

# ASSESSING THE HEALTHFULNESS OF FOOD PURCHASES AMONG LOW-INCOME AREA SHOPPERS IN THE NORTHEAST

ALESSANDRO BONANNO<sup>1,2</sup>

\*LAUREN CHENARIDES<sup>2</sup>

RYAN LEE<sup>3</sup>

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<sup>1</sup>Wageningen University, Netherlands

<sup>2</sup>Penn State University

<sup>3</sup>Johns Hopkins University

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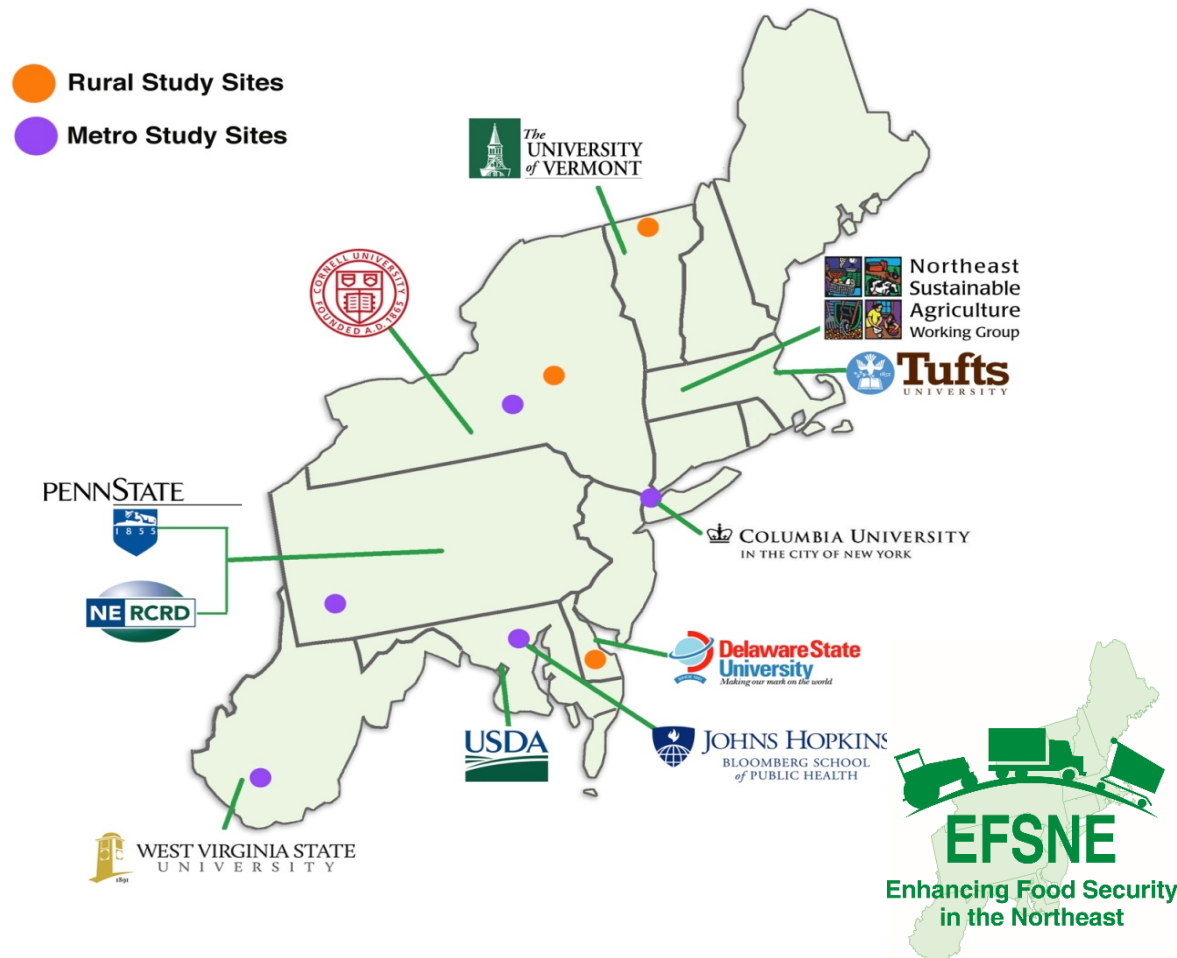
# The EFSNE Project

To assess whether greater reliance on regionally produced foods can improve food access for low-income communities, while also benefiting farmers, food supply chain firms, and others in the food system.

## System Approach

Eleven institutions participate in six research teams:

- Consumption
- Distribution
- Production
- Education
- Outreach
- SceMo



# The EFSNE Consumption team

**Goals:** To assess current and potential community-level constraints and opportunities for improving access to regionally produced healthy food for people in low-income communities

## *Activities:*

- 🛒 Community focus groups
- 🛒 Survey of store characteristics
- 🛒 **Brief individual shopper surveys**
- 🛒 Secondary data analysis



# Research Questions

- 🛒 What drivers affect the adoption of healthier market baskets among individuals in low-income areas in the Northeast U.S.?
- 🛒 What correlations exist between purchasing healthier market basket items and demographic characteristics?
- 🛒 How does availability of food stores impact healthy food purchasing?



# Background: Access vs. Availability

- Limited access to supermarkets and grocery stores in low-income areas hypothesized to be a barrier to consume healthy foods (*Hilmers, Hilmers and Dave, 2012*)
- The most frequent barriers to healthy eating are time, taste, and financial considerations (*Eikenberry and Smith, 2004; Kearney and McElhone, 1999*)
- Perceived supermarket access related to fruits and vegetables consumption distance to supermarket actual access (*Caspi et al., 2012*)
- Sociodemographic factors affect purchasing of healthy foods more than the neighborhood environment (*Lucan, Hillier, Schechter, & Glanz, 2014*)
- The nutritional quality of purchases made by low-income households respond very little when new stores enter (*Handbury, Rahkovsky and Schnell, 2015*)



# Background: Market Basket Analyses

Common in measuring availability and price of certain foods across stores and locations (Jetter & Cassady, 2006)

Select foods based on a combination of factors including dietary guidelines, nutrition content, actual consumption patterns and price (Anderson et al., 2007).

Use both fresh and processed items including frozen and canned fruits and vegetables (Anderson et al., 2007; Jetter & Cassady, 2006).



# Data

## Surveys

Collected October 2013 - March 2015 (two waves) outside 15 stores in eight locations across the Northeast (N=1,501)

Eligibility criteria:  $\geq$  18 years of age / primary food shopper in household

Incentive: \$5 gift cards to the store where the survey was conducted

25 questions including:

- 🛒 Perceived barriers to purchasing healthy foods
- 🛒 Perception of the food environment in the neighborhood
- 🛒 Market basket purchases for select items in the past 30 days
- 🛒 Demographic information

## Zip code Business Patterns (ZBP)

Matched respondent zip code with 2013 ZBP data

NAICS:

- 🛒 445110 Grocery Stores (excludes convenience stores)
- 🛒 445120 Convenience Stores
- 🛒 452910 Warehouse Clubs and Supercenters



