percentage change: -13.8% NR

Suitability of design Least **Quality of Execution:** Fair **Limitations:** 4 • Description • Sampling • Measurement (outcome) • Loss to follow-up **Outcomes reported** Blood Glucose **Dates of program implementation** 2018-2020	Mean age: NR Age category: 30-39: 6% 40-49: 27% 50-59: 34% 60-69: 23% Sex: NR Race/Ethnicity: 52% White, 38% Hispanic Education: NR Nutritional assistance program participation: NR	Incentives provided by healthcare provider (produce prescriptions)? Yes Additional components offered: Counseling with registered dietitian nutritionists, behavioral health counselors or pharmacists was offered Incentive redemption rate: mean redemption rate = 60.0% (range: 4.0% to %100) Type of incentive: Subsidy Incentive Amount (determined by number of people in household): • 1 person: $10 per month • ≥8 people: $50 per month Incentive frequency of receipt: NR Scaled for household size (yes, no, NR): Yes **Comparison:** Participants pre-program	**Note**: Subgroup analysis by food security status reported greater change for those who were food insecure at baseline. Applicable for both food secure and food insecure participants.
Author, Year Gus Schumacher Nutrition Incentive Program (GusNIP) 2023 Report **Location** US, 18 sites across all regions **Geographic scale** Mix **Study design**	**Eligibility criteria for inclusion in evaluation** Eligibility varied by USDA GUSNP funded grantee but most included adults with low incomes who were at high-risk for food insecurity and chronic disease **Total sample population:** 949 **Demographics** Mean age: 51 years	**Setting** Incentive Redemption Venue: Grocery stores and farmers markets **Program duration:** Varies (did not report range) **Intervention:** Gus Schumacher Nutrition Incentive Program (GUSNIP) Incentives provided by healthcare provider (produce prescriptions)? Yes	**Food insecurity** Outcome measure: Percent reporting they were food insecure using the six item Department of Agriculture Food Security Survey module <u>Results</u> Pre: 66.2 Post: 54.8 Absolute difference: -11.4 pct pts Relative percent change: -17.2%

Single group pre-post **Suitability of design** Least **Quality of Execution:** Fair **Limitations:** 3 • Description • Sampling • Data analysis **Outcomes reported** Food insecurity FV consumption Perceived health status **Dates of program implementation** Ongoing; data collected September 2021 through August 2022	Sex: 78% female Race/Ethnicity: 28% Black, 23% Other, 20% White, 14% Native Hawaiian or other Pacific Islander, 3% Multiple races, 3% American Indian, 2% Asian, 35% Hispanic Education: NR Nutritional assistance program participation: NR	Additional components offered: NR Incentive redemption rate: NR Type of incentive: Varies by grantee Incentive Amount: NR Incentive frequency of receipt: NR Scaled for household size (yes, no, NR): NR **Comparison:** Participants pre-program	NR **Note**: Subgroup analyses found that food insecurity decreased for all ages and racial/ethnic groups; women experienced a decrease in food insecurity while men experienced an increase. <u>Results</u> Pre: 2.47 Post: 2.58 Absolute difference: 0.11 Relative percentage change: 4.5% p<0.05 **Note**: Subgroup analysis by age and sex reported FV consumption increases for all age groups and both males and females. Applicable to all age groups and males and females. **Perceived health status** Outcome measure: Self-reported % who described their health as "good," "very good," or "excellent" <u>Results</u> Pre: 49.9 Post: 53.5 Absolute difference: 3.6 Relative percentage change: 7.2% NR
Author, Year Harnack, 2016 **Location** US, Midwest: Minneapolis-St. Paul, MN	**Eligibility criteria for inclusion in evaluation** Not participating in SNAP + household income ≤200% of FPL or participating in government work	**Setting** Incentive Redemption Venue: NR **Program duration:** 12 weeks	**Food insecurity** Outcome measure: Percent reporting they were very low or low food secure using the six item Department of Agriculture Food Security Survey module

Geographic scale Urban **Study design** RCT **Suitability of design** Greatest **Quality of Execution:** Fair **Limitations:** 2 • Description • Sampling **Outcomes reported** Food insecurity FV consumption BMI Diet quality Sugar sweetened beverage consumption **Dates of program implementation** NR	program + can read and speak English **Total sample population:** 201 **Demographics** Mean age: 44 years Sex: 81% female Race/Ethnicity: 50% Black, 32% White, 14% Biracial, 4% Other, 11.0% Hispanic Education: NR Nutritional assistance program participation: NR	**Intervention:** Food benefit program with FV incentive + no restrictions and food benefit program with FV incentive + restrictions Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: NR Incentive redemption rate: NR Type of incentive: Match Incentive Amount: 30 cents for every benefit dollar spent on FV Incentive frequency of receipt: weekly Scaled for household size (yes, no, NR): Yes **Comparison:** Participants pre-program	<u>Results for FV incentive only group</u> Intervention Control Pre: 88.2 72.7 Post: 27.9 40.9 Absolute difference: -28.5 Relative percentage change: -43.8% p<0.05 <u>Results for FV incentive plus additional restrictions group</u> Intervention Control Pre: 77.6 72.7 Post: 23.9 40.9 Absolute difference: -21.9 Relative percentage change: -45.3% p<0.05 **FV consumption** Outcome measure: Total # of FV servings per day <u>Results for FV incentive only group</u> Intervention Control Pre: 1.9 2.1 Post: 2.3 2.1 Absolute difference: 0.30; p>0.05 Relative percentage change: 21.1% NS <u>Results for FV incentive plus additional restrictions group</u> Intervention Control Pre: 2.0 2.1 Post: 2.3 2.1 Absolute difference: 0.10; p>0.05 Relative percentage change: 15.0% NS

			BMI Outcome measure: kg/m2 <u>Results for FV incentive only group</u> Intervention Control Pre: 33.4 32.7 Post: 33.4 32.8 Absolute difference: -0.1 Relative percentage change: -0.3% NS <u>Results for FV incentive plus additional restrictions group</u> Intervention Control Pre: 31.7 32.7 Post: 31.9 32.8 Absolute difference: 0.1 Relative percentage change: 0.3% NS **Diet quality** Outcome measure: Healthy Eating Index Score out of 100 <u>Results for FV incentive only group</u> Intervention Control Pre: 50.5 51.3 Post: 52.2 51.0 Absolute difference: 1.80 Relative percentage change: 3.95% p<0.05 <u>Results for FV incentive plus additional restrictions group</u> Intervention Control Pre: 49.6 51.3

			Post: 53.7 51.0 Absolute difference: 4.30 Relative percentage change: 8.85% p<0.05 **Sugar-sweetened beverage consumption** Outcome measure: # of servings of sugar-sweetened beverages per day 24-hour dietary recall using Nutrition Data System for Research <u>Results for FV incentive only group</u> Intervention Control Pre: 1.2 0.9 Post: 1.0 1.1 Absolute difference: -0.5 Relative percentage change: -38.9% p<0.05 <u>Results for FV incentive plus additional restrictions group</u> Intervention Control Pre: 1.2 0.9 Post: 0.9 1.1 Absolute difference: -0.5 Relative percentage change: -47.2% p<0.05

Author, Year Herman, 2008 **Location** US, West: Los Angeles, CA **Geographic scale** Urban **Study design** Pre-post with concurrent comparison group **Suitability of design** Greatest **Quality of Execution:** Fair **Limitations:** 2 • Sampling • Loss to follow-up **Outcomes reported** FV consumption **Dates of program implementation** 2001-2002 (6 months)	**Eligibility criteria for inclusion in evaluation** Recently delivered and recertified for WIC participation as either a breastfeeding or non-breastfeeding postpartum woman + spoke English or Spanish + 18 years or older. **Total sample population** 602 **Demographics** Mean age: 28 years Sex: 100% female Race/Ethnicity: 6% Black, 3% White, 2% Asian, 89% Hispanic Education: mean years=9 Nutritional assistance program participation: 100% WIC	**Setting** Incentive Redemption Venue: Grocery store and farmers market **Program duration:** 6 months **Intervention:** Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: NR Type of incentive: Subsidy Incentive redemption rate: More than 90% Incentive Amount: $10 worth of vouchers per week, in $1 units for the supermarket site and in $2 units for the farmers market site Incentive frequency of receipt: Bimonthly Scaled for household size (yes, no, NR): No **Comparison:** Control participants were provided with a set of coupons of lesser value ($13 per month), redeemable for disposable diapers, in compensation for their time participating in interviews	**Fruit and vegetable consumption** Outcome measure: Average servings of fruit and vegetables consumed per day <u>Results</u> Farmers Market Intervention Control Pre: 5.4 5.0 Post: 7.8 4.8 Absolute difference: 2.60 Relative percentage change: 48.4% p<0.05 Supermarket Intervention Control Pre: 6.9 5.0 Post: 7.8 4.8 Absolute difference: 1.10 Relative percentage change: 17.0% p<0.05 **Note:** Subgroup analysis found that participants who were white or African American showed higher consumption of vegetables compared to other racial groups (p<0.05).
Author, Year Jones, 2020 **Location**	**Eligibility criteria for inclusion in evaluation** Families must include a pregnant woman or child 6 years of age or younger + enrolled in Navajo FVRx	**Setting** Incentive Redemption Venue: Grocery stores and farmers markets **Program duration:**	**Food insecurity** Outcome measure: % reporting adequate food insecurity <u>Results</u>

Navajo Nation, West: Utah, Arizona, New Mexico **Geographic scale** Tribal lands **Study design** Single group pre-post **Suitability of design** Least **Quality of Execution:** Good **Limitations:** 1 Loss to follow-up **Outcomes reported** Food insecurity FV consumption BMI **Dates of program implementation** May 2015-Sept 2018	program. Some sites enrolled families experiencing food insecurity. **Total sample population** 212 **Demographics** Mean age: 4 years Sex: 50% female Race/Ethnicity: 100% AIAN Education: NR Nutritional assistance program participation: 18% SNAP only, 15% WIC only, 50% SNAP and WIC, 1% FDPIR and WIC 16% none	6 months **Intervention:** Navajo FVRx Program Incentives provided by healthcare provider (produce prescriptions)? Yes Additional components offered: Nutrition education + Retailer training or support Incentive redemption rate: NR Type of incentive: Subsidy Incentive Amount: Vouchers valued at $1 per household member per day with a maximum value of $5 per day. Incentive frequency of receipt: Monthly Scaled for household size (yes, no, NR): Yes **Comparison:** Participants pre-program	Pre: 82.0% Post: 65.0% Absolute difference: -17.0; p<0.05 Relative percentage change: -20.7% p<0.001 **Fruit and vegetable consumption** Outcome measure: # of servings of FV per day <u>Results</u> Pre: 5.2 Post: 6.8 Absolute difference: 1.6; p<0.05 Relative percentage change: 30.8% p<0.001 Outcome measure: % meeting American Academy of Pediatrics FV consumption recommendations <u>Results</u> Pre: 67.0% Post: 83.0% Absolute difference: 16.0%; p<0.05 Relative percentage change: 23.88% p<0.001 **BMI** Outcome measure: BMI percentile among children who were overweight or had obesity at baseline <u>Results</u> Pre: 95.6% Post: 73.06%

			Absolute difference: -22.5% Relative percentage change: NA p<0.001 **Note:** Subgroup analyses found that participants who were overweight or obese had similar increases in FV consumption.
Author, Year Lyonnais, 2022 **Location** US, South: North Carolina **Geographic scale** Rural **Study design** Single group pre-post **Suitability of design** Least **Quality of Execution:** Fair **Limitations:** 4 • Description • Sampling • Data analysis • Loss to follow-up **Outcomes reported** FV consumption **Dates of program implementation** 2021 (months not reported)	**Eligibility criteria for inclusion in evaluation** Reside in one of nine counties + were recruited from healthy lifestyle programs, nutrition education sessions, diabetes prevention programs, and routine healthcare visits. **Total sample population** 125 **Demographics** Age: 20-44: 16% 45-64: 35% ≥65: 49% Sex: 83% female Race/Ethnicity: 72% Black, 22% White, 6% Hispanic Education: 9% <High school, 35% High school grad or GED, 26% Some college, 30% College graduate Nutritional assistance program participation: 38% SNAP/EBT, 7% WIC	**Setting** Incentive Redemption Venue: Grocery stores and farmers markets **Program duration** NR (program length varied by county and specific program) **Intervention:** The PICH Produce Rx Program Incentives provided by healthcare provider (produce prescriptions)? Yes Additional components offered: NR Incentive redemption rate: 52% Type of incentive: Subsidy Incentive Amount: Series of $5 vouchers, at least $20 total Incentive frequency of receipt: Some participants were given vouchers one time and some were given vouchers several times during the season. Scaled for household size (yes, no, NR): NR **Comparison:** Participants pre-program	**Fruit and vegetable consumption** Outcome measure: # cups of FV per day in the past 7 days <u>Results</u> Pre: NR Post: NR Absolute difference: 0.46 Relative percentage change: not calculatable p<0.05

Author, Year Moran, 2019 **Location** US, Northeast: Maine **Geographic scale** Rural **Study design** RCT **Suitability of design** Greatest **Quality of Execution:** Fair **Limitations:** 2 • Sampling • Loss to follow-up **Outcomes reported** FV consumption **Dates of program implementation** Jan-June 2017	**Eligibility criteria for inclusion in evaluation** Adults who were the primary shopper in the household (at least 50% of grocery shopping at the study store) + living with at least one child aged 18 or younger + read and understand English. **Total sample population** 605 **Demographics** Mean age: 37 Sex: 83% female Race/Ethnicity: 91% White (other races or ethnicities NR) Education: NR Nutritional assistance program participation: 32% SNAP	**Setting** Incentive Redemption Venue: Grocery store **Program duration** 6 months **Intervention:** Double dollar incentive and nutrition education Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: Nutrition education Incentive redemption rate: NR Type of incentive: POS discount Incentive Amount: 50% discount up to $10 per transaction Incentive frequency of receipt: Each supermarket transaction Scaled for household size (yes, no, NR): No **Comparison:** All participants (including intervention group) received a 5% discount on all purchases at the store.	**Fruit and vegetable consumption** Outcome measure: # of ½ cup servings of FV consumed per day <u>Results</u> <u>Incentive-only (primary shopper received)</u> Intervention Control Pre: NR NR Post: NR NR Absolute difference: -0.26 Relative percentage change: not calculatable <u>Incentive+education (primary shopper received)</u> Intervention Control Pre: NR NR Post: NR NR Absolute difference: -0.11 Relative percentage change: not calculatable <u>Incentive-only (reference child received)</u> Intervention Control Pre: NR NR Post: NR NR Absolute difference: -0.22 Relative percentage change: not calculatable <u>Incentive+education (reference child received)</u> Intervention Control

