Could EBT Machines Increase Fruit and Vegetable Purchases at New York City Green Carts?

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Abstract

Introduction
Residents of some low-income neighborhoods have limited access to fresh fruits and vegetables. In 2008, New York City issued new mobile fruit and vegetable cart licenses for neighborhoods with inadequate availability of fresh produce. Some of these carts were equipped with electronic benefit transfer (EBT) machines, allowing them to accept Supplemental Nutrition Assistance Program (SNAP) benefits. This article examines the association between type and quantities of fruits and vegetables purchased from mobile fruit and vegetable vendors and consumer characteristics, including payment method.

Methods
Customers at 4 produce carts in the Bronx, New York, were surveyed during 3 periods in 2013 and 2014. Survey data, including purchased fruit and vegetable quantities, were analyzed using multivariable negative binomial regressions, with payment method (cash only vs EBT or EBT and cash) as the primary independent variable. Covariates included availability of EBT, vendor, and customer sociodemographic characteristics.

Results
A total of 779 adults participated in this study. Shoppers who used SNAP benefits purchased an average of 5.4 more cup equivalents of fruits and vegetables than did shoppers who paid with cash. Approximately 80% of this difference was due to higher quantities of purchased fruits.

Conclusion
Expanding access to EBT machines at mobile produce carts may increase purchases of fruits and vegetables from these vendors.

Introduction
Cities in the United States are increasingly relying on mobile produce vendors to increase access to fresh fruits and vegetables (1–3). On March 13, 2008, New York City Mayor Michael Bloomberg authorized Local Law 9, establishing 1,000 permits for mobile fruit and vegetable vendors, called “Green Carts,” across areas that were deemed to have low food access (4). One goal of this program was to increase availability of fruits and vegetables in areas in which residents consume the least amounts of fresh produce (4,5) and have the highest obesity rates in the city (6).

As of 2013, there were nearly 500 active Green Cart vendors in the city, operating primarily in the Bronx and Manhattan (7). The New York City Department of Health and Mental Hygiene (NYC DOHMH) identified eligible Green Cart vending neighborhoods as those in which at least 14% of residents had reported not having consumed any fruits or vegetables the previous day (5). For many low-income families, financial constraints may prevent access to a nutritious diet, despite having fresh produce available for sale in the neighborhood. To address this barrier, the city facilitated a public–private partnership to provide financial support to eligible mobile produce vendors to cover the cost of electronic benefit transfer (EBT) machines that are necessary to accept Supplemental Nutrition Assistance Program (SNAP) benefits (8,9). As of 2013, 27% of vendors were equipped with EBT machines (7).

Research indicates that Green Carts typically locate in areas with existing commercial activity and high pedestrian traffic (6,10). Most customers are part of the target population: people with low
Methods

Data for this cross-sectional study were collected at 4 privately run and independently operated Green Carts in the Bronx, New York. This convenience sample of vendors was selected on the basis of referrals of Green Cart program–interested vendors from the NYC DOHMH. Each of these vendors generally operated between 7:30 AM to 7:00 PM, Monday through Friday, and sold a comparable variety of fresh produce items at similar prices. Customers, whom research assistants confirmed were aged at least 18 years, were invited to respond to a short survey (27 multiple-choice questions) about their food shopping and consumption patterns. Research assistants took an inventory of items each participant purchased during their Green Cart transaction. Interviews were completed in either English or Spanish, between 1:30 PM and 5:30 PM, Monday through Friday. Approximately 90 surveys were collected at each cart during each round of data collection. The overall survey response rate was 70%. Study participants paid using SNAP benefits spent more than $8 per transaction (11).

It remains unclear to what extent the Green Carts themselves assuage issues of low food access or facilitate healthy food purchases, especially among customers paying with SNAP benefits. In this study we built on our previous work and set out to answer 2 research questions: 1) What are the types and quantities of fruits and vegetables purchased at Green Carts in the Bronx, New York?, and 2) What consumer characteristics, including the use of SNAP, are correlated with these purchases?

