2015 Assessment of Food Security in Middletown Households with Children

Abstract

The Middlesex Coalition for Children recruited the services of four Wesleyan students to research issues related to food security and access of Middletown households with children. The research goals were to: (1) measure the food security of households with children under the age of 18; (2) evaluate the use of federal and local food programs; (3) assess factors that limit access to food such as income and transportation. In 2005, a similar report, *Food Security and Hunger Among Middletown Households with Children,* was completed using telephone interviews and self-administered surveys. This 2015 study serves as a comparison to the 2005 study, reporting on how food trends have changed over the past decade. This study found that food insecurity among Middletown households with children has doubled in the past ten years, and the recent addition of the marginally food secure category by the USDA highlights that many households could be on the cusp of food insecurity. Income is the strongest indicator of a household's food security status. Moreover, food insecure parents attempt to shield their children from the effects of food insecurity by reducing the quality and size of their meals first, but this becomes increasingly difficult as household income approaches the poverty line. We also found federal and local food aid programs are helping to reduce food insecurity, yet many programs have also seen a decline in use by food insecure families in the past ten years.

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Table of Contents

Figures and Tables

Definitions

USDA's labels describe ranges of food security

Food Security

- **High food security** (*old label=Food security):* No reported indications of food-access problems or limitations.
- **Marginal food security** (*old label=Food security):* One or two reported indications—typically of anxiety over food sufficiency or shortage of food in the home. Little or no indication of changes in diets or food intake.

Food Insecurity

- **Low food security** (*old label=Food insecurity without hunger):* Reports of reduced quality, variety, or desirability of diet. Little or no indication of reduced food intake.
- **Very low food security** (*old label=Food insecurity with hunger):* Reports of multiple indications of disrupted eating patterns and reduced food intake.

(USDA, 2015).

Acronyms

Electronic Benefit Transfer	EBT
Family Educational Rights and Privacy Act	FERPA
Middlesex Coalition for Children	MCC
Supplemental Nutrition Assistance Program	SNAP
Supplemental Security Income	SSI
Temporary Assistance for Needy Families	TANF
United States Department of Agriculture	USDA
Women, Infants, and Children	WIC

Executive Summary

Purpose

To evaluate the rate of food security among Middletown families with children under 18, the Middlesex Coalition for Children recruited Wesleyan University students to conduct an internet survey of parents with students enrolled in Middletown Public Schools, Vinal Technical High School, and Middletown early care facilities.

Definitions

High food security (*previous label=Food security):* no reported indications of food access problems or limitations.

Marginal food security (*previous label=Food security):* one or two reported indications—typically of anxiety over food sufficiency or shortage of food in the house. Little or no indication of changes in diets or food intake.

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(USDA, 2015).

Results

Household Food Security

The following figure displays the food security status of households with children (considering both adults and children). These rates of food insecurity are 65% higher than the national average (Coleman-Jensen et al, 2014).

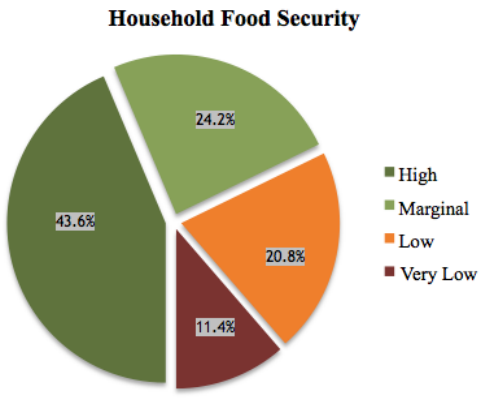

Figure 1. *Household Food Security.* Relative weighted proportions of household food security in Middletown households with children, based on the results of the USDA survey questions.

A Ten-Year Perspective

Figure 2 displays the differences between household food securities in 2005 and 2015. The rates of low and very low food security have doubled in the past decade.

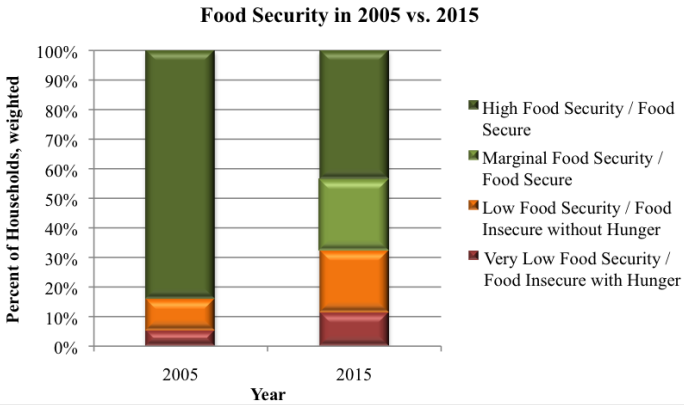

Figure 2. *Food Security in 2005 vs. 2015.* Weighted percentages of Middletown households with children across different categories of household food security.

Child Food Security

When ignoring the adults in a household and looking only at the food security of the children, 77.8% of children have high food security, 21.7% of children have low food security, and 0.5% of children have very low food security.

Figure 3. *Child Food Security.* Approximately two out of every ten children in Middletown are food insecure (orange) and eight out of ten are food secure (green).

Income

As is to be expected, there was a very high correlation between income and food security. Households below 185% of the poverty line were found more likely than not to have food insecure adults, and households below 130% of the poverty line were found more likely than not to have both food insecure adults and children.

Food Aid Programs

Increased use of federal food programs and food pantries corresponded to decreased food security status; yet only half of households with very low food security were enrolled in SNAP or used food pantries and only 15% used WIC.

Free / Reduced School Meals

56% of food insecure households contained children enrolled in the school lunch program compared to 10% of food secure households. Rates of use, however, have declined over the past five years for food insecure households.

Introduction

Access to adequate amounts of nutritious food is the most basic of human needs. However, due to the ever growing income gap between wealthy and poor citizens and issues of accessibility, not all households are able to provide nutritious food for their families. Food security is a unit of measurement, coined by the United States Department of Agriculture (USDA), that quantifies the status of a household's relationship with food. Does a household worry about having enough money to buy food? Do its members sometimes run out of money to buy food before their next paycheck? Are they choosing cheaper, low quality foods over more expensive, nutritious foods? Are the adults in the household cutting back on meal size, skipping meals, going hungry, or losing weight? Are the children doing the same? After a respondent answers these questions, his or her household's food security status can be calculated. It is particularly important to focus on households with children because these households are more at risk for low levels of food security, given that children cannot work to pay for their own food and must rely on wage-earning adults for all their nutritional needs.

There are four categories of food security (high, marginal, low, very low) that describe the level of food security experienced by a household. These categories can also be subdivided to discuss food security for the entire *household*, food security for only the *adults* in the household, or food security for only the *children* in the household (under 18).

The Middlesex Coalition for Children (MCC) is an advocacy organization established in 1992 that works to improve the lives of children in Middlesex county, particularly those in disadvantaged situations. The group is comprised of social service workers, parents, educators, and activists who host monthly meetings to discuss and organize around issues that children face at all stages of development, from "prenatal health through college readiness" (MCC, 2015). Our research team was recruited by the MCC and worked in conjunction with the group's hunger task force sub-committee.

With the help of our research team, MCC hoped to quantify the level of food security of Middletown households with children. Primarily, our study aimed to measure the food security of households with children under 18, evaluate the use of federal and local food programs, and assess factors that limit access to food such as income and transportation.

We spent the first four months of 2015 collecting and analyzing data on the food security of Middletown households with children. The data we collected were the product of an internet survey modeled after the USDA Food Security Survey. To complement the USDA section, our survey added questions pertaining to demographics, the use of food programs, and food accessibility. The survey was sent out to approximately 4200 households with children in Middletown. Over the course of two weeks, 629 residents completed the survey. This report analyzes the results of 500 of the surveys taken by Middletown residents that have children

attending one or more public schooling programs in the area (see Methodology section for an explanation of which surveys were kept and which were discarded).

This study is intended to create a snapshot of Middletown that can easily be compared to a similar report on food security completed in 2005. Because, after adjusting for inflation, there has been very little increase in the average income of Middletown residents over the last 10 years, the MCC thought an updated study could provide numerical support backing their observation that an increasing number of households are struggling to put food on the table.

Background

Food Security

The USDA defines food security as "access by all people [in a household] at all times to enough food for an active, healthy lifestyle" (USDA 2015). There are four categories of food security--high, marginal, low, and very low--that can be used to understand the amount and quality of food a household typically consumes. Before 2006, the USDA had three categories: food secure, food insecure without hunger, and food insecure with hunger. After review, it was decided that these labels were misleading because food security is more accurately represented as a spectrum where one person can easily slide from one designation to another, not separate and distinct categories (USDA, 2015).

To better understand this report, please note that when the term food insecurity is used, the reference is to the newly relabeled categories of low and very low food security.

The gap between food secure and insecure households is best explained by Mark Winne as a "failure of our market economy to serve the basic human needs of those who are impoverished" (Winne, 2008, p. xvi). The link between poverty and hunger is undeniable; however, there are other factors that can influence a household's food security. For instance, beginning in the late 1960s and 1970s, white migration away from urban centers increasingly moved the well-stocked and reasonably-priced grocery stores into wealthy suburbs. This problem is known as supermarket abandonment and it remains today. Many urban households are unable to afford the food at their local grocery stores and must travel longer distances to reach stores with wider variety and cheaper prices (The Food Trust, 2013).

The United States saw a slight increase in food security from 2011 to 2013; however, this number is significantly less than it was in the early 2000s, meaning that there are more people hungry and/or not receiving nutritionally adequate food in the U.S. today than they were a decade ago (Coleman-Jensen, Gregory & Singh, 2014). Given information from various household compositions, Coleman-Jensen et al. calculated average national rates of high, marginal, low, and very low food security. They found that, nationwide, 14% of households experienced food insecurity (either low or very low food security) throughout the year. When looking only at households with children, this number jumped significantly to 20%, displaying the importance of focusing hunger research and policy towards these households (Coleman-Jensen, Gregory & Singh, 2014).

Coleman-Jensen et al. found that the following household compositions had rates of low and very low food security above the national averages:

- All households with children
- Households with children headed by a single woman or a single man
- Households headed by Black or Hispanics
- Low-income households with incomes below 185% of the poverty line

Conversely, Coleman-Jensen et al. found that the household compositions with rates of high and marginal food security above the national averages were:

- Married-couple households
- White, non-Hispanic households
- Households with incomes above 185% of the poverty line
- Metropolitan households located outside of principal cities.

Within Connecticut, the rate of food security has steadily declined in the past ten years. Connecticut households with low food security have increased by 5 percentage points and households with very low food security have increased by 2 percentage points (Coleman-Jensen, Gregory & Singh, 2014). Both of these increases are statistically significant, meaning that they are not due to chance, and are thus cause for concern. At 10%, Middletown has the highest rate of poverty in Middlesex County (United Way, 2015). It therefore can be expected that Middletown also has the highest rate of households with low and very low food security since poverty and food insecurity are inextricably linked.

Food Access Programs

There are many preventative measures in place, both at the local and federal level, that attempt to decrease rates of food insecurity and ease the negative effects of insufficient amounts of nutritious food. These programs range from income-based federal programs to local soup kitchens that are open to anyone who can prove that he or she needs extra assistance. As the poverty data show, these programs are crucial for many people to put food on the table.

Previously known as the food-stamp program, the Supplemental Nutrition Assistance Program (SNAP) is the most prominent federal program in the "domestic hunger safety net" (USDA, 2015). SNAP offers benefits to households with an income below 130% of the poverty line or whose members all receive TANF (Temporary Assistance for Needy Families) or SSI (Supplemental Security Income). These benefits come in the form of an Electronic Benefit Transfer card (EBT), which acts as a debit card and can be used in approved grocery stores to purchase approved products. States provide a specific amount of money to a household's EBT card on a monthly basis. As of January 2015, over 22.5 million American households (or 46 million people) were receiving SNAP benefits (USDA, 2015).