			Pre: NR NR Post: NR NR Absolute difference: -0.29 Relative percentage change: not calculatable **Note:** Subgroup analyses found no difference in consumption between participants who received SNAP and those who did not.
Author, Year Ratigan, 2017 **Location** US, West: San Diego County, CA **Geographic scale** Mix of urban, suburban, and rural **Study design** Single group pre-post **Suitability of design** Least **Quality of Execution:** Fair **Limitations:** 3 • Measurement – outcomes • Loss to follow-up • Confounding **Outcomes reported** FV consumption Diet quality **Dates of program implementation**	**Eligibility criteria for inclusion in evaluation** Recipients of SNAP, WIC, and Supplemental Security Income (SSI) who attended participating farmers markets from 2010 to 2012. Individuals younger than 18 years were eligible if they received disability income or were eligible for WIC because of pregnancy or having children under the age of 5 years. **Total sample population** 7298 **Demographics** Mean age: 34 Sex: 85% female Race/Ethnicity: 18% White, 11% Vietnamese, 10% Other Asian, 7% African American, 3% East African, 2% other race, 50% Hispanic Education: NR Nutritional assistance program participation: 56% WIC, 27% SNAP/CalFresh, 17% Supplemental Security Income	**Setting** Incentive Redemption Venue: Farmers markets **Program duration:** 31 months **Intervention:** The Fresh Fund incentive Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: NR Incentive redemption rate: NR Type of incentive: Match Incentive Amount: 1:1 matching for each dollar exchanged to receive Fresh Fund tokens up to $20 a month. Incentive frequency of receipt: NR Scaled for household size (yes, no, NR): No **Comparison:** Participants pre-program	**Fruit and vegetable consumption** Outcome measure: Odds of increasing number of FV servings per month of program use <u>Results</u> Pre: NR Post: NR Absolute difference: Not calculatable Relative percentage change: Not calculatable The within-individual odds of an increasing number of servings of F&V consumed increased by 2% per month of Fresh Fund use (OR=1.02; 95 % CI 1.01, 1.03; P=0.003). **Diet Quality** Outcome: Odds of improved perception of diet quality per month of program use <u>Results</u> Pre: NR Post: NR Absolute difference: Not calculatable Relative percentage change: Not calculatable

June 2010-January 2012			The odds of improved perception of diet quality increased by 10% per month of Fresh Fund use (OR =1.10; CI 1.09, 1.11; P<0.001
Author, Year Ridberg, 2018 **Location** US, multiple regions: Maine, Massachusetts, New Mexico, Rhode Island, DC, NY **Geographic scale** Mix of urban, suburban, and rural **Study design** Single group pre-post **Suitability of design** Least **Quality of Execution:** Fair **Limitations:** 2 • Description • Sampling **Outcomes reported** Food insecurity **Dates of program implementation** 2013-2015 (months not reported)	**Eligibility criteria for inclusion in evaluation** Children (2-18 yrs; 1 per household) from pediatric programs at federally qualified health centers. Children must have been clinically obese or overweight (based on BMI weight-for-age) and able to make at least 3 clinic visits. **Total sample population** 578 **Demographics** Age: 2-8: 36% 9-13: 47% 14-18: 18% Sex: 52% female Race/Ethnicity: 16% White, 15% Black, 4% Other, 65% Hispanic Education (Highest education of mother/primary caretaker): 55% High school classes, degree, or GED, 25% Some college or more Nutritional assistance program participation: 72% SNAP or WIC recipients	**Setting** Incentive Redemption Venue: Farmers markets **Program duration:** 36 months **Intervention:** Wholesome Wave FVRx program Incentives provided by healthcare provider (produce prescriptions)? Yes Additional components offered: Nutrition education Incentive redemption rate: 54% Type of incentive: subsidy Incentive Amount: $0.50 to $1.00/person per day: for example, $28/wk for a family of 4 Incentive frequency of receipt: Monthly Scaled for household size (yes, no, NR): Yes **Comparison:** Participants pre-program	**Food insecurity** Outcome measure: % of participants who were food insecure <u>Results</u> Pre: 42.0% Post: 23.0% Absolute difference: -19.0 Relative percentage change: -45.2% p<0.05

Author, Year Ridberg, 2021 **Location** US, West: San Francisco, CA **Geographic scale** Urban **Study design** Pre-post with concurrent comparison group **Suitability of design** Greatest **Quality of Execution:** Fair **Limitations:** 3 • Description • Loss to follow-up • Confounding **Outcomes reported** Food insecurity FV consumption **Dates of program implementation** 2017 (enrollment occurred between February and August, with follow-up data collected 3 months after enrollment)	**Eligibility criteria for inclusion in evaluation** Pregnant WIC participants age > 18 years who were enrolled in WIC, had the ability to complete surveys in English, Spanish, or Chinese, and had intent to remain in SF >3 months **Total sample population** 510 (intervention only, comparison group not reported) **Demographics** Mean age: 30 Sex: 100% Race/Ethnicity: 55% Asian, 7% Black, 4% White, 1% Native Hawaiian, 1% multi-racial, 33% Hispanic Education: NR Nutritional assistance program participation: 100% WIC	**Setting** Incentive Redemption Venue: Grocery stores and farmers markets **Program duration:** NR **Intervention:** Vouchers 4 Veggies Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: NR Incentive redemption rate: 81% Type of incentive: Subsidy Incentive Amount: $40 per month Incentive frequency of receipt: Monthly Scaled for household size (yes, no, NR): No **Comparison:** Participants in the comparison group received the standard WIC package and were provided with a 10 USD gift card to a large drug store chain to compensate for time spent completing each survey.	**Food insecurity** Outcome: % of participants who were food insecure <u>Results</u> Intervention Control Pre: 53% 38% Post: 36% 31% Absolute difference: -10.0 Relative percentage change: -13.7% NR **Fruit and vegetable consumption** Outcome measure: # of times per day FV were consumed over past week <u>Results</u> Intervention Control Pre: 4.60 3.92 Post: 4.62 3.21 Absolute difference: 0.73 Relative percentage change: 18.55% P<0.05

Author, Year Ridberg, 2022 **Location** US, West: San Francisco, CA **Geographic scale** Urban **Study design** Pre-post with concurrent comparison group **Suitability of design** Greatest **Quality of Execution:** Fair **Limitations:** 3 • Loss to follow-up • Confounding • Bias **Outcomes reported** Food insecurity FV consumption **Dates of program implementation** Sept 2020-June 2021	**Eligibility criteria for inclusion in evaluation** Newly pregnant people (first or second trimester) age >18 yrs with low income + enrolled in WIC in San Francisco. + able to complete electronic surveys in English, Spanish, or Chinese +plan to remain in the local area for more than 3 months **Total sample population** 770 **Demographics** Age: 18-25: 27% 26-35: 56% 36-45: 15% >45: 0% Sex: 100% female Race/Ethnicity: 21% Asian, 11% Black, 6% White, 1% AIAN, 1% Other race, 53% Hispanic Education: 26% High school or less, 24% Associate/Bach/trade, 2% Advanced degree Nutritional assistance program participation: 100% WIC	**Setting** Incentive Redemption Venue: Grocery stores and farmers markets **Program duration:** 10 months **Intervention:** Vouchers 4 Veggies Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: NR Incentive redemption rate: 67% Type of incentive: Subsidy Incentive Amount: $40/month Incentive frequency of receipt: Monthly Scaled for household size (yes, no, NR): No **Comparison:** Control participants received only the standard WIC package benefits	**Food insecurity** Outcome measure: USDA 6-item Food Security Questionnaire converted- to Rasch score <u>Results</u> Intervention Control Pre: 3.67 3.77 Post: 3.47 3.59 Absolute difference: -0.02 Relative percentage change: -0.68% NS **Fruit and vegetable consumption** Outcome: # cups of FV consumed per day <u>Results</u> Intervention Control Pre: 2.56 2.51 Post: 2.41 2.40 Absolute difference: -0.06 Relative percentage change: -1.5% NS
Author, Year Savoie-Roskos, 2016 **Location** US, West: Salt Lake City, UT **Geographic scale** Urban	**Eligibility criteria for inclusion in evaluation** Adults aged ≥18 yrs receiving SNAP benefits and participating in the Double-Up Food Bucks (DUFB) at the Salt Lake City Downtown Farmers Market.	**Setting** Incentive Redemption Venue: Farmers market **Program duration:** NR **Intervention:**	**Food insecurity** Outcome measure: USDA 6-item Food Security Questionnaire (scale score, higher score indicates greater food insecurity) <u>Results</u> Pre: 3.0

Study design Single group pre-post **Suitability of design** Least **Quality of Execution:** Fair **Limitations:** 2 • Description • Loss to follow-up **Outcomes reported** Food insecurity FV consumption **Dates of program implementation** NR	**Total sample population** 54 **Demographics** Mean age: 38 Sex: 74% female Race/Ethnicity: 71% White, 11% Other or multi-racial, 7% Black, 2% Asian, 9% Hispanic Education: NR Nutrition assistance program participation: 100% SNAP	DUFB Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: NR Incentive redemption rate: NR Type of incentive: Match Incentive Amount: Up to $10 per visit Incentive frequency of receipt: Available per farmers market visit (number of visits/length of intervention duration NR) Scaled for household size (yes, no, NR): No **Comparison:** Participant pre-DUFB	Post: 2.3 Absolute difference: -0.7 Relative percent change: -23.3% P<0.05 **Fruit and vegetable consumption** Outcome measure: Frequency of FV consumption (6-item BRFSS FV module) <u>Results</u> Pre: 3.3 Post: 4.0 Absolute difference: 0.7 Relative percentage change: 21.2% NS
Author, Year Saxe-Custack, 2019 **Location** US, Midwest: Flint, MI **Geographic scale** Urban **Study design** Single group pre-post **Suitability of design** Least **Quality of Execution:** Good	**Eligibility criteria for inclusion in evaluation** Caregivers and their children aged 8-18 yrs at a pediatric clinic. English speaking. **Total sample population** 114 **Demographics** Mean age: 13 (children), 40 (adults) Sex: 55% female (children), 95% female (adults) Race/Ethnicity: 63% Black (children), 61% Black (adults) Education: NR	**Setting** Incentive Redemption Venue: Farmers market **Program duration:** NR **Intervention:** Pediatric Fruit and Vegetable Prescription Program Incentives provided by healthcare provider (produce prescriptions)? Yes Additional components offered: NR Type of incentive: Subsidy	**Fruit and vegetable consumption** Outcome measure: # of FV cups per day <u>Results</u> Pre: 1.98 Post: 2.08 Absolute difference: 0.10 Relative percentage change: 5.05% NS

Limitations: 0 **Outcomes reported** FV consumption **Dates of program implementation** August 2018-January 2019	Nutritional assistance program participation: 46% SNAP, 55% Child participation in free and or reduced-price school meals, 11% WIC	Incentive redemption rate: NR Incentive Amount: $15 each clinic visit Incentive frequency of receipt: Each clinic visit Scaled for household size (yes, no, NR): No **Comparison:** Participants pre-program	
Author, Year Saxe-Custack, 2021 **Location** US, Midwest: Flint, MI **Geographic scale** Urban **Study design** Single group pre-post **Suitability of design** Least **Quality of Execution:** Good **Limitations:** 0 **Outcomes reported** Food insecurity FV consumption **Dates of program implementation** August 2018-August 2019	**Eligibility criteria for inclusion in evaluation** Caregivers and their children aged 8-18 yrs at a pediatric clinic. **Total sample population** 122 **Demographics** Mean age: 12 Sex: 52% Race/Ethnicity: 63% Black, 27% White, 10% Other Caregiver Education: 37% ≤High school degree or less, 43% Some college, 19% ≥Bachelor's degree Nutritional assistance program participation: NR	**Setting** Incentive Redemption Venue: Farmers market **Program duration:** 12 months **Intervention:** Pediatric Fruit and Vegetable Prescription Program Incentives provided by healthcare provider (produce prescriptions)? Yes Additional components offered: NR Incentive redemption rate: NR Type of incentive: Subsidy Incentive Amount: $15 per clinic visit Incentive frequency of receipt: One voucher per doctor's visit Scaled for household size (yes, no, NR): No	**Food insecurity** Outcome measure: USDA 6-item Food Security Questionnaire (scale score, higher score indicates greater food insecurity) <u>Results</u> – mean household food insecurity scale score reported by caregiver Pre: 1.96 Post: 0.87 Absolute difference: -1.09; $p<0.05$ Relative percentage change: -55.6% Outcome measure: Self-Administered Food Security Survey Module for Youth <u>Results</u> – reported by 12 years and older Pre: 1.88 Post: 1.04 Absolute difference: -0.84 Relative percentage change: -44.7% $p<0.05$ **Fruit and vegetable consumption**

