

**Healthy food acquisition in a food-insecure city:
An examination of socioeconomic and food-security predictors**

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to be presented at the
2014 meetings of the American Sociological Association
San Francisco, CA
August 16, 2014

Abstract:

A prevailing assumption in various food and health movements is that food-insecure households have unhealthy food acquisition habits, specifically preferring industrialized foods at the expense of fresher, healthier foods. Such food acquisition patterns may be attributed to socioeconomic constraints of education and cultural capital, as well as the expenditure of scarce time and resources needed in urban food deserts to overcome obstacles of food access. We operationalize this prevailing assumption into five hypotheses anticipating *negative* associations between food-insecure households and (1) preferring stores that sell healthy foods, (2) preferences for organic foods, (3) always reading food-item labels; and *positive* associations between low-income households and (4) preferences for foods that stay fresh longer and (5) preferences for foods that are easy to prepare. To test these hypotheses, we analyze data from an in-person survey administered to 355 households in the City of Poughkeepsie, New York, a small Northeastern city marked by high poverty, considerable unemployment, and USDA designation (in two Census tracts) of food desert conditions. Preliminary findings indicate that food-insecure and low-income households are no less or more likely to report unhealthy food acquisition habits with one exception: households with incomes less than \$35,000 per year and black households are more likely to prefer food that is easy to prepare. While popular assumptions paint low-income, food insecure people as predisposed towards unhealthy eating, our data provides evidence to the contrary.

Food shopping in a food-insecure city:

The insignificance of socioeconomic factors on healthy food preferences

INTRODUCTION

As scholars, planners and activists tackling urban poverty direct their attention to problems of food insecurity, they open up questions of *household food consumption* about which surprisingly little is known. This concept has at least three dimensions, linearly sequenced: the acquisition, preparation and eating of food. Respective sets of relevant questions might include:

- How do food-insecure households think about food *shopping*: to ensure nutrition, maximize caloric intake, minimize preparation time, satisfy snack-food cravings, etc.?
- How much do the skills and equipment required for optimal food *preparation* (e.g., to turn fresh foods and simple ingredients into culturally desirable meals) constrain food-insecure households' ability to promote their members' nourishment and well-being in a cost-effective way?
- What kinds of foods do food-insecure households prefer to eat, at least for their biggest meals: home-cooked meals, pre-processed foods, restaurant food, etc. ?

In our understanding of and participation in urban food-security initiatives, we find that these questions are often answered quite pessimistically, for several reasons. Poverty is increasingly associated with obesity and other health-related disorders that pivot upon household food consumption patterns (see Finney Rutten *et al.* 2010). Furthermore, economically distressed cities often have few large grocery stores where households can take advantage of variety in food items, quality and prices; in these urban "food deserts," residents are at the mercy of the meager, nutritionally suspect offerings of delis, bodegas and convenience stores (Gustafson *et al.* 2013; Song *et al.* 2012; Munoz-Plaza, Filomena and Morland 2007).

Pessimism may also reflect the contexts from which scholars, planners and activists promote urban food-security initiatives. Assorted evidence suggests these groups may be privileged within profound hierarchies of income, education, and cultural capital (see McCullum *et al.* 2004). Compared to low-income urban households, these groups may be more likely to have the time and resources to prepare fresh foods (Leone *et al.* 2012; Drewnowski 2004); to heed health professionals' latest thinking about healthy eating over the wisdom of family tradition or neighborly advice (cf. Lareau 2003); and to feel comfortable patronizing farmers markets, community supported agriculture, and other initiatives promoting the (loosely coupled) ethics of sustainable agriculture, food justice, and healthy eating (Alkon 2012; Colasanti, Conner and Smalley 2010; Slocum 2007).

THE HYPOTHESES

The structural constraints of urban poverty as well as the cultural inequalities highlighted by urban food security initiatives come to bear on a widespread yet often tacit set of assumptions about how low-income households consume food: they don't value "healthy food", don't have the time or inclination to "cook well," and don't know how (or are unwilling) to prepare "appropriate" meals in terms of nutritional quality, and so on. In this paper, we tackle this set of assumptions at the front-end of the household consumption sphere, at the point of food shopping and purchase. We frame these assumptions into five hypotheses that we then test with an exploratory case study:

H₁: Food-insecure households are less likely than others to patronize food stores because they sell healthy food. Particularly in a food desert environment, low-income households often face a dilemma between expending scarce time and resources traveling to supermarkets with healthier food choices and patronizing closer convenience stores with less healthy choices. We hypothesize that **food-insecure** households will prefer the latter.

