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# Perceived Barriers to Purchasing Healthy Foods vs. Access in Underserved Areas across the Northeast



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## Introduction

- In the U.S., many households are unable to meet their dietary needs for leading an active and healthy lifestyle (USDA, 2010).
- Research assessing community-level constraints on accessing healthy and nutritious food for low-income and disadvantaged populations is plentiful.
- Disparities in healthy eating and access to food (or food stores) has become a largely investigated topic:
  - Caspi *et al.* (2012): Perceived supermarket access is related to fruits and vegetables consumption in low/income individuals more than distance to supermarkets/actual access.
  - Hatzenbuehler *et al.* (2012): Residents in low-income and rural areas have disincentives to purchase healthy food because of the spatial organization of their local food market.
  - Hilmers, Hilmers and Dave (2012): Limited access to supermarkets and grocery stores in low-income neighborhoods may represent a significant barrier to the consumption of healthy foods.
- Little research has been done that directly assesses the discrepancies between actual access to food (or food stores) and consumers' perception of barriers to healthy eating.
  - Time and taste factors, as well as financial considerations, most frequently cited barriers to healthy eating (Eikenberry and Smith, 2004; Kearney and McElhone, 1999).
  - The improvement of a community's retail food infrastructure may not lead to changes in food purchasing and consumption patterns; Intervention only moderately improved residents' perceptions of food access (Cummins, Flint and Matthews, 2014).

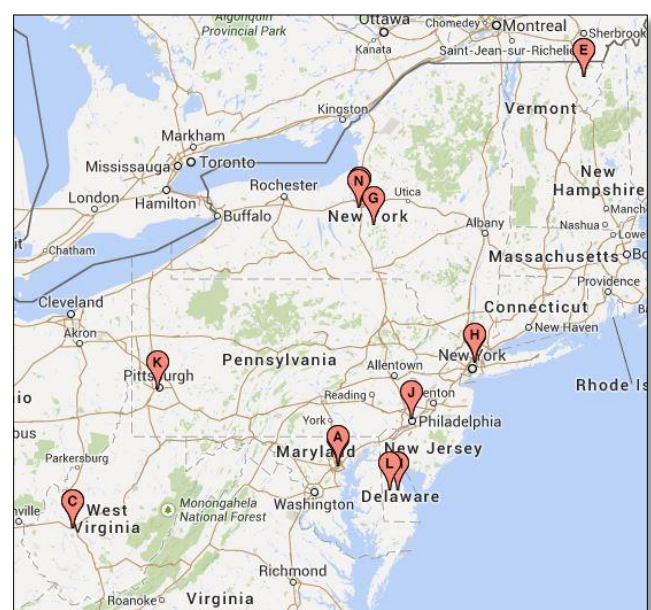
## Research Goals and Objectives

- This research seeks to understand how low-income individuals' perceived barriers in acquiring healthy foods are impacted by
  - Overall perception of the food available to them,
  - Their shopping habits,
  - Their individual characteristics, and
  - Their surrounding food environment



## Data Collection: The Intercept Survey

- Ten-minute survey administered to shoppers upon exiting 15 stores in nine locations:

