



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Health Motivation for Purchasing Local Foods in the Southeastern United States

Sudha Thapaliya¹, Matthew G. Interis², Alba J. Collart³, Lurleen Walters⁴, Kimberly L. Morgan⁵

¹Graduate student in the Department of Agricultural Economics, Mississippi State University,
319 N. Jackson St. Apt. 2F
980-875-8199
st1026@msstate.edu

²Assistant Professor in the Department of Agricultural Economics, Mississippi State University,
662-325-4787
m.interis@msstate.edu

³Assistant Extension Professor in the Department of Agricultural Economics, Mississippi State
University,
662-325-0413
ac2479@msstate.edu

⁴Assistant Professor in the Department of Agricultural Economics, Mississippi State University,
662-325-2883
lurleen.walters@msstate.edu

⁵Assistant Professor and Kohl Junior Faculty Fellow in the Department of Agricultural and
Applied Economics, Virginia Tech
540-231-3132
klmorgan@vt.edu

*Selected Paper prepared for presentation at the Southern Agricultural Economics Association's
2015 Annual Meeting, Atlanta, Georgia, January 31-February 3, 2015*

Copyright 2015 by the authors. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.

Abstract

Health concerns seem to influence consumers' decisions for purchasing local foods. Maples et al. (2013), Onozaka, Nurse, and Thilmany McFadden (2010), and Wolf, Apitler, and Ahern (2005) found that health motivation can be a significant driver of local foods purchase, yet it remains unclear what specific health aspects determine consumer purchase decisions. For example, consumers with a delicate health history might be trying to fend off disease. In this study, we explore the effects of specific health variables (family illness incidences focusing six particular diseases such as heart disease, diabetes, obesity, back/joint pain, Alzheimer/dementia and cancer,) on buying behavior of local foods. We examine the decisions of whether to visit farmer's markets, visit farm stands, and participate in community-supported agriculture (CSA) using a binary probit model. Results indicate that cancer and obesity are statistically significant to purchase local foods. Other important factors include greater physical activity level, following special diet and availability of farmers' markets. Findings might help local food sellers in the Southeastern United States gain a deeper understanding of how consumers' health background and health concerns affect their choice of local food outlets.

Introduction

Health motivation is a major driver of consumers' food purchasing decisions (e.g., FMI Research & Prevention-Rodale, 2013; Chen et al., 2002; Nayga, Lipinski, and Savur, 1998). Consumers have become more health and nutrition conscious over time (Darian and Tucci, 2011) as they are seeking information on production practices and production locations in order to obtain higher quality products (Onozaka and McFadden, 2011). This increasing concern for health might be because of rising prevalence of food-related chronic diseases such as diabetes, obesity, heart disease, cancer etc. among consumers (McFadden and Low, 2012; Darian and Tucci, 2011; Meyerhoefer and Leibtag, 2010).

Health motivation also seems to affect the decision to purchase local food specifically. Zepeda and Leviten-Reid (2004) state that people perceive that local foods have direct benefits to their personal health. Similar belief is found in other studies (Maples et al., 2013; Onozaka, Nurse, and Thilmany McFadden, 2010; Wolf, Apitler, and Ahern, 2005), which showed that health concern is indeed one of the important reasons for consuming local foods.

Some studies have examined the effect of health concern on consumer food purchases. Darian and Tucci (2011) studied consumers' preferences for different health-enhancing food attributes such as reducing the risk of heart disease, reducing the risk of arthritis, reducing the risk of cancer, helping with weight control and nutritional value. Their results showed that high nutritional value plays a vital role to influence consumers' purchase intentions followed by the potential to reduce cancer. Real assurance of reducing the risk of heart disease was another important factor to influence consumers' decision for buying food.

Similarly, Nayga, Lipinski, and Savur, (1998) tried to investigate the factors that affect consumers' use of nutritional labels while food shopping, at home, and when comparing

nutrients for different brands of the same foods. They found that consumers who placed greater importance on nutrition & following dietary guidelines while shopping and those who are on a special diet are more likely to refer to nutritional labels. These characteristics make essential variables to be examined.