H₂: Food-insecure households are more likely than others to choose food items that stay fresh longer. In an industrialized food system, food providers offer consumers the utility of longer shelf life through packaging (e.g., canned and frozen items) and additives (including sodium and other preservatives that may

simultaneously offer cheap calories and enhance taste). Importantly, urban convenience stores specialize in such food items. Consequently, we hypothesize that **food-insecure** households will prefer such items.

H₃: Food-insecure households are more likely than others to choose food items that are easy to prepare. Another innovation of industrialized food systems is the development of snacks and entrees that come ready-made, require simple heat-up, or are pre-processed for easy addition of basic ingredients. As with foods that stay fresh longer, these items may include substantial additives and be especially prevalent in urban convenience stores. Consequently, we hypothesize that **food-insecure** households will prefer such items.

H₄: Food-insecure households are less likely than others to choose food items that are organic. A relatively new genre in mainstream food retail, organic foods tend to be commercial scarce (e.g., sold primarily at specialized retail and farmers markets). Their value may also reflect cultural "messages" reinforced by health professional/activists and countercultural food movements, both of which middle classes are more likely to adhere to. Consequently, we hypothesize that **food-insecure** households won't place special importance on organic foods.

H₅: Food-insecure households are less likely than others to look at food labels when shopping to find out if the item is nutritious or healthy. Research shows robust correlations of low-income status with obesity, diabetes, and other diet-

based health problems. Additionally, following the changing scientific wisdom on "healthy eating" may require substantial time, effort, and a general credence toward expert opinion. We hypothesize that these structural factors will come to bear on the shopping experience, such that **food-insecure** households will be less likely to read item labels.

THE STUDY

Our data for this paper come from the Poughkeepsie Plenty community food assessment, a food-security initiative undertaken between 2010-12 in the city of Poughkeepsie, New York (see Nevarez 2013). This single-place case study means our study results aren't nationally generalizable, but the size of our sample and the methodology we used are among the more rigorous deployed for an in-depth study of food security in a small American city. Our goals in this empirical exploration are, first, to provide initial grounds towards debunking assumed associations between preferences and consumption for low-income consumers. Second, we hope to provide a model for research to be conducted in other locales with similar demographics and challenges.

The setting

Poughkeepsie is a small city (2010 pop. 32,736) in the Mid-Hudson region of New York state, equidistant from New York City to the south and the state capital, Albany, to the north. Like many other smaller rustbelt cities in the half-century after World

War II, the city experienced declining population, white flight, and increased concentrations of non-white, lower-income, and less-educated residents. Presently the city has considerable racial and ethnic diversity and is marked by considerable economic distress, as shown below in Table 1. These characteristics make food insecurity a likely problem for many. Notably, in 2011-12 80% of students in the city's school district were entitled to receive free lunches, and another 11% were eligible for reduced-price lunches (NYS SED, 2012).

TABLE 1 ABOUT HERE

Exacerbating the prospects of food insecurity is Poughkeepsie's geography of food access and food retail. The 2008-10 American Community Survey reports that 27% of the city's households have no vehicle of their own. Although not owning a car doesn't necessarily impede urban residents' food access when full-service grocery stores are within walking distance for many, this isn't the case in Poughkeepsie. From 1991-2011, the city had no full-service store within city limits; in 2011 it finally acquired one, located across the street from a Latin goods retailer that previously counted as the Poughkeepsie's only grocery store (and a small one at that). However, both of these stores are found at the city's eastern end, a mile away from the central business district and even farther from many residential neighborhoods. Consequently, two contiguous downtown Census tracts comprise an urban "food desert" by U.S. Department of Agriculture standards, and for most residents small convenience stores are the chief food retail stores in walking

distance.¹ (See Map 1.) These features of the local food system make acute the dilemmas described earlier that households face between expending time and resources to access supermarkets with healthier food items, and patronizing closer convenience stores with less healthy food items.

