

Exploring the Use of Seattle's Farmers' Market Incentive Program ("Fresh Bucks")
by Household Food Security Levels

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Abstract

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Introduction

Farmers market incentive programs such as the Fresh Bucks program in Seattle, Washington aim to improve healthy food access and food security amongst low-income individuals. The objective of this study was to compare Fresh Bucks access and associated shopping behaviors across food security levels of high/marginal, low, and very low food security.

Methods

Researchers surveyed a convenience sample of Fresh Bucks users at the farmers market prior to shopping, after shopping at the farmers market later that same day, and one to two months later via telephone. Responses to the six-question short form of the U.S. Household Food Security Survey Module were used to classify subjects as high/marginal, low, or very low food security. We analyzed differences in demographics and farmers market shopping behaviors by food security levels.

Results

Slightly less than half of all subjects (45%) reported high or marginal food security, 28% reported low food security and 28% reported very low food security. Frequency of shopping at a farmers market when in season differed by food security status (Fisher exact $P=0.03$). Further examination of this relationship with a proportional odds regression model indicated no significant association. All other farmers market shopping

behaviors included in the study demonstrated no significant differences by food security status.

Conclusion

Food security status amongst Fresh Bucks shoppers mirrors national trends. Participants use the Fresh Bucks program and farmers market in similar ways regardless of food security status. However, these relationships should be explored in a larger and more diverse population.

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INTRODUCTION

In 2014, 17.4 million U.S. households experienced food insecurity.¹ Food insecurity is defined as inadequate access to food due to lack of resources. Food insecurity can range in severity from very low to low food security and food insecure households may adjust food intake and meal patterns to varying degrees. In contrast, households with high or marginal food security may have food access difficulties but do not report significantly altering behaviors in response. In these households, food access problems exist but may remain limited to anxiety over food sufficiency.^{1,2}

Many U.S. programs and policies exist to reduce food insecurity, including the Child and Adult Care Food Program (CACFP); the National School Lunch Program (NSLP); Supplemental Nutrition Assistance Program (SNAP); and Women, Infants and Children (WIC).³ Despite these programs, inequity persists in access to healthy, affordable foods and nutrition related health outcomes. Food insecure adults consume a diet of lower variety and rely more heavily on energy-dense foods while consuming less fruits, vegetables, and dairy products compared to food secure adults.^{4,5} These disparities likely contribute to the higher rates of obesity and nutrition-related chronic disease observed amongst individuals from food insecure households.^{6,7} Research also indicates that food insecure households may exhibit different shopping behaviors compared to food secure households.^{1,8}

Recently, several cities have introduced farmers' market incentive programs to address diet quality in addition to sufficiency. In 2012, the Neighborhood Farmers Market Alliance (NFMA) began implementing one such program, known as Fresh Bucks, throughout 7 farmers markets in Seattle. In 2013, the City of Seattle began administering the program and it was expanded to all markets in the city (15). A primary goal of this program is to increase the purchase of healthy foods and improve food security status amongst low-income individuals.⁹ Individuals redeeming Supplemental Nutrition

Assistance Program (SNAP) benefits at Seattle farmers markets receive a dollar for dollar match, up to \$10, to purchase fruits, vegetables, herbs, mushrooms, and vegetable starters.⁹

To date, evaluations of Fresh Bucks and similar programs have demonstrated improved dietary and behavioral outcomes among users.^{10,11,12,13,14} Previous studies have described populations using incentive programs and measured changes in healthy food purchase and consumption, but to our knowledge none have specifically included a measure of participants' food security levels or investigated farmers market shopping behaviors as they relate to food security.¹⁰⁻¹⁴ The relationship between Fresh Bucks and food security warrants further study to understand how access to the program and experience at the farmers market are impacted by food security status. This analysis addresses the following questions: What are the characteristics of Fresh Bucks users across different food security levels? How do Fresh Bucks shopping behaviors (i.e. shopping frequency, payment method, purchasing behaviors, and post-purchase behaviors) differ by food security level?