Other studies have investigated motivations and perceptions behind local food purchases explicitly. Zepeda and Li (2006) mentioned that consumers often give health and nutrition as reasons for buying local foods. Govindasamy, Italia, and Liptak (1997) pointed out consumers ranked (among other attributes) health value, and absence of pesticides as most important product attributes for local food. Similarly, studies have included attributes such as perceived safety and quality of locally produced foods (Thilmany, Bond, and Bond, 2008), considered nutritious and healthy products (Schneider and Francis, 2005) as health variables to rate level of importance of consumers' for those attributes and found that they are often rated as important factors for local food purchase.

Existing studies show that health motivation can be a significant driver of local foods purchase, yet it still remains unclear what specific health aspects determine consumer purchase decisions. For example, consumers with a delicate health history might be trying to fend off diseases. The only closely related paper, to our knowledge, that addresses family health history to study local food purchase decision is Maples et al. (2013), which includes diseases like cancer, heart disease, diabetes, and obesity of respondent and his/her family to investigate the incidences of illness. Their results revealed that impact of the disease incidences is significantly linked to increased likelihood of buying foods directly from producers, but did not mention which diseases are causing food shoppers to reach to that decision. Our study examines particular diseases like heart disease, diabetes, obesity, back/joint pain, Alzheimer/dementia and cancer, that a consumer

or his/her family members have and marginal effects of each disease on decision to buy from local outlets such as farmer's markets, farm stands, and community supported agriculture (CSA). As already mentioned, Darian and Tucci (2011) found that the potential to reduce cancer and heart disease are important factors to influence consumers' food purchasing intentions. However, we do not know whether these results are true for local food shoppers as well. We are interested to find it out through our study. Therefore, we incorporate these attributes and test whether same result holds for local foods purchase. Following special diet has been studied as an important variable for local food purchase (Zepeda and Li, 2006) and found significant for using nutritional labels while food shopping (Nayga, Lipinski, and Savur, 1998). Nevertheless, the reason for following special diet has not been studied. Our study incorporates this part explaining clearly whether special diet is to treat illness or for other reasons. Also, we extend this result beyond foods in general (for eg. Nayga, Lipinski, and Savur, 1998) to local foods in particular and explore whether consumers are influenced by similar factors when buying local foods.

Additionally, other specific health factors (lifestyle changes for health reasons, food safety concern, physical activity level, importance of; travel distance of foods, fertilizer, and pesticide residue on foods) are also explored that motivate local food purchase decisions. This how we attempt to uncover all these unanswered questions in literature, breaking down health motivation into components of health variables and studying in depth how these health variables affect the choice of purchasing from local foods. This paper uses the term 'local foods' for the foods purchased from farmers' markets or farm stands or from CSAs.

A particular focus is on whether Southeastern consumers buy foods at farmers' markets or farm stands or whether they were members of a CSA using a binary probit model.

The results of this research are based on an online survey of primary household food shoppers from six Southeastern states such as Alabama, Florida, Georgia, Louisiana, Mississippi and Texas. Among the diseases, it is expected that those who have diseases like heart disease, diabetes, obesity, and cancer would be more likely to go to farmers' market or farm stands or be a member of CSA. Other health variables are also expected to positively influence local food purchases.

The results of this study are important for Southeastern local food growers/sellers gain a deeper understanding of how consumers' health background and health concerns affect their choice of local food outlets. This might help them secure and nurture their business increasing the number of consumers to buy their produce. Besides regular food shoppers, they could draw attention of health-concerned consumers to their business emphasizing on the health benefits of the foods they produce/sell. For example attributes like freshness, safe to eat, and opportunities for healthier food choices, could be stressed in marketing efforts. Thus, the findings are also useful for product marketers to better understand consumers' motivations and behavioral characteristics of health concerned consumer for local food purchase and to stress marketing efforts accordingly. Food market researchers or food industry leaders could also benefit from this study as it offers a broader set of literature establishing role of health variables on local food purchase decision.

Survey and Data

We use the data obtained from an online consumer survey on food buying which was conducted in August 2013 to examine the characteristics of Southeastern consumers who buy foods from local food outlets such as farmers' markets, farm stands, and CSAs. The six

Southeastern States considered in our study include Alabama, Florida, Georgia, Louisiana, Mississippi and Texas. Administered by Research Now, a market research company based in Plano, TX, we obtained a minimum sample of 300 respondents from each state. In total 4707 respondents completed the survey, which is a demographically representative sample (Table 1). Respondents were screened for adults who are primary food shoppers in those six states in the Southeast.