Results

The full analytic sample included 779 customer surveys (Table 1). Most respondents were female (74%), Hispanic (54%), had no more than a high school degree (64%), and lived in households with an annual household income less than $25,000 (53%). Forty-

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two percent of respondents received SNAP benefits. Respondents were approximately equally as likely to report that they usually purchased fruits and vegetables at a grocery store (42%) as they were to report buying these items from a produce cart (45%). Most respondents paid for their purchase using only cash (87%) and reported that their purchase was to be shared (71%). Nearly 20% of respondents at EBT-equipped carts reported using SNAP benefits to pay for their purchase. Customers paying with SNAP were predominantly female (90%), Hispanic (75%), lived in households with less than $25,000 in annual household income (77%), and purchased items to share (84%). Most customers using SNAP benefits were unemployed (63%) versus slightly more than one-third (36%) of the full sample. Customers paying with SNAP benefits reported that their most common source for fruits and vegetables was produce carts (64%).

On average, surveyed consumers purchased 6.9 cup equivalents of fruits and 1.8 cup equivalents of vegetables per transaction (Table 2). Customers generally bought more than one type of fruit (1.4) and less than one type of vegetable (0.7). Vegetables identified as “other” (eg, corn, onions, garlic, iceberg lettuce) were most commonly purchased. Dark green (eg, spinach, kale), red or orange (eg, beets, carrots), and starchy (eg, potatoes, parsnips) vegetables represented a minority of the purchases. This rank order was true regardless of the availability of EBT or payment method.

Customers who reported using SNAP benefits at a Green Cart purchased more fruits and vegetables per transaction than customers who paid cash only: 18.5 cup equivalents versus 7.3 cup equivalents (Table 2) ($P < .001$). Larger purchase quantity and variety of “other” vegetables accounted for the total difference in cup equivalents purchased by SNAP versus cash-only–paying survey participants.

Results from negative binomial regressions indicated that the use of SNAP benefits at Green Carts was positively associated with having purchased a larger quantity of fresh produce (Table 3). Controlling for various consumer and design characteristics (sex, age, race/ethnicity, education level, annual household income, employment status, SNAP participation, usual source for produce, frequency of shopping at the sampled Green Cart, intention to share purchased items, data collection round, mobile vendor), the marginal effect of having paid using SNAP benefits was robust across regressions: 5.4 cup equivalents for the full sample ($P < .001$) and 6.4 cup equivalents when the sample was restricted to consumers at Green Carts equipped with an EBT machine ($P < .001$).

Incidence rate ratios (IRRs) for all variables in the negative binomial regressions are shown in the Appendix. Green Cart customers who reported that they intended to share their produce pur-
not know the extent to which our sample is representative of all Green Cart customers. Second, although we know whether participants intended to share their produce purchases, we do not have information about how the purchased items were actually shared (ie, how much or with how many people). Third, we did not collect identifying information from our survey participants. Thus, we do not know if there were multiple surveys from the same participant. If there were repeat measures, then we may have underestimated our standard errors. Fourth, we did not conduct a comprehensive inventory of variety, quality, or quantity of produce sold at the Green Carts we observed. As a result, to the extent that the selection of produce at mobile produce vendors varies across vendor and time, our results may not generalize beyond our research context. Finally, we lack comprehensive purchasing information for our survey respondents (ie, quantity of all fresh produce purchases made from other retailers). In light of these limitations, we cannot make any causal assertions about whether SNAP beneficiaries purchased more fruits and vegetables in total, nor whether the availability of EBT machines at Green Carts influenced where consumers chose to shop.

Adequate consumption of minimally processed fruits and vegetables is an important component of a healthy diet and is associated with an array of positive health outcomes (15,16). Although the research on the associations between food access and health outcomes is mixed (17,18), we are encouraged by our findings and would like to see rigorous causal research on the effect of access to mobile produce carts on fruit and vegetable consumption and overall diet quality. Results from such research could advance the literature on the role of this type of intervention in improving public health.

EBT capabilities may increase fresh fruit and vegetable purchases, helping to overcome a barrier to a healthy diet. Although these findings are not informative about total consumer fruit and vegetable procurement, the results from our analysis suggest that the availability of EBT machines at produce carts may increase purchases of fresh fruits and vegetables from those carts. The provision of mobile produce cart permits and financial assistance for EBT machines could be sustainably scalable, although we invite additional causal research on the subject before making policy recommendations.