METHODS

This analysis uses a subset of data from a larger evaluation of the Fresh Bucks program in 2014 completed by the University of Washington Center for Public Health Nutrition, under contract with the City of Seattle. The University of Washington Institutional Review Board approved all study procedures.¹⁰

Setting and Study Design

Researchers surveyed Fresh Bucks users at three time points: 1) at the farmers market prior to shopping, 2) after shopping at the farmers market later that same day, and 3) one to two months later via telephone. From August through September 2014, trained researchers conducted face-to-face interviews of 191 Fresh Bucks users at 6 Seattle farmers markets (estimated refusal rate < 20%). Although researchers did not document

reasons for refusal, several individuals refused the survey due to limited English proficiency. Farmers markets were selected based on relatively high historical EBT transaction numbers and reported customer diversity. Trained researchers stood at the farmers market information booth and invited Fresh Bucks users to participate in the survey. Respondents were offered \$4-5 in additional farmers market currency if they returned to complete the post-shopping survey. Approximately 85% (n=163) returned to complete the post-shopping survey. Researchers also invited subjects to participate in a follow-up survey via a short phone call later in the year. Between October and November 2014, research assistants made up to three attempts to contact each individual who provided contact information. Of 163 individuals who provided contact information, 90 telephone surveys were completed. This corresponds to a 55% response rate and 47% of all individuals surveyed at the market. Respondents received a \$5 Target gift certificate in recognition of their participation.

Survey Content

The market pre-shopping survey included 26 questions pertaining to Fresh Bucks, SNAP, and farmers market use (including frequency and purchasing behaviors); typical fruit and vegetable consumption; perceived impact of the Fresh Bucks program; and demographic information. Pre-shopping surveys also included the six-question short form of the U.S. Household Food Security Survey Module, which is designed to categorize respondents into one of three household food security levels: high or marginal food security, low food security, or very low food security.¹⁵ Per tool guidelines, respondents with 0-1 affirmative responses were classified as high or marginal food security. Those with 2-4 affirmative responses were classified as low food security, and subjects with 5-6 affirmative responses were considered very low food security.

The post-shopping market survey included 9 questions specific to market purchases and the likelihood of future program use. The 38-question telephone survey included many of the same questions as the market pre-shopping survey, including all food security survey questions, as well as additional questions that pertained to Fresh Bucks use since

completion of the market survey, experience with Fresh Bucks produce, and future intentions to use the Fresh Bucks program. Subjects with incomplete responses to food security questions (n=19) were removed from the sample, resulting in a final sample size of 182 for the pre shopping market survey and 80 for the telephone survey.

Variables of Interest

Race, ethnicity, gender, language spoken at home, number of children, household size, age, education level, participation in other food assistance programs, monthly SNAP benefit amount, and length of time receiving SNAP were included as demographic variables. Fresh Bucks shopping behaviors in the survey included shopping frequency, purchasing behaviors, payment method, and post-purchase behaviors. Examples of survey questions pertaining to Fresh Bucks shopping behaviors include: “How often do you shop at farmers markets when they are in season?”, “Would you say you buy the same amount of fruits and vegetables in a given month when you use the Fresh Bucks program, or more?”, “Did you have any EBT currency or Fresh Bucks left over after shopping?”, and “In general, how many of the fruits and vegetables that you bought with Fresh Bucks did you know how to prepare when you bought them?”

Statistical Analysis

Trained researchers entered all data into a web-based data entry interface, which provides output as an Excel file. Statistical analyses were conducted in R version 3.1.3.¹⁶ We calculated descriptive statistics for subject demographic factors and market shopping behaviors by food security classification: high or marginal, low, and very low. Since food security level was measured during both the market and telephone surveys, we analyzed demographic and shopping characteristics by food security level such that both variables were measured at the same time point. Chi squared or fisher exact tests were used to determine whether demographic factors and farmers market shopping behaviors differed significantly between Fresh Bucks users by household food security classifications.

Additionally, we ran unadjusted and adjusted proportional odds regression models to analyze the association (Odds Ratio [OR], 95% Confidence Interval [CI]) between food security level and farmers market shopping frequency (categorized as first time, less than once a month, once or twice a month, and more than once a week). The OR is used to compare the odds of shopping frequency being greater than first time, less than once a month, and once or twice a month for individuals with high/marginal compared to very low food security. Covariates included market location, gender, number of children, household size, and language spoken at home. A *P* value <0.05 was considered statistically significant.