The dependent variable is dummy variable indicating whether or not respondent have bought foods at local food outlets (i.e. Farmers' market, Roadside or Farm stand or CSA membership) over the past six months.

In the survey, consumer respondents were asked if they or their family members (spouse, siblings, father, mother, children, and grandparents) have been treated for any health issues such as cancer, heart disease, diabetes, back/joint pain, Alzheimer's/dementia and obesity to elicit information on illness incidences. They were also asked if anyone in their household follows a special diet to treat illness or for other reasons. Other health related question included in the survey was whether they have made any changes (major, minor or no changes) in their lifestyle because of health reasons over the last 5 years. Answers to all these questions represent health variables that we include in the model as explanatory variables. Other explanatory variables include buying behavior, physical activity level, shopping and cooking frequency, travel habit, agricultural knowledge, agreement level, local foods accessibility, and demographic variables (gender, age, education, race, ethnicity, number of people in the household and income).

Buying behavioral questions included in our survey are consumers' concern for the average prices of fresh produce and for safety of fresh produce in and outside of the United States. Also, respondents were asked to categorize their physical activity level as less active

(walk less than 1.5 miles), active (1.5-3 miles of brisk walking), or more active (greater than 3 miles of brisk walking). They were asked to denote the number of times they go for food shopping per month and the number of meals prepared at home per week to know their shopping and cooking frequency. For travel habit, they were asked to indicate the average number of days per month spent on travel for work or pleasure. Agricultural knowledge of respondents was elicited through a true/false assessment (number of correct answers out of seven questions were used as the independent variable). Respondents were asked to indicate their agreement level to five statements¹ regarding the foods they purchase (3= agree, 2= neither agree nor disagree, 1= disagree). Local foods accessibility states whether there are farmers' markets, farm stands or CSAs near respondents' zip codes. Since we expect access to local food outlets might affect local food buying behavior, we include local food accessibility as one of the independent variable.

To know respondents' accessibility to local foods outlets, we tried to find out the number of farmers' markets, farm stands and CSAs within 5 miles, 10 miles and 15 miles of the respondent's zip code. For this, we used USDA'S National Local Foods Directory which gives number of farmers' markets by zip code. This website is updated in every 2 business days. Assuming it as a reliable source, we collected data on the number of farmers' market present within 5 miles and 10 miles of respondents' zip codes. This website however has no information of farm stands and CSAs. So we used Local Harvest, an organization which provides nationwide opportunity for CSAs and farm stands to register on their website, to collect data on CSAs and farm stands. From Local Harvest we obtained count of the number of CSAs and farm stands

¹ The five statements mentioned in the survey are as follows:

1. The number of miles that my tomatoes travel from where they're grown to where I buy them is important to me
2. The amount of water was used to grow a pound of tomatoes that I buy is important to me
3. The use of petroleum-based fertilizer to grow the tomatoes that I buy is important to me
4. The amount of pesticide residue on the tomatoes that I buy is important to me
5. The price per pound of tomatoes that I buy is important to me

present within 15 miles of respondents' zip codes. Using these sources, we develop an approximation of farmers' markets, farm stands and CSAs by state (Table 2).

Table 1. Selected Survey Respondent Demographics Compared with 2010 U.S. Census Bureau Data by State

	AL		FL		GA		LA		MS		TX	
	Sample	State	Sample	State	Sample	State	Sample	State	Sample	State	Sample	State
Population	301	4.77 million	1061	18.8 million	1327	9.68 million	302	4.53 million	300	2.96 million	1416	25.14 million
Percent female	56.8	51.5	52.87	51.5	55.38	51.2	51.32	51	52.33	51.4	47.03	50.4
Percent white	75.08	68.5	77.19	75	65.63	59.7	68.87	62.6	63.33	59.1	66.1	70.4
Age (median years)	52	37.9	50	40.7	49	35.3	49.5	35.8	48	36	46.5	33.6