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Table 1. Demographic and Purchase Descriptive Characteristics for Full and Subsamples of Survey Respondents at 4 Green Carts in New York City, 2013 and 2014

| Characteristic                | Entire Sample (n = 779), n (%) | Consumers at Green Carts With EBT (n = 516) | Consumers Who Made Purchases Using SNAP (n = 98) | P Value<sup>a</sup> | P Value<sup>a</sup> |
|------------------------------|--------------------------------|---------------------------------------------|-------------------------------------------------|-----------------------|-----------------------|
| **Payment method**           |                                |                                              |                                                 |                       |                       |
| Cash only                    | 681 (87.4)                    | 418 (81.0)                                  | 98 (100.0)                                      | <.001                 | <.001                 |
| SNAP or SNAP and cash        | 98 (12.6)                     | 98 (19.0)                                   | 98 (100.0)                                      | <.001                 | <.001                 |
| **Sex**                      |                                |                                              |                                                 |                       |                       |
| Male                         | 206 (26.4)                    | 113 (21.9)                                  | 10 (10.2)                                       | <.001                 | <.001                 |
| Female                       | 573 (73.6)                    | 403 (78.1)                                  | 88 (89.8)                                       |                       |                       |
| **Race/ethnicity**           |                                |                                              |                                                 |                       |                       |
| White, non-Hispanic          | 43 (5.5)                      | 22 (4.3)                                    | 7 (7.1)                                         |                       |                       |
| Black, non-Hispanic          | 195 (25.0)                    | 113 (21.9)                                  | 9 (9.2)                                         | .001                  | <.001                 |
| Hispanic                     | 419 (53.8)                    | 303 (58.7)                                  | 73 (74.5)                                       | <.001                 | <.001                 |
| Non-Hispanic/other/refused   | 122 (15.7)                    | 78 (15.1)                                   | 9 (9.2)                                         |                       |                       |
| **Age, y**                   |                                |                                              |                                                 |                       |                       |
| 18–24                        | 26 (3.3)                      | 19 (3.7)                                    | 5 (5.1)                                         |                       |                       |
| 25–39                        | 252 (32.4)                    | 175 (33.9)                                  | 45 (45.9)                                       |                       |                       |
| 40–64                        | 405 (52.0)                    | 262 (50.8)                                  | 41 (41.8)                                       |                       |                       |
| ≥65                          | 96 (12.3)                     | 60 (11.6)                                   | 7 (7.1)                                         |                       |                       |
| **Education level**          |                                |                                              |                                                 |                       |                       |
| High school degree or less   | 496 (63.7)                    | 359 (69.6)                                  | 76 (77.6)                                       | .02                   |                       |
| Some college                 | 138 (17.7)                    | 80 (15.5)                                   | 13 (13.3)                                       |                       |                       |
| Bachelor’s or more           | 105 (13.5)                    | 54 (10.5)                                   | 7 (7.1)                                         |                       |                       |
| Missing or refused           | 40 (5.1)                      | 23 (4.5)                                    | 2 (2.0)                                         |                       |                       |
| **Annual household income, $** |                                |                                              |                                                 |                       |                       |
| <25,000                      | 415 (53.3)                    | 297 (57.6)                                  | 75 (76.5)                                       | .001                  | <.001                 |
| 25,000–49,999                | 177 (22.7)                    | 102 (19.8)                                  | 8 (8.2)                                         |                       |                       |
| ≥50,000                      | 80 (10.3)                     | 43 (8.3)                                    | 2 (2.0)                                         |                       |                       |
| Missing or refused           | 107 (13.7)                    | 74 (14.3)                                   | 13 (13.3)                                       |                       |                       |
| **Employment status**        |                                |                                              |                                                 |                       |                       |
| Not employed                 | 282 (36.2)                    | 202 (39.2)                                  | 62 (63.3)                                       | <.001                 | <.001                 |
| Retired                      | 102 (13.1)                    | 58 (11.2)                                   | 7 (7.1)                                         |                       |                       |
| Working part-time or full-time | 395 (50.7)                    | 256 (49.6)                                  | 29 (29.6)                                       |                       |                       |
| **SNAP recipient**           |                                |                                              |                                                 |                       |                       |
| No                           | 451 (57.9)                    | 275 (53.3)                                  | 3 (3.1)                                         | <.001                 | <.001                 |

Abbreviations: —, not applicable; EBT, electronic benefit transfer; SNAP, Supplemental Nutrition Assistance Program.

<sup>a</sup> P values are for χ² tests of association for subsample versus the rest of the sample.

<sup>b</sup> Respondents could choose more than one option.