WIC, which stands for Women, Infants, and Children, is another prominent supplemental nutrition program. Eligibility varies state to state, but most commonly a woman must have an income below 185% of the poverty line or be enrolled in SNAP, TANF, or Medicaid, plus be considered "at nutritional risk" by a health professional, and also be pregnant, breastfeeding, non-breastfeeding postpartum, or caring for an infant or child up to five years of age (USDA, 2015). WIC benefits manifest as different food packages that are specially designed to fit the nutritional needs of recipients. These packages contain various products, ranging from milk and

eggs to baby formula and infant cereal. In January 2015, WIC had over 8 million participants (USDA, 2015).

With funding provided by the Healthy Hunger-Free Kids' Act, students in public schools can receive two nutritious meals a day through the School Breakfast Program and the National School Lunch Program. If a child's household receives SNAP benefits, he or she is directly certified for free breakfast and lunch without need of an application (USDA, 2013). Otherwise, the price of the student's meal is calculated based on the household's income, and parents must submit an application to the school displaying the need for free or reduced lunch. Table 1 below shows the pricing of breakfast and lunch in Middletown Public Schools as of 2013.

Price of Middletown Public School Meals

Qualifying Income	Breakfast	Lunch
Above 185% of poverty line	Full price- $1.00	Full price- $2.50 elementary $2.75 middle $3.00 high
131-185% of poverty line	Reduced price- $0.30	Reduced price- $0.40
Below 130% of poverty line	Free	Free

Table 1. *Price of Middletown Public School Meals.* Different prices for breakfast and lunch at Middletown Public Schools depending on the student's free/reduced meal package.

Families in need often also have access to local food assistance programs, including food pantries and emergency soup kitchens. Food Pantry eligibility is based on proving an income below 185% of the poverty line or showing an enrollment in SNAP, WIC, TANF, SSI, or Medicaid. Middletown has four food pantries--Zionist First Baptist, Shiloh Baptist Church, Amazing Grace, and Saint Vincent de Paul--that offer programs ranging from daily meals to monthly plans. Saint Vincent de Paul also serves as a soup kitchen. Additionally, due to the high cost of Middletown's downtown grocery stores, the North End Action Team hosts a weekly farmer's market in the warmer months, providing access to relatively inexpensive fresh fruits and vegetables while simultaneously supporting local farmers.

Consequences of Food Insecurity

If no preventative measures are taken, food insecurity can be detrimental to the health of the household, including diverse negative developmental consequences for children. In 2005, Jyoti et al. presented results from a longitudinal study that evaluated the weight, body mass

index, test scores, and social skills of children who had been exposed to food insecurity over a long period of time. The study found that food insecurity was predictive of poor physical, academic, and social developmental trajectories in children. For example, children who were food insecure in kindergarten were more likely to have impaired performance in reading and mathematics. Among food-insecure young boys, there was a greater decline in social skills. Furthermore, Jyoti et al. found a positive association between psychosocial dysfunction and behavioral and attention problems amongst hungry and at-risk-for-hunger children compared with non-hungry children (Jyoti et al., 2005).

Alaimo et al. conducted a similar study and found a correlation between children in households that were not getting enough food and lowered cognitive, academic, and psychosocial development. For example, they found that children in households labeled "food insufficient" had lower math scores, problems getting along with their peers, and were more likely to have seen a psychologist, repeated a grade, or been suspended (Alaimo, Olson & Frongillo, 2001).

Moreover, when struggling to put food on the table, food insecure households will often turn to cheaper, energy-dense foods, which contribute to weight gain (Jyoti et al., 2005). When compared to food secure households, food insecure households are less likely to consume fruits and vegetables and obtain the daily requirements of fiber and other vital nutrients.

Food insecurity has also been shown to increase depression among adults, which can in turn negatively affect children living in the same household (Brailey, 2013). Children in food insecure households are likely to suffer from many of the aforementioned developmental issues; therefore, they may require extra care. This supplementary need for care places additional stress on the parent or guardian, who is most likely also food insecure, creating a positive feedback loop; a parent or guardian may develop caregiver syndrome (symptoms include depression, fatigue, and irritability), which can further adversely affect the children, who will then require more care. Black et al. studied the effects of multiple stressors, such as food insecurity and caregiver depressive symptoms, on children's health. They found that the more stressors a child lives with, the poorer his or her health becomes. The researchers also found that the federal food program WIC, with its ability to add to the household's food, can decrease the extent of negative effects on some children (Black et al., 2012). Thus, while food assistance programs can alleviate some of the pressure caused by food insecurity, they are not a complete solution to the problem.

Middletown Food Security: A Ten Year Perspective

In 2005, the Middlesex Coalition for Children recruited a team of four students from Wesleyan University's Community Research Seminar to construct a report measuring food insecurity in Middletown. Implementing a telephone survey for parents of public school students and a self-administered survey for parents of children in early child care, the researchers collected food security information, demographics, and food program use from 235 and 94 households respectively. As illustrated in Table 2, they found that Middletown households with

children had rates of food insecurity without hunger (low food security) significantly above the state average but slightly below the national average while rates of food insecurity with hunger (very low food security) were significantly above both the state and national averages (Coddington et al, 2005).

	Households with children	Food insecure, with or without hunger	Food insecure with hunger
	Number	*Percent*	*Percent*
Middletown	5,145	16.1	5.4
CT (estimate)[13]	451,411	11.9	3.3
U.S. total	38,022,115	16.7	3.8

Table 2. *Food Insecurity in 2005*. "Food insecurity and food insecurity with hunger among Middletown, Connecticut, and U.S. households with children, weighed, 2003 and 2005" (Coddington et al, 2005).

This report found food insecurity in Middletown correlated significantly with lower-income households and household compositions typically associated with low income (i.e., single-parent, non-white, and containing children below age 6). Furthermore, food insecure households were more likely to utilize food pantries than the food-stamp program (now SNAP), indicating either a barrier or reluctance to using the federal food program (Coddington et al, 2005).

MCC also recruited volunteers in 2011 to perform a single weekend phone-a-thon to assess food insecurity in Middletown. The study found rates of food insecurity in Middletown households with children similar to those reported in this study, but due to the unreliable nature of the methodology and heavy reliance on volunteers with little training, we will not discuss the results of that study in this report.

Methodology

Study Population

The study population consisted of all Middletown households with children under age 18. Under the guidelines of the Family Educational Rights and Privacy Act (FERPA), we received a list of parent/guardian contact information including parent/guardian names, email addresses, and telephone numbers from Middletown's public high school, two middle schools, and eight elementary schools (see Appendix 1 for complete school list). The public school directory list contained parent/guardian information for approximately 5,300 students enrolled in Middletown Public Schools.

One email was sent to every household on the list, provided that the necessary information was given. To avoid duplicate household responses, we identified households based on address and randomly selected one parent per household. Instructions in the initial email explained that the survey could be forwarded to another adult in the household if the original recipient was unable to respond.

We were also able to send the survey to other participating educational institutions (see Appendix 1). Three preschools and a regional technical high school, while reluctant to provide a list of student directory information, graciously forwarded the survey to all parents of their Middletown students. To compensate for the possibility of surveying the same household twice, we added a preemptive question asking if anyone in the household had previously taken the survey. If yes, the participant was taken to the end of the survey and thanked for his or her time; if no, the participant was allowed to proceed with the survey.

Unfortunately, we were unable to obtain parent contact information from private primary and secondary schools as well as many preschools in the area. We were concerned that the missing private school demographic would likely skew the data. Potentially, we missed a large population of households above 185% of the poverty line, but without data from the private schools, it is difficult to decipher how the survey was specifically affected (see Limitations).

The Internet Survey

Whereas the 2005 report on Middletown food security used telephone interviews and self-administered surveys (Coddington et al, 2005), this study relied on the internet for survey distribution and administration. Fewer people are currently responding to telephone interviews, making them more difficult to administer, and telecommunication technology is also changing faster than telephone survey methodologies (Berrens, 2011). Moreover, most Middletown schools regularly contact parents by email. We predicted that an internet survey method would be the most effective at reaching the greatest number of respondents.

Qualtrics was the internet survey platform used to develop, distribute, and collect data for the report (see Appendix 2 for further detail). It is a secure, web-based survey software commonly used by Wesleyan University and other organizations. We developed two surveys:

one for Middletown Public Schools and another for Vinal Technical High School and the early child care facilities. The only difference between the surveys was the preliminary question in the latter, which was designed to avoid duplicate responses. Because some households have children attending private preschool, public school, and/or the technical school, we were careful to represent each household only once.

The survey consisted of four sections: household composition, the USDA Food Security Survey, program utilization, and food access. Before agreeing to take the survey, participants read an informed consent agreement that included the purpose of the study, an assurance of confidentiality, and an incentive for completing the survey--a $100 gift card to a grocery store of the winner's choice (see Appendix 4 for the informed consent form and Appendix 5 for the complete survey).

The survey was distributed from Wesleyan University's Qualtrics account, permitting us to send reminder emails to all respondents who had not submitted the survey. On the morning of March 8th, 2015, we sent the survey to one parent from every household containing a child enrolled in the Middletown Public School District, provided the school had an email address on record. Following the initial send-out date, we sent three follow-up reminders on March 11th, 16th, and 24th. On each of these days, there was a large spike in responses. The survey for public school parents was closed on March 27th.

The survey sent to the Early Care Facilities and Vinal Technical High School was distributed by their respective directors and principals; thus, the timeline for the secondary survey is more difficult to approximate. Reminder emails were not sent to these respondents because there was no way to distinguish between respondents who had and had not already submitted the survey.

Household Composition

The household composition section contained questions regarding household size, number of children, their ages, and their schools. Later in the survey were questions pertaining to household demographics such as income and race. We included these more sensitive questions later in the survey in recognition that some respondents find such questions uncomfortable; we hoped to encourage their investment in finishing the survey before introducing questions that might lead them to abandon the survey. The income bracket options provided to respondents were based on household income as a percentage of the poverty line and were comparable to the income brackets in the 2005 survey, adjusting for inflation (Coddington et al., 2005). The income categories were: "below 100% of the poverty line," "100%-130% of the poverty line," "130%-185% of the poverty line," and "above 185% of the poverty line." Within the survey, we programmed these percent of the poverty line brackets to appear as dollar amount brackets that depended on the respondent's answer to an earlier question about household size. This is to account for the fact that thepoverty line for a household's income increases with number of residents, the poverty line for a household of three will be different than for a household of eight

USDA Food Security Status

Similar to the 2005 survey, the USDA's Food Security Survey was used to assess whether the household had high, marginal, low, or very low food security. This portion of the survey asked seventeen questions concerning the hunger and food consumption habits of both the household's adults and children (see Appendix 4 and Limitations for further detail). Because we implemented an internet survey as opposed to a phone interview as the USDA Food Survey is typically administered, we slightly altered the wording of the questions to make sense to a reader rather than a listener. These questions served to gauge whether or not families were eating consistent, balanced meals and whether or not they worried about running out of food. The seventeen questions asked about the eating habits of the household as a whole, of the adult taking the survey, and of the children within the household.

When calculating food security status from the results, the USDA Food Security Survey codes the following responses as affirmatives and gives them a score of 1:

- yes
- often
- sometimes
- almost every month
- some months but not every month

All other responses, including missing responses, are given a score of 0 (see Limitations for the one exception of our balanced meals question). Table 3 explains how the raw score can be converted into qualitative categories.