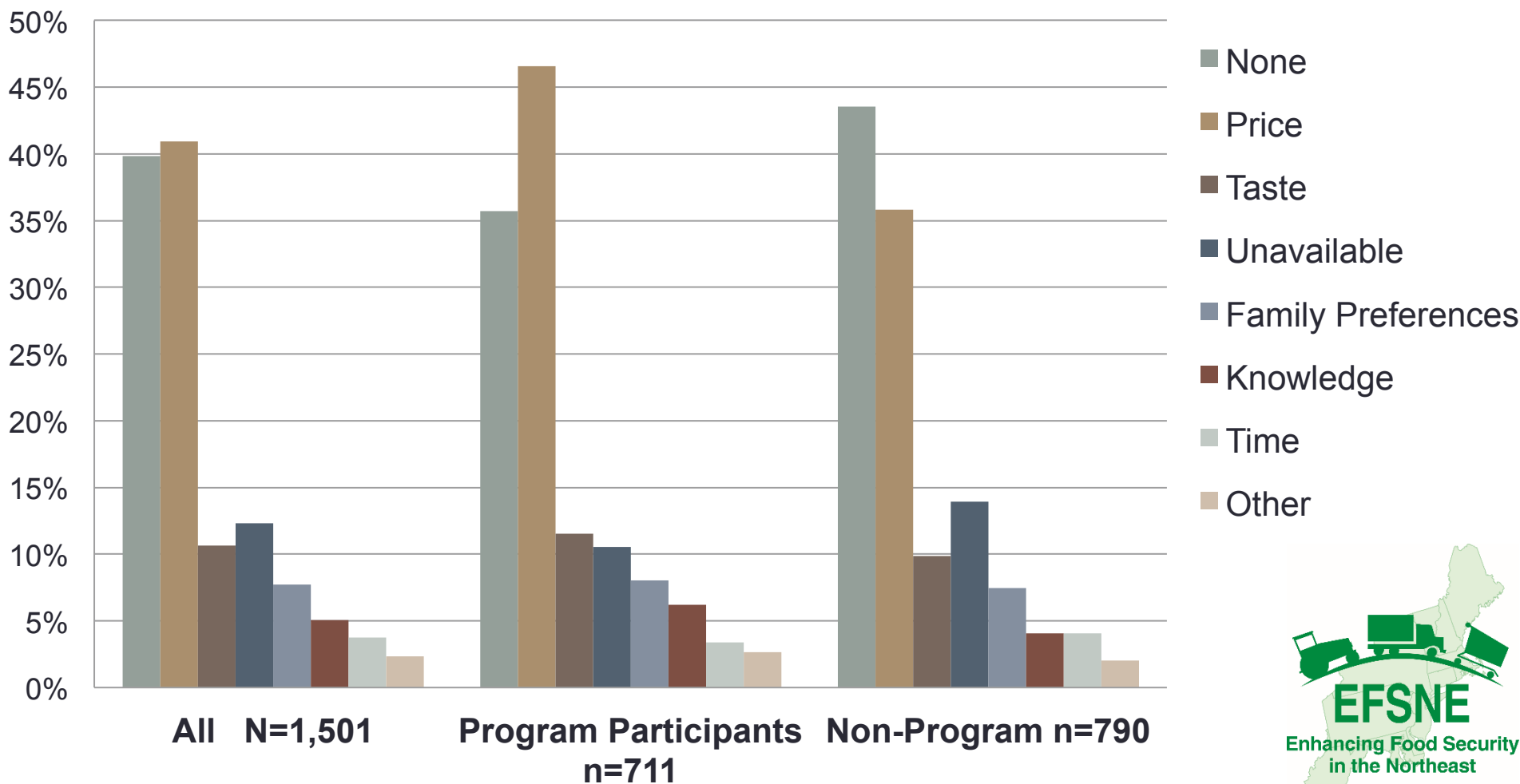


# Summary Statistics

	All N=1,501	Program Participants n=711	Program Non- Participants n=790
Age	48.86	45.51	51.87
Female	66.16%	70.04%	62.66%
Persons in household	3.07	3.58	2.61
Live in Rural Area	22.25%	16.46%	27.47%
Participate in Government-Funded Program	47.37%	---	---
Shopping Trip per Month	4.62	4.44	4.77
Average Spent per Trip	\$94.65	\$107.04	\$83.50
Shop at Farmers' Markets	55.30%	51.05%	59.11%

# Summary Statistics

## Barriers to Purchasing Healthy Foods



# Data - EFSNE Market Basket



Eight items – food groups in the USDA’s Thrifty Food Plan<sup>1</sup>

At least one item for “food group:” meat, grain, dairy, fruit and vegetable.

Items are categorized into “conventional” and “healthier”<sup>2</sup>

Market Basket Items	“Conventional” Variety	“Healthier” Variety <sup>3</sup>
Milk	Whole Milk	Skim or 1% Milk
Bread	White Bread	Whole Wheat Bread
Beef	Regular Beef	Lean Beef
Apples	n/a	Apples
Broccoli	n/a	Broccoli
Cabbage	n/a	Cabbage

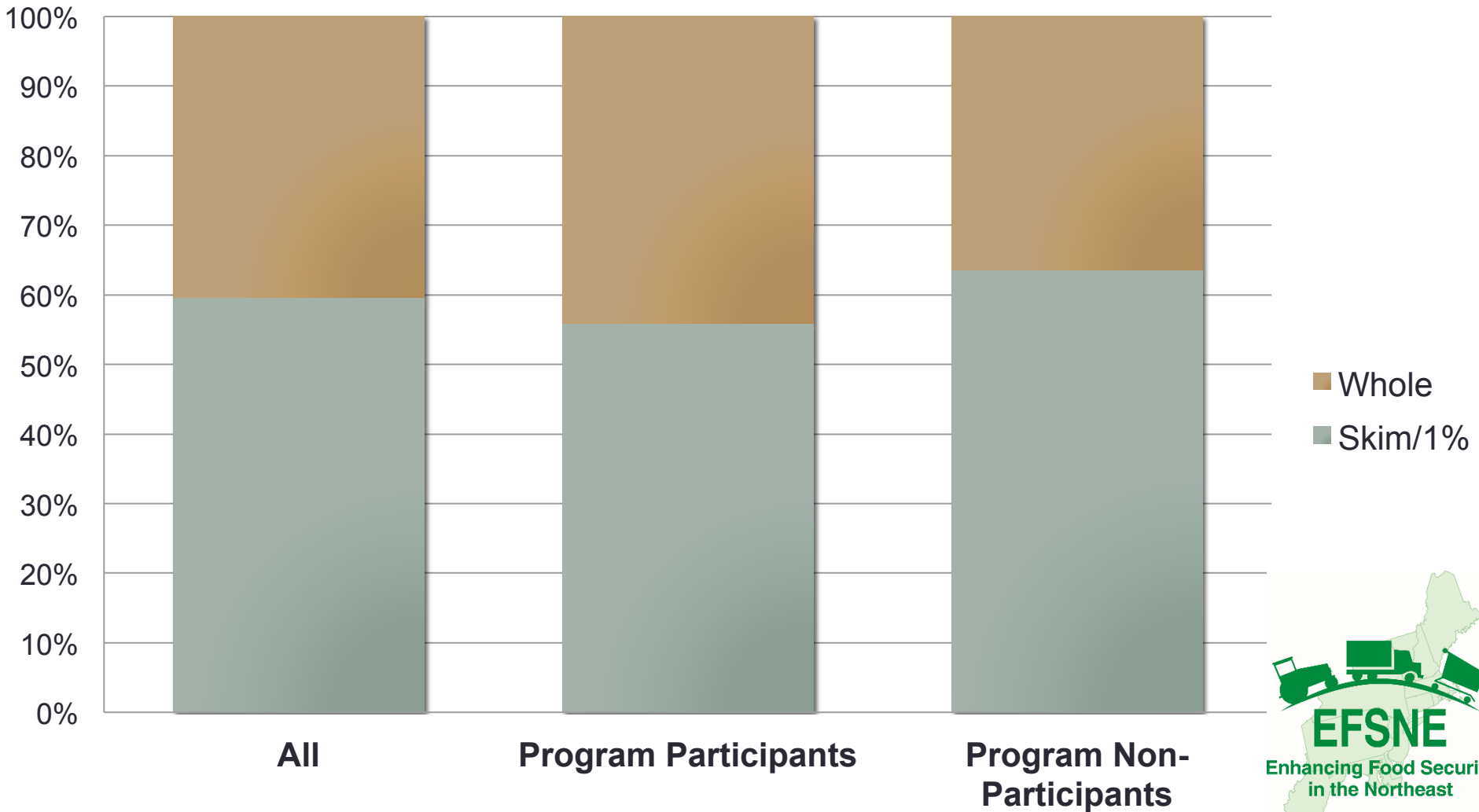
<sup>1</sup> TFP (2006) includes an “Other Foods” category, however our survey does ask about products in this category