(continued on next page)
Table 1. Demographic and Purchase Descriptive Characteristics for Full and Subsamples of Survey Respondents at 4 Green Carts in New York City, 2013 and 2014

| Characteristic | Entire Sample (n = 779), n (%) | Consumers at Green Carts With EBT (n = 516), n (%) | Consumers Who Made Purchases Using SNAP (n = 98), n (%) | P Value<sup>a</sup> | P Value<sup>a</sup> |
|----------------|-------------------------------|-----------------------------------------------|---------------------------------------------------|----------------|----------------|
| Yes            | 328 (42.1)                    | 241 (46.7)                                    | 95 (96.9)                                         |                 |                 |
| Usual source for fruits and vegetables |  |                             |                                                  |                 |                 |
| Supermarket/grocery store             | 325 (41.7)                    | 185 (35.9)                                    | 27 (27.6)                                         | <.001          | <.001          |
| Produce cart                             | 349 (44.8)                    | 263 (51.0)                                    | 63 (64.3)                                         | <.001          |                 |
| Farmers’ market or produce store       | 50 (6.4)                      | 28 (5.4)                                      | 1 (3.1)                                           |                 |                 |
| Don’t know or other                     | 455 (7.1)                     | 40 (7.8)                                      | 7 (5.1)                                           |                 |                 |
| Vendor |  |                             |                                                  |                 |                 |
| A                                          | 178 (22.9)                    | 94 (18.2)                                     | 9 (9.2)                                           | <.001          | <.001          |
| B                                          | 178 (22.9)                    | 178 (34.5)                                    | 51 (52.0)                                         | <.001          |                 |
| C                                          | 244 (31.3)                    | 244 (47.3)                                    | 38 (38.8)                                         | <.001          |                 |
| D                                          | 179 (23.0)                    |                                              |                                                   |                 |                 |
| How often does respondent shop at this Green Cart? |  |                             |                                                  |                 |                 |
| Less than 2 or 3 times/mo               | 172 (22.1)                    | 90 (17.4)                                     | 14 (14.3)                                         | <.001          | .01            |
| 1–6 times/wk                             | 463 (59.4)                    | 340 (65.9)                                    | 72 (73.5)                                         |                 |                 |
| At least once/d                          | 144 (18.5)                    | 86 (16.7)                                     | 12 (12.2)                                         |                 |                 |
| Data collection round |  |                             |                                                  |                 |                 |
| 1                                          | 341 (43.8)                    | 165 (32.0)                                    | 38 (38.8)                                         | <.001          | .02            |
| 2                                          | 174 (22.3)                    | 174 (33.7)                                    | 15 (15.3)                                         |                 |                 |
| 3                                          | 264 (33.9)                    | 177 (34.3)                                    | 45 (45.9)                                         |                 |                 |
| Were the items purchased to share?      |  |                             |                                                  |                 |                 |
| No                                         | 225 (28.9)                    | 134 (26.0)                                    | 16 (16.3)                                         | .04            | .009           |
| Yes                                        | 550 (70.6)                    | 379 (73.5)                                    | 82 (83.7)                                         |                 |                 |
| Missing                                    | 4 (0.5)                      | 3 (0.6)                                       | 0                                                   |                 |                 |
| Purchased at least one type of . . .<sup>b</sup> |  |                             |                                                  |                 |                 |
| Fruits                                    | 629 (80.7)                    | 413 (80.0)                                    | 89 (90.8)                                         | .48            | .007           |
| Vegetables                                | 341 (43.8)                    | 259 (50.2)                                    | 56 (57.1)                                         | <.001          | .004           |
| Dark green vegetables                     | 38 (4.9)                     | 22 (4.3)                                      | 10 (10.2)                                         | <.001          | .009           |
| Red or orange vegetables                  | 78 (10.0)                     | 71 (13.8)                                     | 10 (10.2)                                         | .95            |                 |
| Starchy vegetables                        | 45 (5.8)                     | 42 (8.1)                                      | 9 (9.2)                                           | <.001          | .11            |
| Other vegetables                          | 251 (32.2)                    | 178 (34.5)                                    | 47 (48.0)                                         | .06            | <.001          |

Abbreviations: —, not applicable; EBT, electronic benefit transfer; SNAP, Supplemental Nutrition Assistance Program.

<sup>a</sup> P values are for χ<sup>2</sup> tests of association for subsample versus the rest of the sample.