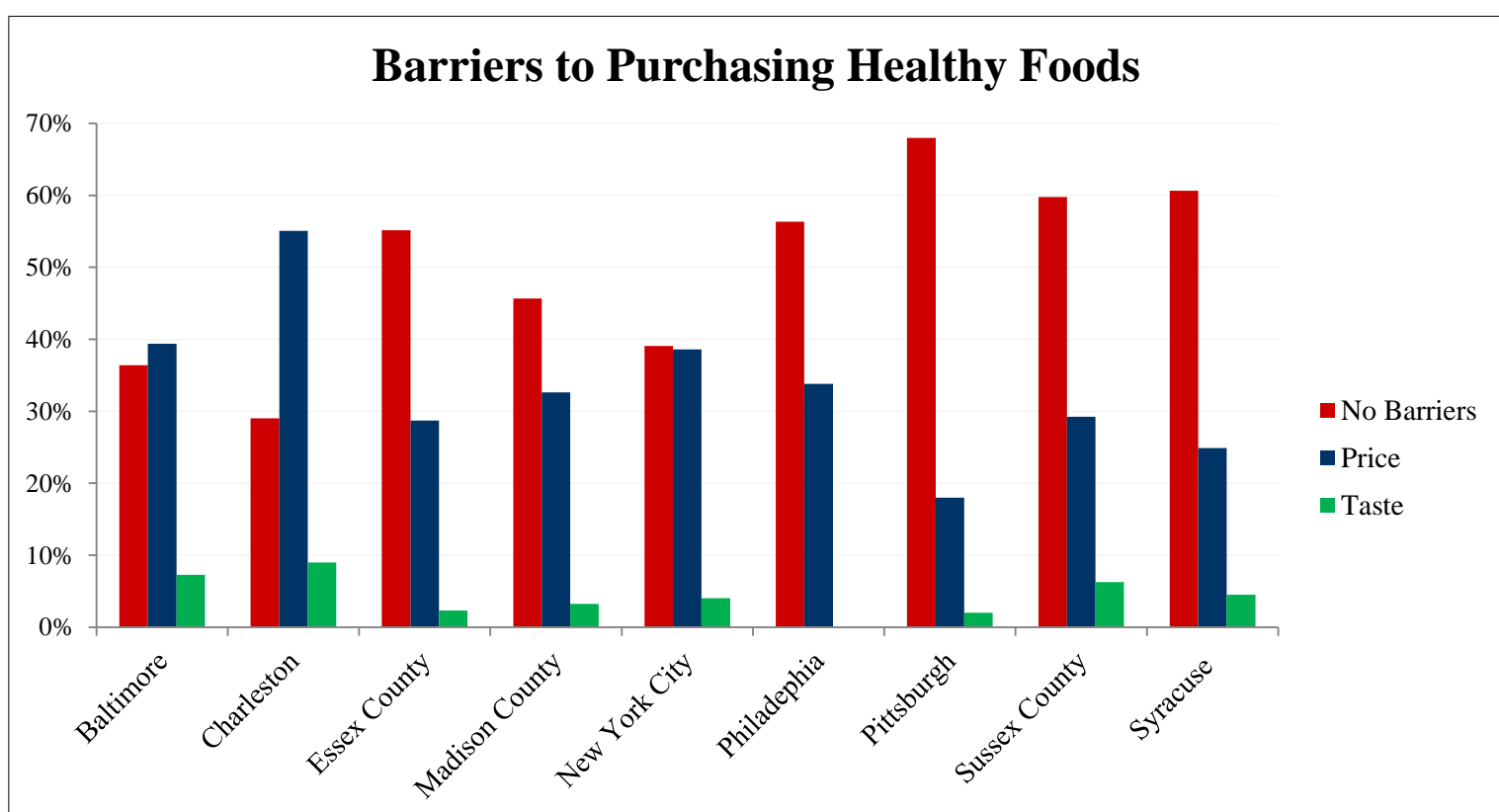


Baltimore	(MD)
Charleston	(WV)
Essex County	(VT)
Madison County	(NY)
New York City	(NY)
Pittsburgh	(PA)
Philadelphia	(PA)
Sussex County	(DE)
Syracuse	(NY)

- Conducted in two waves:
  - November 2012 – April 2013 (N=902)
  - November 2013 – March 2014 (N=925)
- Information collected:
  - Satisfaction of food in neighborhood: quality, variety, price
  - Barriers to purchasing healthy food
  - Expenditure per shopping trip
  - Purchasing habits of different food items: milk, ground beef, bread, fruits, and vegetables
  - Demographics: age, gender, household size, education level (second wave only), participation in food assistance programs, respondents who shop at farmers markets

## Survey Results

	Average Age	Shopping Frequency (trips/week)	No. People Being Shopped For	% HHs with Children (under 5)	% Program Participants	% Who Shop at Farmers Markets
Baltimore	49.7	2.5	3.5	37.2	60.5	54.4
Charleston	50.0	2.1	3.3	37.4	47.4	43.4
Essex County	53.3	2.7	2.4	11.5	31.4	64.4
Madison County	53.6	2.1	3.2	28.3	18.9	73.3
New York City	50.8	2.2	2.5	24.7	26.1	59.4
Philadelphia	42.8	3.1	3.5	40.8	61.4	44.6
Pittsburgh	44.6	1.8	2.8	34.0	38.0	56.0
Sussex County	61.0	2.3	3.3	29.5	35.8	56.8
Syracuse	51.3	2.3	3.2	41.4	55.5	55.5