RESULTS

Characteristics of study respondents

Overall demographic patterns were consistent amongst samples across all three surveys. Thus, in Table 1, we provide demographic characteristics for the 182 pre-market survey responses. Study participants were mostly white (65%), English-speaking (84%), female (66%), between the ages of 18 and 50 (74%), and childless (76%). Of those with children, the number of children per household ranged from 1 to 6. The mean household size was 2.4 (range:29), and nearly half (42%) of respondents reported a single person household. Additionally, the majority of subjects (62%) had obtained a college education or greater. These demographic trends differ from reported demographics of Seattle-wide SNAP users. The American Community Survey estimates that 37% of SNAP-receiving households in Seattle contain one or more person equal to or older than 60 years of age and 30% have children under the age of 18. Additionally, 49% of all SNAP heads of households in Seattle are white.¹⁷

The Fresh Bucks users in this sample varied in reported length and amount of SNAP benefit receipt. Reported length of SNAP receipt was 6 months or less for 29%, 6 months to 2 years for 32%, and greater than 2 years for 39% of subjects. Participants reported

monthly SNAP amounts of \$150 or less (33%), \$150 to \$200 (45%), and over \$200 per month (22%). For comparison, the maximum monthly SNAP benefit in Washington state is \$189 for a single person household, \$347 for a two person household, and \$497 for a three person household.¹⁸ The average monthly SNAP benefit for Washington households was \$220 in 2014.¹⁹ Finally, most study participants (80%) did not report participation in other food assistance programs.

Food security classifications of study respondents

Based on responses in the pre-market survey, slightly less than half of all subjects (45%) reported high or marginal food security, while 50 subjects (28%) reported low food security and 50 subjects (28%) reported very low food security. These data are in keeping with national trends. The United States Department of Agriculture (USDA) estimates that 46.3% of SNAP beneficiaries were food secure, while 27.8% experienced low food security and 25.9% experienced very low food security during 2014.¹

Differences in demographic characteristics by food security status

Differences in demographic characteristics by food security status were significant for presence of children in the household ($P=0.02$), gender ($P=0.01$), language spoken at home ($P=0.02$), and household size ($P=0.01$) (Table 1). Subjects reporting very low food security appeared more likely to have children compared to subjects reporting low or high/marginal food security (38.8%, 16.3%, and 20.3%, respectively), although the majority of subjects were childless regardless of food security status. Subjects with very low food security were also more likely to be female (84% compared to 56% of low food security and 60% of high/marginal food secure participants), while high food security subjects appeared more likely to speak a language other than English (24% compared to 8% of low food security and 10% of very low food security participants). We were unable to discern clear trends regarding household size.

Farmers market shopping frequency by food security status

The majority (64%) of participants reported shopping at farmers markets once a week or more, and only 3% of participants reported that this was their first time at the farmers market. However, frequency of shopping at a farmers market when in season significantly differed by food security status ($P=0.03$) (Table 2). Further investigation using a proportional odds regression model clarifies this relationship but finds it is non-significant. An unadjusted proportional odds regression model estimated that individuals with high/marginal food security have 106.3% higher odds of shopping at the market at least once per week than individuals with very low food security. The unadjusted model also estimated that individuals with high/marginal food security have 106.3% higher odds of shopping at the market at least once per month and of having shopped at the market before than individuals with low household food security. (OR=2.1, 95% Confidence Interval [CI]=1.00-4.24, $P=0.05$) (Table 3). An adjusted model estimated similar non-significant relationships after adjusting for gender, market site, number of children, household size, and whether English is spoken at home (OR=2.03, CI=0.90-4.57, $P=0.09$).

Differences in shopping behaviors by food security status

No significant differences were noted between food security status and any other farmers market shopping behaviors included in the study (Table 1, Table 2).

DISCUSSION

Our results indicate that food security status amongst Fresh Bucks users mirrors national trends. Furthermore, the very low food security users in our sample were more likely to have children compared to users with low or high/marginal household food security and this is in keeping with national trends. However, in contrast to national trends, ethnicity and race showed no association with food security status in our sample.¹

Regarding shopping frequency, our analysis found that individuals living in very low food secure households showed a trend toward shopping at the farmers market less

frequently as compared with those of high/marginal food security. This relationship became insignificant after the model was adjusted for potential confounders. Several additional factors, including household location in relation to the markets, transportation, income, and job status, have been shown to differ with food security status.^{1,20} Although these variables could impact frequency of shopping at the farmers market, survey design limitations prevented their inclusion in the model. Further exploration of these potential factors is therefore warranted.