<sup>b</sup> Respondents could choose more than one option.
| Characteristic                          | Entire Sample (n = 779), Mean No. (SD) | Consumers at Green Carts With EBT (n = 516), Mean No. (SD) | Consumers Who Made Purchases Using SNAP (n = 98), Mean No. (SD) | P Valuea | P Valueb |
|----------------------------------------|----------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|----------|----------|
| Fruit and vegetable whole cup equivalents |                                        |                                                              |                                                              |          |          |
| Total                                  | 8.7 (11.0)                             | 10.4 (12.4)                                                 | 18.5 (19.1)                                                 | <.001    | <.001    |
| Fruits                                 | 6.9 (9.6)                              | 7.8 (10.8)                                                 | 14.8 (17.2)                                                 | <.001    | <.001    |
| Vegetables                             | 1.8 (5.1)                              | 2.6 (6.0)                                                  | 3.7 (7.7)                                                   | <.001    | <.001    |
| Dark green vegetables                  | 0.1 (0.8)                              | 0.1 (0.7)                                                  | 0.1 (0.6)                                                   | .88      | .88      |
| Red or orange vegetables               | 0.1 (0.4)                              | 0.1 (0.5)                                                  | 0.1 (0.4)                                                   | .81      | .81      |
| Starchy vegetables                     | 0.3 (1.5)                              | 0.4 (1.8)                                                  | 0.4 (1.4)                                                   | .54      | .54      |
| Other vegetables                       | 1.4 (4.7)                              | 2.0 (5.6)                                                  | 3.2 (7.0)                                                   | <.001    | <.001    |
| Type of fruit and vegetable purchased  |                                        |                                                              |                                                              |          |          |
| Fruits                                 | 1.4 (1.2)                              | 1.5 (1.3)                                                  | 2.4 (1.5)                                                   | <.001    | <.001    |
| Vegetables                             | 0.7 (1.0)                              | 0.9 (1.2)                                                  | 1.2 (1.5)                                                   | <.001    | <.001    |
| Dark green vegetables                  | 0.1 (0.2)                              | 0.1 (0.2)                                                  | 0.1 (0.3)                                                   | .01      | .01      |
| Red or orange vegetables               | 0.1 (0.3)                              | 0.2 (0.4)                                                  | 0.1 (0.4)                                                   | .71      | .71      |
| Starchy vegetables                     | 0.1 (0.2)                              | 0.1 (0.3)                                                  | 0.1 (0.3)                                                   | .12      | .12      |
| Other vegetables                       | 0.4 (0.7)                              | 0.5 (0.8)                                                  | 0.8 (1.0)                                                   | <.001    | <.001    |

Abbreviations: EBT, electronic benefit transfer; SNAP, Supplemental Nutrition Assistance Program; SD, standard deviation.

a P value for t test for association between specified subsample and rest of sample.

b The types and quantity of fruit and vegetable purchases were entered into the Automated Self-Administered 24-hour Recall system (ASA24), a web-based program developed by the National Cancer Institute (13). ASA24 calculated comparable food quantities, or cup equivalents, which are a volume measure of the edible portion of the item that fits in a 1-cup measuring cup (14).
Table 3. Marginal Effect of Using SNAP on Purchased Cups Equivalents of Fruits and Vegetables at 4 Mobile Produce Carts in New York City, 2013 and 2014

| Payment Method          | All Survey Respondents (n = 779) | Only Respondents Shopping at Green Carts With an EBT Machine (n = 516) |
|-------------------------|----------------------------------|---------------------------------------------------------------|
|                         | Fruit                            | Vegetable                                      | Total Fruits and Vegetables | Fruit | Vegetable | Total Fruits and Vegetables |
|                         | Δ P Value<sup>b</sup> | Δ P Value<sup>b</sup> | Δ P Value<sup>b</sup> | Δ P Value<sup>b</sup> | Δ P Value<sup>b</sup> | Δ P Value<sup>b</sup> |
| Cash only               |                                  |                                  |                           | 1 [Reference] |                                  | 1 [Reference] |
| SNAP or SNAP and cash   | 5.0                              | <.001                            | .7                         | 5.4                     | <.001                            | 6.4                     | <.001 |

Abbreviations: —, not applicable; EBT, electronic benefit transfer; SNAP, Supplemental Nutrition Assistance Program.