Table 2. Count of Farmers' Market (FMs), Farm Stands (FSs) and CSAs by zip code

	AL	FL	GA	LA	MS	TX
FMs within 5 miles of respondents' zip codes (Avg.)	2	2	2	2	1	1
FMs within 10 miles of respondents' zip codes (Avg.)	4	5	6	4	2	4
FSs within 15 miles of respondents' zip codes (Avg.)	6	11	22	2	2	9
CSAs within 15 miles of respondents' zip codes (Avg.)	7	9	26	2	4	12

Theoretical Model

For binary choice model, random utility is generally used as the underlying framework. Since this paper studies consumers' discrete choice decisions, it uses a random utility framework (McFadden, 1974) in which rational consumers buy from local foods outlets (i.e. farmers' markets, farm stands, and CSAs) if and only if the utility they derive from buying at these outlets is greater than the utility derived from non-local food outlets (i.e. grocery store and shopping club such as Costco or Sam's Club). We assume that utility is linear in unknown parameters such that the utility from choosing whether or not to shop at a local food outlet is:

$$(1) \quad u_{ic} = \beta_0^c + \beta_x^c \mathbf{x}_i + \varepsilon_i^c,$$

where, u_{ic} is utility of respondent i from making choice c . The choice $c \in \{1, 0\}$ indicates the choice of buying local foods (1) or not (0). \mathbf{x}_i is a vector of health characteristics of consumers such as health concern, history of family illness, food safety concern, perceptions of local foods quality etc. as well as socio-demographic characteristics such as gender, age, family size, income, education etc. β_0^c (scalar) and β_x^c (vector) are parameters to be estimated and ε_i^c is random component of the utility of respondent i . Assuming an individual buys local foods if and only if $u_{i1} \geq u_{i0}$, the differences in parameters across choices ($\beta_0 = \beta_0^1 - \beta_0^0$ and $\beta_x = \beta_x^1 - \beta_x^0$) can be estimated using a maximum likelihood estimator under the assumption that the error term ($\varepsilon_i = \varepsilon_i^1 - \varepsilon_i^0$) is independently and identically distributed (iid) with normal distribution (probit

model). If our health variables are indeed factors that affect the consumer's decision to purchase local food, we would expect the parameters on those variables to be statistically significant².

Results

A binary probit model was estimated using Stata/SE 13.1 software. Overall, the model is a good fit as indicated by the P value (i.e. <0.01) for the likelihood ratio test. Variable definitions and descriptive statistics are exhibited in Table 3 and parameter estimates in Table 4. Signs of the parameter estimates indicate the change in marginal effect of dependent variable due to a change in independent variables. Alternatively, the signs help us to understand how the probability of consumers purchasing from farmers' market changes when there is a unit change in the independent variables such as health variables, demographic variables etc. Marginal effects estimates are shown in Table 5.

As expected, cancer (at the ten percent level of significance) and obesity (at the one percent level of significance) are significantly associated with food buying behavior from farmers' market. Incidence of cancer in the family (respondent, spouse, siblings, father, mother, children, and grandparents) significantly increases the probability of buying from farmers' market by 4.6%, while incidence of obesity in the family is significantly negative. This negative but significant relationship of obesity with visiting farmers' market shows, the more an individual buys at farmers' market the less likely there will be obesity in the family (7.6% less likelihood).

² We initially suspect endogeneity in the estimation model because of possible correlation of obesity with the decision to purchase at local markets arising from the casual effect of obesity on such purchase. Given no formal test of endogeneity for a probit model with discrete endogenous regressor, we used maximum likelihood estimator of a binary outcome with binary endogenous regressor (obesity or not) and estimated bivariate probit model. The results from the bivariate probit model are almost identical to those from the binary probit model. Although not a formal test, this gives us some indication that endogeneity is not a problem in our model. Therefore, we proceeded using binary probit model for estimates.

