Testing the effectiveness of a supermarket double dollar incentive program to increase spending on fruits and vegetables

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This research was supported by the Healthy Eating Research, a national program of the Robert Wood Johnson Foundation, the J.T. Gorman Foundation, and the Coverys Foundation
Fruit & Vegetable (F&V) Consumption

• Few US youth and adults meet F&V intake recommendations\(^1\)
• Children who consume a diet rich in F&V are less likely to exhibit overweight or obesity\(^2\)
• Maternal F&V consumption is positively associated with child’s F&V intake\(^3\)


Barriers to Healthy Eating

• Affordability and availability of fresh produce\(^1\)
  – Cost and cooking time are major barriers cited by low-income populations\(^4\)
• Low-income populations spend less on F&V\(^2\)
• Children living in households that spend less on F&V eat fewer F&V\(^3\)

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2. Blisard N, Stewart H, Jolliffe D. Low-income households’ expenditures on fruits and vegetables USDA/ERS, AER-833, May 2004
F&V Purchases at a Large Northeast Supermarket Chain


2 years of data, 188 stores, >298 M baskets, 4.4% SNAP non SNAP eligible items removed
The Retail Grocery Environment

- Has the potential to impact key barriers

- Retail chains can promote products across large population segments

- Few studies done to demonstrate effectiveness of approaches in supermarkets (e.g. point of purchase education, choice architecture or financial incentives)
Study Aim

• **Pilot-test** a double-value program that incentivizes the purchase of healthful fresh, frozen or canned F&V at a large chain supermarket, and leverage the retailer’s “Guiding Stars” nutrition rating shelf-tag system to help consumers make nutritious F&V choices.

<table>
<thead>
<tr>
<th>More</th>
<th>Less</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamins</td>
<td>Saturated Fat</td>
</tr>
<tr>
<td>Minerals</td>
<td>Trans Fat</td>
</tr>
<tr>
<td>Fiber</td>
<td>Cholesterol</td>
</tr>
<tr>
<td>Whole Grains</td>
<td>Added Sodium</td>
</tr>
<tr>
<td></td>
<td>Added Sugars</td>
</tr>
</tbody>
</table>

Foods with **one star** have **good** nutritional value.

Foods with **two stars** have **better** nutritional value.

Foods with **three stars** have the **best** nutritional value.
Target Population

• English-speaking, rural Maine residents, ages 18 years and older who live with a child ≤18 years, are primary household shopper and regularly use the store location chosen for the study

  – Retail store chosen for high percentage of SNAP sales, and rural location
Research Strategy

• Enrolled 401 shoppers overlapping with SNAP allocation days

• Administered enrollment survey
  – Demographics, nutrition, shopping habits, contact information

• Participants tracked via loyalty card system
Research Strategy, cont’d

• Intervention group received 2 for 1 on fresh, frozen and canned 2 & 3-star F&V (max $10 off per shopping trip) at checkout, same day via Catalina coupon

• Communication with participants:
  – Participants sent periodic text or email reminders to use their card, and
  – Informed about 2 for 1 F&V discount at randomization
Study Timeline

October 2015

Randomize

5% discount

Baseline

January 2016

Control: 5%

Intervention: 5% plus Double Bucks F&V

April 2016

End of Double Bucks

Extension of study-second component

November 2016

Additional follow-up time-point 6-months post intervention

Data Presented
Attention Families!

- Do you do most of your shopping here?
- Are you at least 18 years old?
- Do you live with at least one child under 18?
- Do you have a valid picture ID?

If yes, you can get at least 5% off your purchases here!!

We invite you to participate in a research study about promoting healthy food purchases! Ask us how!
Enrollment Lessons

• It is possible to enroll large # of people in this setting in a short time (401 people in 1 week)
• Labor intensive-ideally 4 persons
  – Options for kids (coloring, healthy snacks, etc.)
• Evening enrollments (6pm-on) challenging-people are in a hurry
• Enrollment into loyalty system created barriers for some low-income families (email, password, security question)
## Baseline Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Treatment (N=204)</th>
<th>Control (N=197)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household size</td>
<td>3.85</td>
<td>3.98</td>
</tr>
<tr>
<td># Children in Household</td>
<td>1.81</td>
<td>1.95</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>14%</td>
<td>14%</td>
</tr>
<tr>
<td>30-39</td>
<td>45%</td>
<td>38%</td>
</tr>
<tr>
<td>40-49</td>
<td>31%</td>
<td>38%</td>
</tr>
<tr>
<td>50-59</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>60+</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Female Gender</td>
<td>80%</td>
<td>78%</td>
</tr>
<tr>
<td>White Race/Ethnicity</td>
<td>88%</td>
<td>92%</td>
</tr>
<tr>
<td><strong>Food Assistance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SNAP</td>
<td>25%</td>
<td>31%</td>
</tr>
<tr>
<td>SNAP eligible</td>
<td>29%</td>
<td>37%</td>
</tr>
<tr>
<td>Free or reduced school meals</td>
<td>19%</td>
<td>18%</td>
</tr>
<tr>
<td><strong>Annual Household Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;$15,000</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>$15,000-$29,999</td>
<td>8%</td>
<td>11%</td>
</tr>
<tr>
<td>$30,000-$44,999</td>
<td>10%</td>
<td>12%</td>
</tr>
<tr>
<td>$45,000-$59,999</td>
<td>12%</td>
<td>13%</td>
</tr>
<tr>
<td>$60,000-$74,999</td>
<td>13%</td>
<td>11%</td>
</tr>
<tr>
<td>$75,000 or more</td>
<td>49%</td>
<td>46%</td>
</tr>
</tbody>
</table>
Transactions