<sup>a</sup> Negative binomial regression included controlled for sex, race/ethnicity, age, education level, annual household income, employment status, SNAP participation, usual source for fruits and vegetables, how often respondent shops at this Green Cart, vendor accepts EBT, and whether items were purchased to share.

<sup>b</sup> P values are for a χ² test of constituent contrasts.
Appendix. Negative Binomial Incident Rate Ratios for Cup Equivalents of Fruit and Vegetable Purchases at 4 Mobile Produce Carts in New York City, 2013 and 2014

| Payment method                  | All Survey Respondents (n = 779) | Only Respondents Shopping at Green Carts With an EBT Machine (n = 516) |
|---------------------------------|----------------------------------|---------------------------------------------------------------------|
|                                 | Fruit | Vegetable | Total fruits and vegetables | Fruit | Vegetable | Total fruits and vegetables |
|                                 | IRR   | P        | IRR   | P   | IRR   | P   | IRR   | P   | IRR   | P   |
| Cash only                       | 1 [Reference] | 1 [Reference] |
| SNAP or SNAP and cash           | 1.8   | <.001    | 1.4   | .15 | 1.7   | <.001 | 1.8   | <.001 | 1.5   | .08 |
| Sex                             |       |          |       |     |       |      |       |      |       |     |
| Male                            | 1.0   | .77      | 1.3   | .18 | 1.1   | .36  | 1.1   | .64  | 1.3   | .30 |
| Female                          |       |          |       |     |       |      |       |      |       |     |
| Race/ethnicity                  |       |          |       |     |       |      |       |      |       |     |
| White, non-Hispanic             | 1.0   | .85      | 1.4   | .48 | 1.0   | .83  | 0.7   | .15  | 2.0   | .18 |
| Black, non-Hispanic             |       |          |       |     |       |      |       |      |       |     |
| Hispanic                        | 1.2   | .17      | 1.6   | .27 | 1.3   | .03  | 1.0   | .83  | 3.1   | .02 |
| Non-Hispanic other/refused      | 1.0   | .84      | 0.9   | .90 | 1.1   | .69  | 0.9   | .48  | 1.9   | .2 |
| Age, y                          |       |          |       |     |       |      |       |      |       |     |
| 18–24                           | 1.0   | .87      | 3.3   | .01 | 1.2   | .32  | 1.2   | .50  | 5.1   | <.001 |
| 25–39                           | 0.9   | .53      | 2.1   | .09 | 1.0   | .81  | 0.9   | .78  | 4.0   | <.001 |
| 40–64                           | 0.9   | .60      | 3.0   | .05 | 1.1   | .61  | 0.9   | .61  | 6.8   | <.001 |
| ≥65                             | 1.0   | .85      | 2.3   | .03 | 1.1   | .74  | 1.2   | .51  | 1.6   | .17 |
| Education level                 |       |          |       |     |       |      |       |      |       |     |
| ≤High school degree             | 1.0   | .24      | 0.9   | .71 | 0.9   | .22  | 0.8   | .18  | 1.1   | .82 |
| Some college                    | 1.2   | .27      | 1.4   | .23 | 1.2   | .11  | 0.9   | .72  | 1.3   | .34 |
| Bachelor’s or more              | 1.0   | .85      | 2.3   | .03 | 1.1   | .74  | 1.2   | .51  | 1.6   | .17 |
| Missing or refused              |       |          |       |     |       |      |       |      |       |     |
| Annual household income, $      |       |          |       |     |       |      |       |      |       |     |
| <25,000                         | 0.8   | .08      | 0.6   | .04 | 0.8   | .02  | 0.9   | .28  | 0.7   | .09 |
| 25,000–49,999                   | 1.1   | .52      | 0.5   | .05 | 1.0   | .83  | 1.0   | .88  | 0.5   | .10 |
| ≥50,000                         | 0.9   | .40      | 0.6   | .02 | 0.9   | .14  | 0.9   | .24  | 0.7   | .15 |
| Missing or refused              |       |          |       |     |       |      |       |      |       |     |
| Employment status               |       |          |       |     |       |      |       |      |       |     |
| Not employed                    | 0.9   | .38      | 1.0   | .99 | 0.9   | .53  | 0.9   | .44  | 0.9   | .81 |
| Retired                         | 1.0   | .96      | 1.1   | .73 | 1.0   | .57  | 0.9   | .35  | 1.2   | .38 |
| Working part-time or full-time  |       |          |       |     |       |      |       |      |       |     |
| SNAP recipient                  |       |          |       |     |       |      |       |      |       |     |
| No                              | 1.0   | .79      | 0.8   | .24 | 0.9   | .38  | 0.9   | .23  | 0.8   | .36 |
| Yes                             |       |          |       |     |       |      |       |      |       |     |