MAP 1 ABOUT HERE

The study

This is the setting for the Poughkeepsie Plenty community food assessment (PPCFA), an initiative launched in 2010 to investigate the local conditions of food insecurity for the purposes of community mobilization (which continues into the present). In the two-year research project, the PPCFA employed multiple research methods: a household survey, focus-group interviews with residents, fieldwork at local food retailers, and archival research on food-assistance programs.

For this paper, we utilize data from the PPCFA's household survey, administered between October 2010 and April 2012. This survey was conducted via face-to-face structured interviews at residences in the City of Poughkeepsie. Social researchers recognize that sending people out to "pound the pavements" often yields very low response rates, particularly in urban environments where concerns about

¹ The U.S. Department of Agriculture's Economic Research Service (2012) defines an urban "food desert" as (1) a *low-income census tract*, having either a poverty rate of 20 percent or higher, or a median family income at or below 80 percent of the area's median family income, *and* 2) where at least 500 people and/or at least 33 percent of the census tract's population residing of residents has *low access* – more than one mile in urban areas – from a supermarket or large grocery store.

answering the door to strangers can run high (Fitzgerald & Fuller 1982). However, we employed this design and took significant efforts to generate a respectable response rate because it best corresponded to our target population — all households in the City of Poughkeepsie, not simply those with phones or people conveniently located at targeted events — and makes possible representative and generalizable baseline measures of food security and other characteristics for the entire city.

Households were selected using probability sampling methods. The sampling frame consisted of all City of Poughkeepsie households, as recorded by the Dutchess County Division of Planning and Development. An initial random sample of 1500 addresses was drawn from this list. A total of 355 surveys were completed, generating a final response rate of 24 percent.² The final dataset was weighted to reflect the race, Hispanic ethnicity, and income distribution of Poughkeepsie's population according to U.S. Census 2010. Since probability sampling was utilized to select households, these results may be used to represent not just the views and experiences of the surveyed respondents but the views of all City of Poughkeepsie households within a ± 5.5 percent margin of error.

VARIABLES AND MEASURES

² Of the other 1145 sample elements, 188 addresses were unusable (i.e., vacant properties, assisted living facilities, commercial), 644 were non-respondents, and 313 refused.

The PPCFA's organizing concept is *food security*, which the USDA defines as "access by all members at all times to enough food for an active, healthy life" and includes at minimum the "ready availability of nutritionally adequate and safe foods" and "assured ability to acquire acceptable foods in socially acceptable ways (that is, without resorting to emergency food supplies, scavenging, stealing, or other coping strategies)." Conversely, food insecurity means "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (USDA Economic Research Service 2010). Following USDA convention, we conceptualize household food security as a tripartite ordinal variable: households can be (a) food secure, (b) food insecure without hunger, or (c) food insecure with hunger.

To gauge food security, the survey incorporated the 6-item Household Food Security scale adopted by the USDA for shorter surveys (Blumberg et al. 1999). This scale prompts respondents about their households' financial ability to meet members' nutritional basic needs; see Figure 1. It therefore doesn't directly address household members' physical well-being, although extensive research documents a strong relationship between magnitudes of food insecurity and nutritional ill health, with hunger and malnutrition being the most severe consequences.

Food stamp usage, an indicator for participation in the Supplemental Nutrition Assistance Program designed to help households cope with food insecurity, was measured with one item, "In the past twelve months, did you or others in your

household: a) get food stamp benefits – that is, either food stamps or a food- stamp benefit card?”

We conceptualized food acquisition preferences as having two dimensions: factors that influence store choice, and factors that influence food item choice. *Patronizing stores for healthy foods* was measured with a single item, analyzed dichotomously recoded very important/not very important: “In choosing a store for most of the food you eat, how would you rate, 'Store has healthy foods'.” *Choosing healthy food items* included three items, each analyzed dichotomously recoded very important/not very important: “When you choose types of food to buy, how would you rate: (1) 'Food that stays fresh longer'; (2) 'Food that's easy to prepare'; (3) 'Organic food'”. Note that the first two items indicate healthy food item preferences *negatively*, suggesting food items that are canned, frozen, have preservatives added (especially for [1]), and/or are pre-processed for simple cooking, baking, or re-heating by microwave (especially for [2]).³

Attention to food labels was also measured: “Do you look at the food labels to decide if the food is nutritious or healthy?” This was recoded as dichotomous: always vs. sometimes/never.