Calculating Household Food Security Status

Raw Score	**Food Security Status**	**Past Label**
0	High Food Security	Food Secure
1-2	Marginal Food Security	Food Secure
3-7	Low Food Security	Food Insecure without Hunger
8-18	Very low Food Security	Food Insecure with Hunger

Table 3. *Calculating Household Food Security Status.* Raw score of USDA Food Security Survey and correlated household food security status.

Program Utilization

Questions about program utilization illustrate the extent to which food insecure households use food assistance programs and emergency response programs. The programs asked about in our survey were SNAP, WIC, free and reduced school breakfast and lunch, and

the use of food banks, food pantries, and soup kitchens. These questions mirrored those in the 2005 survey, allowing us to compare rates of use over the past decade.

Food Access

In addition to the previous questions, we developed an additional section to help clarify why households might struggle to maintain food security. To ensure we were getting a clear understanding of the limitations to food access, we included questions regarding transportation, the pricing of food, and the availability of fresh food in local grocery stores.

Comments

Another addition to the survey was a final open-ended question that asked, "Do you have any comments or concerns about access to food programs or grocery stores in Middletown?" This gave respondents an opportunity to voice opinions on issues that were not asked about in the survey or that needed further elaboration, adding to the picture of hunger and food insecurity in Middletown. These comments also gave qualitative substance to the quantitative data, helping to clarify issues faced by food insecure households.

Response Rate

Combining the surveys for the Middletown Public School District and early care facilities/Vinal Technical High School, there were 629 respondents. Approximately half of the respondents started the survey but did not hit the final submit button. Typically, these non-submitted responses would not be counted, but due to the high volume of respondents who finished 95% of the survey, we concluded that many people finished the survey without realizing a need to hit the final submit button. This seems plausible because the final page held no questions--only links to resources such as the raffle drawing and 2-1-1 Connecticut (see Appendix 5). These links may have distracted many respondents from finalizing the survey submission.

To avoid including in our analysis respondents who opened the survey without finishing it to completion, we discarded responses from respondents who did not reach the final question: "Can we contact you by phone?" If a respondent answered the final question or saw but declined to answer the final question, we knew he or she had reached the end of the survey. Thus, we only accepted responses from respondents who reached the final question.

To ensure the survey collected data only from Middletown households with children under age 18, we also discarded responses from non-Middletown residents and from parents with no children under age 18. Moreover, because food security was weighted based on income, we discarded responses that did not contain income information; retaining these responses would have been moot because the weighting mechanism of our statistics program (discussed below) automatically deletes responses missing that variable from the analyses. After deleting 129 responses, the final sample size from the survey was 500 respondents.

Representativeness of the Population

To make certain the survey was an accurate representation of the Middletown population, we compared the demographics of the survey to the 2009 - 2013 US census estimates of Middletown households with children (USCB, 2015). The first priority was to compare income brackets because we were worried that the use of an internet survey would skew the responses away from low income (and potentially food insecure) households without access to computers. On the contrary, we found that the survey had more respondents from the lowest-income category than the comparison census population (see Table 4 below). This is likely due to the missing private school demographic.

Using a chi-squared test, we found a statistically significant difference between the 2009-2013 US census data and the survey. We assumed that the census was representative of Middletown; therefore, we calculated weights for each of the income brackets using the census sample N to produce expected values. All responses from households within an income bracket were multiplied by the corresponding weight. This inflates the responses of underrepresented income populations (above 185%) and deflates the responses of overrepresented income populations (below 185%).

Survey versus US Census Income Bracket Counts and Corresponding Weights

Income (as a percentage of the poverty line)	**2009-2013 Census**	**2015 Survey**	**Weight**
Below 130%	806	135	0.605
130-185%	443	55	0.816
Above 185%	3688	310	1.205

Table 4. *Survey versus US Census Income Bracket Counts and Corresponding Weights.* Unweighted counts of survey respondents in the different income brackets compared to the expected counts based on the most recent US Census. (USCB, 2015)

Analysis

When analyzing the results, we used Spearman's rank order to quantify the correlations between two factors. In other words, we looked at how strongly two factors, such as household food security and income, appeared to relate to one another. The strength of the correlation is represented by "r", the correlation coefficient. If r is 0, there is no correlation. For example, if household food security versus income has an r of 0, then the households within every income bracket are equally likely to have high, marginal, low, or very low food security. (The two factors are completely unrelated.) As r approaches +/- 1, the correlation between the two factors strengthens. If r is 1, then the two factors are perfectly correlated with one another. For example, if household food security versus income has an r of +1, then every household with high household food security is above 185% of the poverty line and every household with very low food security is below 100% of the poverty line. Any comparison where r is greater than +/- 0.1 shows a significant correlation and the two factors are very likely related. It is important to note, however, that correlation does not equal causation. If two factors are correlated, one does not necessarily affect the other and there may be a third underlying factor affecting both.

Limitations

One potential issue within our study is that we used income categories that were based on the eligibility for free and reduced lunch status. The income categories, as percentages of the poverty line, were: "below 100%," "100%-130%," "131%-185%," and "above 185%." Utilizing those same categories, we weighted our data against the income data from the 2009-2013 American Community Survey 5 Year Estimates of Middletown, which has the categories of: "below 130%", "131%-149%", "150%-184%", and "185% and above" the poverty line. These categories did not align exactly and our weight was calculated using the following categories of the poverty line: "below 130%", "131%-185%", and "above 185%".

Moreover, the highest income bracket asked about in our study was "above 185% of the poverty line"--a category that could incorporate both financially struggling and wealthy households. This expansive income category could explain why our weighted data displayed a large quantity of moderately food secure households. To more accurately understand the population of Middletown, our income question could have broken down the "above 185%" category into multiple brackets, allowing us to see more specifically where the marginally food secure group lay along the income scale.

Related to this issue, as we've previously mentioned, we were also unable to secure parental contact information from private schools and many private preschools. These households would have likely been skewed towards wealthier residents, who are very likely to be food secure. As a result, high income families were underrepresented in our sample. Based on this concern, we weighted our data using 2009-2013 census data so that groups that were not accounted for in our sample were given the correct weight so that their demographic was not overlooked.

This underrepresentation was also potentially exaggerated by food secure parents who did not feel that a survey on food and hunger would apply to them. If these parents did not take the survey, this might explain why our sample is skewed towards low-income, food insecure households.

While our study was set up to asses the rates of food security for all households with children in Middletown, we know the population of children that are most at risk are those enrolled in the public schools. Looking simply at the public school households, the income brackets are different than the city's census for which we weighted our data. After weighting, our study found 25.3% of the population was under 185% of the poverty line (or eligible for free and reduced lunch). Statistics from a 2011 CT Department of Education report listed the free and reduced lunch rate in Middletown public schools to be 46.3%, and it has only been growing since. It is important to take this discrepancy into account when planning policy or action solely for the public schools with the understanding that data from this report may be an underrepresentation of the prevalence of food insecurity for these students.

We also made an error in the development of the Food Security section of the survey. We accidentally omitted question CH6, regarding child food security,which asks “In the last 12 months, (was your child/were the children) ever hungry but you just couldn't afford more food?” Because this question is an indicator of severe food insecurity, it was likely already answered by households that were otherwise qualified as food insecure. Thus, the absence of CH6 should not have affected the data drastically. There were only nine households that could have had a different food security status depending on their answer to this accidentally omitted question. Furthermore, question HH4, which asked about balanced meals for the household, was positively phrased when it should have been negatively phrased. In this instance, the results were reverse scored to counteract the incorrect language.

Results

(Note: All results have been weighted against income from the 2009-2013 American Community Survey 5 Year Estimates census. Please see methodology section for details.)

> "[W]e are a two job house hold and still can't keep enough food in our home, as my children get older they eat more, I visit a different food bank once a week, we have one car and it makes it hard to get to all the food banks in town, I am on WIC and I use coupons and shop where ever I can find the the cheapest food... And yet we have to make the tough choice which one of us adults only don't eat or eat less, if my children didn't get free breakfast and lunch at school I don't know what we would have done, and don't get me started on Summer Time I am dreading it I just pray we make due, we have a preschool and pay $87 a week and we are so behind bc I have to feed my kids and I need affordable child care or I can't work. I dread when my kids say they are hungry." - Middletown Resident, 2015

Food Security

Rates of low and very low food security, previously labeled food insecurity with and without hunger, have practically doubled in the last ten years from 2005 to 2015 in Middletown households with children. The rate of low household food security has increased from 10.7% to 20.8%, and the rate of very low household food security has increased from 5.4% to 11.4%. As a result, the percentage of food secure households, those with high and marginal household food security, has decreased from 83.9% to 67.8% (n=500). Figure 4 displays comparative rates of household food security in 2005 and 2015.

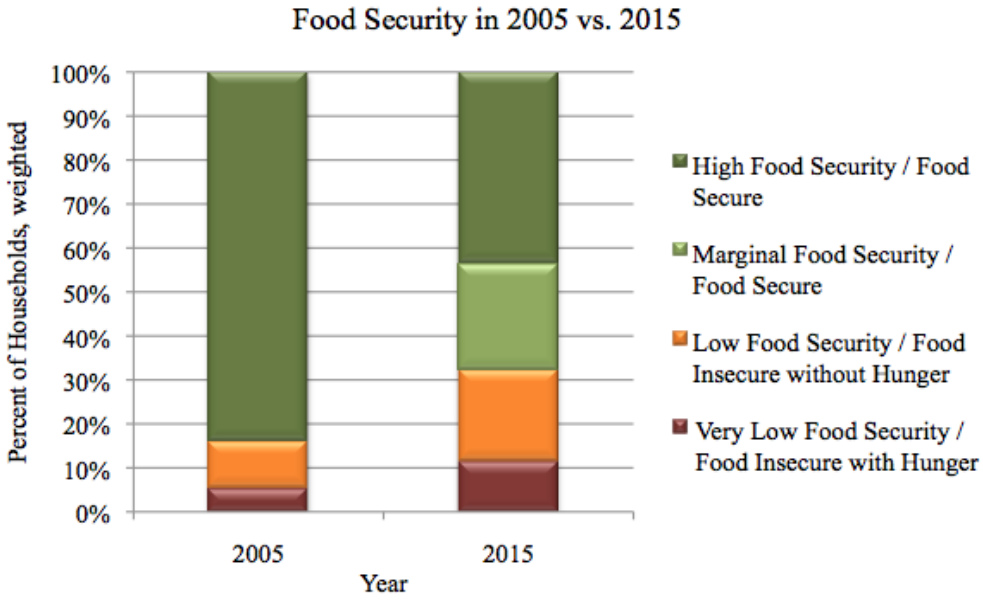

Figure 4. *Food Security in 2005 vs. 2015.* Weighted percentages of Middletown households with children who fall into the different categories of household food security.

The four categories of food security represent four different relationships between the members of a household and their food intake. Being highly food secure means that a family does not have to worry at all about food and is able to feed themselves three balanced, nutritious meals a day. The category of marginal food security highlights households that are food secure but could be on the cusp of falling into the low food security category. For example, marginally food secure households may worry about running out of money to buy food but have never had to skip meals. If a household has low food security, members may be unable to buy high quality, nutritious food for their families and/or could be cutting back on the size of their meals. Households with very low food security may be cutting back on portion sizes, skipping meals, going hungry, and/or losing weight because they are not eating enough food. These four categories are on a sliding scale, and across the years, families may shift from one to the other, depending on their current circumstances. The most relevant circumstances when considering why families shift between categories are change in income and household size. For example, if a family member is laid off or fired from a job, all of the sudden the household could slip from the highly food secure bracket to the marginal or low food secure bracket in a matter of weeks. Additionally, as the cost of housing and rent rises, individuals who once considered themselves secure may slip out of the bracket because they are allocating more funds towards putting a roof over their heads.