		Comparison: Participants pre-program	Outcome measure: # of FV cups per day Results Pre: 2.04 Post: 2.17 Absolute difference: 0.13 Relative percentage change: 6.37% Significant change in vegetable consumption, but not in fruit consumption. **Note:** Subgroup analyses found no significant differences in vegetable consumption between participants by sex or age. Consumption of fruit decreased for boys but increased for girls, and there was no significant difference by age. White participants reported significantly more fruit and vegetable consumption than African American participants.
Author, Year Trapl, 2018 **Location** US, Midwest: Cuyahoga County, OH **Geographic scale** Mix of urban, suburban, and rural **Study design** Single group pre-post **Suitability of design** Least **Quality of Execution:** Good **Limitations:** 1 Loss to follow-up	**Eligibility criteria for inclusion in evaluation** Patients in 3 health systems that delivered primary care to underserved populations. Participants must be 18 yrs or older, have a hypertension diagnosis, and screen positive on a food insecurity screener. **Total sample population (sample size used to report population characteristics)** 224 **Demographics** Mean age: 62 Sex: 72% female Race/Ethnicity: 97% Black Education:	**Setting** Incentive Redemption Venue: Farmers markets **Program duration:** 3 months **Intervention:** Produce Prescriptions for Patients with Hypertension Incentives provided by healthcare provider (produce prescriptions)? Yes Additional components offered: Nutrition education Incentive redemption rate: 86% visited at least 1 participating	**Fruit and vegetable consumption** Outcome measure: # of servings per day Results Pre: 3.3 Post: 4.9 Absolute difference: 1.60 Relative percentage change: 48.48% $p<0.05$

Outcomes reported FV consumption **Dates of program implementation** July-December 2015	22% <High school, 39% High school or GED, 24% Some college, 15% College degree Nutritional assistance program participation: 48% SNAP	farmers market and redeemed at least 1 voucher Type of incentive: Subsidy Incentive Amount: Four $10 vouchers at each clinic visit (3 visits total) Incentive frequency of receipt: Each clinic visit (3 clinic total) Scaled for household size (yes, no, NR): No **Comparison:** Participants pre-program	
Author, Year Veldheer, 2021 **Location** US, Northeast: Reading, PA **Geographic scale** Urban **Study design** Single group pre-post **Suitability of design** Least **Quality of Execution:** Fair **Limitations:** 2 • Measurement exposure • Loss to follow-up **Outcomes reported** FV consumption	**Eligibility criteria for inclusion in evaluation** Primary care patients in a community-based hospital system where the majority of the population is Hispanic/Latinx and low income. Must be at least age 18 years and met the following criteria: (1) had a diagnosis of type 2 diabetes, (2) had an HbA1c ≥ 7.0%, and (3) had a BMI ≥ 25 kg/m2. **Total sample population** 97 **Demographics** Mean age: 54 Sex: 66% female Race/Ethnicity: 12% White, 6% Black, 81% Hispanic Education: NR Nutritional assistance program participation: 66% SNAP	**Setting** Incentive Redemption Venue: Farmers markets **Program duration:** 7 months **Intervention:** Veggie Rx Incentives provided by healthcare provider (produce prescriptions)? Yes Additional components offered: Diabetes self-management education sessions + activities or materials offered in multiple languages Incentive redemption rate: Total vouchers redeemed from all visits out of total vouchers given at all visits=83.4%	Differences reported are from linear mixed-effects regression models **Fruit and vegetable consumption** Outcome measure: # of times per day FV consumed <u>Results</u> Pre: 5.5 Post: 6.2 Adjusted difference: 0.49 Relative percentage change: 12.73% NS Outcome measure: BMI <u>Results</u> Pre: 35.3 Post: 34.7 Adjusted difference: -0.57 Relative percentage change: -1.7% NS

BMI Blood pressure (SBP and DBP) Hemoglobin A1c **Dates of program implementation** June 2018-May 2019		Type of incentive: Subsidy Incentive Amount: Monthly dollar amount received was equivalent to $1/household member/day for 28 days Incentive frequency of receipt: Monthly Scaled for household size (yes, no, NR): Yes **Comparison:** Participants pre-program	Outcome measure: Systolic blood pressure Results Pre: 126.6 Post: 132.7 Adjusted difference: 6.2 Relative percentage change: 4.8% p<0.05 Outcome measure: Diastolic blood pressure Results Pre: 74.4 Post: 76.2 Adjusted difference: 1.7; Relative percentage change: 2.4% NS Outcome measure: Hemoglobin A1c Results Pre: 10.3 Post: 9.0 Adjusted difference: -1.3; Relative percentage change: -12.6% p<0.05
Author, Year Vericker, 2019 **Location** US, multiple regions (38 states and DC)	**Eligibility criteria for inclusion in evaluation** SNAP participants enrolled in targeted health care settings	**Setting** Incentive Redemption Venue: Farmers markets and grocery stores **Program duration:** NR	**Food insecurity** Outcome measure: 10-item U.S. Adult Food Security Survey Module Results Pre: NR

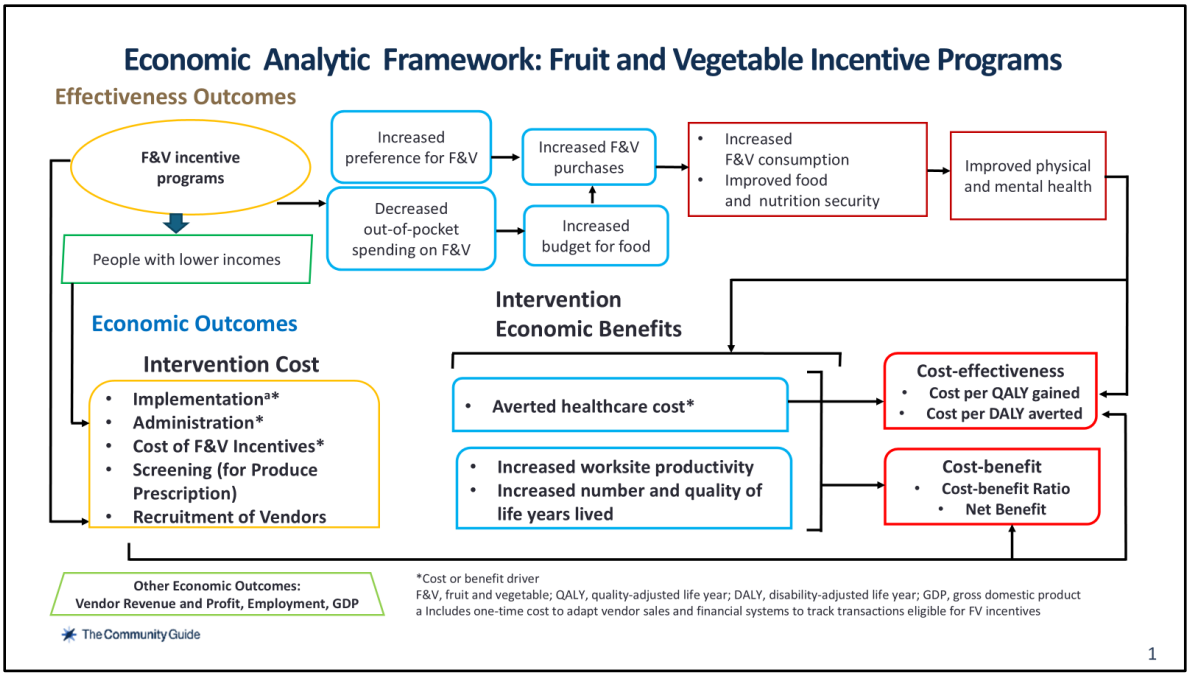
Geographic scale Mix of urban, suburban, and rural **Study design** Pre-post with concurrent comparison group **Suitability of design** Greatest **Quality of Execution:** Fair **Limitations:** 4 • Sampling • Data analysis • Loss to follow-up • Bias **Outcomes reported** Food insecurity FV consumption **Dates of program implementation** 2015-present	**Total sample population (sample size used to report population characteristics)** 2471 Intervention groups reported here: (1) Farmers Market General (FMG): SNAP participants who lived near a sampled farmers market that offered FINI; (2) Grocery Store Group (GSG): SNAP participants who lived near a sampled grocery store that offered FINI. **Demographics** Age: 18-39 yrs: FMG: 36%, GSG: 35% 40-59 yrs: FMG: 37%, GSG: 40% 60+yrs: FMG: 27%, GSG: 25% Sex: % female – FMG: 69%, GSG: 69% Race/Ethnicity: Black – FMG: 22%, GSG 38% White - FMG: 54%, GSG 53% Other – FMG: 4%, GSG 2% Hispanic - FMG: 20%, GSG 6% Education: <High school: FMG: 17%, GSG 17% High school: FMG: 42%, GSG 42% Some college/associatedegree: FMG: 33%, GSG 35% ≥College graduate: FMG: 8%, GSG 6% Nutritional assistance program participation: 100% SNAP	**Intervention:** Food Insecurity Nutrition Incentives Program (FINI) Incentives provided by healthcare provider (produce prescriptions)? Some grantees offered a prescription program Additional components offered: Some programs may have offered retailer training and support Incentive redemption rate: 82% Type of incentive: POS discounts, rebates, or subsidies were offered by grantees Incentive Amount: Varies across FINI grantees, but more than 75% of retailers imposed incentive maximums, which typically allowed SNAP participants to earn up to $20 per daily shopping occasion in incentives. Incentive frequency of receipt: Most retailers offered incentives daily or weekly Scaled for household size (yes, no, NR): NR **Comparison:** SNAP recipients who did not live near a FINI farmers market or grocery store; Urban study areas used a radius of seven miles and rural areas used a 16-mile radius.	Post: NR Absolute difference: The FINI program did not have a detectible impact on adult food security in the GSG; the FMG results suggested that FINI increased food insecurity compared to the control group. Relative percentage change: not calculatable **Fruit and vegetable consumption** Outcome measure: Average daily cups of fruits and vegetables consumed <u>Results</u> Pre: Intervention FMG: 1.77, GSG: 2.07 Pre: Comparison FMG: 1.94, GSG: 1.86 Post: NR Absolute difference: Findings indicate that the FINI program did not have a detectible impact on total daily cup equivalents of fruits and vegetables consumed for any treatment group Relative percentage change: Not calculatable **NOTE:** Analysis of the farmers market shoppers (a subset of the FMG group) and the grocery store shoppers (a subset of the GSG group) found that the FINI program did not have an effect on either food insecurity or FV consumption for either group.

Author, Year Weinstein, 2014 **Location** US, Northeast: Bronx, NY **Geographic scale** Urban **Study design** RCT **Suitability of design** Greatest **Quality of Execution:** Good **Limitations:** 0 **Outcomes reported** BMI HbA1c Cholesterol Blood pressure **Dates of program implementation** 2011 (recruitment occurred between July and October, dates of program implementation NR)	**Eligibility criteria for inclusion in evaluation** Established patients at a large urban public hospital serving an ethnically diverse, low-income patient population. Age >18 years with a diagnosis of type 2 diabetes, body mass index (BMI) >25 kg/m2, hemoglobin A1C (A1C) >7 %, fluency in English or Spanish. Excluded patients receiving anticoagulation therapy, those with chronic kidney disease stage III or greater, or those who lived in institutionalized settings. **Total sample population (sample size used to report population characteristics)** 78 **Demographics** Mean age: 56 Sex: 69% female Race/Ethnicity: 33% Black, 15% Other, 3% White, 49% Hispanic Education: 49% <High school, 27% HS grad/GED, 15% Some college, 9% College grad Nutritional assistance program participation: NR	**Setting** Incentive Redemption Venue: Farmers market **Program duration:** 3 months **Intervention:** Health Bucks Incentives provided by healthcare provider (produce prescriptions)? No Additional components offered: Nutrition education + activities or materials offered in multiple languages Incentive redemption rate: 78% Type of incentive: Subsidy Incentive Amount: $6 Incentive frequency of receipt: once Scaled for household size (yes, no, NR): No **Comparison:** Participants randomized to the control arm received the standard of care available at the practice for patients with uncontrolled diabetes. This standard of care includes physician visits and education by a certified diabetes educator and/or dietician.	**BMI** Outcome measure: kg/m2 Results Intervention Control Pre: NR NR Post: NR NR Absolute difference: 0.10; NS Relative percentage change: not calculatable **Blood Glucose** Outcome measure: HbA1c Results Intervention Control Pre: 9.20 8.42 Post: 9.40 8.49 Absolute difference: 0.13; NS Relative percentage change: 1.2% **Total cholesterol** Outcome: mg/dl Results Intervention Control Pre: 175 183 Post: 168.9 165 Absolute difference: 11.9; NS Relative percentage change: 6.4% **Low density lipoprotein (LDL)** Outcome: mg/dl Results Intervention Control Pre: 93 92

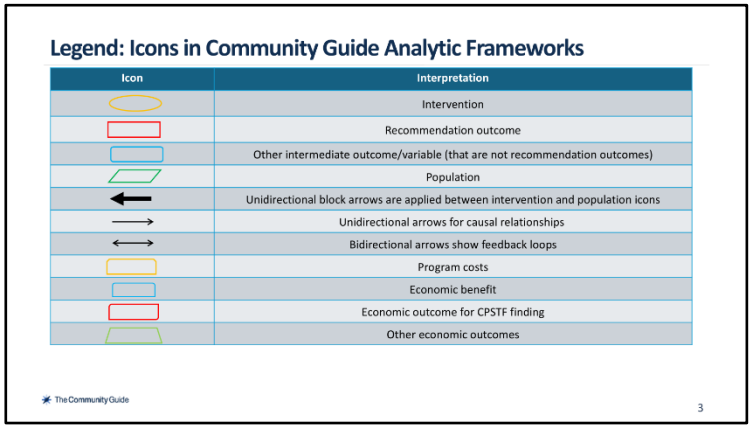
			Post: 87.9 NR Absolute difference: -5.10; NS Relative percentage change: -5.5% **High density lipoprotein (HDL)** Outcome: mg/dl Results Intervention Control Pre: 50.0 47.0 Post: 51.7 46.6 Absolute difference: 2.1; NS Relative percentage change: 4.3% **Triglycerides** Outcome: mg/dl Results Intervention Control Pre: NR NR Post: NR NR Absolute difference: 65.0; NS Relative percentage change: not calculatable **Systolic blood pressure** Results mmHG Intervention Control Pre: 135 133 Post: 135.6 136 Absolute difference: -2.4; NS Relative percentage change: -1.8% **Diastolic blood pressure** Outcome: mmHG Results Intervention Control

			Pre: 73 74 Post: 71 72.4 Absolute difference: -0.4; NS Relative percentage change: -0.6%

Appendix E
Analytic Framework (Economic Review): Fruit and Vegetable Incentive Programs



Economic Analytic Framework Text Description



This analytic framework shows how fruit and vegetable (F&V) incentive programs can lead to economic and health benefits for people with lower incomes. The programs aim to make F&V more affordable and appealing. As a result, people may buy and eat more F&V, improve their food security, and experience better physical and mental health.