Participants who considered themselves less active (i.e. fewer than 1.5 miles brisk walking per day) are 8.5% less likely to buy local food as compared to active consumers (1.5-3 miles brisk walking per day). Those who are on a special diet to keep fit or being vegan/vegetarian are also found to be significant. Respondents who ranked three attributes such as: miles that the food travels, pesticide residue that the food has, and the price of the food are more likely to buy local foods at the one percent significance level. The presence of farmers' market within five miles of respondents' zip codes is also positively associated with buying local food relative to the farmers' market within ten miles of respondents' zip codes. This result indicates a need for increased number of local food outlets to increase likelihood of buying local. Among behaviors, respondents who; shop food more frequently per month, eat more homemade meals per week, and who travel more per month are all more likely to purchase foods at farmers' market. Finally, agricultural knowledge of respondents is a significant predictor of local food purchasing likelihood showing one point increase in the score increases the probability of purchasing local food by 2.3 percent. None of the demographic variables significantly connected the probability of purchasing at farmers' market except income at the ten percent significance level.

Table 3. Variable Definitions and Descriptive Statistics

Variable	Mean	s.d	Min	Max
<i>Dependent variable</i>				
Whether a respondent has purchased at FM over the past six months	0.546	0.498	0	1
<i>Independent variables</i>				
Whether a respondent or his/her family member has been treated for cancer	0.866	0.340	0	1
Whether a respondent or his/her family member has been treated for heart disease	0.732	0.442	0	1
Whether a respondent or his/her family member has been treated for diabetes	0.732	0.442	0	1
Whether a respondent or his/her family member has been treated for back or joint pain	0.829	0.376	0	1
Whether a respondent or his/her family member has been treated for Alzheimer's or dementia	0.841	0.365	0	1
Whether a respondent or his/her family member has been treated for obesity	0.646	0.478	0	1
Concern about U.S. food safety (0= much less concerned, 4= much more concerned)	2.821	0.972	0	4
Concern about international food safety (0= much less concerned, 4= much more concerned)	3.117	0.994	0	4
Has respondent made major changes in lifestyle over the last 5 years for health reasons (1=yes, 0=no)	0.291	0.454	0	1
Has respondent made minor changes in lifestyle over the last 5 years for health reasons (1=yes, 0=no)	0.553	0.497	0	1
Is respondent less active i.e. walks fewer than 1.5 miles per day (1=yes, 0=no)	0.457	0.498	0	1
Is respondent more active i.e. walks more than 3 miles per day (1=yes, 0=no)	0.116	0.320	0	1
If anyone in the household follows a special diet to treat illness (1=yes, 0=no)	0.301	0.459	0	1
If anyone in the household follows a special diet to keep fit (1=yes, 0=no)	0.528	0.499	0	1
If anyone in the household follows a special diet for religion (1=yes, 0=no)	0.046	0.209	0	1
If anyone in the household follows a special diet being vegan or vegetarian (1=yes, 0=no)	0.075	0.264	0	1
Miles that the food travel is important to respondent (1=yes, 0=no)	0.373	0.483	0	1
Water amount used to grow food is important to respondent (1=yes, 0=no)	0.254	0.435	0	1
Use of petroleum-based fertilizer to grow food is important to respondent (1=yes, 0=no)	0.532	0.499	0	1
Amount of pesticide residue on the food is important to respondent (1=yes, 0=no)	0.737	0.439	0	1
Price of food is important to respondent (1=yes, 0=no)	0.701	0.457	0	1
Is there farmers' market/s within 5 miles of respondent's zip code (1= yes, 0= no)	0.659	0.474	0	1
Number of times respondent shop for food per month	6.308	5.305	1	20

Number of meals eaten each week are prepared at home	12.940	4.414	1.5	19
Number of days traveled per month for business or pleasure	8.183	3.866	6.5	21
Number of correct answers for given agricultural questions	2.365	1.582	0	7
Number of people living in respondent's house	2.566	1.281	0	14
Whether the respondent is female (1=yes, 0=no)	0.521	0.500	0	1
Respondent's annual income in 2012	71.118	61.234	0	500
Has the respondent completed bachelor's degree or higher (1=yes, 0=no)	0.547	0.497	0	1
Age of respondent	47.936	16.005	18	108
Whether the respondent is white (1=yes, 0=no)	0.692	0.461	0	1
Was the respondent born in the U.S. (1=yes, 0=no)	0.885	0.319	0	1