Interestingly, our data indicate that once present at the farmers market, Fresh Bucks users across all food security levels experience the market and the Fresh Bucks program in similar ways. Our analysis found no significant differences between food security status and all other variables assessed. These findings are surprising in light of previous research, which describes several differences in the dietary and shopping patterns of food insecure individuals compared to their food secure peers. A systemic review found that food insecure adults consume less fruits and vegetables compared to food secure adults.⁵ Previous research also demonstrates that food insecure individuals typically spend less on food while restricting food intake more frequently.^{1,8} Furthermore, qualitative research indicates that the least food secure individuals use strategies to avoid food shortage, including bargain hunting and menu planning, less frequently than their more food secure counterparts. It has been hypothesized that these more elaborate strategies may be less accessible to individuals with very low food security because of their less stable financial and living situations.⁸

The lack of demographic variation amongst subjects in our study sample may offer one possible explanation for the similarities across food security status categories illustrated by our data. The Fresh Bucks users in our study included a higher percentage of younger, white, and childless individuals as compared with Seattle-wide SNAP heads of households and this was true across all food security levels. It may be possible that Fresh Bucks users, or at least those in our sample, represent a group of SNAP users commonly referred to as able-bodied adults without dependents (ABAWDs). ABAWDs, defined as SNAP participants between the ages of 18 and 50 who are capable of employment and

lack dependents, typically face restrictions on benefit length when not meeting work requirements. Several states, including Washington, have temporarily waived these restrictions in response to the recession.^{21,22} The similarities in Fresh Bucks shopping behaviors across users of all food security levels may therefore represent certain characteristics of the ABAWD population.

These findings should be considered in the context of several limitations. First, our data draws from a convenience sample and therefore may not be representative of all Fresh Bucks users. Individuals with limited English proficiency and less frequent users, in particular, may be under-represented. However, in an attempt to overcome this limitation and reach users with limited English proficiency, interviewers were hired who had Cantonese, Vietnamese, and Spanish language skills. Second, social desirability bias may have influenced participants' responses, particularly for potentially sensitive questions such as those related to food security. Third, seasonality may also have influenced participants' experience with the program and by extension their survey responses. Fourth, small sample size limits the strength of our conclusions and the generalizability of our results. However, this analysis serves as a preliminary exploration of the association between food security status and Fresh Bucks use. Finally, our study design does not allow for exploration of causation.

Future research should build upon our findings by confirming and clarifying these relationships in a larger sample. For example, future studies could analyze the relationship between farmers market shopping frequency and food security level with a larger sample size and in a broader population. Additionally, research could analyze potential barriers limiting frequency of farmers market use amongst very low food secure individuals. Such research could be used to increase access to farmers markets and ensure Fresh Bucks reaches the most vulnerable populations.

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TABLES

Table 1. Demographic Characteristics of Fresh Bucks Users by Food Security Status at 6 Seattle Farmers Markets at Time of Pre-Shopping Market Survey, Seattle, WA August-Sept 2014 (n=182)

Characteristic	High or Marginal Food Security Users No. (%)	Low Food Security Users No. (%)	Very Low Food Security Users No. (%)	P value
Total	82 (100)	50 (100)	50 (100)	-
Race^a				
White	52 (63.4)	36 (72.0)	29 (60.4)	0.37 ^b
Asian	14 (17.1)	4 (8.0)	4 (8.3)	
Black/African American	5 (6.1)	2 (4.0)	7 (14.6)	
Combination of races	3 (3.7)	2 (4.0)	3 (14.6)	
Native Hawaiian/Pacific Islander	0 (0.0)	1 (2.0)	2 (4.2)	
American Indian/Alaska Native	1 (1.2)	0 (0.0)	0 (0.0)	
Other	7 (8.5)	5 (10.0)	3 (6.3)	
Ethnicity				
Hispanic or Latino	7 (8.6)	4 (8.0)	4 (8.2)	>0.99 ^b
Language spoken at home^a				
English	62 (75.6)	46 (92.0)	43 (89.6)	0.02 ^b
Other	20 (24.4)	4 (8.0)	5 (10.4)	
Gender^a				
Male	30 (37.0)	20 (40.0)	7 (14.0)	0.01 ^b
Female	49 (60.5)	28 (56.0)	42 (84.0)	
Neither of the above	2 (2.5)	2 (4.0)	1 (2.0)	
Number of children under the age of 18 present in household^a				
0	63 (79.8)	41 (83.7)	30 (61.2)	0.02 ^c
1-6	16 (20.3)	8 (16.3)	19 (38.8)	
Household size				
1	34 (41.5)	28 (56.0)	19 (38.0)	0.01 ^b
2	21 (25.6)	8 (16.0)	13 (26.0)	
3-5	26 (31.7)	7 (14.0)	14 (28.0)	
6 or more	1 (1.2)	7 (14.0)	4 (8.0)	
Age^a				
18-30	34 (42.0)	16 (32.0)	17 (34.0)	0.33 ^b