The framework also outlines the main cost components, including implementation, administration, the cost of incentives, screening for produce prescription programs, and vendor recruitment. The main drivers of costs include implementation, administration and the cost of incentives.

The benefits of these programs include reduced healthcare costs, increased productivity at work, and more years of life lived. Averted healthcare costs is the major driver of benefits.

The framework then summarizes economic outcomes. These include cost-effectiveness (such as cost per quality-adjusted life year or disability-adjusted life year) and cost-benefit measures (cost-benefit ratio and net benefit). Additional economic effects, such as vendor revenue, employment, and GDP, are also considered, though they occur outside the main pathway from the intervention to health outcomes.

Appendix F

Search Strategy (Economic Review): Social Determinants of Health: Fruit and Vegetable Incentive Programs

Databases searched for this review included Medline, Embase, PsycINFO, Cochrane, CINAHL, Scopus, Sociological Abstracts, EconLit, and NTIS, with search period from inception of databases through April 2024. Detailed search strategies for each database are provided below. The strategies restricted publications to those written in English and based in the United States, but no restrictions were placed on study design.

Overall Search Results

Databases	Date of Run	Results	Duplicates	Final Results
Medline (OVID) 1946 –	04/15/2024	2834	17	2817
Embase (OVID) 1974-	04/15/2024	191	87	104
PsycINFO (OVID) 1806-	04/15/2024	556	245	311
Cochrane Library	04/15/2024	310	129	181
CINAHL (EbscoHost)	04/15/2024	770	549	221
Scopus	04/15/2024	1973	648	1325
Sociological Abstracts (ProQuest)	04/15/2024	222	86	136
EconLit (EbscoHost)	04/15/2024	634	62	572
NTIS (EbscoHost)	04/15/2024	169	47	122
Total		7659	1870	5789

Literature Search Strategies

Ovid MEDLINE(R)

Ovid MEDLINE(R) ALL <1946 to April 12, 2024>

1 ((FVs or FVI or (Fruit* adj2 vegetable*)) adj5 (assistance or health* or purchas* or program* or suppl* or securit* or insecuriti* or benefit*)).ti,ab. 2802

2 (farmer* adj2 market*).ti,ab. or produce.ti. 13351

3 (Nutrition adj2 security).ti,ab. 989

4 SNAP.ti,ab. 12625

5 WIC.ti,ab. 1746

6 Food/ec 1300

7 Diet, Healthy/ec 249

8 Fruit/ and (Food Assistance/ or Food Supply/ or Diet, Healthy/ or Prescriptions/) 1468

9 Vegetables/ and (Food Assistance/ or Food Supply/ or Diet, Healthy/ or Prescriptions/) 1639

10 Food Assistance/ec 183

11 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 33829

12 Motivation/ 82009

13 Financing, Government/ 21399

14 Program Evaluation/ 67572

15 Health Promotion/ 82559

16 (Gus Schumacher or GUSNIP).mp. 10

17 ((program* or project*) adj5 ((produce adj2 prescription*) or (food adj2 prescription*) or (nutrition adj2 incentive*) or nutrition)).ti,ab. 9213

18 (FINI adj2 program).ti,ab. 4

19 (Double Up Food Bucks or DUFB).ti,ab. 12

20 ((Food is medicine or Food as medicine) adj2 program*).ti,ab. 12

21 ((Double adj2 dollar) or double-dollar or double up or (bonus adj2 dollar*)).ti,ab.54

22 (health adj2 promotion).ti,ab. 39683

23 (access* or incentive* or intervention* or coupon* or voucher* or subsid* or rebate* or match* or prescri* or discount or motivation or price or usage or (government adj financ*)).ti,ab. 3110133

24 (nutrition adj2 education).ti,ab,kw,kf. 7430

25 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 3281163

26 11 and 25 7046

27 exp Animal/ not exp Human/ 5211377

28 26 not 27 6684

29 limit 28 to english language 6595

30 exp "Costs and Cost Analysis"/ 269763

31 exp Cost-Benefit Analysis/ 94395

32 exp Quality-Adjusted Life Years/ 16270

33 (cost-effective* or cost-benefit* or cost or QALY or DALY or quality-adjusted life year* or disability-adjusted life year* or return on investment or ROI).ti,ab. 607465

34 exp economics/ 673119

35 exp budgets/ 14198

36 budget*.ti,ab,kf. 37743

37 (economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or pharmaco-economic* or expenditure or expenditures or expense or expenses or financial or finance or finances or financed).ti,ab,kf. 1293018

38 exp cost savings/ 12799

39 exp Health Care Costs/ 72793

40 or/30-39 1735379

41 29 and 40 2834

Embase (OVID) 197

Embase <1974 to 2024 Week 15>

1 ((FVs or FVI or (Fruit* adj2 vegetable*)) adj5 (assistance or health* or purchas* or program* or suppl* or securit* or insecuriti* or benefit*)).ti,ab. 3607

2 (farmer* adj2 market*).ti,ab. or produce.ti. 14419

3 (Nutrition adj2 security).ti,ab. 1071

4 SNAP.ti,ab. 185497

5 WIC.ti,ab. 2185

6 Food/ec 0

7 Diet, Healthy/ec 0

8 Fruit/ and (Food Assistance/ or Food Supply/ or Diet, Healthy/ or Prescriptions/) 2299

9 Vegetables/ and (Food Assistance/ or Food Supply/ or Diet, Healthy/ or Prescriptions/) 2309

10 Food Assistance/ec 0

11 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 41528

12 Motivation/ 129449

13 Financing, Government/ 234

14 Program Evaluation/ 19519

15 Health Promotion/ 114222

16 (Gus Schumacher or GUSNIP).mp. 12

17 ((program* or project*) adj5 ((produce adj2 prescription*) or (food adj2 prescription*) or (nutrition adj2 incentive*) or nutrition)).ti,ab. 11944

18 (FINI adj2 program).ti,ab. 5

19 (Double Up Food Bucks or DUFB).ti,ab. 14

20 ((Food is medicine or Food as medicine) adj2 program*).ti,ab. 18

21 ((Double adj2 dollar) or double-dollar or double up or (bonus adj2 dollar*)).ti,ab.67

22 (health adj2 promotion).ti,ab. 46448

23 (access* or incentive* or intervention* or coupon* or voucher* or subsid* or rebate* or match* or prescri* or discount or motivation or price or usage or (government adj financ*)).ti,ab. 4278396

24 (nutrition adj2 education).ti,ab,kw,kf. 9995

25 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 4441830

26 11 and 25 8836

27 exp Animal/ not exp Human/ 5237361

28 26 not 27 8305

29 limit 28 to english language 8161

30 exp "Costs and Cost Analysis"/ 416685

31 exp Cost-Benefit Analysis/ 96688

32 exp Quality-Adjusted Life Years/37119

33 (cost-effective* or cost-benefit* or cost or QALY or DALY or quality-adjusted life year* or disability-adjusted life year* or return on investment or ROI).ti,ab. 813241

34 exp economics/ 250360

35 exp budgets/ 34511

36 budget*.ti,ab,kf. 49863

37 (economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or pharmaco-economic* or expenditure or expenditures or expense or expenses or financial or finance or finances or financed).ti,ab,kf. 1652055

38 exp cost savings/ 77964

39 exp Health Care Costs/ 351217

40 or/30-39 2048293

41 29 and 40 1967

42 limit 41 to (conference abstract or conference paper or "conference review") 505

43 41 not 42 1462

44 limit 43 to "remove medline records" 191

PsycINFO (OVID) 1806-

APA PsycInfo <1806 to April Week 1 2024>

1 ((FVs or FVI or (Fruit* adj2 vegetable*)) adj5 (assistance or health* or purchas* or program* or suppl* or securit* or insecuriti* or benefit*)).ti,ab. 741

2 (farmer* adj2 market*).ti,ab. or produce.ti. 1756

3 (Nutrition adj2 security).ti,ab. 68

4 SNAP.ti,ab. 1743

5 WIC.ti,ab. 686

6 (Fruit and (food assistance or food supply or healthy diet or prescription*)).mp. 435

7 (vegetables and (food assistance or food supply or healthy diet or prescription*)).mp. 435

8 food assistance.mp. 490

9 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 5545

10 Motivation/ 64933

11 (financ* adj2 government).mp. 1363

12 Program Evaluation/ 14027

13 Health Promotion/ 29523

14 (Gus Schumacher or GUSNIP).mp. 1

15 ((program* or project*) adj5 ((produce adj2 prescription*) or (food adj2 prescription*) or (nutrition adj2 incentive*) or nutrition)).ti,ab. 2319

16 (FINI adj2 program).ti,ab. 3

17 (Double Up Food Bucks or DUFB).ti,ab. 6

18 ((Food is medicine or Food as medicine) adj2 program*).ti,ab. 0

19 ((Double adj2 dollar) or double-dollar or double up or (bonus adj2 dollar*)).ti,ab.22

20 (health adj2 promotion).ti,ab. 16659

21 (access* or incentive* or intervention* or coupon* or voucher* or subsid* or rebate* or match* or prescri* or discount or motivation or price or usage or (government adj financ*)).ti,ab. 977232

22 (nutrition adj2 education).ti,ab. 1950

23 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 1033630

24 9 and 23 2266

25 exp "Costs and Cost Analysis"/ 50853

26 (cost-effective* or cost-benefit* or cost or QALY or DALY or quality-adjusted life year* or disability-adjusted life year* or return on investment or ROI).ti,ab. 79877

27 exp economics/ 95500

28 exp budgets/ 1487

29 budget*.ti,ab. 10235

30 (economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or pharmaco-economic* or expenditure or expenditures or expense or expenses or financial or finance or finances or financed).ti,ab. 323110

31 exp Health Care Costs/ 26532

32 or/25-31 374156

33 24 and 32 556

Cochrane Library

#1 (access* OR incentive* OR intervention* OR "Double Up Food Bucks" OR "Gus Schumacher" OR gusnip OR "Double-Dollar" OR "Healthy Bucks" OR "Dollar For Dollar" OR "Food as medicine" OR "Food is medicine" OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescri* OR discount OR motivation OR price OR usage):ti,ab 691646

#2 (health NEAR/2 promotion) OR (nutrtion NEAR/2 assistance) OR (FINI NEAR/2 program) OR (Nutrition NEAR/2 education) OR (government NEAR/2 financ*) OR ((program* OR project*) NEAR/5 ((produce NEAR/2 prescription*) OR (food NEAR/2 prescription*) OR (nutrition NEAR/2 incentive*) OR nutrition)):ti,ab 18847

#3 #1 OR #2 695303

#4 ((FVs OR fvi OR (fruit* NEAR/2 vegetable*)) NEAR/5 (assistance OR health* OR purchase* OR program* OR suppl* OR securit* OR access* OR incentive* OR intervention* OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescrip* OR discount OR motivation OR price OR impact OR usage OR insecurit* OR benefit)) OR (farmer* NEAR/2 market*) OR ((Supplemental Nutrition Assistance Program OR SNAP OR WIC)):ti,ab 2416

#5 #3 AND #4 1826

#6 ("costs and cost analysis"):ti,ab 2

#7 MeSH descriptor: [Budgets] this term only 63

#8 MeSH descriptor: [Economics] this term only 59

#9 ("cost-effective" OR "cost-effectiveness" or "cost-benefit" OR "cost-benefits" or cost or QALY or DALY or "quality-adjusted life year" OR "quality-adjusted life years" or "disability-adjusted life year" OR "disability-adjusted life years" or "return on investment" or ROI):ti,ab 67648

#10 (economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or "pharmaco-economic" or expenditure or expenditures or expense or expenses or financial or finance or finances or financed):ti,ab 112737

#11 #6 OR #7 OR #8 OR #9 OR #10 114016

#12 #5 AND #11 310

CINAHL (EbscoHost)

S18 S10 AND S17 Expanders - Apply equivalent subjects

Search modes - Boolean/Phrase

S17 S11 OR S12 OR S13 OR S14 OR S15 OR S16

S16 TI budget* OR AB budget*

S15 (MH "Budgets")

S14 (MH "Costs and Cost Analysis")

S13 (MH "Economics")

S12 TI ((economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or "pharmaco-economic" or expenditure or expenditures or expense or expenses or financial or finance or finances or financed)) OR AB ((economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or "pharmaco-economic" or expenditure or expenditures or expense or expenses or financial or finance or finances or financed))

S11 TI (("cost-effective" OR "cost-effectiveness" or "cost-benefit" OR "cost-benefits" or cost or QALY or DALY or "quality-adjusted life year" OR "quality-adjusted life years" or "disability-adjusted life year" OR "disability-adjusted life years" or "return on investment" or ROI)) OR AB (("cost-effective" OR "cost-effectiveness" or "cost-benefit" OR "cost-benefits" or cost or QALY or DALY or "quality-adjusted life year" OR "quality-adjusted life years" or "disability-adjusted life year" OR "disability-adjusted life years" OR "return on investment" OR ROI))