<sup>2</sup> Survey responses allow for a “don’t know option” for milk, bread, and beef

<sup>3</sup> For purposes of this presentation we have excluded canned peaches and potatoes; results are available upon request

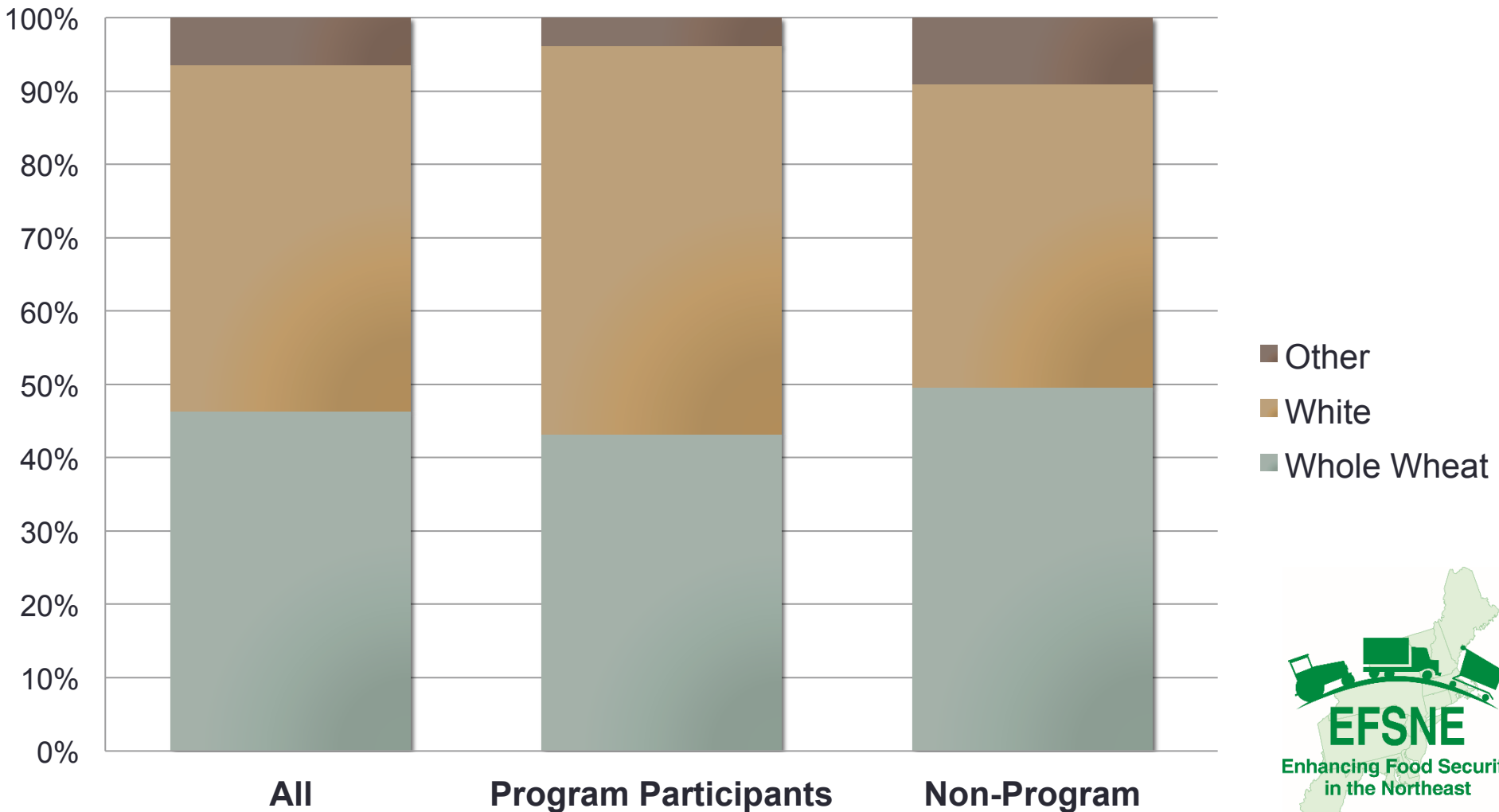
# Milk

n = 1,084



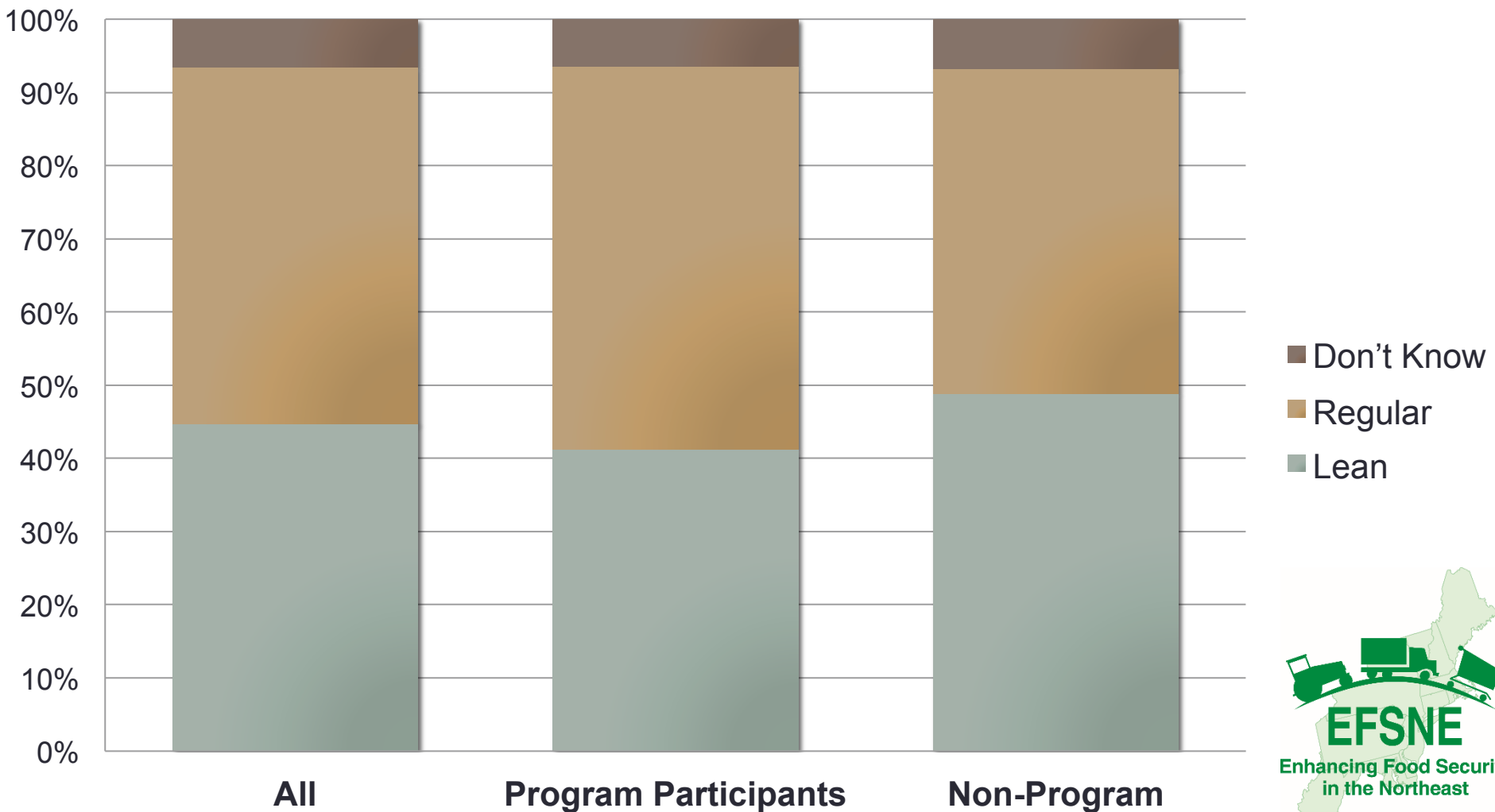
# Bread

n = 1,196



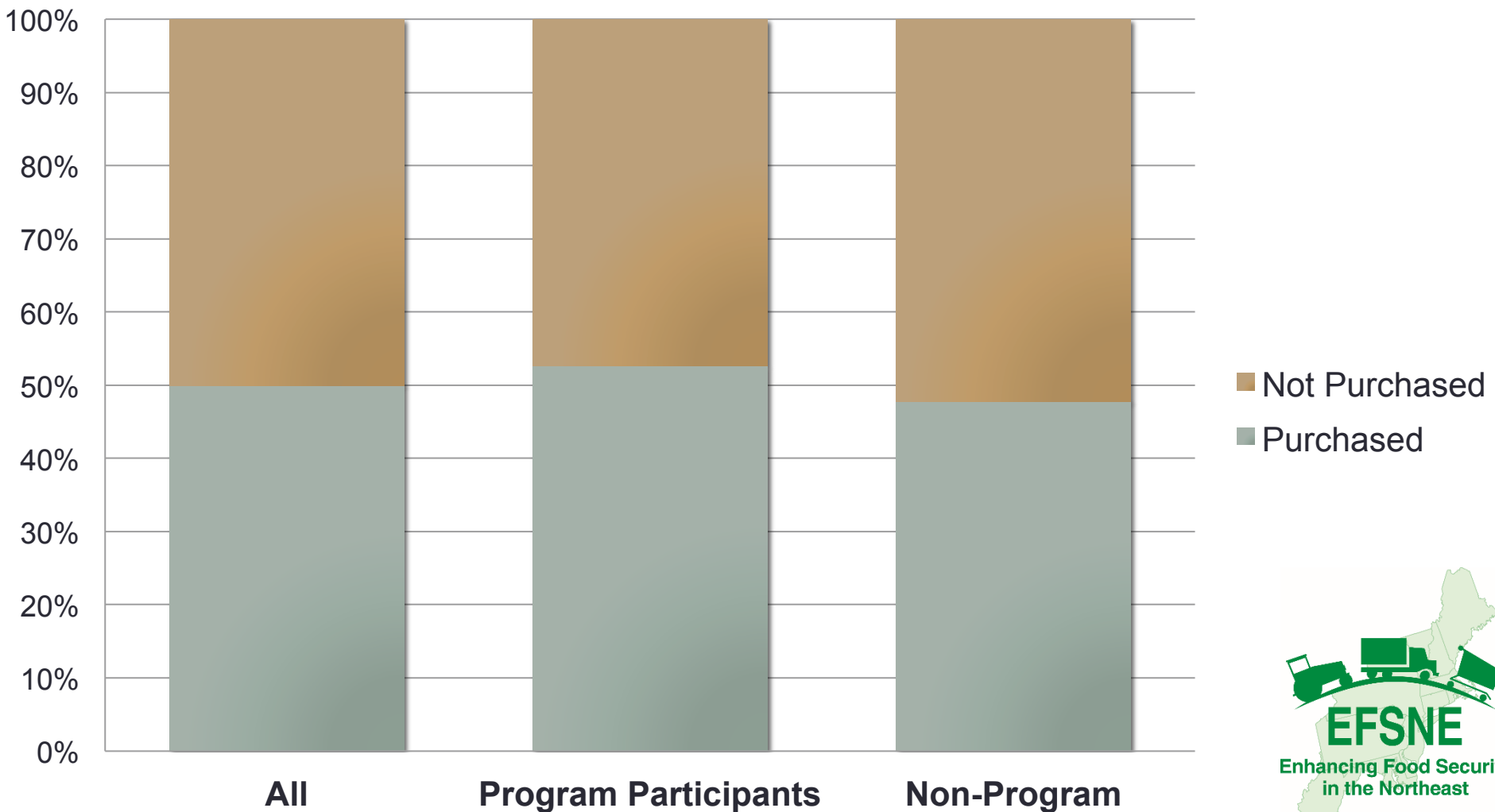
# Beef

n = 862



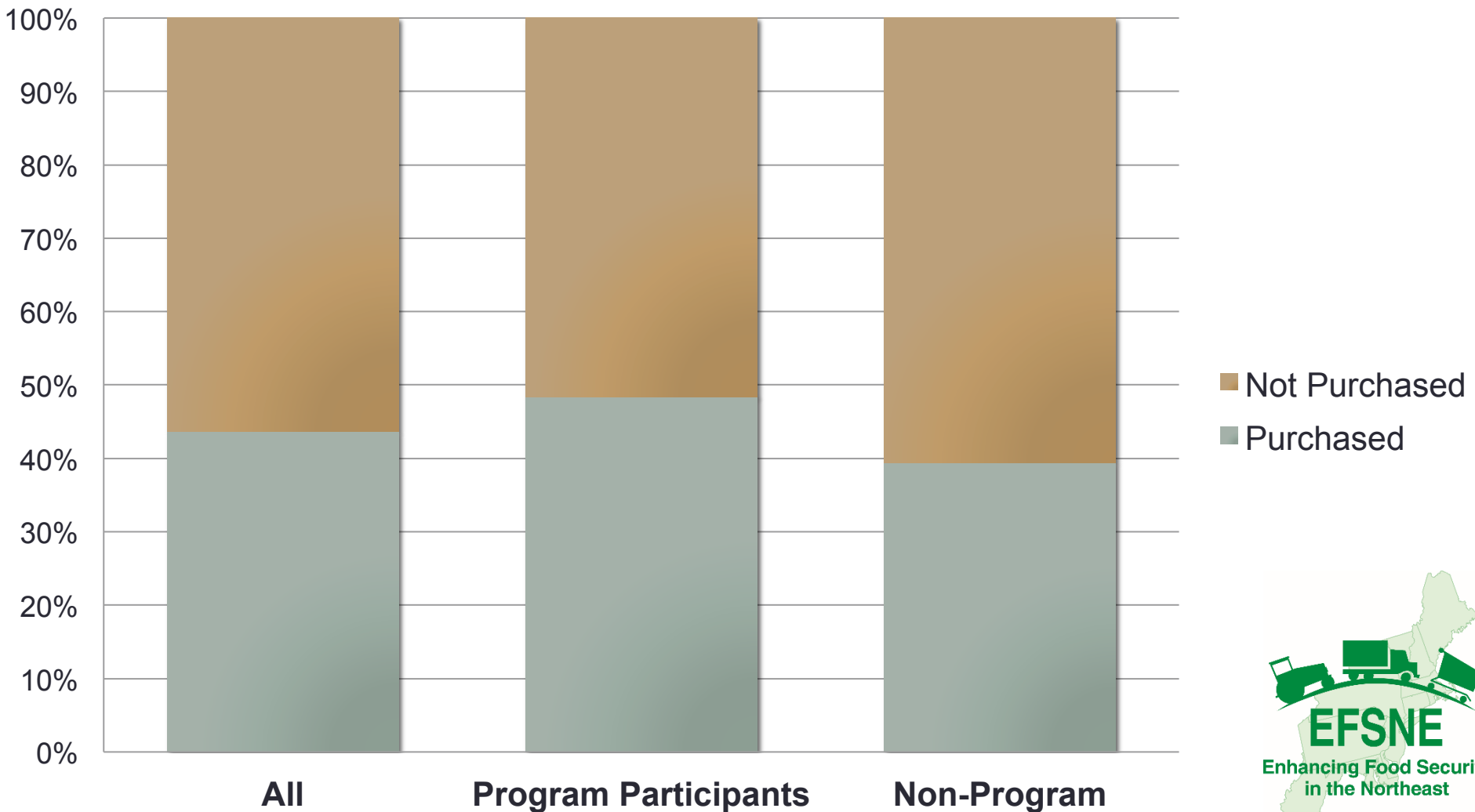
# Apples

n = 1,501



# Broccoli

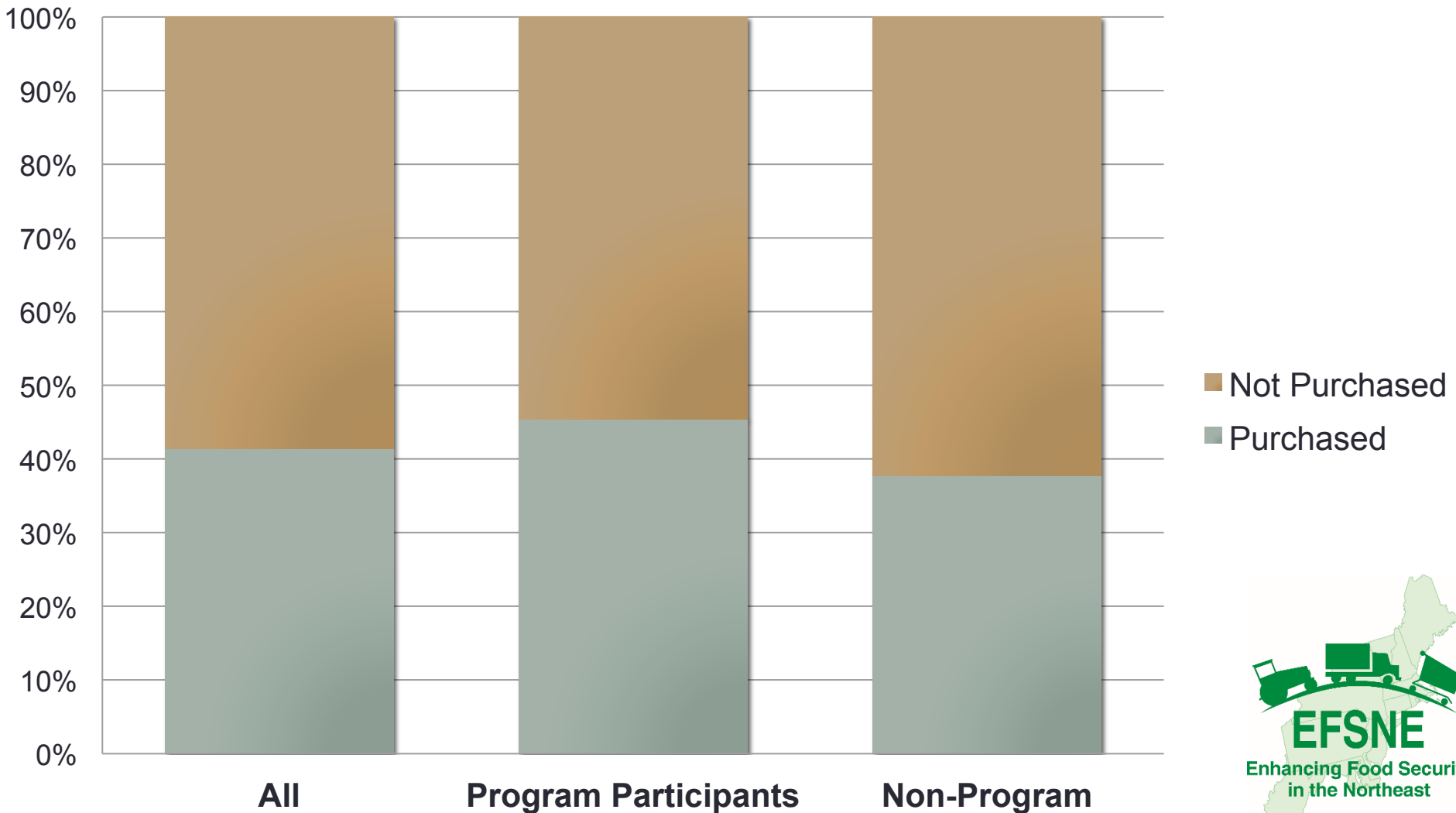
n = 1,501





# Cabbage

n = 1,501



# Empirical Approach

*Healthy Market Basket Indicator (HMBI)*

Where

$$HMBI_{it} = \frac{\sum_{i \in \text{Healthy Basket Items}} 1}{\sum_{i \in \text{All Basket Items}} 1}$$

Such that