- 382 (95%) participants used card at least once
- 9,060 transactions over 6 months
- ~177,000 items and 24,000 unique UPC codes
- Mean spending per transaction $75.41
- Average weekly shopping trips: ~1 (0.97)
Coupon Use During Intervention

• 2,100 transactions with eligible F&V

• 1,117 incentive coupons redeemed (53.3%)

• Average discount = $6.08

• 47% of SNAP-participants redeemed incentives

• 72% of non-SNAP-participants redeemed incentives
Coupon Use During Intervention

• Coupon process not ideal

  – Cashiers accustomed to coupon printing after transaction – our study required printing & scanning before end of transaction

  – Some coupons were used at a future shopping date (N=169 transactions)

  – Periodic “system-outages”
Analyses

**Primary Analytical Sample**

- ALL
  - Control
  - Intervention

**Secondary Analytical Sample**

- Redeemed Coupons
  - Control
  - Intervention

**Secondary Analyses**

- SNAP-participants vs. Non SNAP-participants

- SNAP-participants vs. Non SNAP-participants
Mean F&V Spending/Basket

- **CONTROL**
  - Baseline: $13.06
  - During F&V Intervention: $13.03

- **INTERVENTION-ALL**
  - Baseline: $11.85
  - During F&V Intervention: $13.65

- **INTERVENTION-REDEEMED COUPONS**
  - Baseline: $14.90
  - During F&V Intervention: $19.09
Mean F&V Spending/Basket: SNAP-participants

- **SNAP-participants**
  - Baseline
  - During F&V Intervention

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>During F&amp;V Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL</td>
<td>$5.74</td>
<td>$5.22</td>
</tr>
<tr>
<td>INTERVENTION-ALL</td>
<td>$5.23</td>
<td>$7.09</td>
</tr>
<tr>
<td>INTERVENTION-REDEEMED COUPONS</td>
<td>$7.77</td>
<td>$12.38</td>
</tr>
</tbody>
</table>
## Spending Change on F&V: All Participants

<table>
<thead>
<tr>
<th>Purchase Category</th>
<th>Difference in Difference OVERALL Intervention vs. Control</th>
<th>Difference in Difference Intervention-Re Redeemed Incentives vs. Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>$ Total</strong></td>
<td>1.83 (15%) (95% CI=0.29-3.88)</td>
<td>4.23 (28%) (95% CI=2.39-6.06)</td>
</tr>
<tr>
<td><strong>$ Fruits</strong></td>
<td>0.77 (95% CI= -0.19- 1.73)</td>
<td>2.04 (25%) (95% CI=0.90-3.17)</td>
</tr>
<tr>
<td><strong>$ Vegetables</strong></td>
<td>1.06 (20%) (95% CI=0.23-1.89)</td>
<td>2.19 (32%) (95% CI=1.20-3.18)</td>
</tr>
<tr>
<td><strong>$ Fresh</strong></td>
<td>1.97 (18%) (95% CI=0.49-3.44)</td>
<td>4.25 (31%) (95% CI=2.51-6.00)</td>
</tr>
<tr>
<td><strong>$ Frozen</strong></td>
<td>-0.18 (95% CI= -0.33- -0.04)</td>
<td>-0.12 (95% CI=-0.29-0.06)</td>
</tr>
<tr>
<td><strong>$ Canned</strong></td>
<td>0.05 (95% CI= -0.05-0.15)</td>
<td>0.09 (95% CI=-0.04-0.21)</td>
</tr>
<tr>
<td>Purchase Category</td>
<td>Difference in Difference OVERALL Intervention vs. Control</td>
<td>Difference in Difference Intervention-Reredeemed Coupons vs. Control</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------------------------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>$ Total</td>
<td>2.37 (45%) (95% CI=-0.14-4.75)</td>
<td>5.14 (66%) (95% CI=1.93-8.34)</td>
</tr>
<tr>
<td>$ Fresh</td>
<td>2.55 (53%) (95% CI=0.26-4.84)</td>
<td>5.34 (75%) (95% CI=2.26-8.41)</td>
</tr>
<tr>
<td>Non SNAP-participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$ Total</td>
<td>1.57 (11%) (95% CI=-0.35-3.49)</td>
<td>3.88 (23%) (95% CI=1.67-6.08)</td>
</tr>
<tr>
<td>$ Fresh</td>
<td>1.68 (13%) (95% CI= -0.14-3.51)</td>
<td>3.86 (25%) (95% CI=1.76-5.95)</td>
</tr>
</tbody>
</table>
Key Points

✓ SNAP-participants did not redeem incentives as often as non-SNAP

✓ Same day/at checkout incentives associated with increases in F&V purchases – “same day” important motivator

✓ When SNAP-participants redeem same-day incentive, bigger impact seen than among non-SNAP (66% vs. 23% increases for total F&V and 75% vs. 25% for fresh)

✓ Financial incentives could be considered to promote healthy purchases among SNAP users
Key Points: Process

✓ Partnering with large chain retailer is possible
  - Mutually beneficial; relationships and trust important, champions

✓ 5% incentive for participation is adequate (across income)

✓ Challenges with same-day coupon incentive system

✓ Communicating with participants challenging but workable
Major Limitations

• Coupons not always used as intended
  ➢ Lower number of single coupon redemptions-
    limited sample size-potentially different
    characteristics

• Limited generalizability due to largely rural
  white population
Thank you!

Questions?