S10 S8 AND S9

S9 S5 OR S6 OR S7

S8 S1 OR S2 OR S3 OR S4

S7 TI (("Supplemental Nutrition Assistance Program" OR SNAP OR "WIC"))) OR AB (("Supplemental Nutrition Assistance Program" OR SNAP OR "WIC")))

S6 TI (farmer* N2 Market*) OR AB (farmer* N2 Market*)

S5 TI (((FVs OR FVI OR (fruit* N2 vegetable*)) N5 (assistance OR health* OR purchase* Or program* OR suppl* OR securit* OR access* OR incentive* OR intervention* OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescrip* OR discount OR motivation OR price OR impact OR usage OR insecurit* OR benefit*))) OR AB (((FVs OR FVI OR (fruit* N2 vegetable*)) N5 (assistance OR health* OR purchase* Or program* OR suppl* OR securit* OR access* OR incentive* OR intervention* OR coupon* OR voucher*)))

S4 TI (((program* OR project*) N5 ((produce* N2 prescription*) OR (food N2 prescription*) OR (nutrition N2 incentive*) OR nutrition))) OR AB (((program* OR project*) N5 ((produce* N2 prescription*) OR (food N2 prescription*) OR (nutrition N2 incentive*) OR nutrition)))

S3 TI (double N2 dollar) OR AB (double N2 dollar)

S2 TI ((health N2 promotion) OR (nutrition N2 assistance) OR (FINI N2 program) OR (nutrition N2 education) OR (government N2 financ*)) OR AB ((health N2 promotion) OR (nutrition N2 assistance) OR (FINI N2 program) OR (nutrition N2 education) OR (government N2 financ*))

S1 TI ((access* OR incentive* OR intervention* OR "Double Up Food Bucks" OR "Gus Schumacher" OR GUSNIP OR "Double-Dollar" OR "Health Bucks*" OR "Dollar for Dollar" OR "Food as medicine" OR "food is medicine" OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescri* OR discount OR motivation OR price OR usage)) OR AB ((access* OR incentive* OR intervention* OR "Double Up Food Bucks" OR "Gus Schumacher" OR GUSNIP OR "Double-Dollar" OR "Health Bucks*" OR "Dollar for Dollar" OR "Food as med ...

Scopus

((TITLE-ABS (access* OR incentive* OR intervention* OR "Double Up Food Bucks" OR "Gus Schumacher" OR gusnip OR "Double Dollar" OR "Healthy Bucks" OR "Dollar For Dollar" OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescri* OR discount OR motivation OR price OR usage) OR TITLE-ABS (health W/2 promotion) OR TITLE-ABS (nutrition W/2 assistance) OR TITLE-ABS ("FINI program") OR TITLE-ABS (nutrition W/2 education) OR TITLE-ABS (government W/2 financ*) OR TITLE-ABS ((program* OR project*) W/5 ((produce W/2 prescription*) OR (food W/2 prescription*) OR (nutrition* W/2 incentive*) OR nutrition))) AND (TITLE-ABS ((fvs OR fvi OR (fruit* W/2 vegetable*)) W/5 (assistance OR health* OR purchase* OR program* OR suppl* OR securit* OR access* OR incentive* OR intervention* OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescrip* OR discount OR motivation OR price OR impact OR usage OR insecurit* OR benefit*)) OR TITLE-ABS (farmer* W/2 market*) OR TITLE-ABS ("Supplemental Nutrition Assistance Program" OR snap OR "WIC"))) AND (TITLE-ABS ("cost-effective" OR "cost-effectiveness" OR "cost-benefit" OR "cost-benefits" OR cost OR qaly OR daly OR "quality-adjusted life year" OR "quality-adjusted life years" OR "disability-adjusted life year" OR "disability-adjusted life years" OR "return on investment" OR roi) OR TITLE-ABS (economic* OR cost OR costs OR costly OR costing OR price OR prices OR pricing OR pharmacoeconomic* OR "pharmaco-economic" OR expenditure OR expenditures OR expense OR expenses OR financial OR finance OR finances OR financed) OR INDEXTERMS (budgets) OR INDEXTERMS (economics) OR TITLE-ABS ("Costs and Cost analysis")) AND NOT INDEX (medline) AND (EXCLUDE (DOCTYPE , "cp"))

Sociological Abstracts (ProQuest)

oft((((FVs OR fvi OR (fruit* NEAR/2 vegetable*)) NEAR/5 (assistance OR health* OR purchase* OR program* OR suppl* OR securit* OR access* OR incentive* OR intervention* OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescrip* OR discount OR motivation OR price OR impact OR usage OR insecurit* OR benefit)) OR (farmer* NEAR/2 market*) OR ((Supplemental Nutrition Assistance

Program OR SNAP OR WIC)))) AND noft(((access* OR incentive* OR intervention* OR "Double Up Food Bucks" OR "Gus Schumacher" OR gusnip OR "Double-Dollar" OR "Healthy Bucks" OR "Dollar For Dollar" OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescri* OR discount OR motivation OR price OR usage)) OR ((health NEAR/2 promotion) OR (nutrtion NEAR/2 assistance) OR (FINI NEAR/2 program) OR (Nutrition NEAR/2 education) OR (government NEAR/2 financ*) OR (double NEAR/2 dollar) OR ((program* OR project*) NEAR/5 ((produce NEAR/2 prescription*) OR (food NEAR/2 prescription*) OR (nutrition NEAR/2 incentive*) OR nutrition)))) AND

MAINSUBJECT.EXACT("Benefit cost analysis") OR title(("cost-effective" OR "cost-effectiveness" or "cost-benefit" OR "cost-benefits" or cost or QALY or DALY or "quality-adjusted life year" OR "quality-adjusted life years" or "disability-adjusted life year" OR "disability-adjusted life years" or "return on investment" or ROI)) OR abstract(("cost-effective" OR "cost-effectiveness" or "cost-benefit" OR "cost-benefits" or cost or QALY or DALY or "quality-adjusted life year" OR "quality-adjusted life years" or "disability-adjusted life year" OR "disability-adjusted life years" or "return on investment" or ROI)) OR title((economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or "pharmaco-economic" or expenditure or expenditures or expense or expenses or financial or finance or finances or financed)) OR abstract((economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or "pharmaco-economic" or expenditure or expenditures or expense or expenses or financial or finance or finances or financed)) OR MAINSUBJECT.EXACT("Economics") OR MAINSUBJECT.EXACT("Budgets")

EconLit (EbscoHost)

S14 S10 AND S13

S13 S11 OR S12

S12 TI ((economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or "pharmaco-economic" or expenditure or expenditures or expense or expenses or financial or finance or finances or financed)) OR AB ((economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or "pharmaco-economic" or expenditure or expenditures or expense or expenses or financial or finance or finances or financed))

S11 TI (("cost-effective" OR "cost-effectiveness" or "cost-benefit" OR "cost-benefits" or cost or QALY or DALY or "quality-adjusted life year" OR "quality-adjusted life years" or "disability-adjusted life year" OR "disability-adjusted life years" or "return on investment" or ROI) OR AB (("cost-effective" OR "cost-effectiveness" or "cost-benefit" OR "cost-benefits" or cost or QALY or DALY or "quality-adjusted life year" OR "quality-adjusted life years" or "disability-adjusted life year" OR "disability-adjusted life years" OR "return on investment" OR ROI)))

S10 S8 AND S9

S9 S5 OR S6 OR S7

S8 S1 OR S2 OR S3 OR S4

S7 TI (("Supplemental Nutrition Assistance Program" OR SNAP OR "WIC")) OR AB (("Supplemental Nutrition Assistance Program" OR SNAP OR "WIC"))

S6 TI (farmer* N2 Market*) OR AB (farmer* N2 Market*)

S5 TI (((FVs OR FVI OR (fruit* N2 vegetable*)) N5 (assistance OR health* OR purchase* Or program* OR suppl* OR securit* OR access* OR incentive* OR intervention* OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescrip* OR discount OR motivation OR price OR impact OR usage OR insecurit* OR benefit*))) OR AB (((FVs OR FVI OR (fruit* N2 vegetable*)) N5 (assistance OR health* OR purchase* Or program* OR suppl* OR securit* OR access* OR incentive* OR intervention* OR coupon* OR voucher*)))

S4 TI (((program* OR project*) N5 ((produce* N2 prescription*) OR (food N2 prescription*) OR (nutrition N2 incentive*) OR nutrition))) OR AB (((program* OR project*) N5 ((produce* N2 prescription*) OR (food N2 prescription*) OR (nutrition N2 incentive*) OR nutrition)))

S3 TI (double N2 dollar) OR AB (double N2 dollar)

S2 TI ((health N2 promotion) OR (nutrition N2 assistance) OR (FINI N2 program) OR (nutrition N2 education) OR (government N2 financ*)) OR AB ((health N2 promotion) OR (nutrition N2 assistance) OR (FINI N2 program) OR (nutrition N2 education) OR (government N2 financ*))

S1 TI ((access* OR incentive* OR intervention* OR "Double Up Food Bucks" OR "Gus Schumacher" OR GUSNIP OR "Double-Dollar" OR "Health Bucks*" OR "Dollar for Dollar" OR "Food as medicine" OR "food is medicine" OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescri* OR discount OR motivation OR price OR usage)) OR AB ((access* OR incentive* OR intervention* OR "Double Up Food Bucks" OR "Gus Schumacher" OR GUSNIP OR "Double-Dollar" OR "Health Bucks*" OR "Dollar for Dollar" OR "Food as medicine" OR "food is medicine" OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescri* OR discount OR motivation OR price OR usage)

NTIS (EbscoHost)

S18 S10 AND S17 Expanders - Apply equivalent subjects

Search modes - Boolean/Phrase

S17 S11 OR S12 OR S13 OR S14 OR S15 OR S16

S16 TI budget* OR AB budget*

S15 (MH "Budgets")

S14 (MH "Costs and Cost Analysis")

S13 (MH "Economics")

S12 TI ((economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or "pharmaco-economic" or expenditure or expenditures or expense or expenses

or financial or finance or finances or financed)) OR AB ((economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or "pharmaco-economic" or expenditure or expenditures or expense or expenses or financial or finance or finances or financed))

S11 TI (("cost-effective" OR "cost-effectiveness" or "cost-benefit" OR "cost-benefits" or cost or QALY or DALY or "quality-adjusted life year" OR "quality-adjusted life years" or "disability-adjusted life year" OR "disability-adjusted life years" or "return on investment" or ROI)) OR AB (("cost-effective" OR "cost-effectiveness" or "cost-benefit" OR "cost-benefits" or cost or QALY or DALY or "quality-adjusted life year" OR "quality-adjusted life years" or "disability-adjusted life year" OR "disability-adjusted life years" OR "return on investment" OR ROI)))

S10 S8 AND S9

S9 S5 OR S6 OR S7

S8 S1 OR S2 OR S3 OR S4

S7 TI (("Supplemental Nutrition Assistance Program" OR SNAP OR "WIC"))) OR AB (("Supplemental Nutrition Assistance Program" OR SNAP OR "WIC")))

S6 TI (farmer* N2 Market*) OR AB (farmer* N2 Market*)

S5 TI (((FVs OR FVI OR (fruit* N2 vegetable*)) N5 (assistance OR health* OR purchase* Or program* OR suppl* OR securit* OR access* OR incentive* OR intervention* OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescrip* OR discount OR motivation OR price OR impact OR usage OR insecurit* OR benefit*))) OR AB (((FVs OR FVI OR (fruit* N2 vegetable*)) N5 (assistance OR health* OR purchase* Or program* OR suppl* OR securit* OR access* OR incentive* OR intervention* OR coupon* OR voucher*)

S4 TI (((program* OR project*) N5 ((produce* N2 prescription*) OR (food N2 prescription*) OR (nutrition N2 incentive*) OR nutrition))) OR AB (((program* OR project*) N5 ((produce* N2 prescription*) OR (food N2 prescription*) OR (nutrition N2 incentive*) OR nutrition)))

S3 TI (double N2 dollar) OR AB (double N2 dollar)

S2 TI ((health N2 promotion) OR (nutrition N2 assistance) OR (FINI N2 program) OR (nutrition N2 education) OR (government N2 financ*)) OR AB ((health N2 promotion) OR (nutrition N2 assistance) OR (FINI N2 program) OR (nutrition N2 education) OR (government N2 financ*))

S1 TI ((access* OR incentive* OR intervention* OR "Double Up Food Bucks" OR "Gus Schumacher" OR GUSNIP OR "Double-Dollar" OR "Health Bucks*" OR "Dollar for Dollar" OR "Food as medicine" OR "food is medicine" OR coupon* OR voucher* OR subsid* OR rebate* OR match* OR prescri* OR discount OR motivation OR price OR usage)) OR AB ((access* OR incentive* OR intervention* OR "Double Up Food Bucks" OR "Gus Schumacher" OR GUSNIP OR "Double-Dollar" OR "Health Bucks*" OR "Dollar for Dollar" OR "Food as medicine" OR Food is Medicine")

Appendix G

Included Studies (Economic Review): Social Determinants of Health: Fruit and Vegetable Incentive Programs

Intervention Cost Studies

Aiyer JN, Raber M, Bello RS, Brewster A, Caballero E, Chennisi C, et al. A pilot food prescription program promotes produce intake and decreases food insecurity. Transl Behav Med 2019;9(5):922-930. https://doi.org/10.1093/tbm/ibz112.

Bartlett S, Jacob K, Lauren O. Evaluation of the Healthy Incentives Pilot (HIP), final report. United States Department of Agriculture, Food and Nutrition Service, Office 2014. Available from https://www.govinfo.gov/content/pkg/GOVPUB-A98-PURL-gpo57549/pdf/GOVPUB-A98-PURL-gpo57549.pdf. Accessed: December 11, 2024. Last updated: September 2014.