Food security can also be talked about on three different levels: household, adult, and child. These different levels indicate the group of individuals being labeled as "food secure" or "food insecure." *Household* food security refers to the food security status of all adults and all children living in the same residence. As subcategories of household food security, *adult* food security refers only to the food security status of household members who are above the age of 18 and *child* food security refers only to the food security status of household members under the age of 18. Adult food security and child food security do not take into account the impacts of the food security status of the other members of the household.

Household
/ \
Adults Children

Household food security is the most commonly discussed level of food security because it views the entire family as one cohesive unit. If one member of a household is food insecure, the entire household is considered to be food insecure. Nevertheless, adults tend to place the consequences of a household's lack of food upon themselves before they let it affect their children's well-being; therefore, children living in food insecure households may not be food insecure themselves. However, the food secure children of food insecure guardians may still feel non-dietary repercussions of their guardians' food insecurity. Because child food security is measured without considering adult food security, child food security cannot tell researchers if children are undergoing negative effects of their guardians' food security status such as aggression or irritability.

The USDA combines high and marginal child food security to prevent labeling children as highly food secure when they may be living in a food insecure household and feeling the non-dietary consequences of food insecurity. By combining both the high and marginal categories, the USDA recognizes the ambiguity of defining which type of food security a child is experiencing (high or marginal) when the food security status of the parent is unknown.

Throughout the following sections, household food security will be discussed and adult food security will be compared to child food security within the context of the factor(s) being analyzed.

This study found that more than one in five Middletown children (22.2%, n=1027) are food insecure. This number is double what is was ten years ago. Figure 5 shows the different rates of household food security and child food security. Among Middletown households with children, considering both adults and children, 43.6% had high household food security, 24.2% had marginal household food security, 20.8% had low household food security, and 11.4% had very low household food security (n=500). Considering only the children of those same households, 78.5% of households had high/marginal child food security, 21.0% had low child food security, and 0.5% had very low food security (n=500).

Moreover, children living in households with low household food security had approximately a 49% chance (n=103) of being food insecure themselves, and children living in households with very low household food security had approximately a 95% chance (n=56) of being food insecure themselves.

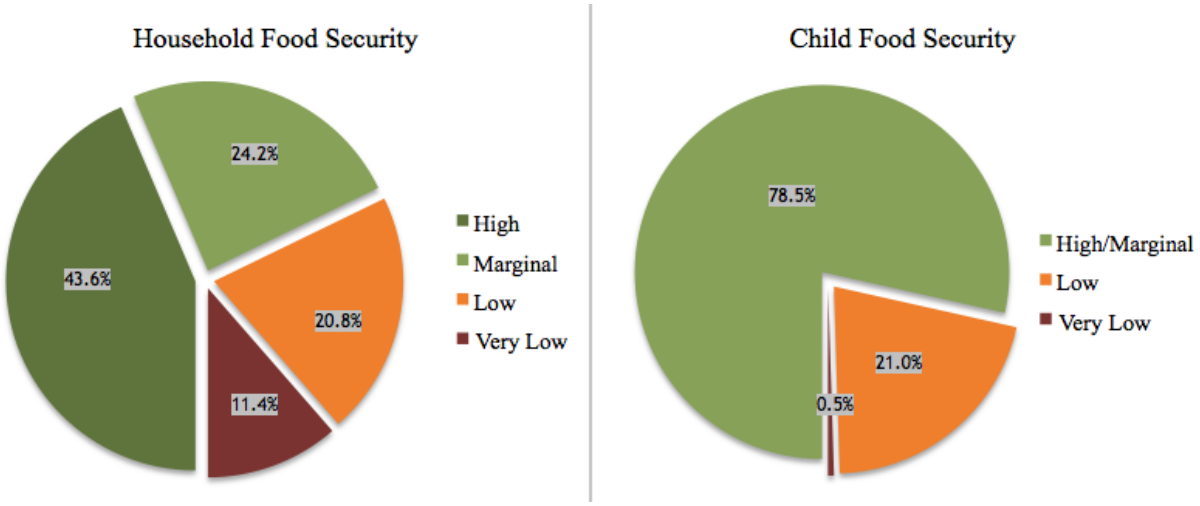

Figure 5. *Household and Child Food Security.* The relative proportions of households with children that fall into the different categories of household and child food security.

These graphs also highlight the importance of new food security categories, most notably the addition of the "marginally food secure" group. The creation of this new category allows this study to paint a much clearer picture of food security. Without the marginally food secure group, it would appear that there is a higher percentage of households who are not impacted or worrying about food--which is not the case. Not only are 32.2% of households actively food insecure (i.e.,

in the low or very low food security categories), but the marginal category represents nearly another quarter of the population who may at some times be worrying about food. Similar to residents of many other cities comparable in size, Middletown residents struggle as the cost of living becomes more expensive while the median income remains the same. More individuals are beginning to have trouble putting nutritional and balanced meals on the table.

Income

Similar to findings in earlier literature, household food security was directly correlated with income in this study (r=-.585). These studies explain that individuals with higher income are more likely to be food secure because they have surplus money to spend on healthy and nutritious foods. In this study, 82% (n=373) of the households with income above 185% of the poverty line were food secure (see Figure 6). Conversely, as other works have explained, individuals who do not have a substantial income are less likely to be food secure because their money is going towards the cost of housing, transportation, and other costs of living. This reality was candidly described by one of the survey respondents:

> Healthy food is impossible to afford these days. We make great money - professional careers- property taxes and economy make us live like we are poor. We do not qualify for any services but we pay into the tax base.

While food insecurity occurs within all income brackets, this study found that 80% (n=54) of households below the poverty line were food insecure (see Figure 6).

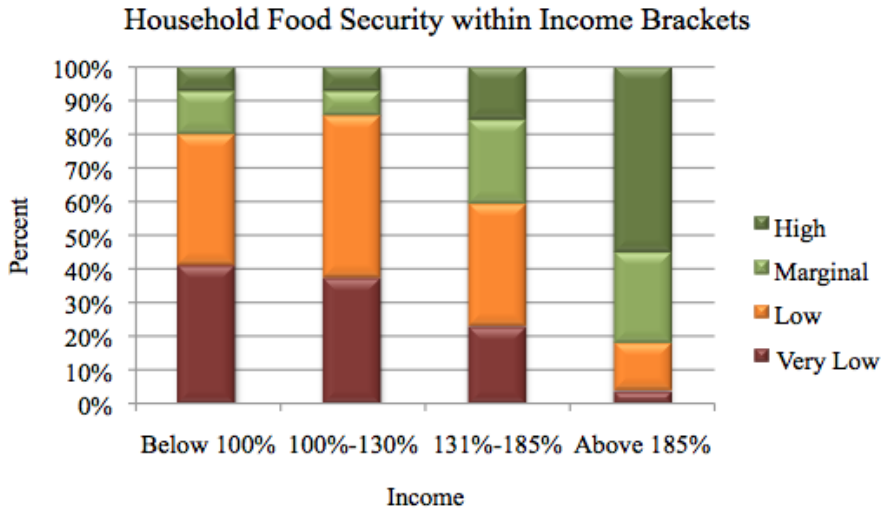

Figure 6. *Household Food Security within Income Brackets.* Percentages of households by food security status within the separate income brackets.

A growing concern in Middletown is the large size of the marginally food secure group. Even in the highest income category measured (above 185% of the poverty line), 27% of

households (n=373) were marginally food secure (found mainly, we assume, at the lower levels of that broad income category). Potentially, more individuals are falling into this marginally food secure group because, as the price for necessary expenses such as housing, transportation, and insurance rises, it becomes harder to commit to buying more expensive food items such as fresh and nutritional foods. Figure 6 also calls attention to the individuals who are in "above 185%" but are also in the very low food security group. The harsh reality is that even if households do have a sizeable income, affording a balanced diet is becoming harder for all people, not just those near or below the poverty line.

Child and adult food security were also significantly correlated with income (r=-.515, r=-.562). Children living in households above 130% of the poverty line (n=419) were six times more likely to be food secure (86%) than food insecure (13%), while children living in households below 130% of the poverty line (n=81) were more likely to be food insecure (51%) than food secure (37%). Adults living in households above 185% of the poverty line (n=373) were also six times more likely to be food secure (86%) than not (14%), while those living in households below 185% of the poverty line (n=126) were almost twice as likely to be food insecure (65%) than not (35%).

Note that income affects an adult's food security more sensitively than a child's. Within the 131%-185% income bracket, adults are more likely to be food insecure while children are more likely to be food secure. This means than many households within the 131%-185% income bracket contain food insecure adults living with food secure children, due largely to the parents' willingness to sacrifice their own diets before those of their children. Effectively, this creates a food security shield for children living in households between 131%-185% of the poverty line. While this shield is meant to protect children from the negative impact of food insecurity, in many ways, as we found in previous studies, the children can still be affected. For example, when parents are not eating, they are lethargic, less attentive and can be highly irritable, which can have lasting effects on the welfare of the child. This shield, however, disappears and parents can no longer bear the entire burden when their income falls below 130% of the poverty line. Consequently, most children living in households below this line are no longer shielded from the dietary consequences of their household's food insecurity.

Household Size

Household, adult, and child food security were all weakly, yet significantly, correlated to household size. Unfortunately, the pattern of these correlations does not lend itself to obvious conclusions. Of the three food security measurements, child food security held the strongest correlation to household size.

Trends regarding household size followed a parabolic curve. Few respondents had two-person or eight-person households while many respondents lived in four-person households. Food security also followed this parabolic pattern; the two- and eight-person households were more likely to have low child food security than the four-person households. Of the two-person

households (n=31) and of the eight-person households (n=4), approximately half of both had low child food security. Meanwhile, only 12% of the four-person households (n=206) had low child food security. Among adults (with their higher levels of food insecurity), 58% (n=31) of two-person households and 50% (n=4) of eight-person households had low or very low adult food security while only 20% (n=206) of four-person households had low or very low adult food security.

This food security versus household size curve is likely due to differences in income. A two-person household would contain one wage-earning adult and one child and an eight-person household would contain more children and/or elderly members than wage-earning adults while a four-person household would typically contain two wage-earning adults and two children. However, because household size did not correlate significantly with income, and we were unable to draw any conclusive links.

Race

The majority of Middletown residents are white, non-Hispanic; however, there is a large black, non-Hispanic, Hispanic, and multi-racial population (see Table 5). For this study, the majority of the survey respondents were white, non-Hispanic, but the results demonstrated that race and household food security were significantly correlated (r=.234). Income was also correlated with race (r=-.282), reflecting a national trend noted in the previous food security literature. These results reflect a primary relationship between race and income, of which household food security status is a product. Consequently, household food security is only indirectly related to race because of the role race can play in household income.

Racial Breakdown Comparisons

Race	**2015 Survey**	**US Census 2009-2013**
White, non-Hispanic	68.4%	70.0%
Black, non-Hispanic	10.3%	12.2%
Hispanic of any race	7.9%	9.5%
American Indian or Alaskan Native, non-Hispanic	0.6%	0.0%
Asian or Pacific Islander, non-Hispanic	3.6%	0.0%
Multi-racial	7.4%	3.4%
Other	1.9%	0.3%

Table 5. *MCC 2015 Report Racial Breakdown.* Weighted percentages of survey respondents who identified as a certain race compared to the most recent US Census estimates of Middletown.

Of the respondents who had an income above 185% of the poverty line (n=370), 3 out of 4 were white, non-Hispanic. Only 1 out of 2 of the respondents who had an income below the poverty line indicated that they were white, non-Hispanic (n=54). So while there may not be an immediate relationship between race and household food security, race (as previously mentioned) could be a moderating variable between income and household food security.