$$\sum_{i \in \text{Healthy Basket Items}} 1 = \sum_{i \in \text{FatFreeMilk} + \text{WheatBread} + \text{LeanBeef} + \text{Apples} + \text{Broccoli} + \text{Cabbage}} 1$$

$$\sum_{i \in \text{All Basket Items}} 1 = \sum_{i \in \text{Milk\_Any} + \text{Bread\_Any} + \text{Beef\_Any} + \text{Apples} + \text{Broccoli} + \text{Cabbage}} 1$$

Note: Each market basket item is reported as binary

# Empirical Approach

*Healthy Market Basket Indicator (HMBI)*

Where

$$HMBI = \frac{\sum \text{Healthy Basket Items}}{\sum \text{All Basket Items}}$$

Such that

$$\sum \text{Healthy Basket Items} = \sum \text{FatFreeMilk} + \text{WheatBread} + \text{LeanBeef} + \text{Apples} + \text{Broccoli} + \text{Cabbage}$$

$$\sum \text{All Basket Items} = \sum \text{Milk\_Any} + \text{Bread\_Any} + \text{Beef\_Any} + \text{Apples} + \text{Broccoli} + \text{Cabbage}$$

Note: Each market basket item is reported as binary

# Estimation

Define *Healthy Market Basket Indicator (HMBI)* as a function of:

<b>Demographics</b>	<b>Shopping Habits</b>	<b>Store Environment (ZBP Data)</b>
Gender (Female=1)	Shopped during SNAP Period	No. of Small Grocery (<20 ee's)
Age	Shopped on Weekend	No. of Medium/Large Grocery (>20 ee's)
Child (under age 5)	Shopped at the End of the Month	No. of Convenience Stores
HH Size	Monthly Shopping Frequency	No. of Mass Merchandisers
HH Size^2	Average Monthly Expenditure	
Years of Education	Farmers Market Shopper	
Rural		
Participate in Govt. Subsidy Program		
Number of Barriers Cited		