Table 4. Parameter Estimates of the Binary Probit Model

Variable	Parameter Estimate	Standard Error
Constant	-0.754	0.169
<i>Health variables</i>		
Whether a respondent or his/her family member has been treated for cancer	0.116*	0.068
Whether a respondent or his/her family member has been treated for heart disease	0.090	0.065
Whether a respondent or his/her family member has been treated for diabetes	-0.091	0.065
Whether a respondent or his/her family member has been treated for back or joint pain	0.057	0.066
Whether a respondent or his/her family member has been treated for Alzheimer's or dementia	0.032	0.068
Whether a respondent or his/her family member has been treated for obesity	-0.193***	0.071
Concern about U.S. food safety (0= much less concerned, 4= much more concerned)	-0.007	0.024
Concern about international food safety (0= much less concerned, 4= much more concerned)	0.034	0.023
Has respondent made major changes in lifestyle over the last 5 years for health reasons (1=yes, 0=no)	0.043	0.066
Has respondent made minor changes in lifestyle over the last 5 years for health reasons (1=yes, 0=no)	0.060	0.056
Is respondent less active i.e. walks fewer than 1.5 miles per day (1=yes, 0=no)	-0.215***	0.042
Is respondent more active i.e. walks more than 3 miles per day (1=yes, 0=no)	0.017	0.065
If anyone in the household follows a special diet to treat illness (1=yes, 0=no)	0.017	0.046
<i>Non-health variables</i>		
If anyone in the household follows a special diet to keep fit (1=yes, 0=no)	0.094**	0.043
If anyone in the household follows a special diet for religion (1=yes, 0=no)	-0.017	0.100
If anyone in the household follows a special diet being vegan or vegetarian (1=yes, 0=no)	0.41***	0.083
Miles that the food travel is important to respondent (1=yes, 0=no)	0.232***	0.042
Water amount used to grow food is important to respondent (1=yes, 0=no)	0.061	0.047
Use of petroleum-based fertilizer to grow food is important to respondent (1=yes, 0=no)	0.078	0.048
Amount of pesticide residue on the food is important to respondent (1=yes, 0=no)	0.149***	0.054
Price of food is important to respondent (1=yes, 0=no)	-0.214***	0.043
Is there farmers' market/s within 5 miles of respondent's zip code (1= yes, 0= no)	0.109***	0.041

Number of times respondent shop for food per month	0.012***	0.003
Number of meals eaten each week are prepared at home	0.011**	0.004
Number of days traveled per month for business or pleasure	0.022***	0.005
Number of correct answers for given agricultural questions	0.058***	0.012
Number of people living in respondent's house	-0.026	0.016
Whether the respondent is female (1=yes, 0=no)	0.034	0.04
Respondent's annual income in 2012	0.000*	0.000
Has the respondent completed bachelor's degree or higher (1=yes, 0=no)	-0.020	0.039
Age of respondent	0.001	0.001
Whether the respondent is white (1=yes, 0=no)	-0.028	0.045
Was the respondent born in the U.S. (1=yes, 0=no)	-0.027	0.062

Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5. Marginal Effects of the Binary Probit Model