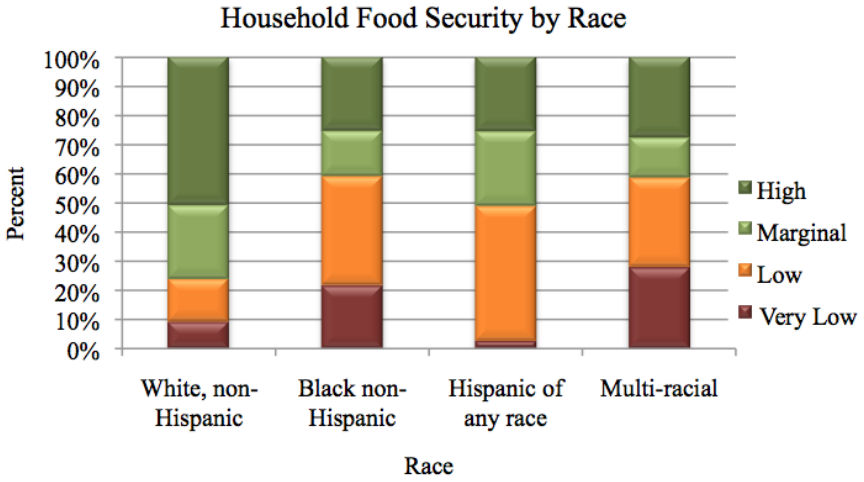

Figure 7. *Household Food Security by Race.* Weighted percentages of households with high, marginal, low, or very low household food security within race category.

In this study, 1 in every 2 respondents with low and very low household food security were white, non-Hispanic (51%, n=159), 1 in every 5 were black, non-Hispanic (19%, n=159), and 1 in every 8 were multiracial (13%, n=159). Within the high household food security bracket, 80% were white, non-Hispanic and 6% black, non-Hispanic (n=216). While white, non-Hispanics are more likely to be food secure than food insecure, the opposite is true for black, non-Hispanics (see Figure 7). These numbers narrate the strong relationship between race and income. For example, of the white, non-hispanic respondents, about 50% were highly food secure. Meanwhile, respondents who were Black, Hispanic, or Multi-racial had a larger percentage of households spread across the marginal, low, and very low food security groups. These results support an exponentially growing narrative that discusses the impact race can have on an individual's salary and, accordingly, an individual's ability to afford and put balanced meals on the table at the end of the day.

Although race was not found to be correlated to food access or availability, the comments section of our survey sometimes suggested a different story. One respondent indicated that race impacted where the family would go to buy food:

> I'm Hispanic. We cannot do balanced diets for a family of four. So we all have to eat the same thing most of the time, which is rice, beans, chicken, beef or pork. Usually a peanut butter sandwich and my daughter tries to eat school lunch. A [bigger] variety of spanish products

> [would] help us.. And stop and shop spanish products are too [expensive]... So we have to drive further to go get our items.

It is conceivable that this resident is representative of other Middletown residents who feel the need to travel far to access foods that they are culturally familiar with or feel more comfortable cooking.

Use of Federal Food Assistance Programs

If a household's income is under 185% of the poverty line or if it is receiving federal aid, household members may qualify for a number of different federal food assistance programs. Free and reduced breakfast and lunch programs reduce the amount a family needs to pay for children's school meals. Supplemental Nutrition Assistance Program (SNAP), previously known as food stamps, offers a preloaded card that can be used when shopping in specific grocery stores or markets, adding to the amount a recipient may be able to spend each month on food. WIC (Women, Infants and Children) is a similar program designed specifically for women with children under the age of 5 to receive additional supplements to their normal diet.

We found strong positive correlations between household income and all of the federal food assistance programs we asked about. This is logical because income is the qualifying factor for a household or individual to use the programs in the first place. Of all three, free and reduced lunch had the strongest correlation coefficient (r=.737, n=496). Free breakfast also had a strong correlation (r=.673, n=497) but was a little less strongly related than lunch. SNAP had the second highest correlation (r=.711, n=496), and WIC had a lower (but still statistically significant) correlation (r=.169, n=488), likely because only women with children under five qualify to use WIC.

The use of federal food aid programs increases as food security declines. We found all of the federal programs were significantly correlated with household food security yet less strongly than they were with household income (likely because eligibility is based on income, not level of food security). As with income, free and reduced lunch had the strongest correlation (r=-.541, n=496), SNAP had the second strongest (r=-.486, n=496), free and reduced breakfast was third (r=-.468, n=497), and WIC was also statistically significant but with a much lower correlation with household food security due to its eligibility requirements (r=-.123, n=488).

In order to see if the programs are making a difference for Middletown households with children, it is essential to look at the percent use and eligibility of the most vulnerable populations (i.e., low and very low food security and under 130% of the poverty line).

Free and Reduced School Meals

Free and reduced school meals had the highest rate of use out of all of the food aid programs we asked about. This seems appropriate for this study because we were focusing on households with children and specifically used schools to contact them. Out of all respondents,

21% (n=496) had utilized free or reduced breakfast in the past thirty days while 25% (n=496) had utilized free or reduced lunch.

The rate of use was higher for households with low food security, although importantly, a fair number of families in the marginal category were also using these programs for breakfast (13%, n=120) and lunch (15%, n=120) despite the fact that they were technically food secure. The use by the lowest food security categories was, however, far less than would be expected if everyone eligible received benefits; 47% (n=103) of households with low household food security and only 74% (n= 57) of households with very low food security used free or reduced lunch. The use of free and reduced breakfast programs was even lower with only 39% (n=103) of households with low food security and 61% (n=57) of households with very low food security participating.

Free and Reduced Meals and Food Security Status

	Free and Reduced Lunch			**Free and Reduced Breakfast**		
Household Food Security Status	*# yes*	*# no*	*program use*	*# yes*	*# no*	*program use*
High	14	202	6.5%	14	202	6.5%
Marginal	18	102	15.0%	16	104	13.3%
Low	48	55	**46.6%**	40	63	**38.8%**
Very low	42	15	**73.7%**	35	22	**61.4%**
Total	122	375	*24.5%*	105	391	*26.9%*

Table 6. *Free and Reduced Meals and Food Security Status.* Weighted number of respondents, separated by household food security, whose children receive free and/or reduced lunch.

Free and Reduced Lunch and Household Income

Household income as % of poverty line	**Free and Reduced Lunch**		
Above 185%	29	341	7.4%
131%-185%	20	24	45.5%
100%-130%	24	4	**85.7%**
Below 100%	49	5	**90.7%**
Total	122	374	*24.6%*

Table 7. *Free and Reduced Lunch and Household Income.* Weighted number of respondents, separated by income, whose children receive free and/or reduced lunch.

To qualify for reduced lunch, the household must have an income below 185% of the poverty line. It was found that 46% (n=44) of surveyed households between 131% and 185% of the poverty line had children utilizing this service within the past thirty days. Any income below 130% of the poverty line qualifies a household's children for free lunch. It was also found that 86% (n=28) of households in the 100%-130% bracket and 91% (n=54) of households below 100% of the poverty line contained children who had received free lunch in the past thirty days.

However, as illustrated by the comment below, a number of households struggle to pay for their child's school meals despite the fact that their income is not low enough to qualify for the program:

> Income levels for reduced price lunch should increase. Majority of those that make above the guidelines receive no assistance and [it] would greatly benefit hardworking parents.

This comment shows that, even with the higher income cutoff for reduced price meals, the program does not offer support for some working-class parents who still might be struggling to make ends meet.

Supplemental Nutrition Assistance Program

Of all respondents, 15.8% said they had received SNAP benefits in the past twelve months. Rates of SNAP use increased for the low and very low food secure households who used SNAP at 32% (n=103) and 51% (n=57) respectively. Nevertheless, it is alarming to see such a low rate of food program use by households with very low food security. The lowest income groups have the highest percentage of SNAP use with 85% (n=54) of households below the poverty line and 52% (n=27) between 100%-130% of the poverty line using the program. Above 130% of the poverty line, participants technically should not qualify for SNAP so it is possible that the 19 non-qualifying respondents who indicated SNAP use had either experienced financial changes within the last year or overestimated their income on our survey. (See Table 8.)

SNAP Utilization by Household Food Security and Income

Household Food Security Status	# Yes	# No	SNAP utilization		*Household income as % of poverty line*	# Yes	# No	SNAP utilization
High	4	212	1.9%		Above 185%	10	358	2.7%
Moderate	13	106	10.9%		131%-185%	9	36	20.0%
Low	**33**	**70**	**32.0%**		**100%-130%**	**14**	**13**	**51.9%**
Very Low	**29**	**28**	**50.9%**		**Below 100%**	**46**	**8**	**85.2%**
Total	*79*	*416*	*19.0%*		*Total*	*79*	*415*	*19.0%*

Table 8. *SNAP Utilization by Household Food Security and Income.* Weighted number of respondents using SNAP, separated by household food security and income.

The use of SNAP increases as the food security of adults and children in a household decreases, but significantly, households with food insecure children were more likely to be enrolled in SNAP than households with food insecure adults alone. Approximately 2% (n=232) of households with high adult food security, 15% (n=131) with marginal, 32% (n=73) with low, and 51% (n=59) with very low were enrolled in SNAP; approximately 9% (n=387) of households with high/marginal child food security and 42% (n=107) with low or very low were enrolled in SNAP. This phenomenon is reminiscent of the food insecurity shield placed on children in the 131%-185% income bracket: some parents may enroll in SNAP specifically to help support their children if they are feeling the effects of the household's food insecurity. Thus, while the majority of Middletown's households with children do not utilize SNAP, households with hungry children are likely to be enrolled in the program. However, even if people are enrolled in the program, it does not always mean they are food secure. As one respondent explained, "[F]ood is too high priced and the snap benefits are going down which is making it harder and harder to feed our children."

Special Supplemental Nutrition Program for Women, Infants, and Children

The use of WIC was lower than the use of SNAP (likely due to more restrictive program qualifications) with 14% (n=102) use by low food secure households and and 13% (n=57) use by very low food secure households. The use of WIC by the lowest income groups was higher than by the lowest food security groups for all categories except "100%-130% of the poverty line," which was lower at 7% (n=27). WIC use for the "below 100%" group was 25% (n=49). (See Table 9.)

WIC Utilization by Household Food Security and Income

Household Food Security Status	# Yes	# No	WIC utilization		*Household income as % of poverty line*	# Yes	# No	WIC utilization
High	2	204	1.0%		Above 185%	11	340	3.1%
Marginal	6	107	5.3%		131%-185%	4	38	9.5%
Low	**13**	**82**	**13.7%**		**100%-130%**	**2**	**25**	**7.4%**
Very Low	**7**	**47**	**13.0%**		**Below 100%**	**12**	**37**	**24.5%**
Total	*28*	*440*	*6.4%*		*Total*	*29*	*440*	*6.6%*

Table 9. *WIC Utilization by Household Food Security and Income.* Weighted number of respondents using WIC, separated by household food security and income.

Local Food Assistance Programs

Food pantries are available to anyone who can show proof that his or her household income is below 185% of the poverty line or proof of enrollment in SNAP, WIC, TANF, SSI, or Medicaid. Despite Middletown having local food assistance programs, some respondents felt such programs did not provide enough support:

> Our children are starving now and the food prices keeps rising. Although my child and I are barely making it, it's mainly because we are helping another family who hardly have food. There are not enough food banks either because people can't donate anymore. I'm divorced and on medical disability, so my financial situation is really tight.

This respondent highlights the growing deficit of local food programs that cater to families who have no where else to turn. Because food banks are no longer in abundance, residents are turning to friends and other members of their families for food, even if those other individuals are not themselves food secure.