Estimate 2 models: OLS and Tobit (lower bound 0; upper bound 100)



HMBI - 6 Products (milk, beef, bread, apples, cabbage, broccoli)

	<u>Full</u>	<u>NO Barr Price</u>	<u>Price Barrier</u>	<u>No Prog Part</u>	<u>Progr Part</u>
<b><u>Demographics</u></b>					
<i>Gender (Fem=1)</i>	7.28*** (1.66)	10.36*** (2.11)	2.69 (2.75)	7.33*** (2.24)	7.62*** (2.48)
<i>Age</i>	0.32*** (0.06)	0.29*** (0.07)	0.35*** (0.09)	0.26*** (0.08)	0.42*** (0.08)
<i>Child (&lt; 5)</i>	2.21** (1.05)	2.28 (1.41)	2.00 (1.61)	2.36 (1.87)	1.72 (1.28)
<i>Education</i>	1.29*** (0.33)	1.48*** (0.42)	1.05** (0.51)	1.94*** (0.45)	0.47 (0.48)
<i>Rural</i>	1.36 (2.19)	-2.21 (2.87)	7.78** (3.46)	2.94 (2.87)	0.13 (3.41)
<i>Part in Govt.Prog</i>	-1.60 (1.71)	-4.08* (2.26)	2.59 (2.69)		
<i>N of Barriers</i>	-1.22 (0.90)			-2.37* (1.27)	0.68 (1.28)
<b><u>Shopping Habits</u></b>					
<i>SNAP Period</i>	-3.49** (1.75)	-3.25 (2.31)	-5.29* (2.76)	-7.63*** (2.47)	1.39 (2.47)
<i>End of the Month</i>	-1.24 (2.25)	-1.39 (2.92)	-2.49 (3.60)	-7.87*** (3.02)	7.69** (3.37)
<i>FMs Shopper</i>	1.00** (0.50)	1.12* (0.63)	0.98 (0.86)	0.79 (0.71)	0.94 (0.72)
<b><u>Food Environment</u></b>					
<i>Small Groc</i>	0.31*** (0.09)	0.30*** (0.11)	0.36*** (0.14)	0.39*** (0.12)	0.17 (0.14)
<i>Large Groc</i>	0.37 (0.44)	0.47 (0.58)	0.41 (0.68)	0.16 (0.65)	0.51 (0.59)
<i>Conv</i>	-0.97*** (0.25)	-0.77** (0.32)	-1.25*** (0.39)	-0.31 (0.37)	-1.44*** (0.35)
<i>Mass Merch</i>	-0.06 (2.83)	-1.37 (3.66)	3.07 (4.48)	4.63 (3.93)	-5.01 (4.08)
<i>Constant</i>	27.62*** (6.71)	26.80*** (8.72)	28.75*** (10.55)	25.13*** (9.42)	27.81*** (9.01)
<i>N</i>	1365	798	567	703	662
<i>R2</i>	0.09	0.11	0.10	0.12	0.09

HMBI - 6 Products (milk, beef, bread, apples, cabbage, broccoli)

	<u>Full</u>	<u>NO Barr Price</u>	<u>Price Barrier</u>	<u>No Prog Part</u>	<u>Progr Part</u>
<b><u>Demographics</u></b>					
<i>Gender (Fem=1)</i>	7.28*** (1.66)	10.36*** (2.11)	2.69 (2.75)	7.33*** (2.24)	7.62*** (2.48)
<i>Age</i>	0.32*** (0.06)	0.29*** (0.07)	0.35*** (0.09)	0.26*** (0.08)	0.42*** (0.08)
<i>Child (&lt; 5)</i>	2.21** (1.05)	2.28 (1.41)	2.00 (1.61)	2.36 (1.87)	1.72 (1.28)
<i>Education</i>	1.29*** (0.33)	1.48*** (0.42)	1.05** (0.51)	1.94*** (0.45)	0.47 (0.48)
<i>Rural</i>	1.36 (2.19)	-2.21 (2.87)	7.78** (3.46)	2.94 (2.87)	0.13 (3.41)
<i>Part in Govt.Prog</i>	-1.60 (1.71)	-4.08* (2.26)	2.59 (2.69)		
<i>N of Barriers</i>	-1.22 (0.90)			-2.37* (1.27)	0.68 (1.28)

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HMBI - 6 Products (milk, beef, bread, apples, cabbage, broccoli)

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	<u>Full</u>	<u>NO Barr Price</u>	<u>Price Barrier</u>	<u>No Prog Part</u>	<u>Progr Part</u>
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**Shopping Habits**

<i>SNAP Period</i>	-3.49** (1.75)	-3.25 (2.31)	-5.29* (2.76)	-7.63*** (2.47)	1.39 (2.47)
<i>End of the Month</i>	-1.24 (2.25)	-1.39 (2.92)	-2.49 (3.60)	-7.87*** (3.02)	7.69** (3.37)
<i>FMs Shopper</i>	1.00** (0.50)	1.12* (0.63)	0.98 (0.86)	0.79 (0.71)	0.94 (0.72)

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HMBI - 6 Products (milk, beef, bread, apples, cabbage, broccoli)

	<u>Full</u>	<u>NO Barr Price</u>	<u>Price Barrier</u>	<u>No Prog Part</u>	<u>Progr Part</u>
<b><u>Food Environment</u></b>					
<i>Small Groc</i>	0.31*** (0.09)	0.30*** (0.11)	0.36*** (0.14)	0.39*** (0.12)	0.17 (0.14)
<i>Large Groc</i>	0.37 (0.44)	0.47 (0.58)	0.41 (0.68)	0.16 (0.65)	0.51 (0.59)
<i>Conv</i>	-0.97*** (0.25)	-0.77** (0.32)	-1.25*** (0.39)	-0.31 (0.37)	-1.44*** (0.35)
<i>Mass Merch</i>	-0.06 (2.83)	-1.37 (3.66)	3.07 (4.48)	4.63 (3.93)	-5.01 (4.08)
<i>Constant</i>	27.62*** (6.71)	26.80*** (8.72)	28.75*** (10.55)	25.13*** (9.42)	27.81*** (9.01)
<i>N</i>	1365	798	567	703	662
<i>R2</i>	0.09	0.11	0.10	0.12	0.09



HMBI - 3 Products (milk, beef, bread, apples, cabbage, broccoli)