Evans EW, Lyerly R, Gans KM, Alexander Scott N, Cohen ED, Lawson E, et al. Translating research-funded mobile produce market trials into sustained public health programs: food on the move. Public Health Rep 2022;137(3):425-430. https://doi.org/10.1177/00333549211012409.

Cost-effectiveness Studies

An R. Nationwide expansion of a financial incentive program on fruit and vegetable purchases among Supplemental Nutrition Assistance Program participants: A cost-effectiveness analysis. Soc Sci Med 2015;147:80-88. https://doi.org/10.1016/j.socscimed.2015.09.032.

Choi SE, Seligman H, Basu S. Cost effectiveness of subsidizing fruit and vegetable purchases through the Supplemental Nutrition Assistance Program. Am J Prev Med 2017;52(5):e147-e155. https://doi.org/10.1016/j.amepre.2016.12.01.

Lee Y, Mozaffarian D, Sy S, Huang Y, Liu J, Wilde PE, et al. Cost-effectiveness of financial incentives for improving diet and health through Medicare and Medicaid: a microsimulation study. PLoS Med 2019;16(3):e1002761.

Mozaffarian D, Liu J, Sy S, Huang Y, Rehm C, Lee Y, et al. Cost-effectiveness of financial incentives and disincentives for improving food purchases and health through the US Supplemental Nutrition Assistance Program (SNAP): A microsimulation study. PLoS Med 2018;15(10):e1002661. https://doi.org/10.1371/journal.pmed.1002661.

Wang L, Lauren BN, Hager K, Zhang FF, Wong JB, Kim DD, et al. Health and economic impacts of implementing produce prescription programs for diabetes in the United States: a microsimulation study. J Am Heart Assoc 2023;12(15):e029215. https://doi.org/10.1161/JAHA.122.029215.

Studies Reporting Other Economic Outcomes

Baronberg S, Dunn L, Nonas C, Dannefer R, Sacks R. Peer reviewed: The impact of New York City's Health Bucks program on electronic benefit transfer spending at farmers markets, 2006–2009. Prev Chronic Dis 2013;10. https://doi.org/10.5888/pcd10.130113.

Bowling AB, Moretti M, Ringelheim K, Tran A, Davison K. Healthy foods, healthy families: Combining incentives and exposure interventions at urban farmers' markets to improve nutrition among recipients of US federal food assistance. Health Promot. Perspect 2016;6(1):10. https://doi.org/10.15171/hpp.2016.02.

Evans EW, Lyerly R, Gans KM, Alexander Scott N, Cohen ED, Lawson E, et al. Translating research-funded mobile produce market trials into sustained public health programs: food on the move. Public Health Rep 2022;137(3):425-430.

Ferdinand R, Torres R, Scott J, Saeed I, Scribner R. Incentivizing fruit and vegetable purchasers at fresh markets in lower 9th ward, New Orleans. Ethn Dis 2017;27(Suppl 1):287. https://doi.org/10.18865/ed.27.S1.287.

Freedman DA, Ngendahimana D, Shon E-J, Merritt K, Pon J. Predictors of Supplemental Nutrition Assistance Program use at farmers' markets with monetary incentive programming. Am J Health Promot 2019;33(7):1039-1048. https://doi.org/10.1177/0890117119854708.

Gans KM, Risica PM, Keita AD, Dionne L, Mello J, Stowers KC, et al. Multilevel approaches to increase fruit and vegetable intake in low-income housing communities: final results of the 'Live Well, Viva Bien'cluster-randomized trial. Int J Behav Nutr Phys Act 2018;15:1-18. https://doi.org/10.1186/s12966-018-0704-2.

Groh JM, Shippy M, Bumpus Edwards J, Cummings S. Fresh Bucks: A Process Approach for Improving Supplemental Nutrition Assistance Program (SNAP) Matching Programs at Farmers' Markets. Health Promot Pract 2022;23(1_suppl):96S-99S. https://doi.org/10.1177/15248399221112036.

Karpyn A, Pon J, Grajeda SB, Wang R, Merritt KE, Tracy T, et al. Understanding impacts of SNAP fruit and vegetable incentive program at farmers' markets: findings from a 13 state RCT. Int J Environ Res Public Health 2022;19(12):7443. https://doi.org/10.3390/ijerph19127443.

Lindsay S. Monetary matched incentives to encourage the purchase of fresh fruits and vegetables at farmers markets in underserved communities. Prev Chronic Dis 2013;10. https://doi.org/10.5888/pcd10.130124.

Bartlett S, Jacob K, Lauren O. Evaluation of the Healthy Incentives Pilot (HIP), final report. United States Department of Agriculture, Food and Nutrition Service, Office 2014. Available from https://www.govinfo.gov/content/pkg/GOVPUB-A98-PURL-gpo57549/pdf/GOVPUB-A98-PURL-gpo57549.pdf. Accessed: December 11, 2024. Last updated: September 2014.

Dimitri C, Oberholtzer L. Potential national economic benefits of the Food Insecurity and Nutrition Incentives Program of the US Agricultural Act of 2014. J Agric Food Syst Community Dev 2015;5(4):49-61. https://doi.org/10.5304/jafscd.2015.054.006.

GusNIP NTAE. Gus Schumacher Nutrition Incentive Program (GusNIP): Impact Findings Y3: September 1, 2021 to August 31, 2022. Prepared for U.S. Department of Agriculture, National Institute of Food and Agriculture; 2023. Available from: https://www.nutritionincentivehub.org/media/2uwlf3ch/gusnip-y3-impact-findings-report.pdf. Accessed: December 12, 2024.

Thilmany D, Jablonski BB. The Economic Contributions of Healthy Food Incentives. Fort Collins, Colorado: Colorado State University; 2021. Available from: https://www.spur.org/sites/default/files/2021-02/economic_contributions_incentives_2_2_21.pdf. Accessed: August 13, 2024. Last updated: January 2021.

Community Preventive Services Task Force

Appendix H

Summary Evidence Table (Economic Review): Social Determinants of Health: Fruit and Vegetable Incentive Programs

This table outlines information from the studies included in the Community Guide economic review of fruit & vegetable incentive programs. The table details study design and economic analysis, population and intervention characteristics, and economic outcomes considered in this review. Complete references for each study can be found in Appendix G: Included Studies (Economic Review) of Social Determinants of Health: Fruit and Vegetable Incentive Programs.

Abbreviations Used in This Document:

- Economic outcomes:
  - QALY: quality-adjusted life year
- Other terms:
  - CDC, Centers for Disease Control and Prevention
  - CI, confidence interval
  - EBT, electronic benefits transfer
  - F&V, fruit and vegetable
  - FPL, federal poverty line
  - GDP, gross domestic product
  - NHANES, National Health and Nutrition Examination Survey
  - NR, not reported
  - RCT, randomized controlled trial
  - Rx, prescription
  - SNAP, Supplemental Nutrition Assistance Program
  - SSI, Supplemental Security Income
  - UI, uncertainty interval
  - USDA, United States Department of Agriculture
  - WIC, Special Supplemental Nutrition Program for Women, Infants, and Children

Notes:

Quality of economic estimates – Studies are assessed to be of good, fair, or limited quality. This valuation is based on two domains: Quality of Capture, and Quality of Measurement. Read more Methods Manual - Part 2: Economic Review Process | The Community Guide

Race/ethnicity of the study population: The Community Guide only summarizes race/ethnicity for studies conducted in the United States.

Study Information	Study and Population Characteristics	Program Name Intervention & Comparison	Effectiveness	Intervention Costs	Intervention Benefits	Economic Summary Measure
Author (Year): Aiyer et al. (2019) **Design**: Pre-post **Economic Outcome:** Intervention cost **Funding Source:** de Beaumont Foundation, Kresge Foundation, Robert Wood Johnson Foundation, Colorado Health Foundation, University of Texas MD Anderson, Lyda Hill Foundation, National Cancer Institute **Monetary Values:** Assumed reported in 2017 U.S. dollars.	**Location:** North Pasadena, Harris County (Houston), Texas, USA **Setting:** Clinic, food bank **Population:** Patients screened for food insecurity in clinic setting **Sample Size:** Intervention 242 families Control None **Characteristics:** **Mean age:** 47.3 y **Female 79.1%** **Race:** African American 3.5% Hispanic 79.7% Food insecure 100% Medicare/Medicaid 7.0% WIC 3.3% SNAP 9.5% No assistance including Medicare/Medicaid 24.2% Urbanicity: 100% urban **Time Horizon:** intervention length	Harris County BUILD Health Partnership **Intervention:** Clinic staff screened patients for food insecurity and eligibles received Food Rx card containing food prescription. Duration 6 months with redemptions every 2 weeks (12 total). Volunteers at food pantry provided orientation and education about prescriptions. Educational booklets provided with recipes. Training and support provided to pantry and food bank staff and healthcare providers. Incentive type: Subsidy within produce prescription. **Comparison:** None	Food insecurity declined from 100% to 5.9% **Data Source:** Self-report in survey.	**Intervention cost**: $12.20 per family per biweekly redemption Mean number of redemptions 6.5 Number of families redeeming incentives 172 **Components of intervention cost:** Produce cost, educational materials, marketing, and personnel including those employed at food bank. **Source:** Partner program records, food delivery records, inventory. **Quality:** Fair	**NR**	**NR**

	was 6 months, September 2016 through May 2017.					
Author (Year): An et al. (2015) **Design**: Modeled from RCT and USDA Pilot Study **Economic Outcome:** Cost-effectiveness **Funding Source:** University of Illinois-Urbana Champaign **Monetary Values:** 2012 U.S. dollars	**Location:** Modeled for nation, USA **Population:** All SNAP recipients **Sample Size:** NR **Characteristics** SNAP 100% **Time Horizon:** Modeled for lifetime.	Healthy Incentives Pilot (HIP) within SNAP **Intervention:** 30 cents rebate added to EBT for each $1 spent on healthy foods for all SNAP recipients Incentive type: 30% rebate **Comparison:** No incentives	All-cause mortality for participants at 0.95 versus non-participants. Increase in daily fruit/vegetable intake: 0.48. **Data Source:** Systematic review, Wang 2014. USDA pilot study, Bartlett 2014. **Lifetime incremental QALY:** 0.082 **Uncertainty:** NR **Quality:** Good **Source:** Regression on EQ-5D survey data collected from 2003 wave of Medical Expenditure Panel Survey (MEPS)	Lifetime intervention cost per person: $1,323 **Uncertainty:** $5 (min $1, mode $5 max $10) per household in implementation and $44 (Triangle: min $10, mode $44, max $100) per household per year in recurring cost. **Components of intervention cost:** Implementation (training, information technology), cost of incentives. **Source:** USDA pilot study, Bartlett 2014. **Quality:** Fair	**NR**	**Cost per QALY gained over lifetime** $16,172 **Uncertainty:** 94.4% simulations ≤ $50K and 99.6% simulations ≤ $100K **Quality:** Fair
Author (Year) Baronberg et al. (2013) **Design**: Time series with comparison **Economic Outcome:** Vendor Revenue	**Location:** New York City, New York, USA **Population:** SNAP participants in farmers markets located in 3 low-income neighborhoods **Sample Size:**	Health Bucks **Intervention:** NYC department of health offered Health Bucks for SNAP purchases (during growing season July 1 through November 15) at selected farmers markets. Incentive was $2 added to EBT card for	**NR**	**NR**	Adjusted mean difference in daily EBT sales intervention versus comparison markets was $170.79.	NR

Funding Source: CDC, NYC Department of Health and Mental Hygiene **Monetary Values:** Assumed reported in 2008 U.S. dollars.	Total number of markets (number accepting Health Bucks): 2006 5 (8), 2007 6 (8), 2008 8 (15), 2009 12 (23) **Characteristics:** SNAP 100% Urbanicity: Urban **Time Horizon:** July 2006 through November 2009	every $5 spent. Markets were in 3 low-income neighborhoods. Not all farmers markets in sample accepted Health Bucks. Incentive type: 40% rebate **Comparison:** None				
Author (Year): Bartlett et al (2014) **Design**: Controlled Trial **Economic Outcome:** Intervention cost, Intervention Effect, Vendor Profitability **Funding Source:** USDA Food and Nutrition Service **Monetary Values:** Assumed reported in 2012 U.S. dollars.	**Location:** Hamden County, Massachusetts, USA **Population:** SNAP households in Hamden County **Sample Size:** Intervention 7,500 families Control 47,595 **Characteristics:** **Mean age:** 43 y **Female** 74% **Race:** African American 13% Hispanic 43% White 37% Other 7% SNAP 100% Mean monthly income $804 Temporary Assistance for Needy Families 13% Supplemental	Healthy Incentives Pilot (HIP) within SNAP **Intervention:** 30 cents rebate added to EBT card for every $1 spent on targeted F&V at participating retailers. Incentive could be spent on any SNAP food or beverage. Capped at $60 per household per month to prevent misuse and budget of $2 million. Incentive type: 30% rebate **Comparison:** SNAP usual benefits	HIP versus non-HIP showed significant 26 percent increase in F&V consumption, with 60% attributable to vegetables and 40% to fruits. HIP was 1.15 cup-equivalent and non-HIP was 0.91 cup equivalent F&V. **Data Source:** Survey of dietary recall.	**Intervention cost**: Total cost was $4,441,992 (roughly $100 per participating household). Nationwide expansion to 50 states, DC, Guam, and Virgin Islands would incur one-time implementation cost of $89.9 million (about $5 per household), with annual incentive costs of $0.8 billion to $4.5 billion (wide range due to uncertainty). Cost to implement in Farmers Markets $127,262. **Components of intervention cost:** EBT system and retailer transaction changes (55%),	**NR**	**Percentage of vendors self-reporting increase in profit:** Overall 15.8 Supermarket 0 Grocery 41.7 Convenience 9.5 **Percentage of vendors self-reporting no change in profit:** Overall 74.9 Supermarket 62.0 Grocery 50.0 Convenience 87.3 **Percentage of vendors reporting "Do not know" for change in profit:** Overall 9.3 Supermarket 38.0 Grocery 8.3 Convenience 3.2