Abbreviations: EBT, electronic benefit transfer; IRR, incidence rate ratio; NA, not applicable; SNAP, Supplemental Nutrition Assistance Program. *P* values are for *z* test of the null hypothesis that the IRR is 1, given that the rest of the predictors are in the model.

(continued on next page)
| Payment method | All Survey Respondents (n = 779) | Only Respondents Shopping at Green Carts With an EBT Machine (n = 516) |
|----------------|---------------------------------|---------------------------------------------------------------|
|                | Fruit                           | Vegetable                                                     | Total fruits and vegetables | Fruit | Vegetable | Total fruits and vegetables |
|                | IRR    | P<sup>a</sup> | IRR    | P<sup>a</sup> | IRR    | P<sup>a</sup> | IRR    | P<sup>a</sup> | IRR    | P<sup>a</sup> |
| Usual source for fruits and vegetables | | | | | | | | | | |
| Supermarket or grocery store | | | | | | | | | | |
| Produce cart | 1.1 | .54 | 0.9 | .64 | 1.1 | .40 | 1.0 | .90 | 0.9 | .69 | 1.0 | .86 |
| Farmers’ market or produce store | 1.3 | .1 | 0.5 | .07 | 1.2 | .28 | 1.3 | .19 | 0.7 | .4 | 1.1 | 0.39 |
| Don’t know or other | 1.0 | .78 | 1.0 | .90 | 1.2 | .27 | 1.0 | .93 | 1.2 | .64 | 1.2 | 0.23 |
| Vendor | | | | | | | | | | |
| A | | | | | | | | | | |
| B | 1.1 | .6 | 2.0 | .10 | 1.3 | .08 | 1.0 | .90 | 2.2 | .02 | 1.3 | 0.14 |
| C | 0.7 | .01 | 0.8 | .50 | 0.7 | .01 | 0.7 | .02 | 0.9 | .60 | 0.7 | 0.02 |
| D | 0.9 | .55 | <1 | <.001 | 0.7 | .03 | NA | NA | NA | NA | NA | NA |
| How often does respondent shop at this Green Cart? | | | | | | | | | | |
| Less than 2 or 3 times/mo | | | | | | | | | | |
| 1–6 times/wk | 0.9 | .48 | 1.3 | .24 | 0.9 | .49 | 1.1 | .61 | 1.2 | .36 | 1.1 | 0.51 |
| At least once/d | 0.7 | .01 | 1.7 | .06 | 0.8 | .11 | 0.9 | .30 | 1.8 | .07 | 1.0 | 0.94 |
| Vendor accepts EBT | | | | | | | | | | |
| No | | | | | | | | | | |
| Yes | 1.4 | .13 | 1.5 | .32 | 1.3 | .11 | NA | NA | NA | NA | NA | NA |
| Items purchased to share | | | | | | | | | | |
| No | | | | | | | | | | |
| Yes | 1.5 | <.001 | 1.8 | <.001 | 1.5 | <.001 | 1.5 | <.001 | 1.6 | <.001 | 1.5 | <.001 |
| Data collection round | | | | | | | | | | |
| 1 | | | | | | | | | | |
| 2 | 0.7 | .01 | 1.6 | .08 | 0.8 | .07 | 0.6 | <.001 | 1.7 | .05 | 0.7 | 0.01 |
| 3 | 0.6 | <.001 | 0.9 | .66 | 0.7 | <.001 | 0.5 | <.001 | 0.9 | .55 | 0.5 | <.001 |
| Constant | 0.8 | <.001 | 3.7 | <.001 | 0.5 | <.001 | 0.9 | .10 | 3.4 | <.001 | 0.5 | <.001 |

Abbreviations: EBT, electronic benefit transfer; IRR, incidence rate ratio; NA, not applicable; SNAP, Supplemental Nutrition Assistance Program.  
<sup>a</sup> P values are for z test of the null hypothesis that the IRR is 1, given that the rest of the predictors are in the model.