	<u>Full</u>	<u>NO Barr Price</u>	<u>Price Barrier</u>	<u>No Prog Part</u>	<u>Progr Part</u>
<b><u>Demographics</u></b>					
<i>Gender (Fem=1)</i>	5.50** (2.14)	6.23** (2.77)	4.51 (3.46)	4.89* (2.97)	7.20** (3.12)
<i>Age</i>	0.26*** (0.07)	0.19** (0.09)	0.35*** (0.11)	0.17* (0.10)	0.39*** (0.10)
<i>Child (&lt; 5)</i>	2.35* (1.35)	2.75 (1.85)	1.68 (2.02)	1.98 (2.48)	2.13 (1.60)
<i>Education</i>	1.17*** (0.42)	1.05* (0.56)	1.33** (0.64)	1.56*** (0.59)	0.66 (0.60)
<i>Rural</i>	5.06* (2.81)	3.77 (3.77)	8.57** (4.34)	8.81** (3.80)	0.63 (4.28)
<i>Part in Govt.Prog</i>	-4.23* (2.21)	-5.92** (2.97)	-1.42 (3.38)		
<i>N of Barriers</i>	-1.75 (1.16)			-3.34** (1.68)	0.53 (1.61)
<b><u>Shopping Habits</u></b>					
<i>SNAP Period</i>	-2.52 (2.25)	-1.55 (3.04)	-4.13 (3.47)	-5.62* (3.27)	0.74 (3.10)
<i>End of the Month</i>	0.13 (2.89)	-0.14 (3.84)	-0.78 (4.53)	-5.64 (4.00)	8.00* (4.24)
<i>FMs Shopper</i>	1.69*** (0.65)	2.12** (0.82)	1.12 (1.09)	2.12** (0.94)	0.96 (0.90)
<b><u>Food Environment</u></b>					
<i>Small Groc</i>	0.34*** (0.11)	0.23 (0.15)	0.49*** (0.17)	0.49*** (0.15)	0.07 (0.17)
<i>Large Groc</i>	0.57 (0.56)	0.93 (0.77)	0.43 (0.85)	0.47 (0.86)	0.54 (0.74)
<i>Conv</i>	-1.45*** (0.32)	-1.05** (0.43)	-2.02*** (0.50)	-0.91* (0.49)	-1.71*** (0.44)
<i>Mass Merch</i>	-4.46 (3.64)	-8.54* (4.82)	1.92 (5.63)	-4.09 (5.20)	-4.41 (5.12)
<i>Constant</i>	18.84** (8.63)	24.10** (11.47)	8.70 (13.27)	18.03 (12.49)	14.68 (11.32)
<i>N</i>	1365	798	567	703	662
<i>R2</i>	0.07	0.06	0.10	0.10	0.07

HMBI - 3 Products (milk, beef, bread, apples, cabbage, broccoli)

	<u>Full</u>	<u>NO Barr Price</u>	<u>Price Barrier</u>	<u>No Prog Part</u>	<u>Progr Part</u>
<b><u>Demographics</u></b>					
<i>Gender (Fem=1)</i>	5.50** (2.14)	6.23** (2.77)	4.51 (3.46)	4.89* (2.97)	7.20** (3.12)
<i>Age</i>	0.26*** (0.07)	0.19** (0.09)	0.35*** (0.11)	0.17* (0.10)	0.39*** (0.10)
<i>Child (&lt; 5)</i>	2.35* (1.35)	2.75 (1.85)	1.68 (2.02)	1.98 (2.48)	2.13 (1.60)
<i>Education</i>	1.17*** (0.42)	1.05* (0.56)	1.33** (0.64)	1.56*** (0.59)	0.66 (0.60)
<i>Rural</i>	5.06* (2.81)	3.77 (3.77)	8.57** (4.34)	8.81** (3.80)	0.63 (4.28)
<i>Part in Govt.Prog</i>	-4.23* (2.21)	-5.92** (2.97)	-1.42 (3.38)		
<i>N of Barriers</i>	-1.75 (1.16)			-3.34** (1.68)	0.53 (1.61)

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HMBI - 3 Products (milk, beef, bread, apples, cabbage, broccoli)

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Full

NO Barr Price

Price Barrier

No Progr Part

Progr Part

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**Shopping Habits**

*SNAP Period*

	-2.52	-1.55	-4.13	-5.62*	0.74
	(2.25)	(3.04)	(3.47)	(3.27)	(3.10)

*End of the Month*

	0.13	-0.14	-0.78	-5.64	8.00*
	(2.89)	(3.84)	(4.53)	(4.00)	(4.24)

*FMs Shopper*

	1.69***	2.12**	1.12	2.12**	0.96
	(0.65)	(0.82)	(1.09)	(0.94)	(0.90)

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HMBI - 3 Products (milk, beef, bread, apples, cabbage, broccoli)

Full                      NO Barr Price                      Price Barrier                      No Prog Part                      Progr Part

**Food Environment**

<i>Small Groc</i>	0.34*** (0.11)	0.23 (0.15)	0.49*** (0.17)	0.49*** (0.15)	0.07 (0.17)
<i>Large Groc</i>	0.57 (0.56)	0.93 (0.77)	0.43 (0.85)	0.47 (0.86)	0.54 (0.74)
<i>Conv</i>	-1.45*** (0.32)	-1.05** (0.43)	-2.02*** (0.50)	-0.91* (0.49)	-1.71*** (0.44)
<i>Mass Merch</i>	-4.46 (3.64)	-8.54* (4.82)	1.92 (5.63)	-4.09 (5.20)	-4.41 (5.12)
<i>Constant</i>	18.84** (8.63)	24.10** (11.47)	8.70 (13.27)	18.03 (12.49)	14.68 (11.32)
<i>N</i>	1365	798	567	703	662
<i>R2</i>	0.07	0.06	0.10	0.10	0.07

# Discussion

- Higher HMBI shares are attributed to older, educated women (however sample selection may exist); presence of children only limited effect on HMBI.
- Frequenting farmers market seems related to higher HMBIs
- Perceived barriers to acquire healthy food is related to lower HMBI only for shoppers who do not participate in assistance programs
- The food environment plays an important role:
  - Presence of small grocery stores (convenience stores) has a consistently positive (negative) effect on HMBI scores
  - Some (limited) evidence that mass merchandisers and HMBI3 are inversely correlated.

# Limitations

- 🛒 Dataset incomplete - more surveys still coming in
- 🛒 Sample selection bias may be present
- 🛒 Only 6 (3) food products considered – HMBI rough proxy for healthy eating
- 🛒 The dependent variable is a proportion, however logistic transformation not possible – categorical estimation more appropriate?
- 🛒 Measures of the actual food environment captures only presence of stores, not assortment, proximity etc...

Thank you!  
Questions and feedback are welcome

[lec201@psu.edu](mailto:lec201@psu.edu)



HMBI - 6 Products (milk, beef, bread, apples, cabbage, broccoli)