	Security Income 32% Unearned income 60% Urbanicity: Mixed **Time Horizon:** Intervention length 12 months Study from late 2011 through end of 2012.			recruitment of retailers and notification to participants (14%), mangement and oversight (16%) incentive payments (6%), evaluation support (10%). **Source:** Study quarterly expenditure reports, EBT transactions from participating retailers and survey. **Quality:** Good		There were no vendors reporting decrease in profits
Author (Year) Bowling et al. (2016) **Design**: Pre-post **Economic Outcome:** Vendor revenue **Funding Source:** Blue Cross Blue Shield of Rhode Island, Beuren Charitable Foundation, Fresh Sound Foundation, Seven Stars Bakery, CVS Caremark.	**Location:** Providence, Rhode Island, USA **Setting:** Farmers markets **Population:** Households participating in SNAP or WIC with at least 1 child **Sample Size:** Households 425 Farmers markets 6 Control None **Characteristics:** **Mean age:** 34.5 y **Female** 94.8% **Race:** African American 7.9% Hispanic 46.2% Asian 8.9%	Healthy Foods, Healthy Families (HFHF) with Farm Fresh Rhode Island (FFRI) **Intervention:** 40% matched incentive when EBT card is used at the markets. Also, $20 "Bonus Bucks" tokens at every third visit, up to max of $120. Incentives offered to SNAP/WIC families with children in low-income neighborhoods for use in 6 farmers markets. Additional elements were F&V tasting, cooking, and nutrition education. Intervention occurs during July through October annually.	Increased daily intake frequency for vegetables was higher at 11.6%+/-4.7%, p=0.005). Fruit consumption had marginal increase of 7.7% (p=0.10). **Data Source:** Survey self-report.	**NR**	**SNAP sales in 6 sites:** $61,000 in 2013, up from $4,600 previous year.	**NR**

Monetary Values: Assumed reported in 2013 U.S. dollars.	White 30.1% Other 6.9% Medicaid 79.1% Medicare 5.9% Commercial 10% Uninsured 6.0% SNAP 74.6% WIC 72.2% Urbanicity: 100% urban **Time Horizon:** July through October, 2013.	Incentive type: 40% match **Comparison:** None				
Author (Year): Choi et al (2017) **Design**: Modeled from RCT and USDA Pilot Study **Economic Outcome:** Cost-effectiveness, Healthcare cost **Funding Source:** National Heart Lung and Blood Institute **Monetary Values:** 2015 U.S. dollars	**Location:** Modeled for nation, USA **Population:** Individuals age 0-85 years and categorized into SNAP participation and diseases 2T2DM, MI, Obesity, Stroke, based on NHANES 2003-2012 along with SNAP participation status. **Sample Size:** Modeled for cohort of 10,000 **Characteristics** SNAP 100% **Time Horizon:** Modeled for lifetime starting in 2015.	Healthy Incentives Pilot (HIP) within SNAP **Intervention:** 30 cents rebate added to EBT for each $1 spent on healthy foods for all SNAP recipients Incentive type: 30% rebate **Comparison:** No incentives	Mean change in incidence due to F&V incentive intervention versus control: Obesity: -1.10 Diabetes: -8.57 Myocardial Infarction: -7.12 Stroke: -6.21 **Data Source:** USDA pilot study, Bartlett 2014 for F&V consumption. Risk estimates from literature and meta-analysis. **Lifetime incremental QALY:** 0.520 **Uncertainty:** NR **Quality:** Good	Lifetime intervention cost per person: $1,324 **Uncertainty:** 95% CI: ($1,319, $1,330) **Components of intervention cost:** Cost of incentives and overheads (30% of incentives cost) **Source:** USDA pilot study, Bartlett 2014. **Quality:** Fair	**Healthcare cost averted per person over lifetime:** -$3,420 **Quality:** Good **Source:** Modeled based on reduced incidence and cost of cardiovascular disease, type 2 diabetes, and lung cancer from	**Cost per QALY gained over lifetime** Cost-saving at -$3,994 **Uncertainty:** The mean (SD) for general population was -$3,432.32 (304.91) **Quality:** Fair

			Source: Global Burden of Disease data on Myocardial infarction, Stroke, type 2 diabetes, and lung cancer.		Medical Expenditure Panel Survey (MEPS)	
Author (Year) Dimitry et al. (2015) **Design**: Input-Output Model **Economic Outcome:** Impact on GDP, Employment **Funding Source:** NR **Monetary Values:** Assumed reported in 2015 U.S. dollars	**Location:** National **Setting:** Farmers markets and all retailers **Population:** SNAP recipients **Sample Size:** NR **Characteristics:** SNAP 100% **Time Horizon:** 5 year funding.	Food Insecurity and Nutrition Incentive (FINI) Program **Intervention:** SNAP purchases of F&V matched in SNAP benefits that can be used to purchase F&V. Redemption incentive varied from 20% to 100%. Excludes WIC and Seniors programs. Priority of sourcing produce from local area. May be used at farmers markets and other retail outlets. The 2014 Farm Act allotted $20 million each year over 5 years for F&V incentives in FINI. Incentive type: 20% to 100% match **Comparison:** Usual SNAP benefits	**NR**	**Intervention cost**: Assumed $20 annually over 5 years. The 2014 Farm Act allotted $20 million each year over 5 years for F&V incentives in FINI. **Components of intervention cost:** Incentives redeemed cost only **Source:**Based on funding from 2014 Farm Act	**NR**	**GDP and Employment Impacts:** For each $1 million in SNAP+Incentives consumer expenditures, GDP increases $1.4-$1.5 million and employment increases 23.0-24.13 persons. USDA Food Assistance National Input-Output Multiplier (FANIOM) model was used.
Author (Year): Evans et al. (2022) **Design**: Time series	**Location:** Rhode Island, USA **Population:** Participants from low-income neighborhoods	Food on the Move Fresh to You, Live Well (Via Bien) **Intervention:** Year-round mobile produce markets serving high	SNAP incentives redeemed: 2016 $28,664, 2017 $30,307, 2018 $50,345.	**Intervention cost**: $425,000 in total annual operating cost. **Components of intervention cost:**	**NR**	**NR**

Economic Outcome: Intervention cost **Funding Source:** USDA Food Insecurity Nutrition Incentive (FINI), CDC, Champlin Foundation, Blue Cross Blue Shield of Rhode Island, AARP, Rhode Island Department of Health **Monetary Values:** Assumed reported in 2017 U.S. dollars.	without grocery stores **Sample Size:** Number of sites (markets): 2016 34 (316), 2017 28 (321), 2018 18 (335) **Characteristics:** SNAP 38% to 50% Urbanicity: Mixed **Time Horizon:** Study years 2016-2018.	poverty areas with objective to sell fresh produce, fruits, and vegetables in areas without grocery stores or produce markets. Incentives were $1 rebate for every $1 SNAP spend on produce in 2016. In 2017 onwards the incentive was 50% immediate discount at point of purchase. In 2016, some sites were worksites where higher income community and worksite sales subsidized sales at lower income sites. In 2017 onwards, the worksite markets were eliminated and focus was on low income community sites. Incentive type: 100% match **Comparison:** None	Total sales: 2016 $98,855, 2017 $114,875, 2018 $162,328. **Data Source:** Vendor transactions data.	Cost of incentives, administration. **Source:** SNAP transactions and program records. **Quality:** Fair		
Author (Year): Ferdinand et al. (2017) **Design**: Pre-post **Economic Outcome:** Vendor revenue **Funding Source:** National	**Location:** New Orleans, Louisiana, USA **Setting:** Farmers markets **Population:** Participants recruited at market sites and at community health center. Eligible for SNAP, WIC, Louisiana Department of	Veggie Dollars Program **Intervention:** 6 weekly vouchers for $4 each for purchase of F&V. Program to increase affordability of locally grown produce sold through 4 of 5 fresh foods markets in Greater New Orleans. All markets accepted SNAP and Louisiana Department of Agriculture Farmers	63% of participants stated increase in F&V purchase due to Veggie Bucks program Source: self-report in survey	**NR**	**Gross monthly sales across markets:** increased from about $3500 in January 2016 to about $6500 in July 2016.	**NR**

Institute of Minority Health and Health Disparities (NIMHD) **Monetary Values:** Assumed reported in 2016 U.S. dollars.	Agriculture Farmers Market Nutrition Program (FMNP), or Medicaid. **Sample Size:** 176 households **Characteristics:** SNAP 75% **Age:** 18 to 24 3%, 25 to 44 27%, 45 to 64 42%, 64 and older 28% Female 80% African American 94% Hispanic 1% White 3% Other 2% Urban 100% **Time Horizon:** January 2016 through July 2016	Market Nutrition Program (FMNP) vouchers. Incentive type: fixed amount **Comparison:** None				
Author (Year) Freedman et al. (2019) **Design**: Cross-sectional **Economic Outcome:** Vendor revenue **Funding Source:** CDC, USDA **Monetary Values:** Assum	**Location:** 16 States and Washington, DC, USA **Setting:** Farmers markets **Population:** Farmers markets participating in Food Insecurity and Nutrition Incentive (FINI)-funded programs with SNAP recipients in neighborhood. **Sample Size:**	Food Insecurity Nutrition Incentive (FINI) in farmers markets **Intervention:** Monetary incentive offered for affordability of fruits and vegetables available at farmers' markets for people receiving SNAP benefits. Incentive models varied but simplest version matched an expenditure of SNAP benefits with additional funds, which are restricted for fruit	**NR**	**NR**	**Incremental monthly SNAP sales for metropolitan markets,** $17.77 (SD 1.84) Source: Transactions data from markets	**NR**

ed reported in 2016 U.S. dollars.	282 markets **Characteristics:** SNAP 100% Urbanicity: Mixed **Time Horizon:** Markets operating in year 2016	and vegetable purchases. The most common matching model was a 100% match (eg, spend $1 in SNAP, get $1 in incentives). Incentive type: 100% match **Comparison:** None				
Author (Year) Gans et al. (2018) **Design**: RCT **Economic Outcome:** Vendor revenue **Funding Source:** National Cancer Institute (NCI) **Monetary Values:** Assumed reported in 2016 U.S. dollars.	**Location:** Providence, Rhode Island, USA **Setting:** Mobile markets in public housing. **Population:** Public housing sites selected in consultation with housing authorities. Site must have at least 190 units and have a community room/center. Recruits must speak English or Spanish, have means to play a DVD, be full-time residents. **Sample Size:** Intervention: 8 sites with 837 participants (elderly 479, family 358) Control: 7 sites with 760 participants	Live Well Viva Bien **Intervention:** Mobile produce markets providing discounted F&V to low-income public housing communities. Mobile unit was car trailer retrofitted as a mobile market. Produce sold at or below supermarket prices. Markets lasted 2 hours every 2 weeks every month and held inside during inclement weather; held inside always for disabled/elderly sites. Also had cooking demonstration, taste-testing. No details on magnitude of discount. Incentive type: discount (percent unspecified) **Comparison:** No incentives, mobile	In elderly sites, F&V intake increased by 0.65 cups per day with control decreasing by 0.07 cups (p=0.02), with most change driven by fruits. There was no significant difference in family sites. Source: NCI's Eating at America's Table All Day Screener	**NR**	**Mean number of customers and sales per market:** Elderly sites 29 customers and $245 in sales Family sites 9 customers and $82 in sales. **SNAP (Cash) distribution for method of payment:**	**NR**

	Characteristics: **Mean Age:** 53.5 y Age ≥60 y: 39.2% African American 18.1% Hispanic ethnicity 53.9% White 49.5% Other 32.4% Less than high school: 35.2% Unemployed 21.4% Disabled 35.2% Retired 19.3% Household income less than $12,000 68.5% Any food assistance 84.1% Urbanicity Mixed **Time Horizon:** 12 month intervention. Years of intervention not provided.	markets, or nutrition education			Elderly 37% (43%) Family sites 50% (33%) **Source:** Transactions data	
Author (Year) Groh et al. (2022) **Design**: Pre-post **Economic Outcome:** Vendor revenue **Funding Source:** NR **Monetary Values:** Assumed reported in	**Location:** Marion County, Indiana, USA **Setting:** Farmers markets **Population:** SNAP participants who shopped at the Fresh Bucks farmers markets. **Sample Size:** Number of markets: 10 Number of participants: 1,091	Fresh Bucks **Intervention:** SNAP matching program where participants can match up to US$20 per day in SNAP transactions at farmers' markets. This is a 100% rebate, in effect. Incentive type: 100% match **Comparison:** None	**NR**	**NR**	**Mean vendors receipts from Fresh Bucks:** $133.79, $424.86, and $903.61 in 2019, 2020, and 2021, respectively.	**NR**

2021 U.S. dollars.	**Characteristics:** SNAP 100% **Time Horizon:** Study years unclear. Innovation adopted during 2019-2021.				**Source:** Transactions data	
Author (Year) GusNIP (2023) **Design**: NI is cross-sectional and PPR is pre-post **Economic Outcome:** Intervention cost, GDP, employment **Funding Source:** USDA National Institute of Food and Agriculture **Monetary Values:** Assumed reported in 2021 U.S. dollars.	**Location:** National, USA **Setting:** Mobile markets in public housing. **Population:** Eligibility for NI program is SNAP eligibility. PPR participants must be eligible for SNAP or enrolled in medical assistance or coverage (e.g., Medicare or Medicaid) and currently have or be at risk for a diet-related health condition. **Sample Size:** Total of 146,146 participants per month NI 104,122, PPR 42,024 **Characteristics:** African American NI 17.7%, PPR 27.8%	Gus Schumacher Nutrition Incentive Program (GusNIP), formerly known as FINI. Evaluates 2 programs: Nutrition Incentive (NI) and Produce Prescription (PPR) **Intervention:** Financial incentives to consumers with low income for F&V purchases through SNAP (NI) and the F&V prescriptions (PPR) program. PPR projects provide incentives through a health care entity that prescribe fresh F&V. Extra funding received for Covid in 2021. Type of incentives varied. Additional intervention of technical assistance to awardees. Incentives could be redeemed through all retailer types and healthcare centers. Incentive type: varies **Comparison:** None	**NR**	**Funding Sep 1, 2021 to Aug 31, 2022 for NI and PPR:** $34 million $7 million for technical $69 million in 2021 for Covid response **Quality:** Fair **Source:** Grantee data	**NR**	**Incentive Sales:** Total $41,557,249 Brick and Mortar $22,269,051 Farm Direct $19,152,261 **Economic Impact on GDP:** Total $85,607,933 Brick and mortar $45,874,245 Farm Direct $39,453,658 Note: Based on simplistic calculator of input-output, and hence results are upper bounds. Does not account for opportunity costs (crowding out).