³ Subsequent focus-group interviews with low-income Poughkeepsie households indicated that the city's convenience stores specialize in foods that are packaged, preserved, and pre-processed. Evoking the food-desert landscape described earlier, a Spanish-language participant told us, “Sometimes, the bodegas sell products that have already expired. At supermarkets, on the other hand, they always have good quality products and it is rare to find expired goods.”

Finally, socio-demographic questions were asked covering age, gender, race, ethnicity, household size, presence of children, and income.

ANALYSIS AND RESULTS

Our methodology allows us to assess the extent of food insecurity, identify subgroups that are more likely to experience it, and the relationships between it and food preferences. Descriptive statistics are reported and for comparisons between the samples and subgroups, Chi Square tests were run to identify statistically significant differences. Lastly, regression was run to determine what independent variables significantly impacted food preferences.

Factors for food insecurity

We found considerable levels of food insecurity in Poughkeepsie. As Table 2 indicates, one in four (26%) of the city's households are food insecure — significantly higher than the U.S., the Northeast, and metropolitan areas in general (USDA 2012).

TABLE 2 HERE.

Three critical factors are significantly correlated with household food security in the City of Poughkeepsie: income, race/ethnicity, and access. As Table 3 shows, a majority of households (60 percent) with incomes less than \$15,000 annually were

food insecure, including 32 percent insecure with hunger. Over two-thirds (37 percent) of Hispanic households were food insecure, as were 36 percent of black and about one in five (19 percent) white households.

Group characteristics that did *not* significantly correlate with food security in the City of Poughkeepsie include household size and the presence of children in the household. These findings suggest that food insecurity is experienced among a range of households, from large families with many mouths to feed to those with individuals living alone.

TABLES 3-5 HERE

Determinants of healthy store/food preferences

In order to detect which independent variables significantly determine food/store preferences, we ran five regressions with the following socioeconomic inputs: income, food security, presence of kids in household, age, food stamp usage, Hispanic (or not), and black (or not). Outcome variables included: (1) Very important store has healthy foods; (2) Very important food is organic food; (3) Very important food stays fresh longer; (4) Very important food is easy to prepare; (5) Always look at labels to find out if food is nutritious or healthy.

The data disprove four of the hypothesized relationships between food insecurity and unhealthy food store/item preferences. Table 6 indicates no significant input

variables for preferring stores that sell healthy food. These data give us reason to reject H_1 .

Table 7 indicates no significant input variables for preferring food that stays fresh longer. This means food-insecure households are no less or more likely than other households to prefer foods that provide longer shelf life often at the expense of nutritional quality. This suggests we might reject H_2 .

Table 8 provides the only evidence in support of any hypothesis, in this case regarding the relationship of socioeconomic status and preferring food that is easy to prepare. Income and race prove to be significant predictors: households with incomes less than \$35,000 per year and black households are more likely to say it is very important that food be easy to prepare. These data prevent us from rejecting H_3 , except for perhaps Hispanic households.

Returning to the previous pattern revealed in our data, Table 9 indicates no significant input variables for preferring food items that are organic. Likewise, Table 10 indicates no significant input variables for reading food-item labels. These data suggest we might reject H_4 and H_5 , respectively.

TABLES 6-10 HERE.

CONCLUSION

While popular assumptions paint low-income, food insecure people as cognitively or culturally predisposed towards unhealthy eating, our data provides evidence to the contrary. In operationalizing and testing such assumptions, we could only fail to reject one hypothesis, regarding food that is easy to prepare. Importantly, the predictors of this outcome pertain less to the status of food security and more to broader demographic categories. In any case, if more research is needed to explain how food acquisition patterns influence food insecurity, our study at least provides a critical rejoinder to the tendency by commentators to make multiple assumptions about "healthy eating" all at once.