Variable	Marginal Effects	Standard Error	95% Confidence Interval	
<i>Health variables</i>				
Whether a respondent or his/her family member has been treated for cancer	0.046*	0.027	-0.007	0.100
Whether a respondent or his/her family member has been treated for heart disease	0.036	0.026	-0.015	0.086
Whether a respondent or his/her family member has been treated for diabetes	-0.036	0.026	-0.087	0.015
Whether a respondent or his/her family member has been treated for back or joint pain	0.023	0.027	-0.029	0.075
Whether a respondent or his/her family member has been treated for Alzheimer's or dementia	0.013	0.027	-0.040	0.066
Whether a respondent or his/her family member has been treated for obesity	-0.076***	0.028	-0.131	-0.021
Concern about U.S. food safety (0= much less concerned, 4= much more concerned)	-0.003	0.010	-0.022	0.016
Concern about international food safety (0= much less concerned, 4= much more concerned)	0.013	0.009	-0.005	0.032
Has respondent made major changes in lifestyle over the last 5 years for health reasons (1=yes, 0=no)	0.017	0.026	-0.034	0.069
Has respondent made minor changes in lifestyle over the last 5 years for health reasons (1=yes, 0=no)	0.024	0.023	-0.020	0.068
Is respondent less active i.e. walks fewer than 1.5 miles per day (1=yes, 0=no)	-0.085***	0.017	-0.118	-0.052
Is respondent more active i.e. walks more than 3 miles per day (1=yes, 0=no)	0.007	0.026	-0.044	0.058
If anyone in the household follows a special diet to treat illness (1=yes, 0=no)	0.007	0.018	-0.029	0.043
<i>Non-health variables</i>				
If anyone in the household follows a special diet to keep fit (1=yes, 0=no)	0.037**	0.017	0.004	0.071
If anyone in the household follows a special diet for religion (1=yes, 0=no)	-0.007	0.040	-0.085	0.071
If anyone in the household follows a special diet being vegan or vegetarian (1=yes, 0=no)	0.155***	0.030	0.097	0.213
Miles that the food travel is important to respondent (1=yes, 0=no)	0.091***	0.017	0.059	0.124
Water amount used to grow food is important to respondent (1=yes, 0=no)	0.024	0.019	-0.013	0.061
Use of petroleum-based fertilizer to grow food is important to respondent (1=yes, 0=no)	0.031	0.019	-0.007	0.069
Amount of pesticide residue on the food is important to respondent (1=yes, 0=no)	0.059***	0.022	0.017	0.102
Price of food is important to respondent (1=yes, 0=no)	-0.084***	0.017	-0.117	-0.051
Is there farmers' market/s within 5 miles of respondent's zip code (1= yes, 0= no)	0.043***	0.016	0.011	0.075

Number of times respondent shop for food per month	0.005***	0.002	0.002	0.008
Number of meals eaten each week are prepared at home	0.004	0.002	0.001	0.008
Number of days traveled per month for business or pleasure	0.008***	0.002	0.005	0.013
Number of correct answers for given agricultural questions	0.023***	0.005	0.013	0.033
Number of people living in respondent's house	-0.011	0.007	-0.023	0.002
Whether the respondent is female (1=yes, 0=no)	0.014	0.016	-0.018	0.045
Respondent's annual income in 2012	0.000*	0.000	0.000	0.000
Has the respondent completed bachelor's degree or higher (1=yes, 0=no)	-0.008	0.015	-0.038	0.022
Age of respondent	0.000	0.001	-0.001	0.002
Whether the respondent is white (1=yes, 0=no)	-0.011	0.018	-0.046	0.024
Was the respondent born in the U.S. (1=yes, 0=no)	-0.011	0.025	-0.060	0.037

Note: *,**, and *** denote statistical significance at the 10%,5%, and 1% levels, respectively.

Summary and Conclusions

There are increasing numbers of consumers motivated by health concerns to buy local foods. Although existing studies have showed that health motivation is a significant driver of local foods purchase, it has not been explicitly explored the specific diseases and their marginal effect on local food buying behavior. Using online consumer survey data in southeastern United States, this study is able to find two diseases (cancer and obesity) out of six are statistically significant to purchase local foods at farmers' market. Respondents or his/her family members treated for cancer are more like to buy local foods whereas those with obesity have negative relationship. The positive association of cancer with local food purchase might be because of perceived lower health risk of local foods. However the evidence that the local foods are in fact healthier than non-local foods is an empirical question.

Salois (2012) suggest that the density of farmers' markets, presence of farms with direct sales and the per capita volume of direct farm sales are negatively related to the prevalence of diabetes and obesity. Berning (2012) found that the number of CSAs and FMs per square mile is associated with lower individual weight outcomes. Other studies have stated that promoting local foods consumption can improve community health outcomes (Conner and Levine, 2007; Thompson et al., 2008). These studies support the idea that increased access of local food outlets offer more healthy choices than convenience stores through availability of fresh fruits and vegetables, thereby constraining buyers from less healthful choices. However it is still unclear whether these results are casual or coincidental. Due to the lack of scientific evidence, it is hard to claim that local foods are healthier. Therefore, there is a need of scientific research that examines explicitly the benefits and loss of local foods to communicate these results accurately.

Since our study shows that health concerned consumers are more likely to seek out local sources to improve health benefits associated with eating local foods, this could motivate food scientists to test whether local foods are in fact healthier. Then the most effective marketing strategy would be to claim that local foods provide overall health benefits so that consumers get direct assurances on improved health.