	Hispanic NI 20.7%, PPR 35.1% Native American NI 2.3%, PPR 3.0% Asian NI 7.5%, PPR 15.8% White NI 51.2%, PPR 19.9% **Urabanicity** NI: 85% urban, 1.1% tribal. PPR: 85.1% urban, 2.6% tribal. NI: SNAP 100% **Time Horizon:** Study period September 1, 2021 to August 31, 2022 (12 months).					
Author (Year) Karpyn et al. (2022) **Design**: RCT **Economic Outcome:** Vendor revenue **Funding Source:** USDA **Monetary Values:** Reported in 2016 U.S. dollars.	**Location:** 13 States and Washington DC, USA **Setting:** Farmers markets **Population:** Recruited SNAP customers with EBT cards and age at least 18 years at farmers markets. **Sample Size:** 77 farmers markets Number of survey completers 3,073 **Characteristics:**	**Intervention:** 3 arms with incentive matches at different levels: none, $0.4 and $2 for every $1 USD spent. Incentive type: 40%-200% match **Comparison:** No incentive	**NR**	**NR**	**Mean transaction by incentive level:** $19.03 at $0.40 level of incentives $36.28 at $2.0 level of incentives **Source:** Transactions data	**NR**

	SNAP 100% **Age:** 18 to 27 y 15% 28 to 37 y 65% 58 to 67 y 15% 68 and above 6% Female 82% African American 12% Hispanic 18% Native American 4% Asian 8% White 72% Other **Time Horizon:** Recruitment during September 2015 through October 2017.					
Author (Year): Lee et al (2019) **Design**: Modeled from RCT and program data **Economic Outcome:** Cost-effectiveness, Healthcare cost, Productivity **Funding Source:** National Heart Lung and Blood Institute	**Location:** Modeled for nation, USA **Population:** Medicare and Medicaid beneficiaries age 35-80 years in NHANES 2009-2014. **Sample Size:** Model simulated for 1 million. Outcome estimates reported for 35.2 million Medicaid and 11.4 million Medicaid/Medicare Dual eligibles. **Characteristics** **Mean Age:** Medicaid 54.0 y	**Intervention:** 30% discount on F&V purchases for Medicaid and Medicare/Medicaid dual eligibles. Incentive type: 30% discount **Comparison:** No incentives	Increase in Fruit (Vegetables) at year 1 gram per day: Medicaid 33.9 (44.6) Dual 40.1 (43.0) Effect of subsidy on foods occurred within 1 year and sustained over subsidy period, from meta-analysis Afshin (2017) and Green (2013), with higher 18% effect for low-income. Reduced risk of CVD and diabetes due to F&V consumption. **Data Source:** Meta-analyses from literature. Disease	Lifetime intervention cost: Medicaid $64.550 billion Dual $7.504 billion **Uncertainty:** NR **Components of intervention cost:** Administration (EBT system, training, labor, monitoring, evaluation), implementation cost through 10% higher administrative cost in year 1, cost of incentives **Source:** Data from USDA SNAP program	**Healthcare cost averted over lifetime:** Medicaid $23.830 billion Dual $7.504 billion **Uncertainty** NR **Quality:** Good **Source:** Patient time from Bureau of	**Cost per QALY gained over lifetime** Medicaid $11,589 Dual $12,668 **Uncertainty:** Probabilistic sensitivity analysis indicate 100% simulations below $150K threshold. **Quality:** Good

Monetary Values: 2017 U.S. dollars	Dual 63.2 y **Female** Medicaid 64.9% Dual 64.3% African American Medicaid 27.4% Dual 22.3% Hispanic Medicaid 24.4% Dual 20.1% White Medicaid 40.2% Dual 49.9% Other Medicaid 8.0% Dual 7.7% Commercial insurance 0% **Less than High School** Medicaid 40.8% Dual 45.1% **Less than 130% of FPL** Medicaid 74.2% Dual 70.7% **Urbanicity:** Mixed **SNAP participants:** Medicaid 66.1% Dual 62.7% **Time Horizon:** Modeled for lifetime.		etiology and risk equations from literature. **Lifetime incremental QALY:** Medicaid 2.45 million Dual 0.64 million **Uncertainty:** NR **Quality:** Good **Source:** Utility weights by disease from literature, Sullivan (2006).	and Centers for Medicare and Medicaid Services **Quality:** Good	Labor Statistics. Healthcare cost from literature, Redbook. **Productivity gain over lifetime:** Medicaid $12.300 billion Dual $2.700 billion **Uncertainty** NR **Quality:** Good **Source:** Based on literature, Kim (2016)	
Author (Year) Lindsay et al. (2013) **Design**: Pre-post	**Location:** San Diego, California, USA **Setting:** Fresh food markets **Population:** SNAP,	Farmers Market Fresh Fund Incentive Program **Intervention:** Fresh Fund booth at the market where participants were able to use SNAP or SSI through	**NR**	**NR**	**Total sales:** $1.7 million ($6,133 per market day)	**NR**

Economic Outcome: Vendor revenue **Funding Source:** Centers for Disease Control and Prevention **Monetary Values:** Assumed reported in 2011 U.S. dollars.	WIC, and SSI participants **Sample Size:** Number of markets: 5 Number of participants: 7,298 **Characteristics:** Age: <24 13.5% 25-64 73.8% ≥65 12.8 Female 84.6% African American 6.6% Hispanic 49.5% Native American 1% Asian 21.2% White 18.0% Other 3.9% SNAP 26.8% SSI 17.1% WIC 56.1% **Time Horizon:** Intervention from June 1, 2010, through December 31, 2011.	EBT cards, WIC vouchers, cash, or debit or credit cards to buy differently marked "incentive" tokens (up to $20 per month) to match the amount of their purchased tokens. This is a 100% rebate, in effect. Additional intervention of media and outreach efforts. Incentive type: 100% match **Comparison:** None			**Farmer vendors revenue per market day:** Increased from $418.88 to $566.84 **Source:** Transactions data	
Author (Year): Mozaffarian et al. (2018) **Design**: Modeled from RCTs and literature of evaluations.	**Location:** Modeled for nation, USA **Population:** SNAP participants in 2009-2014 National Health and Nutrition Examination Survey. **Sample Size:**	**Intervention:** 30 cents added to EBT for each $1 spent on F&V Incentive type: 30% rebate **Comparison:** No incentives	Increased fruits by 23.4% and vegetables by 19%. Reduced relative risk due to F&V consumption for CVD and type 2 diabetes. **Data Source:** F&V consumption from USDA study, Bartlett (2014). Disease	**Lifetime intervention cost:** Adults $22.022 billion Adults and Children $50.102 billion **Uncertainty:** NR **Components of intervention cost:**	**Healthcare cost averted over lifetime:** Adults $6.770 billion Adults and children NR	**Cost per QALY gained over lifetime** Adults $23,284 Adults and children $66,525 **Uncertainty:** Probabilistic sensitivity analysis indicates 99.9%

Economic Outcome: Cost-effectiveness, Healthcare cost **Funding Source:** National Heart Lung and Blood Institute, American Heart Association **Monetary Values:** 2017 U.S. dollars	Model simulated for 1 million. Outcome estimates reported for 14.5 million adults age ≥ 35 years and 42.1 million adults and children. **Characteristics** **Mean Age:** Medicaid 52.1 y **Female** 54.3% **Race/Ethnicity:** African American 24.3% Hispanic 18.9% White 50.8% Other 6.0% Medicaid 29.5% Medicare 22.4% Medicare-Medicaid Dual 10.2% **Less than High School** 36.1% **Less than 130% of FPL** 67.4% **Urbanicity:** Mixed **SNAP participants:** 100% **Time Horizon:** Modeled for lifetime.		etiology from meta-analysis, Micha (2017) **Lifetime incremental QALY:** Adult 649,376 Adults and children NR **Uncertainty:** NR **Quality:** Good **Source:** Utility weights by disease from literature.	Administration, cost of incentives **Source:** USDA HIP study Bartlett 2014. USDA quarterly Food at Home data, BLS Consumer Expenditure Survey **Quality:** Fair	**Uncertainty** NR **Quality:** Good **Source:** Multiple sources from literature for each disease state.	simulations below $150K threshold. **Quality:** Good
Author (Year) Thilmany et al. (2021)	**Location:** California, Colorado, Hawaii, Iowa, Michigan, New York, North Carolina,	**Intervention:** Modeled for F&V incentives, produce Rx, and community-assisted	**NR**	**NR**	**NR**	**Impact of incentives redeemed across**

Design: Input-output model **Economic Outcome:** GDP, employment **Funding Source:** Fair Food Network **Monetary Values:** Assumed reported in 2018 U.S. dollars.	Texas, Washington, USA **Setting:** All retailers **Population:** Participants in selected incentive programs within SNAP, WIC, Produce Rx, farmers market nutrition program (FMNP) **Sample Size:** 12 market outlets from 9 states **Characteristics:** NR **Time Horizon:** Data from 2019 for Iowa and North Carolina. All else from 2018.	agriculture for total impact. Various incentive programs across program grantees. Four scenarios assumed for F&V incentives based on assumed uptake of incentive program by market outlet: High (Grocery 90%, Farmers markets 100% Corner stores 25%); Low (Grocery 60% Farmers markets 80% Corner store 10%); High with local procurement policy; Low with no local procurement policy. We focus on results of multiplier effects for individual market outlets and ignore the statewide expansion scenarios. Incentive type: not reported **Comparison:** None				**12 markets nationwide.** **Retail markets Median (IQI)** Incentives $122,017 ($30,002 to $294,144) Output $158,575 ($135,206 to $470,649) Number of workers 1.2 (1.1 to 3.4) Labor Income $59,788 ($47,231 to $178,063) **Farmers markets/farm stands/Community Assisted Agriculture Median (IQI)** Incentives $141,051 ($102,458 to $489,263) Output $402,964 ($314,028 to $1,301,328) Number of workers 1.9 (1.4 to 5.7) Labor Income $86,669 ($66,371 to $279,934)
Author (Year): Wang et al. (2023) **Design**: Modeled from systematic	**Location:** Modeled for nation, USA **Population:** Modeled for NHANES 2013-2018 adult US individuals age 40 to	**Intervention:** Produce Prescription with F&V for free or at discounted prices. Incentive type: Variety of incentive types within	Increased mean fruit and vegetable consumption by 0.80 servings/day (CI, 0.45–1.15).	**Intervention cost:** Lifetime: $37.3 (UI: $27, $47.5) billion in food costs and $6.99 (UI: 5.07, 8.91) billion in administrative	**Healthcare cost averted:** Lifetime: $39.6 (UI: $20.5,	**Cost per QALY gained:** **Lifetime Societal Perspective** -$307 (cost-saving)

reviews and medical expenditure data **Economic Outcome:** Cost-effectiveness, Healthcare cost, Productivity **Funding Source:** National Heart Lung and Blood Institute **Monetary Values:** 2021 U.S. dollars	79 years with diabetes and food insecurity. **Sample Size:** 6.5 million **Characteristics** **Mean Age:** 58.2 y **Female** 55.6% African American 17.2% Hispanic 29% White 43.1% Other 10.7% **Insurance:** Medicaid 26.9% Medicare 26.9% Medicare-Medicaid Dual 12.5% Commercial insurance 29.4% Uninsured 16.5% Less than High School 37.1% Less than 130% of FPL 56.6% Food insecure 100% **Urbanicity:** Mixed **Time Horizon:** Modeled for lifetime.	produce prescription program **Comparison:** No incentives	Reduced BMI by 0.36 kg/m2 (CI, 0.16–0.55) and reduced HbA1c by 0.63% (CI, 0.28–0.98). Relative risk of CVD with increased F&V consumption between 0.73 to 0.95. **Data Source:** Risk inputs and risk equations from meta-analyses literature, Bhat (2021) **Incremental QALY:** 260,000 (UI: 110,000 to 411,000) 10-year horizon 49,200 (UI: 16,000 to 82,500) **Quality:** Good **Source:** Prediction model using EuroQoL-5D with decrements for coronary heart disease and stroke each year.	10-year: $19.7 (UI: $14.3, $25.0) billion in food costs and $3.89 (UI: 2.83, 4.95) billion in administrative **Components of intervention cost:** One-time implementation cost, cost of incentives, administrative costs. **Source:** Based on meta-analytic study Bhat 2021 - Offered mean $42 per month and redeemed $32 per month. Administrative cost at 15% of total cost and first-year cost higher at 50% of total cost. **Quality:** Good	$58.6) billion 10-year: $20.7 ($11.1 to $30.3) billion **Quality:** Good **Source:** Medical Expenditure Panel Survey **Productivity gain over lifetime:** $4.77 (UI: $1.84, $7.70) billion **Quality:** Good **Source:** NR	**Uncertainty:** 98.9% simulations ≤ $150K **Quality:** Good **Lifetime Healthcare Perspective** $18,100 **Uncertainty:** 98.3% simulations ≤ $150K **Quality:** Good 10-year Healthcare Perspective $58,000 **Uncertainty:** NR **Quality:** Good