Clearly, more research is needed to identify and offer alternate explanation for the relationship between food acquisition patterns and food insecurity. One category of predictors requiring further investigation is the *local circumstances* in which people become food insecure. Thus, one recent study found cost and access to be more significant factors than food acquisition patterns for low-income households in Pittsburgh's food deserts (Walker et al. 2010). While we adhered to a rigorous method that allows for generalizability to the City of Poughkeepsie as a whole, of course this is just a snapshot of a very particular place and time. More studies are needed in other locales to build the body of evidence that our findings are generalizable more broadly. The influence of regional type — i.e., the ways in which food insecure consumers shop in urban versus suburban or rural regions — would also be a fruitful line of study.

We hope to next approach how to determine the impact of store location and food access impacts food choice. For this, we recommend longitudinal research, as it could better document the impacts of improved access to healthy foods. Pre- and post-test measurement before and after the entry of walkable supermarkets, or increased supplies of fresh produce in small neighborhood stores, or improvements in public transportation in an area could more precisely capture impacts.

As with all surveys, researchers need to be cognizant of the possibility of socially desirable response bias, and be mindful that real behavior does not always correlate with self-reported attitudes (Pager & Quillian 2005; Schultz and Six 1996; Traugott & Katoch 1979; Schuman and Johnson 1976; Wickler 1969). For our purposes, we recognize this, but assert that it is still very powerful that even if our results are biased in this way, documenting that eating healthy eating is preferred among food insecure households and not predictive of actual or reported purchasing is noteworthy in and of itself. We hope that future research can employ methods that are able to better observe and measure actual behavior, over time, and in a variety of places with both similar and dissimilar socio-demographics and challenges.

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Table 1. Demography and Economic Characteristics in Poughkeepsie and the U.S.

	Poughkeepsie	United States
Race/ethnicity		
White	48%	72%
Black	36%	13%
Hispanic	20%	16%
Unemployment rate	12%	9%
Median income	\$39,061	\$52,762
Poverty rate		
All residents	25%	14%
Households with children	37%	20%
Female-headed single parent	40%	29%
Seniors (age 65 or older)	15%	9%

Source: U.S. Census 2012

Table 2. Food Security in Poughkeepsie and the U.S.

	Poughkeepsie	United States	Northeast	Metropolitan areas
Food secure	74%	86%	88%	85%
Food insecure without hunger	15%	9%	7%	9%
Food insecure with hunger	11%	5%	5%	6%

Source: USDA Economic Research Service 2011.

Table 3. Food insecurity and impacted socio-economic subgroups

	Insecure with Hunger	Insecure w/o Hunger	Food Secure
Household Income: Less than \$15K	32%	28%	40%
Household Ethnicity: Hispanic	22%	15%	63%
Household Race: Black	12%	24%	64%
Meal Preparer: Age 35 to 44	14%	19%	67%
Household Income: \$15K to \$50K	14%	17%	69%
Children in household	15%	16%	69%
Meal Preparer: Under Age 35	12%	18%	70%
Meal Preparer: Age 45 to 60	16%	14%	70%
Meal Preparer: Female	13%	17%	70%
Household size: 3 or more people	15%	15%	70%
General Population	11%	15%	74%
No children in household	8%	14%	78%

Household size: 1 person	10%	12%	78%
Household size: 2 people	6%	16%	78%
Household Race: White	8%	11%	81%
Meal Preparer: Male	7%	10%	83%
Meal Preparer: Age 60 or older	3%	12%	85%
Household Income: \$50K to \$100K		9%	91%
Household income: Over \$100K			100%

Table 4. Survey aggregate results for general population

	General population
Food Security	
Food secure	74%
Food insecure without hunger	15%
Food insecure with hunger	11%
Food Stamp Usage (% Yes)	
Households: Received food stamps	24%
Factors that Influence Food Choice (% Very important)	
Food that stays fresh longer	58%
Food that's easy to prepare	40%
Organic food	18%
Attention to Food Labels	
Always	43%
Sometimes	41%
Never	16%