The use of food pantries was more widely reported than soup kitchens with 12% of the survey population (n=500) reporting their utilization in the past 12 months. Reasonably, the use of food pantries increased as the food security status decreased; however, less than half of the very least food secure households, which need food pantries the most, had taken advantage of them within the past year.

As with all food assistance programs, the highest rate of use was from households in the the lowest income brackets and, to a lesser extent, those in the lowest food security brackets. We found that 52% (n=52) of households with income below 100% of the poverty line used food pantries while 42% (n=26) of households between 100%-130% of the poverty line also used them. Within the very low food security group, 46% (n=56) had used food pantries, but the number for households with low food security dropped to a 27% (n=103) rate of use.

Use of Food Pantries and Household Food Security

Household Food Security Status	# Yes	# No	Food Pantry utilization		*Household income as % of poverty line*	# Yes	# No	Food Pantry utilization
High	2	216	0.9%		Above 185%	14	359	3.8%
Marginal	5	115	4.2%		131%-185%	8	37	17.8%
Low	**28**	**75**	**27.2%**		**100%-130%**	**11**	**15**	**42.3%**
Very Low	**26**	**30**	**46.4%**		**Below 100%**	**27**	**25**	**51.9%**
Total	*61*	*436*	*12.3%*		*Total*	*60*	*436*	*12.1%*

Table 10. *Use of Food Pantries by Household Food Security Status and Household Income.* Weighted number of respondents in each category, considering both household food security status and income versus food pantry use.

Again, concern for children's food security appears to be important in encouraging program use. The use of food pantries was more strongly correlated with child food security than adult food security (r=-.497, r=-.406), and the only category of households more likely to use food pantries than not was the most severe category: very low child food security.

Interestingly, the only food assistance program that was not significantly correlated with income or household food security was the use of a soup kitchen (r=.031). However, this can be explained by the very low number of people that responded that they used soup kitchens--only 7 out of 500 or 1% of the survey population. This group of people fell across all income brackets, and due to the low response rate, this information cannot tell us very much about the soup kitchens.

Though use of the food pantries is clearly helpful in avoiding food insecurity for those using these programs, even full utilization may not be enough. One respondent told us:

> Amazing Grace only provides '3 days worth' of food. Sometimes that's not enough. I work a good full-time job but it's just not enough to support a family of 4. I get a small amount each month from SNAP and the income I have left after paying bills and rent does not leave much for groceries. It certainly does not leave enough for fresh produce and fruits. My family and I are very healthy eaters and concerned about nutrition, yet we're forced to make inadequate and less healthy food choices because they're more affordable.

Are Food Assistance Programs Working in Middletown?

When comparing the percentage of free and reduced meal program use by household income versus household food security status, there is a higher rate of program enrollment in the lowest income groups than in the lowest food security groups (see Tables 6,7,8,9,10 above). In other words, low-income households are more likely to enroll their children in free and reduced meal programs than food insecure households. When considering the qualifying income thresholds for free and reduced lunch are the same for SNAP and WIC, respectively, we can draw two conclusions:

1) Households below 130% of the poverty line are using federal food assistance programs at a high rate and thus increasing their food security status. This means that the programs are working well to reduce hunger and food insecurity. While program use does not affect income, it does affect food security status.

2) Because more low-income households are using food assistance programs than food insecure households, food programs might be missing their desired demographic of hungry people. Perhaps some households that do not financially qualify for the federal programs are still having difficulty accessing nutritious food and are therefore stuck in the low or very low food security category without assistance. This could also be explained by an issue of paperwork where the household is eligible but has not applied.

For children to receive free or reduced breakfast/lunch, their parents must sign a piece of paper and supply income information. A number of situations could arise that could obstruct a food insecure household from returning that permission slip. For SNAP and WIC, the paperwork is even more burdensome and is frequently criticized for its inaccessibility.

It is likely that both hypotheses are true--at least to a certain extent. To get a sense of which trends are more likely, we examined the rate of program use versus program eligibility for different food security groups in comparison to 2005 (see Figure 8). By analyzing participation rates of all who are eligible, we can understand where obstacles exist that deter individuals from completing the program's application.

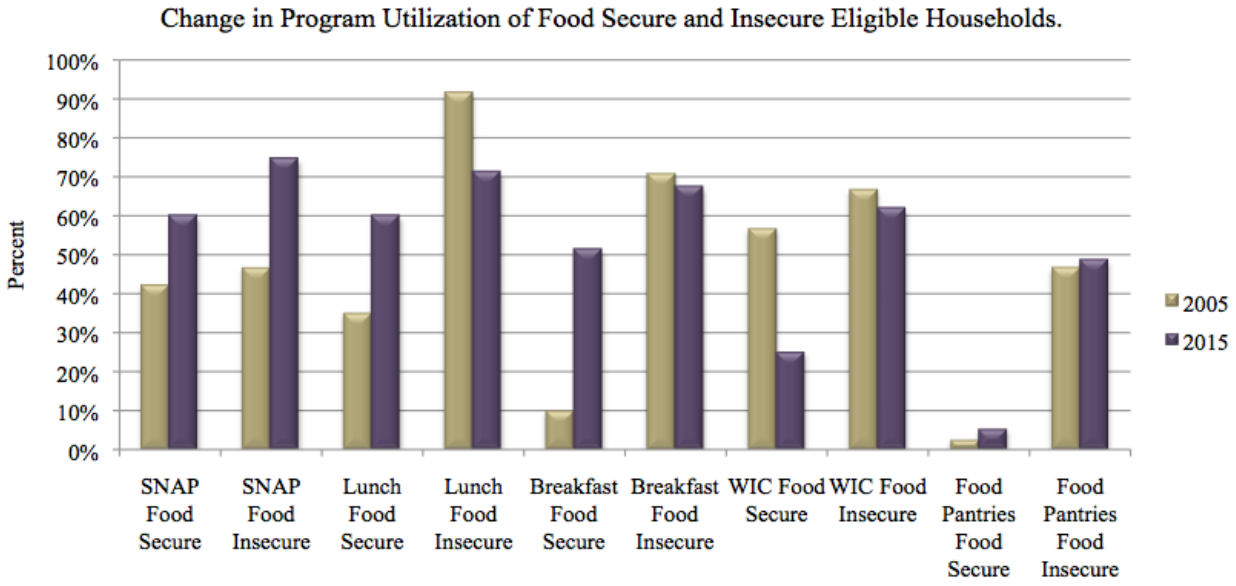

Figure 8. *Change in Program Utilization of Food Secure and Insecure Eligible Households.* Weighted differences between 2005 and 2015 in percentage of survey respondents who use food programs, separated by household food security.

(A complete chart of response rates of eligible households participating in food programs from 2005 and 2015 is shown in Appendix 3).

SNAP

To qualify for SNAP, the household's income must be under 130% of poverty line. Of those households that were eligible and food secure, the rate of enrollment increased from 2005 to 2015 by 18% while the rate of households that were food insecure increased even more substantially by 28% (see Figure 8). Huge increases in the use of SNAP from both food secure and insecure households likely means that the program is working well; more people are applying in order to bring themselves out of the insecure brackets or to keep themselves in the

food secure realm. Not many food secure households use SNAP because either they do not qualify or they consider their food situation manageable. Of food secure households who are using SNAP, 8 out of 10 are in the marginal category.

Free and Reduced Breakfast and Lunch

A child's school breakfast and lunch price will be reduced if his or her household's income is under 185% of the poverty line. If that income falls under 130%, the breakfast and lunch will be free. The percent of free/reduced meal utilization by households that meet either of these qualifications has risen from 66% in 2005 to 68% in 2015. This change seems fairly unsubstantial, but it becomes interesting when separated into food secure and insecure households. We noticed that the rate of participation by food insecure households has actually fallen from 92% in 2005 to 71% while the rate of participation for food secure households has substantially risen from 35% in 2005 to 60%. This indicates that the marginally food secure group is looking for assistance while some food insecure households, who need the free meals the most, are facing some sort of roadblock with the application process. Several parents commented that, despite not qualifying financially for free or reduced meals, they still struggle to pay for their children's lunches. As one respondent wrote, "[I] often find it difficult to pay for my son's lunch. [I] do not qualify for free or reduced lunch….[and] often have a high balance at the end of the school year."

The participation of food secure households in free/reduced breakfast increased very substantially from 10% to 51% (n=35). For food insecure households, on the other hand, the rate dropped a slight 4%. This follows the same pattern of participation and enrollment for free and reduced lunch but is perhaps even more shocking. The use of free or reduced breakfast for food secure households has increased fivefold since 2005. This shift may be attributed to the increase in school breakfast programs in addition to the large population of marginally food secure households in Middletown. However even though we know school breakfast programs have been increasing, the rate of participation of eligible food insecure households has decreased since 2005. These findings suggest that even though school breakfast programs are being utilized more, they are still not reaching all of the children in need.

WIC

Eligibility for WIC is established when a woman has a household income under 185% of the poverty line, or is already enrolled in SNAP, TANF or Medicaid and is then deemed "at nutritional risk" by a health professional. She must also be pregnant, breastfeeding, non-breastfeeding postpartum, or caring for an infant or child up to five years of age. Because it is was not possible to determine if the respondent was at nutritional risk from the data we collected, eligibility for this comparison was determined by the respondent's income and whether or not she had a child under the age of five. Thus, these numbers might overestimate the

number of respondents who would actually qualify for WIC, making the comparison to 2005 appear less contrasting than they are in reality.

The usage of WIC by those eligible has declined for both food secure and food insecure over the past ten years. Food secure households have dropped 32%, from 57% participation to 25%, and food insecure households have gone from 67% to 62%. The decline in both groups is likely due to hindering aspects of the eligibility requirements of WIC. The decrease in usage could also be a result of respondents not having access to healthcare professionals; however, most WIC clinics can perform consultation at no cost to the applicant. While only a small number of respondents marked that they use WIC, such a significant decrease (especially amongst food secure households) draws attention to this area.

Nevertheless, while significant, this result could also be linked to the fact that the 2005 report spent copious time recruiting preschool parents to fill out the survey, even offering them free ice cream vouchers for participation. Thus, their response rate of households with children under five years of age was a significantly higher proportion of their survey population than ours, which was garnered from three preschools and from the younger siblings of children in the 12+ primary and secondary schools.

Food Pantries

Because the 2005 report did not measure food pantries by eligibility, stating "these programs do not have eligibility requirements" (Coddington et al., 2005, p.29), we are unable to draw conclusions for food pantries based on eligible participation. However, based on the whole population, there has been a slight decline in usage by both food secure and insecure groups. Participation of food secure households has fallen 1% while food insecure households have decreased their usage 8%. The latter is a more substantial change and shows that there are people in need of assistance who are are not accessing pantries as a resource due to stigma, access, or some other unknown reason. This could also be due in part to the eligibility requirements of food pantries.

Accessibility to Food

(Note: All quotes in the following section are from the comments question on our survey and were written by residents of Middletown in 2015.)

Various factors beyond income may also affect a household's food security--transportation and access to quality grocery stores are just two among many others. Getting to and from a grocery store is crucial to anyone wanting to purchase food for his or her household. *"[I] live in the downtown area and the only market for the folks with no car is very costly. Not enough sales on fresh fruits and veg."*

Only 7% (n=500) of households, ranging in income, did not indicate that they had access to a car in order to get to the nearest grocery store. Those who had limited access to a vehicle relied on public transportation to get to the grocery store. The 23 households that used the bus

ranged in household food security status as well as income, yet most of the households surveyed reported that they did not have an issue with traveling to the nearest grocery store. According to one respondent, *"Middletown and surrounding areas ha[ve] many grocery stores within 5 mile radius."* There was no statistical correlation between owning a car and household food security, but the previous comment from the respondent without a car who had difficulty accessing high quality food without personal transportation suggests this is an issue for some.