31-50	24 (29.6)	20 (40.0)	22 (44.0)	
51-65	14 (17.3)	11 (22.0)	10 (20.0)	
≥65	9 (11.1)	3 (6.0)	1 (2.0)	
Highest level of education^a				
Some high school	2 (2.4)	1 (2.1)	1 (2.0)	0.63 ^b
Completed high school	5 (6.1)	8 (16.7)	7 (14.3)	
Some college	18 (22.0)	12 (25.0)	14 (28.6)	
Completed college	41 (50.0)	19 (39.6)	20 (40.9)	
Post-college	16 (19.5)	8 (16.7)	7 (14.3)	
Monthly SNAP/EBT benefits^a				
≤ \$150	29 (35.8)	14 (29.2)	16 (32.0)	0.54 ^c
\$150 ≥ \$200	35 (43.2)	26 (54.2)	20 (40.0)	
> \$200	17 (21.0)	8 (16.7)	14 (28.0)	
Length of time receiving SNAP/EBT^a				
6 months or less	24 (30.0)	14 (28.6)	14 (28.0)	0.99 ^c
6 months > <u>1</u> year	10 (12.5)	9 (18.4)	7 (14.0)	
1 year > <u>2</u> years	14 (17.5)	7 (14.3)	11 (22.0)	
2 years > <u>3</u> years	9 (11.3)	6 (12.2)	6 (12.0)	
3 years > <u>5</u> years	9 (11.3)	6 (12.2)	6 (12.0)	
more than 5 years	14 (17.5)	7 (14.3)	6 (12.0)	
Participation in other food assistance programs^a				
None	69 (84.2)	41 (83.7)	34 (69.4)	0.23 ^b
Other	9 (11.0)	4 (8.2)	11 (22.5)	
WIC FMNP	3 (3.7)	4 (8.2)	3 (6.1)	
Senior FMNP	1 (1.2)	0 (0.0)	1 (2.0)	

Abbreviations: SNAP, Supplemental Nutrition Assistance Program; EBT, Electronic Benefit Transfer; WIC, Women Infants and Children; FMNP, Farmers Market Nutrition Program

a: sample does not total 182 due to incomplete or missing data

b: p-value calculated using fisher exact test

c: p-value calculated using chi-squared test

Table 2. Farmers Market Shopping Characteristics of Fresh Bucks Users by Food Security Status at 6 Seattle Farmers Markets at Time of Pre-Shopping Market Survey, Post-Shopping Market Survey, and Telephone Follow-Up Survey; Seattle, WA August-October 2014 (n=182, 153, and 80 respectively)

Survey Question	High or Marginal Food Security Users No.(%)	Low Food Security Users No. (%)	Very Low Food Security Users No. (%)	P value
Farmers Market Characteristics at Time of Pre-Shopping Market Survey (August-Sept 2014, n=182)				
Total	82 (100)	50 (100)	50 (100)	-
How often do you shop at a farmers market when they are in season?^a				
First time	1 (1.2)	0 (0.0)	4 (8.0)	0.037 ^b
Once a week or more	55 (67.1)	31 (63.3)	28 (56.0)	
Once or twice a month	24 (29.3)	16 (32.7)	11 (22.0)	
Less than once a month	2 (2.4)	2 (4.1)	7 (14.0)	
How many times have you ever used Fresh Bucks before today-including this year and all prior years?^a				
First time	15 (18.3)	6 (12.0)	10 (20.4)	0.77 ^c
1-4	15 (18.3)	11 (22.0)	11 (22.5)	
More than 5	52 (63.4)	33 (66.0)	28 (57.1)	
Since you learned about the Fresh Bucks program, have you shopped at farmers markets the same amount, more, or less?				
I go a lot more often	46 (65.7)	32 (71.1)	25 (61.0)	0.81 ^b
I go a little more often	16 (22.9)	8 (17.8)	12 (29.3)	
I go about the same	8 (11.4)	5 (11.1)	4 (9.8)	
About how much of the fruits and vegetables that you bought in the last month did you buy at a farmers market?^a				
³ / ₄ or greater	34 (41.5)	25 (52.1)	19 (38.8)	0.24 ^c
About ¹ / ₂	18 (22.0)	12 (25.0)	8 (16.3)	
¹ / ₄ or less	30 (36.6)	11 (22.9)	22 (44.9)	
Would you say you buy the same amount of fruits and vegetables in a given month when you use the Fresh Bucks program, or more?^a				
A lot more	25 (35.7)	22 (48.9)	22 (55.0)	0.33 ^b
Somewhat more	28 (40.0)	14 (31.1)	13 (32.5)	
A little more	7 (10.0)	5 (11.1)	4 (10.0)	
No more	10 (14.3)	4 (8.9)	1 (2.5)	
Farmers Market Characteristics at Time of Post-Shopping Market Survey				