Table 5. Survey results for coping and “preferences” by food security

	Food secure	Food insecure
General Population	74%	26%
Food Stamp Usage (% Yes)		
Households: Received food stamps	50%	50%
Factors that Influence Store Choice (Very important)		
Store has healthy foods	71%	29%
Factors that Influence Food Choice (Very important)		
Food that stays fresh longer	68%	32%
Food that's easy to prepare	69%	31%
Organic food	77%	23%
Attention to Food Labels		
Always	71%	29%

Table 6. Regression analysis: Factors influencing whether households prefer "stores that sell healthy foods"

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
			Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
(Intercept)	-.564	.1380	-.834	-.293	16.696	1	.000	.569	.434	.746
[income4T3=1.00]	.036	.1844	-.325	.397	.038	1	.845	1.037	.722	1.488
[income4T3=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[foodsec_scale2=1.00]	-.028	.1724	-.366	.310	.027	1	.869	.972	.693	1.363
[foodsec_scale2=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[hhkids=1.00]	.139	.1610	-.177	.454	.743	1	.389	1.149	.838	1.575
[hhkids=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[ageR2=1.00]	-.188	.1689	-.520	.143	1.244	1	.265	.828	.595	1.153
[ageR2=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[foodstamps=1.00]	.308	.1863	-.057	.673	2.737	1	.098	1.361	.945	1.961
[foodstamps=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[hispanic4T=1.00]	.249	.2240	-.190	.688	1.237	1	.266	1.283	.827	1.990
[hispanic4T=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[black=1.0]	.002	.1728	-.336	.341	.000	1	.989	1.002	.714	1.407
[black=.0]	0 ^a	.	.	.	.	.	.	1	.	.
(Scale)	1 ^b									

Dependent Variable: healthy

Model: (Intercept), income4T3, foodsec_scale2, hhkids, ageR2, foodstamps, hispanic4T, black

Table 8. Regression analysis: Factors influencing whether households prefer foods that "stay fresh longer"

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
			Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
(Intercept)	-.910	.1542	-1.212	-.608	34.817	1	.000	.403	.298	.545
[income4T3=1.00]	.239	.1946	-.143	.620	1.504	1	.220	1.270	.867	1.859
[income4T3=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[foodsec_scale2=1.00]	.009	.1753	-.335	.353	.003	1	.959	1.009	.716	1.423
[foodsec_scale2=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[hhkids=1.00]	.075	.1707	-.260	.409	.192	1	.661	1.078	.771	1.506
[hhkids=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[ageR2=1.00]	.037	.1717	-.300	.373	.045	1	.831	1.037	.741	1.452
[ageR2=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[foodstamps=1.00]	.217	.1908	-.157	.591	1.289	1	.256	1.242	.854	1.805
[foodstamps=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[hispanic4T=1.00]	.353	.2320	-.102	.808	2.317	1	.128	1.424	.903	2.243
[hispanic4T=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[black=1.0]	.253	.1768	-.093	.600	2.049	1	.152	1.288	.911	1.822
[black=.0]	0 ^a	.	.	.	.	.	.	1	.	.
(Scale)	1 ^b									

Dependent Variable: fresh

Model: (Intercept), income4T3, foodsec_scale2, hhkids, ageR2, foodstamps, hispanic4T, black

Table 9. Regression analysis: Factors influencing whether households prefer foods that are "easy to prepare"

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
			Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
(Intercept)	-1.405	.1945	-1.787	-1.024	52.212	1	.000	.245	.168	.359
[income4T3=1.00]	.523	.2314	.070	.977	5.112	1	.024	1.687	1.072	2.656
[income4T3=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[foodsec_scale2=1.00]	.031	.2021	-.365	.428	.024	1	.877	1.032	.694	1.533
[foodsec_scale2=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[hhkids=1.00]	-.064	.2036	-.463	.335	.100	1	.752	.938	.629	1.397
[hhkids=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[ageR2=1.00]	-.048	.2076	-.454	.359	.052	1	.819	.954	.635	1.432
[ageR2=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[foodstamps=1.00]	.071	.2179	-.356	.498	.105	1	.746	1.073	.700	1.645
[foodstamps=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[hispanic4T=1.00]	.444	.2818	-.108	.997	2.484	1	.115	1.559	.898	2.709
[hispanic4T=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[black=1.0]	.496	.2043	.096	.897	5.893	1	.015	1.642	1.100	2.451
[black=.0]	0 ^a	.	.	.	.	.	.	1	.	.
(Scale)	1 ^b									