References

- Berning, J. P. 2012. "Access to Local Agriculture and Weight Outcomes." *Agricultural and Resource Economics Review*, 41(1), 57.
- Chen, S. N., Shogren, J. F., Orazem, P. F., & Crocker, T. D. 2002. "Prices and health: identifying the effects of nutrition, exercise, and medication choices on blood pressure." *American Journal of Agricultural Economics*, 84(4), 990-1002.
- Conner, D.S., and R. Levine. 2007. "Circles of Association: The Connections of Community-Based Food Systems," *Journal of Hunger and Environmental Nutrition*, Vol. 1, pp. 5-25.
- Darian, J. C., & Tucci, L. 2011. "Perceived health benefits and food purchasing decisions." *Journal of Consumer Marketing*, 28(6), 421-428.
- FMI Research & Prevention-Rodale. *Shopping for Health 2013: 21st annual study*. Internet site: <http://www.fmi.org/news-room/latest-news/view/2013/06/25/prevention-magazine-and-food-marketing-institute-release-21st-annual-shopping-for-health-survey-results> (Accessed April 29, 2014)
- Greene, W.H. 2007. LIMDEP version 9.0 Econometric Modeling Guide volume 1. Plain View, NY: Econometric Software, Inc.
- Govindasamy, R., Italia, J., & Liptak, C. 1997. "Quality of agricultural produce: consumer preferences and perceptions (No. 36739)". *Rutgers University, Department of Agricultural, Food and Resource Economics*.
- Maples, M., Morgan, K. L., Interis, M. G., & Harri, A. 2013. "Who Buys Food Directly from Producers in the Southeastern United States?." *Journal of Agricultural and Applied Economics*, 45(03).
- McFadden, D. T., & Low, S. A. 2012. "Will Local Foods Influence American Diets?." *Choices*, 27(1).
- Meyerhoefer, C. D., & Leibtag, E. S. 2010. "A spoonful of sugar helps the medicine go down: the relationship between food prices and medical expenditures on diabetes." *American Journal of Agricultural Economics*, 92(5), 1271-1282.
- Nayga, R. M., Lipinski, D., & Savur, N. 1998. "Consumers' use of nutritional labels while food shopping and at home." *Journal of Consumer Affairs*, 32(1), 106-120.
- Onozaka, Y., Nurse, G., & McFadden, D. T. 2010. "Defining Sustainable Food Market Segments: Do Motivations and Values Vary by Shopping Locale?." *American Journal of Agricultural Economics*, aq152.

- Onozaka, Y., & Mcfadden, D. T. 2011. "Does local labeling complement or compete with other sustainable labels? A conjoint analysis of direct and joint values for fresh produce claim." *American Journal of Agricultural Economics*, 93(3), 693-706.
- Salois, M. J. 2012. "Obesity and diabetes, the built environment, and the 'local' food economy in the United States, 2007". *Economics & Human Biology*, 10(1), 35-42.
- Schneider, M. L., & Francis, C. A. 2005. "Marketing locally produced foods: Consumer and farmer opinions in Washington County, Nebraska." *Renewable Agriculture and Food Systems*, 20(04), 252-260.
- Thilmany, D., Bond, C. A., & Bond, J. K. 2008. "Going local: Exploring consumer behavior and motivations for direct food purchases." *American Journal of Agricultural Economics*, 90(5), 1303-1309.
- Wolf, M. M., Spittler, A., & Ahern, J. 2005. "A Profile of Farmers' Market Consumers and the Perceived Advantages of Produce Sold at Farmers' Markets." *Journal of Food Distribution Research*, 36(1).
- Thompson, E., Jr., A.M. Harper, and S. Kraus. 2008. *Think Globally—Eat Locally: San Francisco Foodshed Assessment*, American Farmland Trust.
Internet site: <http://www.farmland.org/programs/states/ca/Feature%20Stories/San-Francisco-Foodshed-Report.asp>
(Accessed November 2, 2014)
- Zepeda, L., & Leviten-Reid, C. 2004. "Consumers' views on local food." *Journal of Food Distribution Research*, 35(3), 1-6.
- Zepeda, L., & Li, J. 2006. "Who buys local food?." *Journal of Food Distribution Research*, 37(3).