(August-Sept 2014, n=153)				
Total	70 (100)	43 (100)	40 (100)	-
Did you buy any fruits or vegetables today that you don't usually purchase?^d				
Yes	34 (49.3)	28 (65.1)	24 (63.2)	0.18 ^c
No	35 (50.7)	15 (34.9)	14 (36.8)	
How did you pay for your items at the market today?				
Fresh Bucks and EBT only	44 (62.9)	28 (65.1)	24 (60.)	0.98 ^b
Cash, Debit, or Credit Card	24 (34.3)	14 (32.6)	15 (37.5)	
Other assistance program	2 (2.9)	1 (2.3)	1 (2.5)	
Did you have any EBT currency or Fresh Bucks left over after shopping?				
Yes	37 (0.52.9)	18 (41.9)	21 (52.5)	0.48 ^c
No	33 (47.1)	25 (58.1)	19 (47.5)	
Farmers Market Characteristics at Time of Telephone Follow-Up Survey (n=80, Oct-Nov 2014)				
Total	37 (100)	19 (100)	24 (100)	-
Returned to use Fresh Bucks between market and telephone survey?				
Yes	31 (83.8)	16 (84.2)	20 (83.3)	>0.99 ^b
No	6 (16.2)	3 (15.8)	4 (16.7)	
How likely is it that you will shop at one of the four year-long farmers markets after the Fresh Bucks program ends?^e				
Very likely	23 (62.2)	10 (55.6)	11 (45.8)	0.29 ^b
A little likely	7 (18.9)	3 (16.7)	9 (37.5)	
Unlikely	1 (2.7)	0 (0.0)	2 (8.3)	
Very unlikely	6 (16.2)	5 (2.8)	2 (8.3)	
In general, how many of the fruits and vegetables that you bought with Fresh Bucks did you know how to prepare when you bought them?				
All of them	30 (81.1)	15 (79.0)	13 (54.2)	0.16 ^b
More than half	6 (16.2)	4 (21.1)	7 (29.2)	
About half	1 (2.7)	0 (0.0)	2 (8.3)	
Less than half	0 (0.0)	0 (0.0)	2 (8.3)	
In general, how many of the fruits and vegetables that you bought with Fresh Bucks were you able to finish before they went bad?				
All of them	23 (62.2)	11 (57.9)	13 (54.2)	0.46 ^b
More than half	14 (37.8)	8 (42.1)	9 (37.5)	
About half	0 (0.0)	0 (0.0)	2 (8.3)	

Abbreviations: EBT, Electronic Benefit Transfer

a: sample does not total 182 due to incomplete or missing data

b: p-value calculated using fisher exact test

c: p-value calculated using chi-squared test

d: sample does not total 153 due to incomplete or missing data

e: sample does not total 80 due to incomplete or missing data

Table 3. Associations Between Food Security Level and Farmers Market Shopping Frequency Among Fresh Bucks Users at 6 Seattle Farmers Markets at Time of Pre-Shopping Market Survey Based on Estimates of Proportional Odds Regression Models, Seattle WA August-Sept 2014

Variable	Unadjusted Model (n=181)		Adjusted ^a Model (n=168)	
	OR (95% CI)	<i>P</i> value	OR (95% CI)	<i>P</i> value
Very Low	Reference		Reference	
Low	1.8 (0.80- 3.94)	0.16	1.7 (0.71- 4.07)	0.23
High/Marginal	2.1 (1.00- 4.24)	0.05	2.3 (0.89- 4.57)	0.09
Male	-	-	0.8 (0.40- 1.65)	0.56
Market location 1	-	-	Reference	Reference
Market location 2	-	-	0.3 (0.08- 1.22)	0.09
Market location 3	-	-	0.6 (0.23- 1.71)	0.36
Market location 4	-	-	0.1 (0.03- 0.45)	0.002
Market location 5	-	-	2.0 (0.30- 13.5)	0.47
Market location 6	-	-	0.5 (0.22- 1.33)	0.18
Number of children	-	-	0.8 (0.55- 1.16)	0.24
Household size	-	-	0.9 (0.83- 1.02)	0.11
English	-	-	2.9 (0.95- 9.04)	0.06

a: Model adjusted for market location, gender, number of children, household size, and language spoken at home