Dependent Variable: prep

Model: (Intercept), income4T3, foodsec_scale2, hhkids, ageR2, foodstamps, hispanic4T, black

Table 7. Regression analysis: Factors influencing whether households prefer organic foods

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
			Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
(Intercept)	-1.429	.2343	-1.888	-.970	37.196	1	.000	.240	.151	.379
[income4T3=1.00]	-.251	.3389	-.915	.413	.547	1	.459	.778	.401	1.512
[income4T3=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[foodsec_scale2=1.00]	-.085	.3537	-.778	.608	.057	1	.811	.919	.459	1.837
[foodsec_scale2=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[hhkids=1.00]	-.066	.3081	-.669	.538	.045	1	.831	.936	.512	1.713
[hhkids=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[ageR2=1.00]	-.248	.3339	-.902	.407	.551	1	.458	.781	.406	1.502
[ageR2=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[foodstamps=1.00]	-.061	.3819	-.810	.687	.026	1	.873	.941	.445	1.988
[foodstamps=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[hispanic4T=1.00]	-.191	.5011	-1.173	.792	.145	1	.704	.826	.310	2.207
[hispanic4T=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[black=1.0]	.034	.3331	-.618	.687	.011	1	.918	1.035	.539	1.988
[black=.0]	0 ^a	.	.	.	.	.	.	1	.	.
(Scale)	1 ^b									

Dependent Variable: organic

Model: (Intercept), income4T3, foodsec_scale2, hhkids, ageR2, foodstamps, hispanic4T, black

Table 10. Regression analysis: Factors influencing whether households always look at food-item labels

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
			Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
(Intercept)	-.790	.1650	-1.114	-.467	22.951	1	.000	.454	.328	.627
[income4T3=1.00]	-.005	.2275	-.451	.441	.000	1	.982	.995	.637	1.554
[income4T3=.00]	0 ^a	.	.	.	.	.	.	1	.	.

[foodsec_scale2=1.00]	-.125	.2299	-.576	.326	.296	1	.587	.882	.562	1.385
[foodsec_scale2=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[hhkids=1.00]	-.175	.2119	-.591	.240	.685	1	.408	.839	.554	1.271
[hhkids=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[ageR2=1.00]	-.047	.2130	-.464	.371	.048	1	.826	.954	.629	1.449
[ageR2=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[foodstamps=1.00]	.144	.2453	-.337	.625	.345	1	.557	1.155	.714	1.868
[foodstamps=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[hispanic4T=1.00]	.373	.2741	-.164	.910	1.852	1	.174	1.452	.849	2.485
[hispanic4T=.00]	0 ^a	.	.	.	.	.	.	1	.	.
[black=1.0]	-.289	.2376	-.754	.177	1.475	1	.225	.749	.470	1.194
[black=.0]	0 ^a	.	.	.	.	.	.	1	.	.
(Scale)	1 ^b									

Dependent Variable: looklabels

Model: (Intercept), income4T3, foodsec_scale2, hhkids, ageR2, foodstamps, hispanic4T, black

Figure 1: USDA Household Food Security Scale Survey Questions

1. In the last 12 months, did you or others in your household ever cut the size of your meals or skip meals because there wasn't enough money for food? [If "yes," ask question #2]
2. How often did this happen? [Affirmative answers: "almost every month" and "some months but not every month"]
3. In the last 12 months, did you or others in your household ever eat less than you felt you should because there wasn't enough money for food?
4. In the last 12 months, were you or others ever hungry but didn't eat because there wasn't enough money for food?

5. Please tell me whether this statement was often, sometimes, or never true for you or other members of the household in the past 12 months: "The food that we bought just didn't last, and we didn't have money to get more." [Affirmative answers: "often true" and "sometimes true"]

6. Please tell me whether this statement was often, sometimes, or never true for you or other members of the household in the past 12 months: "We couldn't afford to eat balanced meals." [Affirmative answers: "often true" and "sometimes true"]

Map 1: Location of food stores in and around Poughkeepsie