	<u>Full</u>		<u>NO Barr Price</u>		<u>Price Barrier</u>		<u>No Prog Part</u>		<u>Progr Part</u>	
	OLS	Tobit	OLS	Tobit	OLS	Tobit	OLS	Tobit	OLS	Tobit
<b><u>Demographics</u></b>										
<i>Gender (Fem=1)</i>	7.28*** (1.66)	7.46*** (1.81)	10.36*** (2.11)	10.61*** (2.33)	2.69 (2.75)	2.82 (2.94)	7.33*** (2.24)	7.59*** (2.43)	7.62*** (2.48)	7.80*** (2.66)
<i>Age</i>	0.32*** (0.06)	0.32*** (0.06)	0.29*** (0.07)	0.29*** (0.08)	0.35*** (0.09)	0.35*** (0.10)	0.26*** (0.08)	0.25*** (0.09)	0.42*** (0.08)	0.46*** (0.09)
<i>Child (&lt; 5)</i>	2.21** (1.05)	2.19** (1.03)	2.28 (1.41)	2.23 (1.49)	2.00 (1.61)	1.88 (1.47)	2.36 (1.87)	1.74 (1.82)	1.72 (1.28)	1.74 (1.27)
<i>Education</i>	1.29*** (0.33)	1.55*** (0.39)	1.48*** (0.42)	1.79*** (0.51)	1.05** (0.51)	1.28** (0.62)	1.94*** (0.45)	2.26*** (0.54)	0.47 (0.48)	0.63 (0.55)
<i>Rural</i>	1.36 (2.19)	1.54 (2.35)	-2.21 (2.87)	-2.08 (3.09)	7.78** (3.46)	8.16** (3.61)	2.94 (2.87)	3.43 (3.12)	0.13 (3.41)	-0.27 (3.54)
<i>Part in Govt.Prog</i>	-1.60 (1.71)	-2.10 (1.87)	-4.08* (2.26)	-4.46* (2.38)	2.59 (2.69)	2.15 (3.02)				
<i>N of Barriers</i>	-1.22 (0.90)	-1.53 (0.94)					-2.37* (1.27)	-2.73** (1.36)	0.68 (1.28)	0.53 (1.22)
<b><u>Shopping Habits</u></b>										
<i>SNAP Period</i>	-3.49** (1.75)	-4.41** (1.91)	-3.25 (2.31)	-3.79 (2.53)	-5.29* (2.76)	-6.69** (2.97)	-7.63*** (2.47)	-9.10*** (2.70)	1.39 (2.47)	1.22 (2.69)
<i>End of the Month</i>	-1.24 (2.25)	-1.45 (2.45)	-1.39 (2.92)	-1.98 (3.08)	-2.49 (3.60)	-2.11 (4.19)	-7.87*** (3.02)	-8.92*** (3.28)	7.69** (3.37)	8.98** (3.59)
<i>FMs Shopper</i>	1.00** (0.50)	1.11*** (0.42)	1.12* (0.63)	1.17** (0.56)	0.98 (0.86)	1.17* (0.67)	0.79 (0.71)	1.01** (0.51)	0.94 (0.72)	0.97 (0.70)
<b><u>Food Environment</u></b>										
<i>Small Groc</i>	0.31*** (0.09)	0.38*** (0.11)	0.30*** (0.11)	0.36** (0.14)	0.36*** (0.14)	0.44*** (0.17)	0.39*** (0.12)	0.46*** (0.14)	0.17 (0.14)	0.22 (0.17)
<i>Large Groc</i>	0.37 (0.44)	0.27 (0.44)	0.47 (0.58)	0.44 (0.57)	0.41 (0.68)	0.22 (0.74)	0.16 (0.65)	-0.04 (0.65)	0.51 (0.59)	0.46 (0.61)
<i>Conv</i>	-0.97*** (0.25)	-0.99*** (0.27)	-0.77** (0.32)	-0.81** (0.35)	-1.25*** (0.39)	-1.26*** (0.44)	-0.31 (0.37)	-0.33 (0.39)	-1.44*** (0.35)	-1.52*** (0.38)
<i>Mass Merch</i>	-0.06 (2.83)	-0.09 (3.12)	-1.37 (3.66)	-1.48 (3.79)	3.07 (4.48)	3.38 (5.47)	4.63 (3.93)	5.31 (4.37)	-5.01 (4.08)	-5.43 (4.17)
<i>Constant</i>	27.62*** (6.71)		26.80*** (8.72)		28.75*** (10.55)		25.13*** (9.42)		27.81*** (9.01)	
<i>N</i>	1365	1365	798	798	567	567	703	703	662	662
<i>R2</i>	0.09		0.11		0.10		0.12		0.09	



HMBI - 3 Products (milk, beef, bread, apples, cabbage, broccoli)

	<u>Full</u>		<u>NO Barr Price</u>		<u>Price Barrier</u>		<u>No Prog Part</u>		<u>Progr Part</u>	
	OLS	Tobit	OLS	Tobit	OLS	Tobit	OLS	Tobit	OLS	Tobit
<b><u>Demographics</u></b>										
<i>Gender (Fem=1)</i>	5.50** (2.14)	6.15*** (2.35)	6.23** (2.77)	6.96** (3.03)	4.51 (3.46)	5.03 (3.84)	4.89* (2.97)	5.27 (3.22)	7.20** (3.12)	8.52** (3.44)
<i>Age</i>	0.26*** (0.07)	0.29*** (0.08)	0.19** (0.09)	0.20* (0.10)	0.35*** (0.11)	0.41*** (0.13)	0.17* (0.10)	0.19* (0.11)	0.39*** (0.10)	0.43*** (0.11)
<i>Child (&lt; 5)</i>	2.35* (1.35)	2.39* (1.41)	2.75 (1.85)	2.64 (2.04)	1.68 (2.02)	1.91 (1.89)	1.98 (2.48)	1.80 (2.65)	2.13 (1.60)	2.01 (1.66)
<i>Education</i>	1.17*** (0.42)	1.18** (0.48)	1.05* (0.56)	1.03 (0.66)	1.33** (0.64)	1.39* (0.72)	1.56*** (0.59)	1.51** (0.70)	0.66 (0.60)	0.69 (0.65)
<i>Rural</i>	5.06* (2.81)	4.72 (3.07)	3.77 (3.77)	3.25 (4.08)	8.57** (4.34)	8.60* (4.75)	8.81** (3.80)	8.67** (4.14)	0.63 (4.28)	-0.49 (4.61)
<i>Part in Govt.Prog</i>	-4.23* (2.21)	-4.60* (2.36)	-5.92** (2.97)	-6.86** (3.10)	-1.42 (3.38)	-1.06 (3.75)				
<i>N of Barriers</i>	-1.75 (1.16)	-2.17* (1.29)					-3.34** (1.68)	-4.35** (1.89)	0.53 (1.61)	0.64 (1.67)
<b><u>Shopping Habits</u></b>										
<i>SNAP Period</i>	-2.52 (2.25)	-2.89 (2.44)	-1.55 (3.04)	-2.22 (3.30)	-4.13 (3.47)	-4.17 (3.77)	-5.62* (3.27)	-6.77* (3.56)	0.74 (3.10)	1.21 (3.32)
<i>End of the Month</i>	0.13 (2.89)	0.32 (3.16)	-0.14 (3.84)	0.13 (4.00)	-0.78 (4.53)	-0.88 (5.33)	-5.64 (4.00)	-6.01 (4.28)	8.00* (4.24)	9.01* (4.62)
<i>FMs Shopper</i>	1.69*** (0.65)	1.53** (0.61)	2.12** (0.82)	2.03** (0.83)	1.12 (1.09)	0.88 (0.97)	2.12** (0.94)	2.11*** (0.78)	0.96 (0.90)	0.67 (0.92)
<b><u>Food Environment</u></b>										
<i>Small Groc</i>	0.34*** (0.11)	0.36*** (0.14)	0.23 (0.15)	0.25 (0.19)	0.49*** (0.17)	0.51*** (0.20)	0.49*** (0.15)	0.54*** (0.18)	0.07 (0.17)	0.04 (0.22)
<i>Large Groc</i>	0.57 (0.56)	0.71 (0.59)	0.93 (0.77)	1.00 (0.78)	0.43 (0.85)	0.75 (0.95)	0.47 (0.86)	0.43 (0.87)	0.54 (0.74)	0.72 (0.79)
<i>Conv</i>	-1.45*** (0.32)	-1.61*** (0.36)	-1.05** (0.43)	-1.19** (0.47)	-2.02*** (0.50)	-2.25*** (0.56)	-0.91* (0.49)	-0.96* (0.54)	-1.71*** (0.44)	-1.95*** (0.50)
<i>Mass Merch</i>	-4.46 (3.64)	-4.94 (4.31)	-8.54* (4.82)	-9.17* (5.34)	1.92 (5.63)	1.81 (7.05)	-4.09 (5.20)	-4.06 (6.35)	-4.41 (5.12)	-5.17 (5.92)
<i>Constant</i>	18.84** (8.63)		24.10** (11.47)		8.70 (13.27)		18.03 (12.49)		14.68 (11.32)	
<i>N</i>	1365	1365	798	798	567	567	703	703	662	662
<i>R2</i>	0.07		0.06		0.10		0.10		0.07	