In cities like Middletown, the lack of accessible, reasonably-priced grocery stores often prevent families from eating well balanced meals, which can impact a household's food security status. There was a significant correlation between household food security and whether the nearest grocery store was deemed too expensive (r=-.470). *"Fresh fruits and vegetables are too expensive, for a family my size, the lack of funds to buy the appropriate food bring's health problems that sometimes go untreated because lack of health insurance and impossibility to pay for medicines."* The price of groceries can have an impact on whether or not a family has a nutritious diet, and several respondents expressed that healthy eating is over priced. Many comments implied that local grocery stores, such as Price Chopper and Stop & Shop, are not affordable for their household: *"There are only two grocery stores so you have to travel to find good food deals, but because it's a little further, sometimes I do not bother to save gas and go ahead and spend more money than needed."*

Over a quarter of our respondents, ranging across socioeconomic status, reported that the grocery store nearest them cost too much, but this varies by income. We found a statistically significant relationship between income and if the nearest grocery store was deemed too expensive (r=.373). *"Healthy food is impossible to afford these days. We make great money - professional careers- property taxes and economy make us live like we are poor."* The expense of healthy foods prevents some adults from providing a variety of quality produce, dairy, meats, and poultry for their children and others living in their home.

Although there was no direct correlation between perceived food quality and household food security, approximately 21 households claimed that the nearest grocery store did not provide fresh food. One respondent complained that there were *"not enough local products;"* another asked for *"Less bad food n more fruit stands."* Suggesting that fruits and vegetables are too expensive and not always fresh was a common theme for many of the respondents that left comments at the end of the survey. One respondent even hinted that the meats are not safe to eat: *"Middletown Ct stores meats are not healthy for my family we always get sick."* Thus, many respondents had concerns regarding the quality of the food in the local grocery stores.

Furthermore, 11% (n=500) of respondents, comprising both food secure and food insecure households, reported that the hours of operation for a close grocery store conflicted with their schedules. *"Sometimes we eat out because we don't have the time to make a healthy meal or go to store with our work schedules. I wish healthier choices were easier to afford and make."*

While income remains the overwhelming variable in determining food security, these resident comments serve to remind us that other factors may affect food security status as well.

Conclusions

Over the span of ten years, from 2005 to 2015, the rates of very low and low food security in Middletown have nearly doubled while the rate of high/marginal food security has decreased. More than one in five children in Middletown is food insecure today whereas it was less than one in six in 2005. It is important that we consider the implications of our findings and what it will mean for the future of Middletown residents. The disturbing prevalence of food insecurity in Middletown echoes the growth that has occurred across the United States in the last decade. Rates of U.S. food insecurity jumped between 2007 and 2008 by 3 percentage points during the U.S. economic downturn (Coleman-Jensen, 2014), but this nationwide increase alone cannot explain the 16 percentage point differential between Middletown food insecurity in 2005 versus 2015. While the economic downturn certainly played a role, our study searched for other answers that may explain why food insecurity has grown at a faster rate in Middletown than the country average.

The purpose of this study was to assess the food security of homes with children under age 18, evaluate the use of federal and local food assistance programs, and measure factors that limit access to food such as income and transportation. To achieve significant, relatable findings, we used income as an independent variable in comparison to all the other factors that contribute to household food security. Depending on where a household falls in the income brackets, it can potentially qualify for food programs, both federal and local. Household size also affects how many people are bringing income into the house versus how many people are dependent members of the household. Transportation can also impact a household's access to food. Families may be forced to travel farther for less expensive grocery stores, yet every cent spent on gas or bus fare is money not spent on food. Household income was by far and large the factor that most strongly impacted a household's food security. This occurred directly, by affecting the amount of money a household could spend on healthy food but also by influencing access and food aid program eligibility.

Perhaps one of the most notable findings from our study was the size of the marginally food secure population in Middletown. Although this group is essentially food secure, they are on the cusp of being food insecure, and the cost of living (housing, transportation, medical insurance, etc.) often constricts a household's ability to purchase nutritious meals. These households are also impacted by the stresses of living paycheck to paycheck and frequently worrying about putting food on the table.

These households are being overlooked in Middletown because, while they are not classified as highly food secure, they are often too financially stable to be eligible for food programs. However, as noted earlier, it is possible our estimations of the the "marginally food secure" category within the population of households above 185% of the poverty line income bracket may be artificially inflated (see Limitations). Because most of the marginally food secure households do not have access to assistance programs, a gap is forming. On one side of the gap are the households that are food secure - they have enough financial resources to put balanced

meals on the table without having to worry about money or cutting back on food. Meanwhile, there is a group of individuals who once considered themselves food secure yet are slipping into low and very low food insecurity because the cost of living is rising while their income remains the same. Our findings show that there are individuals who are above 185% of the poverty line, who are also in the very low food security category and this is likely because of this gap; they are ineligible for the programs that might provide a crutch for their situation.

Household food security status is based on adults and children living in the home. Breaking down household food security, we found that adult and child food security is directly correlated to income. As previously mentioned, the marginally food secure population is being increasingly impacted by income. Many households within this category are the middle-class citizens of Middletown. These households within the 131%-185% income bracket often contain food insecure adults living with food secure children because parents are sacrificing their own diets before those of their children. In doing so, their children do not have to experience the immediate effects of food insecurity such as hunger, but in some ways the children are still indirectly affected because their parents may be lethargic, irritable, or depressed due to their food security situation. Furthermore, parents living in households below 130% of the poverty line cannot sacrifice their diets further and must begin to cut back on the size of and nutritional value of their children's meals..

Federal and local food assistance programs, for which many marginally food secure households were ineligible, were created to help families in need supplement their normal diet. The standards and requirements established by these assistance programs were put in place to save limited resources only for those who demonstrated substantial need. Ideally, these programs would be made available to all individuals who are food insecure; however, boundaries are drawn at income cutoffs. Households that utilize these food assistance programs should increase in food security, meaning the population of food insecure households in Middletown should decrease. In order to see a significant difference among households with food insecurities, families that qualify for these federal and local programs need to be able to take advantage of them. This study found Middletown has households that could benefit from these programs but do not qualify due to their income and others that do qualify but for face unknown barriers to applying. This shows Middletown needs to find a way to bridge the gap for families who are ineligible for these programs but need the additional assistance.

Despite the fact that there are many households with children without balanced diets, less than half of the food insecure population utilizes the food pantries. Middletown families ranging across all income brackets and all levels of food security claim to have utilized a food pantry within the last year, illustrating that a household's food security status can change within a matter of weeks due to a major life event (such as being laid off, married or fired). We found that households with very low child food security were more likely to use local food pantries than any of the other categories in our study. These findings are consistent with the food security shield created by food insecure parents. When those parents reach a place where they can no

longer manage to protect their children, it is conceivable that they are more likely to reach out to food pantries to help alleviate the situation.

When a household's income is below 130% of the poverty line or if it is receiving additional federal aid, household members qualify for various federal food assistance programs. In this study, a small majority of the respondents living below the poverty line used some form of federal food assistance. Thus, while most parents who struggle to provide balanced meals for their children qualify to receive benefits from federal and local food programs such as WIC, and free/reduced school meals, many households do not utilize these programs. The reason for the lack of participation remains unclear. There are several possible scenarios: (1) families may not understand the opportunities available to them, (2) the paperwork and eligibility standards are too much work or are intimidating, (3) the guardians of the household may be ashamed to admit that they are needy and/or to accept outside help, or (4) the assistance programs do not reach out enough to eligible participants. All of the scenarios are hypotheses and further research needs to be done in this area to provide qualitative data to match the quantitative findings.

Rates of SNAP participation, on the other hand, have increased for both food secure and food insecure eligible households. The use of free and reduced lunch has also increased significantly for food secure households. The food insecure households, on the other hand, are using free and reduced breakfast and lunch at a lower rate than in 2005, which is cause for concern because these groups are the most vulnerable and would greatly benefit from the use of the school meal programs. Furthermore, rates of WIC use by eligible households has declined significantly; this finding, however, warrants a closer look because our data made it hard to determine who was eligible and our sample was primarily drawn from upper-level schools (kindergarten through 12th grade) meaning that many of the Middletown residents who utilize WIC did not take this survey.

Middletown also suffers from grocery store abandonnement. Larger, more affordable grocery stores have moved out of the urban centers and have become inaccessible to the population that needs them the most. Although most of our respondents travel by car to get to the grocery store, many believe that the local grocery stores do not provide them with adequate and affordable food for their families. Consequently, they have to travel a few miles to get to a store that contains quality groceries. While some respondents voiced concerns that some of the stores did not have fresh foods, the biggest concern for most of the respondents is the cost of the goods. Some respondents claimed that these stores are too expensive, especially the fruits and vegetables, and these high prices limit their ability to provide nutritious meals for their household. Middletown needs to find a way to bring more affordable grocery stores to its urban center. Transportation costs, grocery prices, and the shortage of fresh meats and produce also contribute to families feeling the need to reduce nutrition for convenience, deciding to feed lower quality food to their family members.

Food insecurity poses a threat to the well-being of Middletown residents. This research provides a basis for a broader conversation that needs to occur concerning the general welfare of

Middletown residents. As the cost of living steadily rises, it is important to evaluate what major lifestyle changes a Middletown resident will have to make to survive and lead a meaningful and healthy life. Food assistance programs and reasonably-priced grocery stores with fresh food are inaccessible to many of the families that need them, and people are going hungry. The residents of Middletown are concerned for their health and for the health of their children. The current trajectory of this city is heading in a negative direction, and exhaustive efforts will be required to reverse this trend in the upcoming years. Our study was provided with as strong background from the 2005 report, so it is our hope that another decennial survey in 2025 will occur to help further narrate the story behind food trends in Middletown. It is now the task of the MCC and of Middletown residents to raise awareness and provide assistance to the families in Middletown who are struggling to feed themselves.

Appendices

Appendix 1. Schools participating in study

Early Child Care

- Home on the Grange
- Gianelli's
- YMCA

Public Schools

- Macdonough Elementary
- Snow Elementary
- Farm Hill Elementary
- Moody Elementary
- Spencer Elementary
- Bielefield Elementary
- Wesley Elementary
- Lawrence Elementary
- Keigwin Middle School
- Woodrow Wilson Middle School
- Middletown High School

Vocational School

- Vinal Technical High School

Appendix 2. Comparing Effectiveness of Survey Methods

When choosing a reliable method to measure and collect data on food security, we decided to use an internet platform. A number of studies (e.g., Berrens et al. 2001) have argued that telephone surveys have become more difficult to administer because fewer people are responding to them, and telecommunication technology is changing faster than telephone survey methodologies. With the rising popularity of the internet, internet surveys can reach a larger number of respondents than telephone surveys. The internet can also provide more information to the participant than a telephone call. For example, if a participant wants access to additional resources concerning the survey topic without having to explicitly ask the researchers, the participant can view the information in the resources section of the survey. Importantly, internet survey samples were found to be good at matching the population in terms of basic demographic information, though they revealed the expected differences in terms of computer and telephone ownership.