## Food Environment Data and Econometric Model

- Data on the food environments comes from zip code-level County Business Patterns of the U.S. Bureau of Labor Statistics
  - NAICS 445110: Grocery Stores
  - NAICS 445120: Convenience Stores
  - NAICS 452910: Supercenters and Mass Merchandisers

- Re-classification of grocery stores:

Medium/Large Grocery Stores	NAICS 445120	>20 employees
Small Grocery Store	NAICS 445120	<20 employees

- Econometric Model (Probit estimator):

$$\Pr(B_{ij}^k = 1 | X_{ij}, SFA_{ij}, SH_{ij}, FE_j, D_{ij}; \theta) = \Phi(Z'\theta)$$

$B_{ij}^k$  indicator variable capturing whether respondent  $i$ , in zip code  $j$  declared to observe the  $k$ -th perceived barrier to purchasing healthy foods

$X_{ij}$  covariates capturing respondent  $i$ 's characteristics (gender, age, age squared, etc.)

$SFA_{ij}$  vector capturing satisfaction with quality of food available  $SH_{ij}$  shopping habits

$FE_j$  measures of the food environment in zip code  $j$

$D_{ij}$  other control variables

$\theta$  is a vector of coefficients

$\Phi(\cdot)$  is the standard normal CDF

## Econometrics Results

	Barrier		
	Price	Unavailable	None
<b>Perceptions</b>			
Variety	-0.023 (0.065)	0.202** (0.081)	0.028 (0.065)
Quality	0.091 (0.071)	0.311*** (0.088)	-0.259*** (0.071)
Price	0.174*** (0.045)	0.056 (0.060)	-0.153*** (0.045)
<b>Demographics</b>			
Gender	0.028 (0.022)	-0.059** (0.024)	0.053** (0.022)
Age	0.035*** (0.012)	0.013 (0.017)	0.005** (0.002)
Child (under 5)	-0.063* (0.036)	-0.040 (0.043)	0.050 (0.036)
Rural	-0.288*** (0.104)	0.261* (0.142)	0.244** (0.101)
<b>Shopping Habits</b>			
SNAP-eligible day	-0.152* (0.078)	-0.015 (0.107)	0.121 (0.076)
Farmers market shopper	-0.047* (0.025)	0.074* (0.043)	0.026 (0.025)
Expenditure (monthly)	-0.021* (0.012)	-0.003 (0.016)	0.015 (0.011)
<b>Food Environment</b>			
Small grocery	-0.003 (0.004)	0.010** (0.005)	-0.003 (0.004)
Large grocery	0.090*** (0.021)	-0.031 (0.031)	-0.078*** (0.021)
Convenience store	-0.045*** (0.014)	0.0200 (0.019)	0.032** (0.014)
Mass merchandiser	-0.049 (0.133)	-0.255 (0.208)	0.036 (0.128)
Constant	-1.867*** (0.396)	-1.955*** (0.504)	0.593** (0.296)

Standard errors in parentheses  
\*p<0.10, \*\*p<0.05, \*\*\*p<0.01  
Note: Results shown are a subset of full regression. Please consult authors for complete results.

## Discussion

- The results indicate that the presence of large grocery stores is more likely to impact whether a respondent declares price as a barrier to purchasing healthy foods.
- Respondents who are dissatisfied with the perceived prices in their neighborhoods are more likely to indicate that price is a barrier to purchasing healthy foods.
- The results suggest that respondents who shop at farmers markets are less likely to indicate that price is a barrier.
- Respondents residing in rural communities are more likely to indicate that they do not face barriers to purchasing healthy foods.

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## Enhancing Food Security in the Northeast

The “Enhancing the Food Security in the Northeast U.S. through Regional Food Systems” (EFSNE) project is part of NIFA’s Global Food Security Program. Beginning in 2010, it combines researchers’ expertise from several universities and disciplines to investigate whether a regional food supply chain can provide “healthy” and affordable foods to low-income consumers in the Northeast.

One of the project’s objectives is to assess current and potential community-level constraints and opportunities for improving access to regionally-produced food for people in urban and rural disadvantaged communities. The goal for this portion of the project is to understand the barriers and obstacles households in disadvantaged communities face when purchasing healthy foods.

For more info visit <http://agsci.psu.edu/research/food-security>