Qualtrics is the internet survey software used in our study. In 2014, Heen et al. presented a study comparing different commercial sites that provide national sampling platforms for conducting online surveys, such as Qualtrics, Survey Monkey and Mechanical Turk. In general, they found that respondents from all three sampling platforms departed somewhat from the respective census profile for the U.S. adult population. Depending on the purpose of the survey research, Heen et al. found that there was an average discrepancy rate of 5 to 10% between particular demographic characteristics of online respondents and their known distribution in the U.S. population, which may or may not be problematic for our study. They found, however, that Qualtrics was inclined to accurately represent respondents who were between 30-59 years of age and Black or African American. Yet, in Berrens' study, the telephone sample appeared to substantially overestimate the percentage of the population with college degrees and to underestimate actual percentages of African-Americans and Hispanics in the population. Furthermore, Heen et al. found that income ranges, a key factor in determining food security, were evenly distributed in the Qualtrics and Mechanical Turk samples. In sum, all three samples performed reasonably well at representing the proportion of U.S. population with incomes in the middle range of the spectrum ($25,000 to $100,000). Qualtrics was also found to have the lowest discrepancy between census data for individuals who had less than a high school degree, individuals who had a high school degree or the equivalent, and individuals who were college graduates. Lastly, Qualtrics was found to have the most accurate sample estimates of population values for residential characteristics, e.g., individuals who lived in a multi-unit dwelling or individuals who lived in a medium sized urban area. All in all, the research found that these online platforms provide an extremely efficient and inexpensive method for collecting national survey data. Heen et al. successfully portrayed that the advantages of online surveys (i.e., efficiency of data collection, lower economic costs and "acceptable approximations to population profiles) by far exceed their disadvantages in terms of external validity. (Heen, 2014)

Appendix 3. Eligible Household's Rate of Participation in Food Aid Programs from 2005-2015

	Food Secure Households		Food Insecure Households	
	2005	2015	2005	2015
SNAP	42.3% (11/26)	60% (9/15)	46.7% (21/45)	74.6% (50/67)
Breakfast	56.7% (17/30)	52.4% (18/35)	70.8% (17/24)	67.4% (62/92)
Lunch	35% (7/20)	60% (21/35)	91.7% (22/24)	71.2% (74/104)
WIC	56.7% (17/30)	25% (2/8)	66.7% (22/ 33)	61.9% (13/21)
Food Pantries	2.5% (6/240)	2.1% (7/338)	46.8% (29/ 62)	38.8% (54/139)

Appendix 4. Participant Consent and Information Form

Dear Parent or Guardian,

The Middlesex Coalition for Children, together with Wesleyan University, is conducting a random voluntary survey to understand food-related issues in Middletown. We hope to count on your participation in this important project and want to thank you in advance for taking the time to do so. Para español, haga clic en la esquina superior derecha.

Your participation in this project is critically important to the accuracy of our study. All responses are completely confidential so please answer honestly. Only the researchers involved in this study and those responsible for research oversight will have access to the information you provide. None of this information will be connected to you by name. The survey should take no more than 10 minutes of your time.

Some of the questions are personal in nature. While we appreciate honesty, please know that participation in this study is completely voluntary. You are free to decline to participate, to end participation at any time for any reason, or to refuse to answer any individual question without repercussion. If you do complete the survey, you will see a link to a raffle where you may enter your personal information to receive a **$100 gift card to the grocery store of your choice**. Your name and information entered for the raffle will be in no way connected with your survey answers.

Your contribution is crucial to help us obtain an accurate representation of the status of food security in Middletown. We hope to better understand food-related issues facing our community, especially where it involves our community's children. We also hope to quantify the number of families participating in federal food programs that qualify their children for direct certification. This information may influence school policy and food programs.

If you have any questions about this study, you may contact the researcher, Eva Jaskoviak, at ejaskoviak@wesleyan.edu with the subject line "MCC Survey Question". If you would like to talk with someone other than the researchers to discuss problems or concerns, or to discuss your rights as a research participant, you may contact Professor Rob Rosenthal, responsible for overseeing the research, at rrosenthal@wesleyan.edu. You may also contact the Wesleyan University Institutional Review Board at
http://www.wesleyan.edu/acaf/support/reviewboard.html

Thank you for helping to complete this important community research project. By clicking the link below, you are confirming that you are 18 years or older, have read the above information, and agree to participate in this study.

Sincerely,
Eva Jaskoviak
Nina Gerona
Morgan Scribner
Geneva Jonathan

Appendix 5. The Internet Survey

[Participant Consent and Information Form (see Appendix 4)]

Household Composition

The following questions concern the people living in the same residence with you, whether related or not.

How many people live in this household including yourself, all adults, and all children?

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

How many children under the age of 18 live in this household?

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

What are their ages? (please list with numbers separated by commas i.e. 4,6)

How many of the children are related to you or are you the legal guardian of?

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

What school(s) does your child/ do your children attend? Mark all that apply. (Leave blank if your child does not attend one of these schools)

- Early Child Care / Preschool
- Macdonough Elementary
- Snow Elementary
- Farm Hill Elementary
- Moody Elementary
- Spencer Elementary
- Bielefield Elementary
- Wesley Elementary
- Lawrence Elementary
- Keigwin Middle School
- Woodrow Wilson Middle School
- Middletown High School
- Vinal Technical High School
- Other

USDA Food Security Survey

The next questions are about the food habits of your household in the last 12 months, from March of last year until now.

Mark whether the following statement was often true, sometimes true, or never true for your household in the last 12 months, that is, since this date last year.

My family and I worried whether our food would run out before we got money to buy more.

- Never True
- Sometimes True
- Often True
- Don't Know / Refuse to Answer

The food we bought just didn't last, and we did not have money to get more.

- Never True
- Sometimes True
- Often True
- Don't Know / Refuse to Answer

We could afford to eat balanced meals.

- Never True
- Sometimes True
- Often True
- Don't Know / Refuse to Answer

We relied on only a few kinds of low-cost food to feed our household's child/children because we were running out of money to buy food.

- Never True
- Sometimes True
- Often True
- Don't Know / Refuse to Answer

We couldn't feed our child/children a balanced meal, because we couldn't afford that.

- Never True
- Sometimes True
- Often True
- Don't Know / Refuse to Answer

Our child/children were not eating enough because we just could not afford enough food.

- Never True
- Sometimes True
- Often True

- Don’t Know / Refuse to Answer

In the past 12 months, did you or other adults in your household ever reduce the size of your meals or skip meals because there was not enough money for food?

- Yes
- No
- Don’t Know / Refuse to Answer

If yes (to the above question), how often did this happen?

- Almost every month
- Some months but not every month
- Only 1 or 2 months
- Don't Know / Refuse to Answer

In the past 12 months, did you ever eat less than you felt you should have because there was not enough money to buy food?

- Yes
- No
- Don’t Know / Refuse to Answer

In the past 12 months, were you ever hungry but did not eat because you could not afford enough food?

- Yes
- No
- Don’t Know / Refuse to Answer

In the past 12 months, did you lose weight because there wasn't enough money for food?

- Yes
- No
- Don’t Know / Refuse to Answer

In the past 12 months, did you or other adults in your household ever not eat for a whole day because there was not enough money for food?

- Yes
- No
- Don’t Know / Refuse to Answer

If yes (to the above question), how often did this happen?

- Almost every month

- Some months but not every month
- Only 1 or 2 months
- Don't Know / Refuse to Answer

The next questions are about children living in the household who are under 18 years old.

In the past 12 months, since March or last year, did you ever cut the size of your child / any of the children's meals because there wasn't enough money for food?

- Yes
- No
- Don’t Know / Refuse to Answer

In the past 12 months, did your child / any of the children ever skip meals because there was not enough money for food?

- Yes
- No
- Don’t Know / Refuse to Answer

If yes (to the above question), how often did this happen?

- Almost every month
- Some months but not every month
- Only 1 or 2 months
- Don't Know / Refuse to Answer

In the past 12 months, did your child / any of the children ever not eat for a whole day because there was not enough money for food?

- Yes
- No
- Don’t Know / Refuse to Answer

Demographic Information

The next questions are for research purposes only and, as with the rest of the survey, your answers will be kept strictly confidential and in no way connected to you.

In which city do you reside?

What was your family's total income before taxes in the past year, including all earnings, cash, benefits, and interest or dividends?

- Below [100% of poverty line]

- [100% of poverty line] - [130% of poverty line]
- [131% of poverty line] - [185% of poverty line]
- Above [185% of poverty line]

Which of the following best describes your race and ethnicity?

- White, non-Hispanic
- Black, non-Hispanic
- Hispanic of any race
- American India or Alaskan Native, non-Hispanic
- Asian or Pacific Islander, non-Hispanic
- Multiracial
- Other

Program Utilization

The next questions are about different things people do when they are running out of money for food in order to make their food or their food money go further.

In the past 12 months, since March of last year, did your child / anyone in this household get food stamp benefits as a part of SNAP (Supplemental Nutrition Assistance Program)?

- Yes
- No
- Don't Know / Refuse to Answer

During the past 30 days, did your child / any children in the household between 5 and 18 years old receive free or reduced-cost lunches at school?

- Yes
- No
- Don't Know / Refuse to Answer

During the past 30 days, did your child / any children in the household receive free or reduced-cost breakfasts at school?

- Yes
- No
- Don't Know / Refuse to Answer

If your household has women OR children under the age of five: During the past 30 days, did any women and/or children in this household get any food through WIC (Women, Infants, and Children)?

- Yes
- No
- Don’t Know / Refuse to Answer

In the past 12 months, did you or other adults in your household ever get emergency food from a church, a food pantry, or a food bank?

- Yes
- No
- Don’t Know / Refuse to Answer

If yes (to the above question), did this happen in the last 30 days?

- Yes
- No
- Don’t Know / Refuse to Answer

In the past 12 months, did you or other adults in your household ever eat meals at a soup kitchen?

- Yes
- No
- Don’t Know / Refuse to Answer

If yes (to the above question), did this happen in the last 30 days?

- Yes
- No
- Don’t Know / Refuse to Answer

I have to travel by car to get to the closest grocery store with fresh fruits and vegetables.

- Yes
- No
- Don’t Know / Refuse to Answer

I have to travel by bus to get to the closest grocery store with fresh fruits and vegetables.

- Yes
- No
- Don’t Know / Refuse to Answer

Our household owns a car that we take to the grocery store.

- Yes
- No

- Don’t Know / Refuse to Answer

The closest grocery store to our house has a wide variety of fresh food.

- Yes
- No
- Don’t Know / Refuse to Answer

The closest grocery store to our house is too expensive for us to afford to shop there frequently.

- Yes
- No
- Don’t Know / Refuse to Answer

The work schedule of myself and/or the members in our household makes it difficult to get to the grocery store.

- Yes
- No
- Don’t Know / Refuse to Answer

Do you have any comments or concerns about access to food programs or grocery stores in Middletown?

We will be conducting a few follow up questions by telephone. Would you be willing to be possibly contacted in the next month for a telephone survey?

- Yes
- No

If yes, please enter your phone number below.

End of Survey

For completing the survey you are eligible to enter a raffle for a $100 gift certificate to a grocery store of your choice. To enter please follow the link below to be brought to the webpage to enter the drawing. Limit one entry per household. Identifying information will be collect in order for us to be able to contact you in case your are selected. However this information will remain completely separate and have no ties to this survey.

Link to Raffle

Thank you for your time and for helping with this community project. If you would like, you will be able to read the final report this May at the Center for Community Partnerships library at Wesleyan University and online at the Middlesex Coalition for Children website. Or, sign up to receive the final report by email.

Are you interested in finding out more about food programs in the area? Looking to build a relationship with a food and hunger program? If so, we encourage you to check out the out the following resources:

End Hunger CT's mission is to eliminate hunger in the state through legislative and administrative advocacy, outreach and public education. As a statewide anti-hunger and food security organization, they work in partnership with Connecticut Food Bank, Foodshare, food pantries and other food security organizations, legislators, coalitions and advocacy groups to increase access to federal nutrition programs in Connecticut.

2-1-1 Connecticut is your one-stop connection to the local services you need, from utility assistance, food, housing, child care, after school programs, elderly care, crisis intervention and much more. 2-1-1 is always ready to assist you find the help you need. Dial 2-1-1 or search online.

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